SE | SPRATT EMANUEL
ENGINEERING LTD.

2348 Yukon Street
Vancouver, BC
Canada V5Y 3T6
Phone 604 872-1211
Fax 604 872-1274

Our File No. S03-092
July 24, 2003

Strata Corporation VR 2781
c/o The Wynford Group
#202 – 5704 Balsam Street
Vancouver, B.C V6M 4B9
(Fax: 604-261-9279)

Attention: Ms. Irene Hyndman

Dear Madam:

Re: Strata Plan VR 2781 – Westpointe
3210-3280 West Broadway, Vancouver, B.C.
- Building Enveope Condition and Moisture Probe Survey

At your request, Spratt Emanuel Engineering Ltd. have performed a building envelope condition and moisture probe survey at the above development, and our report is attached.

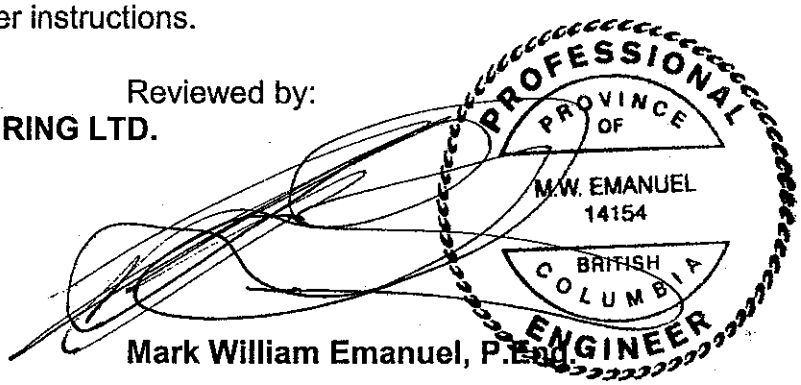
If, after review of this report, you have any questions, please do not hesitate to contact the writer. Further, if the Strata would like assistance with the development of a repair strategy, including design specifications for remediations, tendering, contract administration, and quality assurance reviews, we would be pleased to assist.

Meanwhile, we await your further instructions.

Yours truly,
SPRATT EMANUEL ENGINEERING LTD.
Per:

Jim Fedorchuk
Project Consultant
JF/ls
Encl.

Reviewed by:



Mark William Emanuel, P.Eng.

REPORT ON
BUILDING ENVELOPE CONDITION
AND
MOISTURE PROBE SURVEY

AT
Strata Plan VR 2781 – Westpointe
3210-3280 West Broadway
Vancouver, B.C.

Presented to:

Strata Corporation VR 2781
c/o The Wynford Group
Attention: Ms. Irene Hyndman
#202 – 5704 Balsam Street
Vancouver, B.C. V6M 4B9

Prepared by:

Spratt Emanuel Engineering Ltd.
2348 Yukon Street
Vancouver, B.C.
V5Y 3T6
(Phone: 604-872-1211)
(Fax: 604-872-1274)

File No. S03-092

July 24, 2003

TABLE OF CONTENTS

EXECUTIVE SUMMARY

At the request of Ms. Irene Hyndman of The Wynford Group, Spratt Emanuel Engineering Ltd. (SEE) performed a building envelope condition and moisture probe survey on the north and south elevations of the residential buildings at Strata Plan VR 2781 – Westpointe at 3210-3280 West Broadway, Vancouver, B.C.

The building envelope review was conducted in June and July of 2003 and included visual observations of the exterior wall claddings, roofing and deck membranes, as well as the drilling and coring through stucco claddings to obtain moisture content readings and observe the condition of the underlying wood-frame structure.

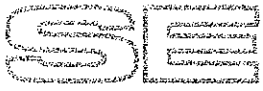
The three buildings reviewed were constructed in 1989 through 1990, and are situated above ground level non-combustible commercial structures, and a one-storey below-grade concrete parkade. The exterior claddings include original regular 3/4-inch concealed barrier stucco cladding, intermixed with areas of remediated rainscreen stucco cladding, which was installed in 1996. Each residential unit has balconies or roof decks which are protected by waterproof membranes, such as sheet vinyl decking, liquid-applied pedestrian traffic membranes, and SBS membranes. The windows and patio doors are double-glazed and have non-thermally broken flanged and rebate type aluminum frames. The roofing systems include tar and gravel and SBS membranes on flat roofs, metal roof cladding on barrel type roofs, and foil backed modified bitumen membranes on the dome roof structure.

During the survey, a total of 190 moisture probes were performed on the north and south elevations of the buildings, of which 138 locations (approximately 73%) were found to be at acceptable moisture levels and without apparent wood rot. 27% of the probed locations did however contain elevated moisture levels and/or various degrees of active fungal growth and wood frame deterioration from surface fungus to complete wood deterioration. The vast majority of problem areas were found on the north and south elevations of the west and center blocks. Only two areas were identified on the east block as having active water ingress and frame deterioration.

The envelope failures observed around these buildings typically occurred beneath window sills and balcony cap flashings, and as well at failed caulk joints between dissimilar materials. In addition to the above, balcony membrane failure is likely at Unit 302, causing wood frame deterioration in the ceiling and walls of Unit 202. Similar problems have been reported on the balcony of Unit 312.

The moisture content readings reported around the building reflect the condition present during the dry summer season. Elevated moisture levels would be expected during the winter months at the typically vulnerable locations in the building envelope, which will promote fungal growth.

Targeted maintenance repairs cannot correct all of the observed defects, and therefore Spratt Emanuel Engineering Ltd. strongly recommend that the Strata should budget for rainscreen cladding renewal on all wall sections which do not currently contain rainscreen cladding. The current conditions will deteriorate if remedial actions are not taken, which will lead to more costly repairs in the future.



1.0 SCOPE OF WORK

1.1 Spratt Emanuel Engineering Ltd. (SEE) were retained by Strata Corporation VR 2781 to perform a building envelope review and moisture probe survey of the non-rainscreened stucco clad north and south elevations of the residential units at 3210-3280 West Broadway, Vancouver, B.C.

1.2 The results of the moisture probe survey have been recorded on Elevation Drawings attached as **Appendix "E":**

- **Green Dots**: Indicate areas where moisture contents were in the range of 19% and lower at levels where fungal growth will not occur.
- **Yellow Dots:** Represent moisture content readings which range between 20% and 29%.
- **Red Dots:** Indicate moisture content levels in excess of 30%, and are considered extreme.
- **Blue Semi-Spherical Dots**: Have been overlaid over the previously mentioned coloured dots at areas where fungal growth and wood frame deterioration were observed.
- **Cores:** Are referenced numerically by Blue Dots which are placed beside the moisture probe location.

1.3 Colour photographs were taken during our site visit and are attached as **Appendix "C"**.

1.4 The findings contained within our report provide an accurate representation of the conditions present at the moisture probe locations during the course of the review. It is not the intent of this report to identify all building envelope failures that may or may not be present under the limited scope of this review.

1.5 The objective of this document is to assess whether or not specific cladding interfaces or assemblies are functioning acceptably. When not, recommendations are provided for their remedies.

2.0 GENERAL DESCRIPTION

2.1 The Westpointe development consists of three, three-storey, wood-framed residential structures, which have been constructed over non-combustible one-storey commercial buildings and a one-storey below-grade parkade.

2.2 The north and south elevations of the Westpointe development are shown in **Photos No. 1 and 2** in **Appendix "C".**

2.0 GENERAL DESCRIPTION – Continued

2.3 A summary of the general description of the buildings is given in the following table:

Building Address	3210-3280 West Broadway, Vancouver, B.C.
Owner	Strata Corporation VR 2781
Property Manager	The Wynford Group
Building Type	Concrete commercial at grade plus three-storey wood-framed
Principal Occupancy	Residential/ commercial – mixed use
Other Occupancy	One level of commercial retail space – separate Strata title
Date of Construction	1989-1990
Applicable Building Code	Vancouver Building By-Law No. 6134, 1990
Number of Suites	59 residential condos, plus approx. 9 commercial units
Type of Construction	Non-combustible commercial and wood-frame residential
Type of Roof System	Tar and gravel/ SBS/ Metal cladding
Sprinklered	Yes – Fully
Window Type	Non-thermally broken aluminum framed, flanged and rebated
Window Colour	White
Site Area	Approximately 50,000 square feet
Floor Area	Approximately 100,000 square feet

2.4 The exterior claddings consist of both 3/4" Portland cement regular concealed barrier stucco, or rainscreen stucco cladding at remediated wall sections. Decorative Exterior Insulation and Finish System (EIFS) trim has been installed over the regular stucco on both cladding system types.

2.5 The flat roof areas have been clad in either a tar and gravel built-up roofing system or SBS torch-on roofing. Arched barrel roofs have been clad with metal roofing and a dome roof has been waterproofed with a foil backed modified bitumen membrane.

2.6 Balcony decks have been overlaid with either sheet vinyl membranes or liquid-applied pedestrian traffic membranes. 2nd storey terrace decks contain a waterproof membrane which is protected by pavers, and were not visible during our review.

3.0 METHODOLOGY

3.1 Spratt Emanuel Engineering Ltd. attended the site on June 25th, June 26th, and July 3rd, 2003 to perform a building envelope condition survey, under sunny skies and with ambient temperatures ranging up to 25°C.

3.0 METHODOLOGY – Continued

3.2 During the course of the moisture probe survey, SEE took moisture probe readings through the exterior stucco cladding to measure the moisture contents contained within the OSB sheathing and wood framing. To facilitate these measurements, a pair of 1/4" holes were drilled through the stucco cladding. Through these holes, probes were inserted from a digital moisture meter to record the moisture contents in the wood sheathing and framing behind the stucco. Moisture meters measure the electrical resistance of the wood sheathing and use a correlation equation to convert this electrical resistance into moisture contents. These moisture meters are considered accurate for moisture content levels below 28%. Readings above 28% can only give a relative estimate of very wet wood substrates.

3.3 Locations chosen for the moisture probes were at typically vulnerable building envelope details, such as windows, balcony saddles, and below cap flashings.

3.4 At locations where moisture contents were high or where wood sheathing was soft, a 3-inch diameter core was drilled through the stucco to visually examine the condition of the wood. Photographs were taken at these core locations and are attached as **Appendix "D"**.

4.0 MOISTURE CONTENT SURVEY

4.1 A total of 190 moisture probes were performed on the exterior of the buildings. 138 of the probed locations contained satisfactory moisture readings below 19% at levels which will not promote fungal growth, and with good resistance against the moisture probes indicating firm plywood and minimal chance for rot (approximately 73% of probed locations).

4.2 Table 2 below shows a breakdown of the moisture contents for the three buildings, referenced as the West Block, the Center Block, and the East Block.

4.0 MOISTURE CONTENT SURVEY - Continued

Block	Elevation	Green Dots M.C. <19%	Yellow Dots M.C. 20-29%	Red Dots M.C. 30%<	Total No. of Dots	Locations with Rot	% Rot Per Elevation
West	North	20	1	1	22	3	14%
West	South	34	9	0	43	15	35%
Center	North	37	1	5	43	12	28%
Center	South	29	8	0	37	18	49%
East	North	19	0	2	21	5	24%
East	South	24	0	0	25	0	0%
Totals		**163**	**19**	**8**	**190**	**53**	**28%**

4.3 To visually confirm the condition of the exterior sheathing, cores were drilled at locations where SEE found elevated moisture levels, soft and deteriorated wood substrates, and at random locations where no indications of water ingress problems were present in order to confirm that no fungal growth is occurring at dry firm probed locations.

4.4 Moisture probe and core locations are shown on Elevation Drawings in **Appendix "E"**. Photographs which were taken of these cores are attached as **Appendix "D"**, and identified with the prefix C- (core) followed by the core location number (e.g. C-1 indicates Core Location No. 1 referenced on the Elevation Drawings).

4.5 53 of the probed and cored locations were found to contain various degrees of fungal growth and wood frame deterioration (approximately 28% of the probed locations). Approximately half of these locations contained advanced wood frame deterioration and structural decay, while the other half contained light fungal growth observed on the surface of the exterior frame materials.

4.6 The building cladding composition includes the following items from the exterior of the cladding to the wood framing below:

- A paint coating
- Acrylic stucco finish
- Areas of Exterior Insulation and Finish System (EIFS)trim
- 3/4" regular Portland cement stucco
- A single layer of Tyvek building wrap
- Exterior sheathing and framing

5.0 VISUAL OBSERVATIONS

5.1 Windows:

.1 Many of the problem locations were at windows which are experiencing a variety of problems. At some locations the window sill and window track weep holes have been buried by the EIFS trim and caulking, preventing the necessary drainage of the window track assemblies (**Photo No. 3, 4 and 5**).

.2 Window sills were observed to be unsealed at their interface to the EIFS stucco window trim (**Photo No. 6**).

.3 The EIFS window trim was observed to be damaged and vulnerable to water ingress at numerous locations (**Photos No. 7 and 8**).

.4 Corner window posts were not well-sealed to the adjoining window units, allowing excess water into the window frame assembly (**Photo No. 9**).

.5 Window head flashings contained no effective end dam to prevent water ingress behind the stucco cladding. Further, the acrylic finish was often sealed to the head flashing, preventing the egress of any incidental water from behind the stucco cladding at the window heads (**Photo No. 10**).

.6 Rooftop punch windows were installed without effective window sill flashings and are vulnerable to water ingress behind the stucco cladding (**Photos No. 11 and 12**).

.7 Extreme deterioration in the wood framing and sheathing was observed through cores beneath windows at Cores 22, 28, 29, 35, 37, 40, and 41. Moderate fungal growth was observed at Cores 3, 7, 23, and 35.

5.2 Cap Flashings:

.1 Balcony cap flashings were found to have no membrane protection beneath the cap flashing at numerous locations (**Photo No. 13**).

.2 Cap flashings were poorly sealed at their seams and at guard rail post fastener penetrations (**Photo No. 14**).

.3 Cap flashings were poorly sealed at their saddle interface to the exterior claddings and at some locations gaps were present in excess of 1/2-inch wide (**Photo No. 15**).

5.0 VISUAL OBSERVATIONS

5.2 Cap Flashings – Continued

.4 Water ingress has occurred through numerous cap flashing defects, causing severe wood frame deterioration at the following core locations: Cores 5, 6, 20, 21, 24, 25, 26, 27, 33, 36, 38, 39, 42, and 45. Minor fungal decay was observed at Cores 2, 8, and 34.

5.3 Balconies:

.1 Balcony copper scuppers were observed to be unsealed at the perimeter of the scupper to the stucco cladding at numerous locations, allowing water to ingress behind the stucco cladding (**Photo No. 16**).

.2 The original balcony membrane coatings have aged and are experiencing water ingress at the interface to the base of the exterior walls at Units 312 and 302. Water testing of the two referenced balconies is recommended to confirm the point of ingress.

.3 Balcony deck membranes were poorly detailed at various locations around the building, allowing water ingress and resulting in fungal growth in the exterior framing (**Photo No. C-8, Core No. 8**).

5.4 Roofs:

.1 The tar and gravel roof is showing signs of age, having minor ridging evident at numerous locations (**Photo No. 17**).

.2 A temporary shed roof has been constructed over a vent pipe penetration through the roof. A white clay type material has been spread around the base of the vent boot, with the appearance of a bentonite waterproofing material to form a temporary water seal.

.3 The BUR membrane is exposed to ultra-violet deterioration around drains where additional gravel ballast is required (**Photo No. 19**).

.4 Minor voids and fish mouths were observed in the detailing of the BUR membrane at scupper locations (**Photo No. 20**).

.5 Roof fascia flashings have become dislodged behind a gutter on the Center Block (**Photo No. 21**).

5.0 VISUAL OBSERVATIONS - Continued

5.4 Roofs - Continued

.6 Accumulations of moss are present at various locations around the rooftop which should be eradicated (**Photo No. 22**).

.7 Metal components on the rooftop are rusting and should be surface cleaned and painted with Galvacon paint (**Photo No. 23**).

.8 A section of metal clad roof has pulled up and away from the roof substrate on the north elevation of the Center Block (**Photo No. 24**).

.9 Gutters are leaking at their seams and their pipe drain locations at numerous areas around the rooftop.

.10 Screw fasteners to the metal clad roofing are rusting and should be cleaned and sealed over to prevent further rusting and possible leakage.

5.5 Interior of Unit 202:

.1 Advanced fungal growth and wood frame deterioration was observed in the east-facing wall above the patio sliding door header, and in the ceiling approximately three-quarters of the way across the living room at the southwest corner of the building (**Photos No. 25, 26, and 27**).

.2 It appears that water ingress is occurring through the balcony membrane beneath the patio door of Unit 302, and at the east balcony parapet of Unit 302. Further flood testing of the balcony will confirm the point of ingress, however the wood frame repairs which are required in these wall and ceiling areas will require the replacement of the roof membrane and re-cladding of exterior walls.

6.0 DISCUSSIONS AND RECOMMENDATIONS

6.1 Moisture probe locations indicate a satisfactory performance of the building cladding at many locations, however most wall areas on the West Block and Center Block do contain zones with wood rot and fungal growth, and therefore most wall areas would need to be opened up and remediated using a rainscreen technology, as has been performed in other areas on these buildings.

6.0 DISCUSSIONS AND RECOMMENDATIONS - Continued

6.2 Only a few locations have been identified on the East Block with active fungal growth, however the detailing is consistent on all three buildings and therefore the probability for future failures and fungal growth is great. **Spratt Emanuel Engineering Ltd. recommends that the Strata budget for total rainscreen cladding of all wall areas which currently do not contain rainscreen cladding technology.**

6.3 The condition of the tar and gravel roof is showing signs of age and will need to be budgeted for replacement within the next five years.

6.4 Liquid-applied balcony membranes have reached the end of their serviceable life and have begun to fail, as is evidenced at Unit 312. The Strata should budget for the renewal of these balcony membranes within the next few years, and ideally be performed at the time of rainscreen re-cladding.

6.5 As the double glazing window panels are reaching the end of their serviceable life, the Strata will encounter condensation between window panes, requiring glazing replacement. The cost associated with replacement of glass only will be roughly the same cost as replacing the entire window frame and glass at the time of rainscreen cladding renewal. As well, new windows contain thermally broken window frames which provide greater thermal resistance to heat loss and reduce condensation potential on the interior of the window frames. Therefore, Spratt Emanuel Engineering Ltd. recommend the Strata replace all windows at the time of rainscreen renewal with new thermally broken window framed units.

6.6 The SBS roof membrane appeared to be performing satisfactorily, and likely will continue to do so for the next decade with proper maintenance procedures.

6.7 Spratt Emanuel Engineering Ltd. would be available to prepare specifications, obtain tenders, and carry out reviews during progress of the work recommended above.

Prepared by,
SPRATT EMANUEL ENGINEERING LTD.

per

Jim Fedorchuk
Project Consultant
JF/ls
Encl.

Reviewed by:

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
M.W. EMANUEL
14154

Mark W. Emanuel, P.Eng.

July 24, 2003

GLOSSARY OF TERMS

There are a number of building construction terms used in this report that may not be familiar to the average reader, therefore they are described below for reference purposes.

Balcony refers to a horizontal surface generally exposed to the outdoors and projected from the building so that it is not located over interior areas.

Cladding refers to a material or assembly that forms the exterior skin of a building wall.

Drained Cavity (or rain-screen) refers to a building cladding system installed in such a way as to provide a space between it and the wall sheathing beneath. The space, or cavity, is usually vented at each floor level and provides a path for air circulation and drainage for any incidental water that may enter the wall system.

Efflorescence refers to the dissolved mineral salts, which appear as a white dusty stain on the surface of cementitious materials such as concrete, brick and stucco. Water collects these mineral salts as it passes through the material and deposits them on the surface when it evaporates.

Envelope refers to the exterior portion of those parts of a building that separate interior areas from the exterior atmosphere and include such things as windows, doors, walls, and roofs.

Face-seal refers to a building envelope strategy where the performance of the wall is dependent on the ability of the exterior surface of the cladding/ windows and associated sealant to shed water and prevent any water infiltration. This system cannot easily accommodate water which penetrates past the exterior face, since no positive drainage path or additional continuous barrier to water is provided

Flashing refers to sheet metal or other material used in roof and wall construction which is designed to shed water. Different types of flashing are:

- **Cap flashing** – installed on top of a wall, pier, column or chimney
- **Saddle flashing** – a right angle piece of flashing installed at the transition of a horizontal to vertical surface.
- **Head or sill flashing** – installed at head or sill of a window or other through-wall penetration such as an exhaust vent.

- **Base flashing** – installed at the base of a wall.
- **Step flashing** – installed under one material and lapped overtop of another material below in a shingle fashion.
- **Through-wall flashing** – installed in a rain-screen wall system typically at each floor level. This flashing is intended to shed water from the moisture barrier plane of the cavity to the exterior face of the wall in addition to providing weather protection at the top of each cavity.

Maintenance – refers to a regular process of inspection, repair and renewal of aging and deteriorating materials, products and building systems.

Membrane – typically refers to a continuous waterproof material used to prevent water penetration.

Movement Joint refers to a joint in the building envelope that allows differential movement of portions of the building structure (expansion Joint), or prevents or localizes cracking of brittle materials, such as stucco, where movement needs to be controlled (control joint).

Penetration refers to a hole passing through the building envelope in which ducts, electrical wires, pipes and fasteners are run between inside and outside.

Saddle refers to the transition of small horizontal surfaces, such as the top of a balcony guard rail or parapet wall with a vertical surface, such as a wall.

Scupper – refers to a horizontal drain, which generally passes through a wall. They are typically made up of a piece of pipe or a metal trough.

Sheathing – refers to a sheet material such as plywood, which is used to cover the framing assemblies of a roof or wall system. The sheathing provides structural stiffness in addition to providing backing for the cladding or roofing.

Sheathing Paper refers to a material or combination of materials in an exterior wall whose purpose is to retard penetration of incidental water further into the wall structure once past the cladding. Commonly used materials are building paper and house wrap.

Substrate – refers to an underlying material, supported by studs, which is often relied on for adhesion of the covering material.

UV – refers to ultra-violet radiation (from the sun), which has a degenerative affect on many building materials.

Strata Plan VR 2781 – Westpointe
3210-3280 West Broadway, Vancouver, B.C.

Guide to Moisture Conditions for Colonisation, Growth and Damage by Moulds, Brown-Rot Fungi and White-Rot Fungi [1].

Moisture Content	Colonisation	Growth	Spore Production	Strength Loss
0-14%	None	None	None	None
15-19%	Mould spores (few species)	Very slow	Negligible	None
20-24%	Mould spores Brown rot, mycelial cords[2]	Slow Slow	Minimal Slow	None Very slow
25-29%	Mould spores Brown rot, mycelial cords[2] Brown rot, mycelium[2] White rot, mycelium[2]	Moderate Moderate Slow Very slow	Moderate None None None	None Slow Slow Very slow
30-49%	Mould spores Brown rot, mycelial cords Brown rot, mycelium White rot, mycelium Brown rot, spores White rot, spores	Fast Fast Fast Slow Fast Slow	Prolific Limited[3] Limited[3] Limited[3]	None Fast Fast Slow
50-89%	Mould spores Brown rot, mycelial cords Brown rot, mycelium White rot, mycelium Brown rot, spores White rot, spores	Fast Fast Fast Fast Fast Fast	Prolific Limited[3] Limited[3] Limited[3]	None Fast Fast Fast
90-160%	Mould spores Brown rot, mycelial cords Brown rot, mycelium White rot, mycelium Brown rot, spores White rot, spores	Fast Slow Slow Fast Slow Fast	Prolific Limited[3] Limited[3] Limited[3]	None Slow Slow Fast
>160%	Not possible	None	Minimal	

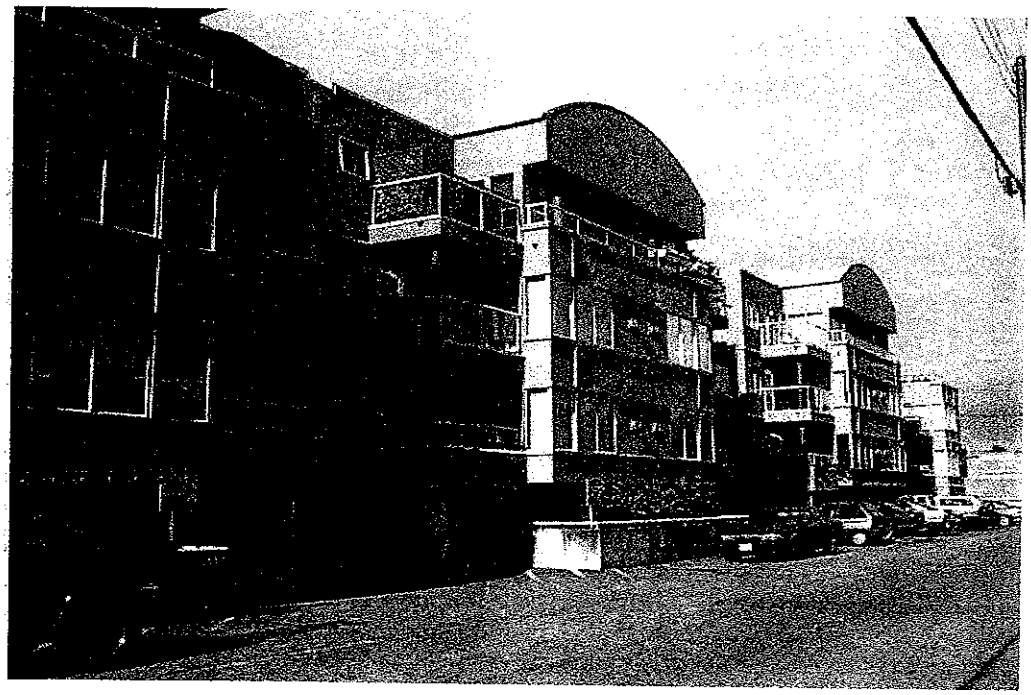
Notes:

1. These are guidelines for typical conditions and there are no hard and fast moisture content boundaries. Wood moisture contents are rarely uniform and there is a great deal of variation in moisture requirements among species of fungi. The critical moisture conditions also vary with temperature and wood density. Temperature fluctuations can cause condensation leading to an increase in wood moisture content.
2. Growing from moist wood or soil.
3. In most cases, spores only produced from large fruiting structures.

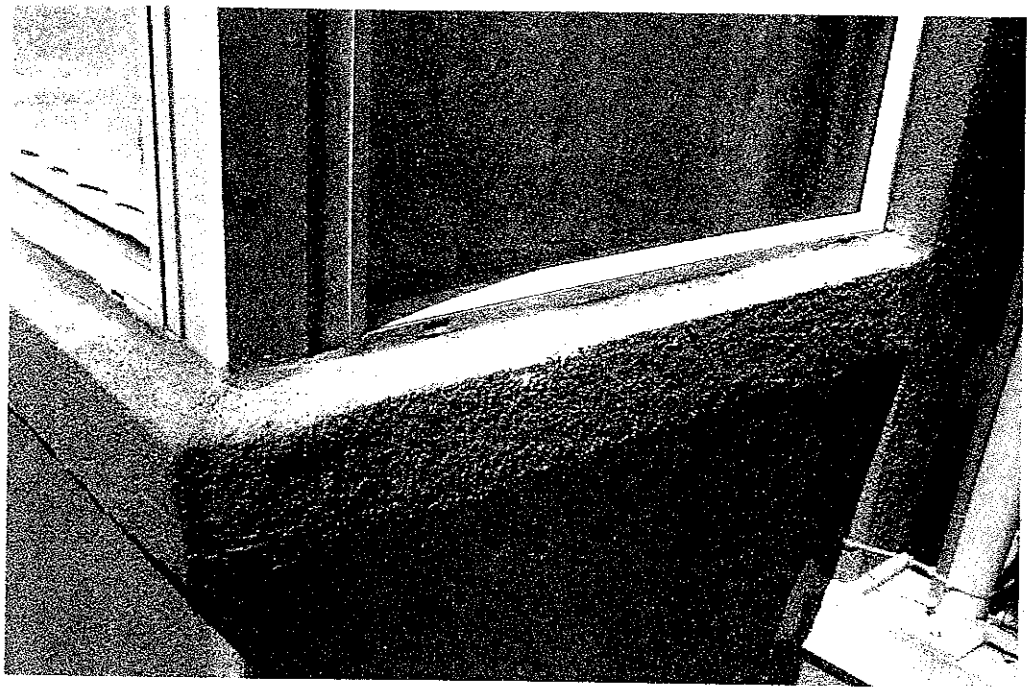
Our File No. S03-092

WESTPOINTE
3210-3280 WEST BROADWAY, VANCOUVER, B.C.
PHOTOGRAPHS TAKEN BY JIM FEDORCHUK, JUNE 25 TO JULY 3, 2003

Photo No. 1 and 2



June 25 to July 3, 2003



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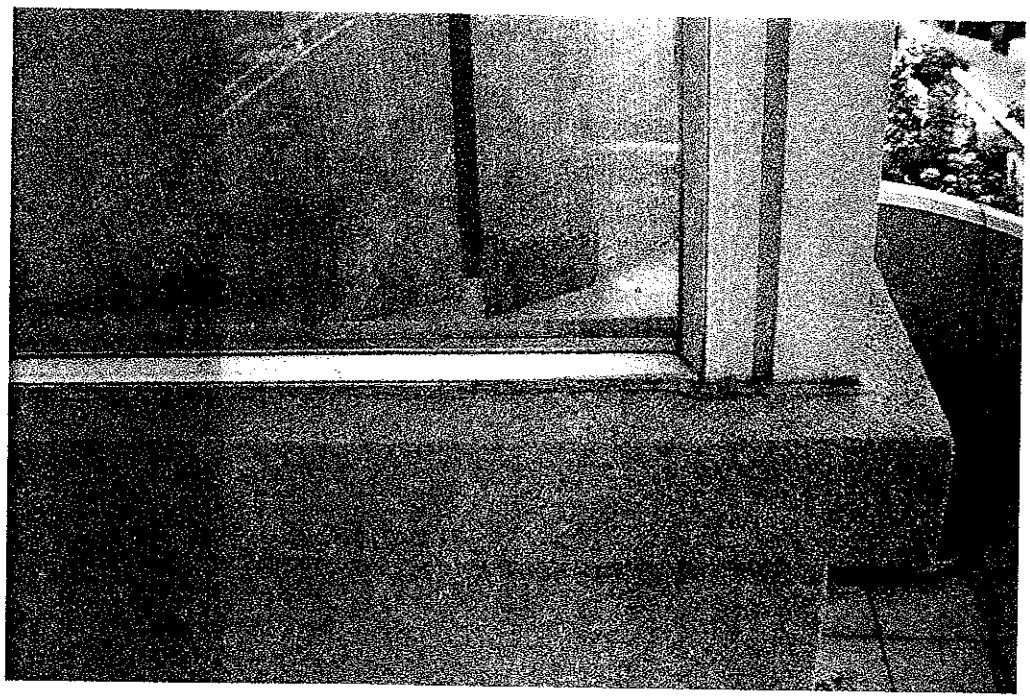

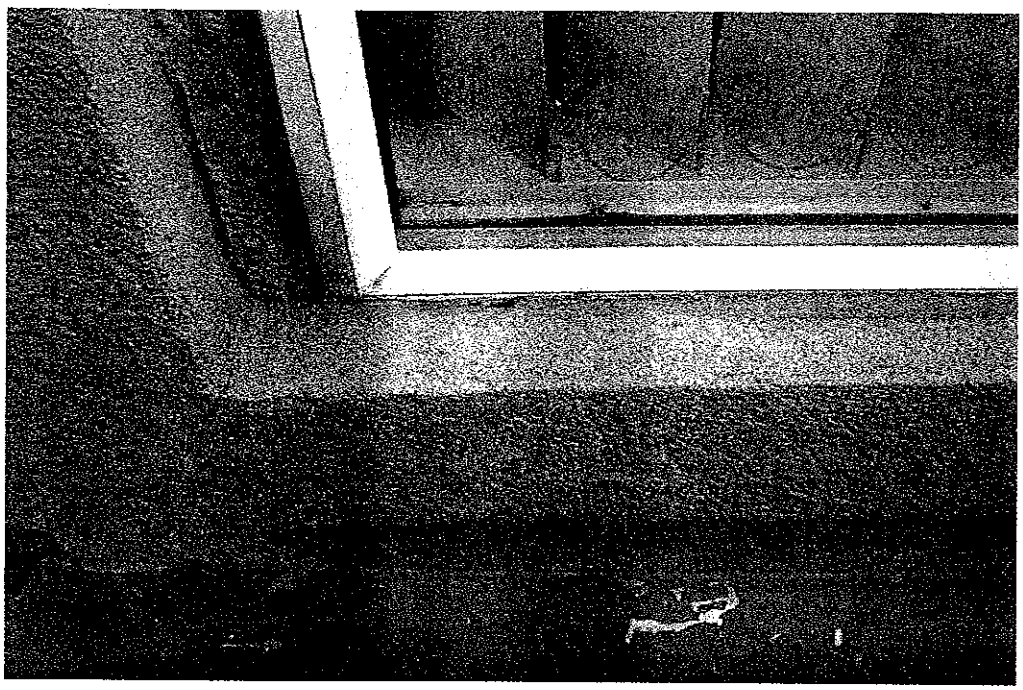

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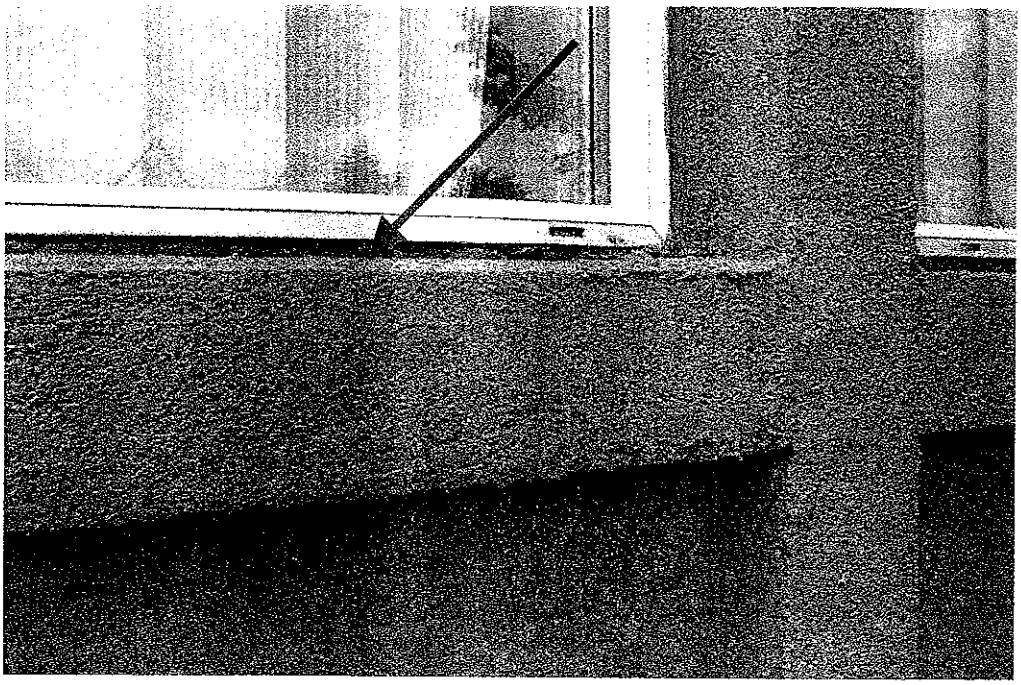

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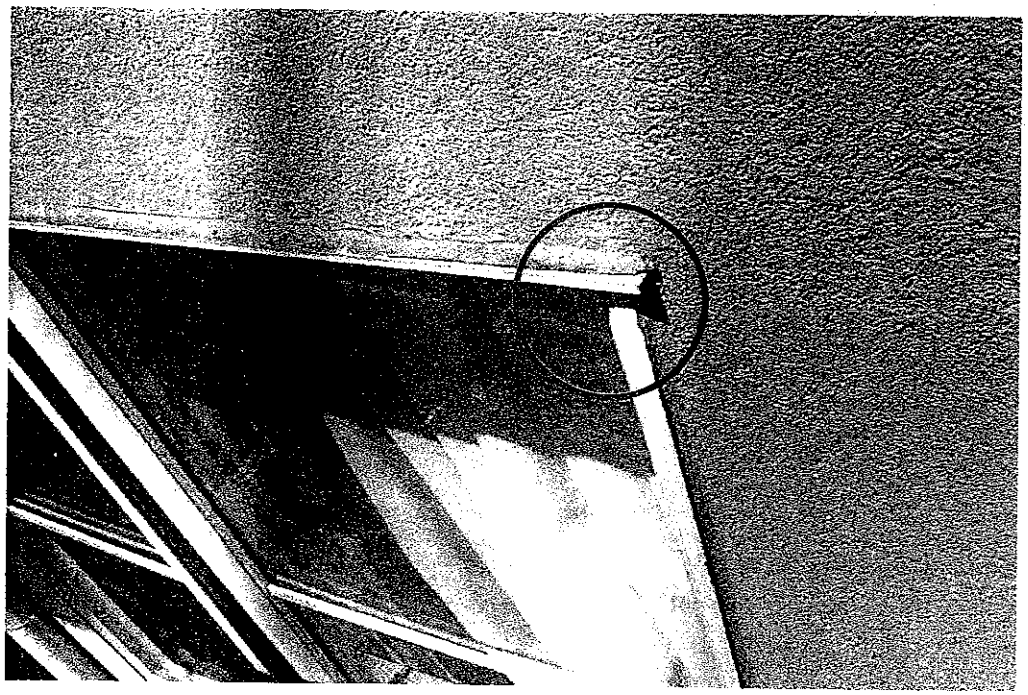
June 25 to July 3, 2003

Photo No. 9 and 10



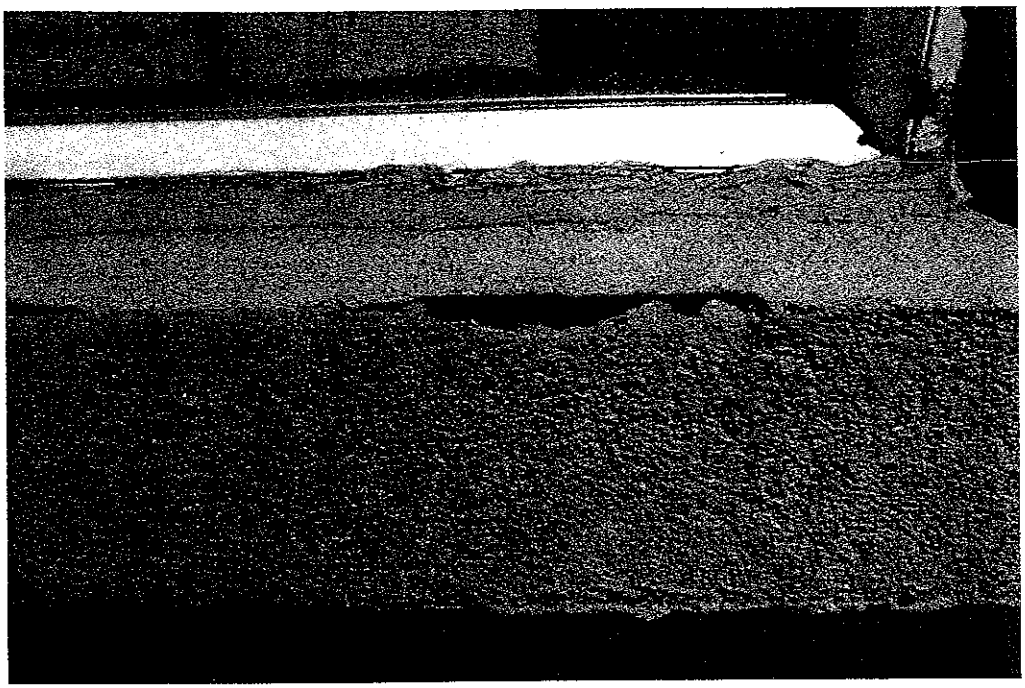
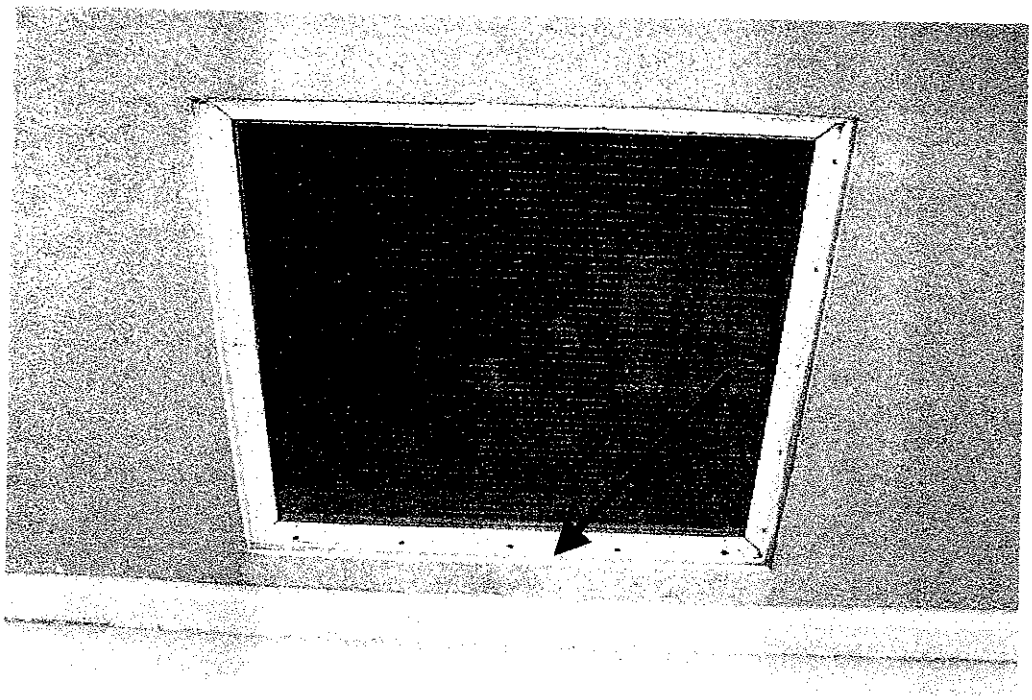


Photo No. 7 and 8

Our File No. S03-092

June 25 to July 3, 2003



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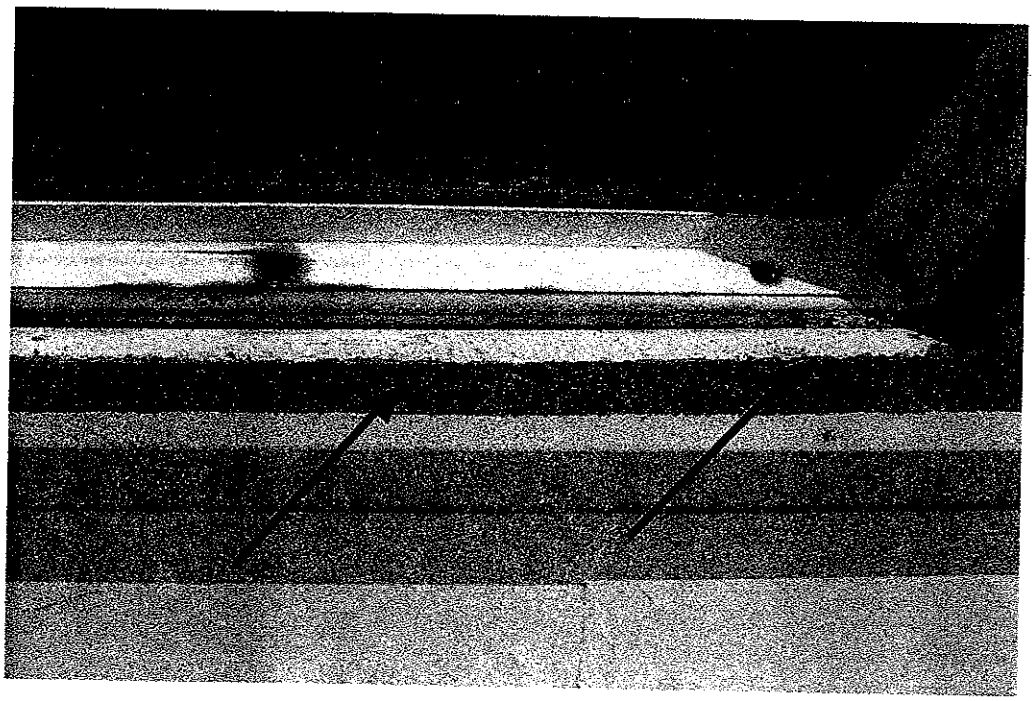

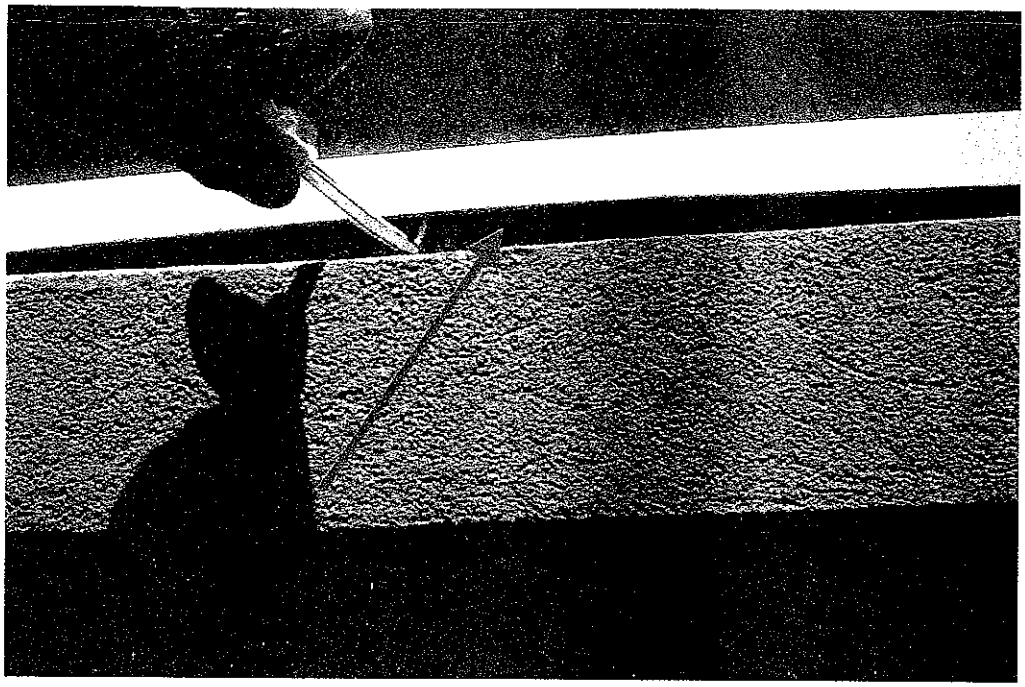

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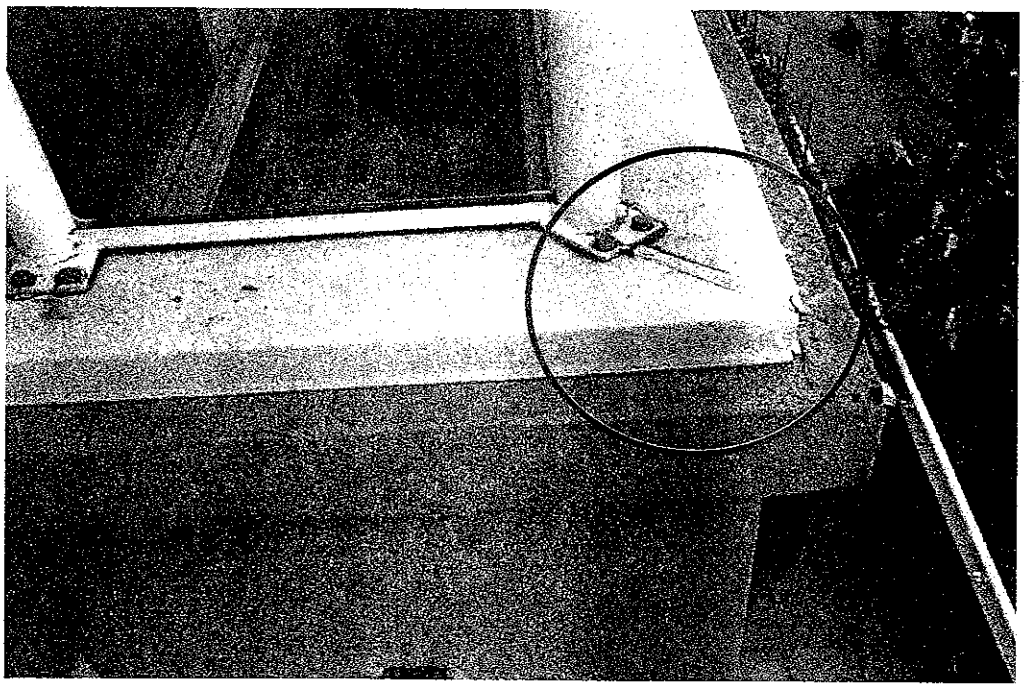


June 25 to July 3, 2003

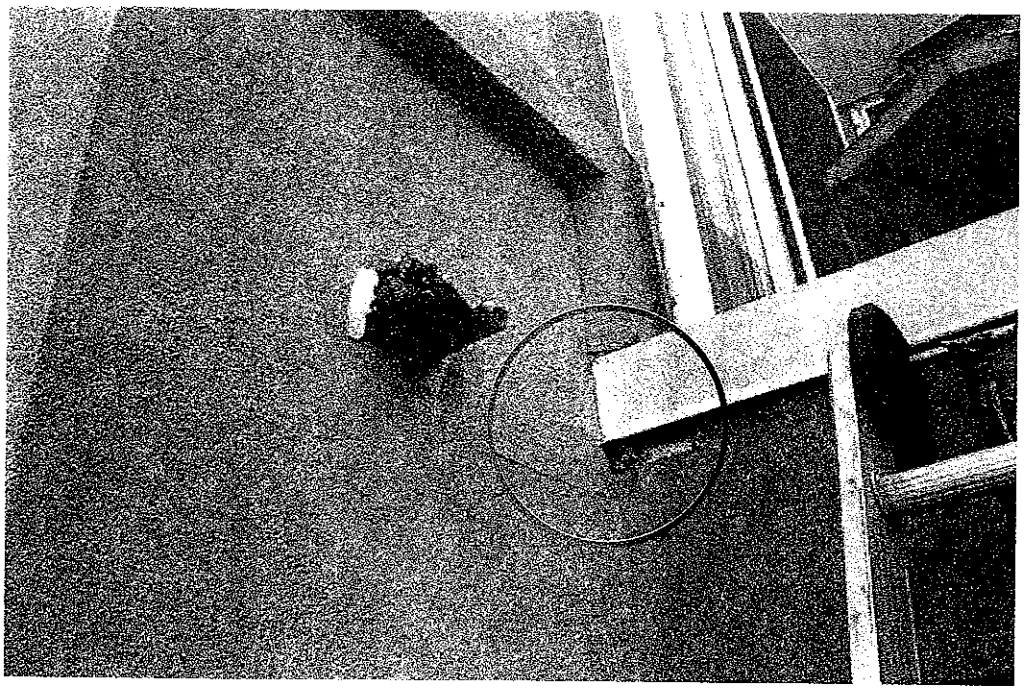
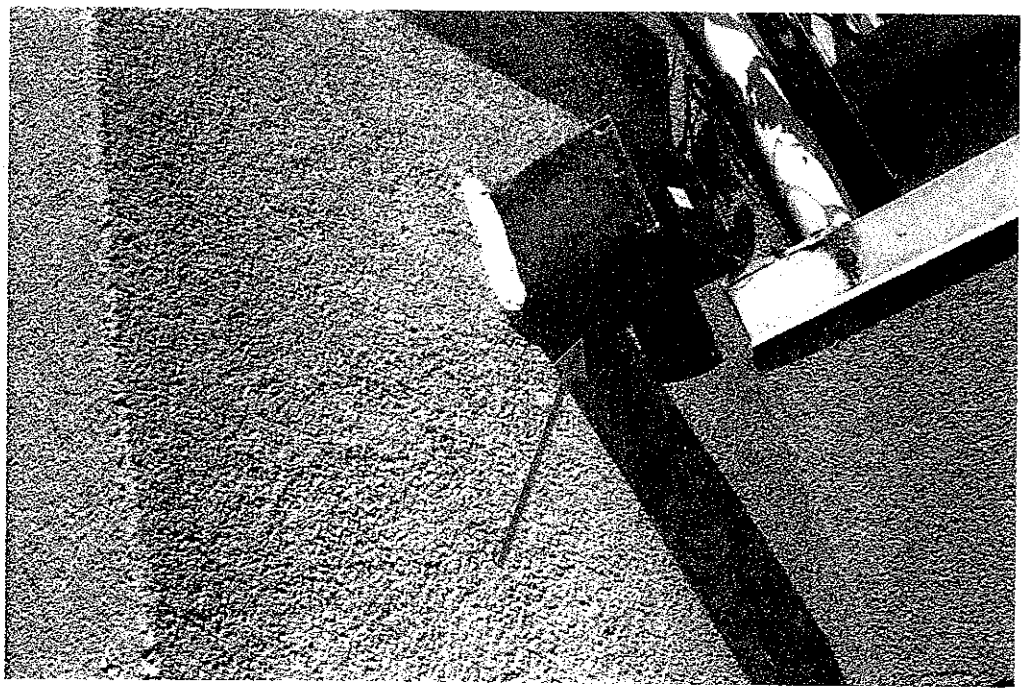


Photo No. 15 and 16



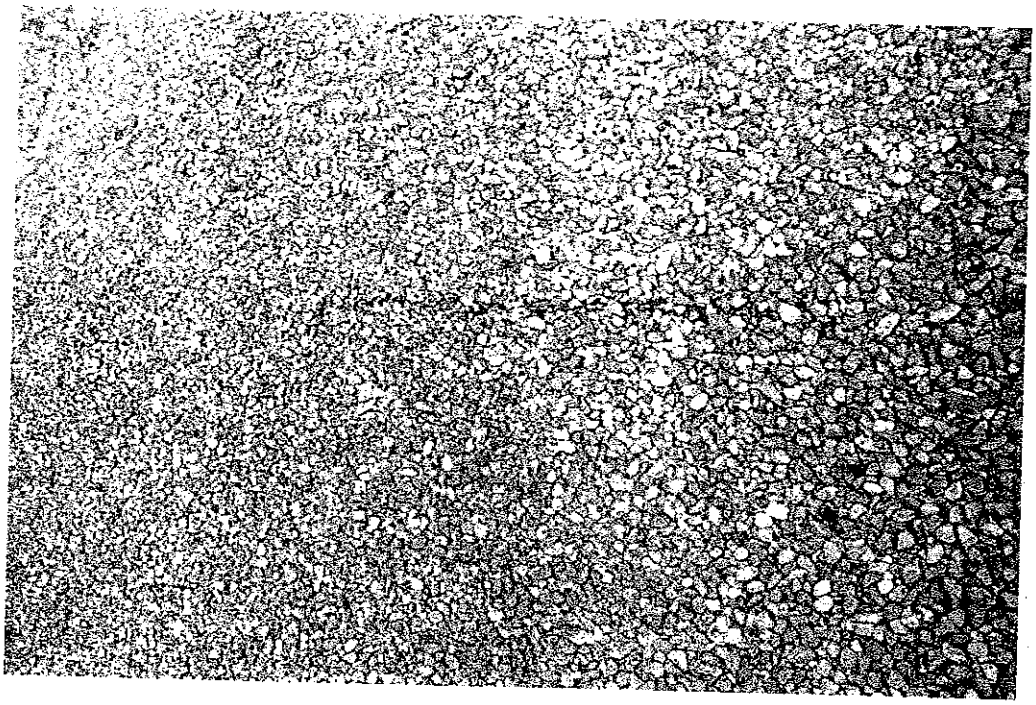


Photo No. 17 and 18

June 25 to July 3, 2003

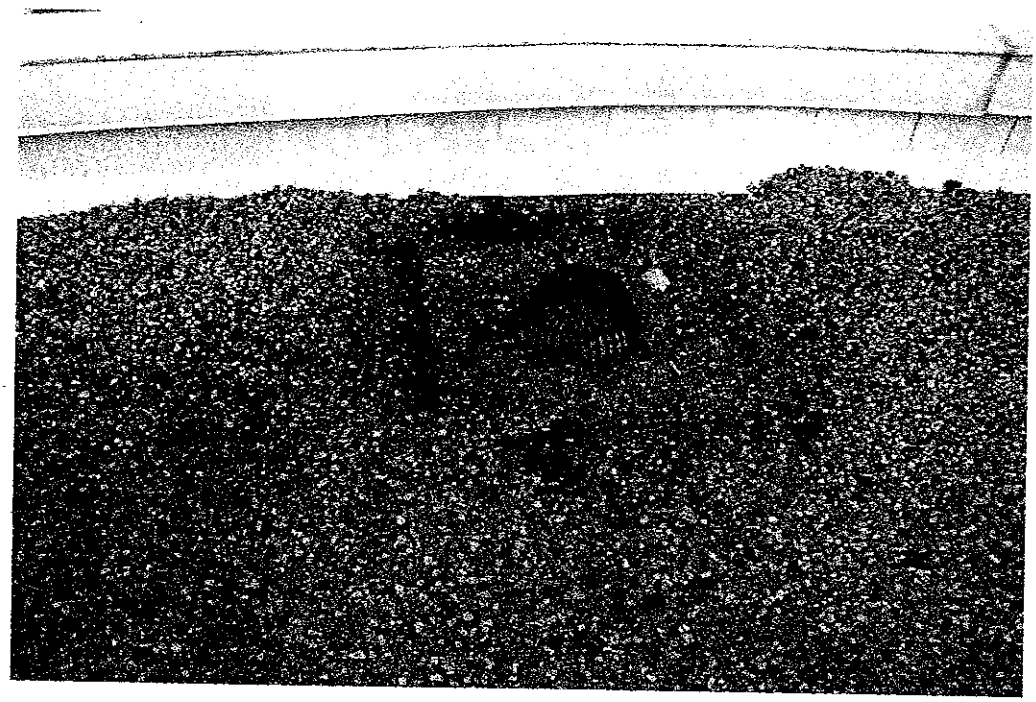


Photo No. 19 and 20

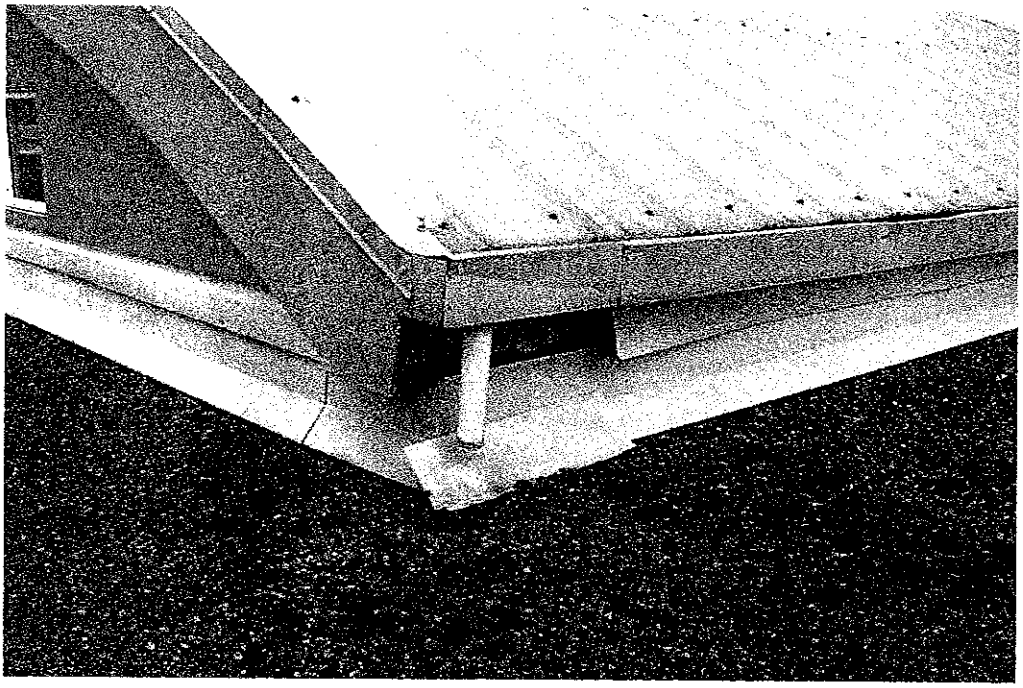
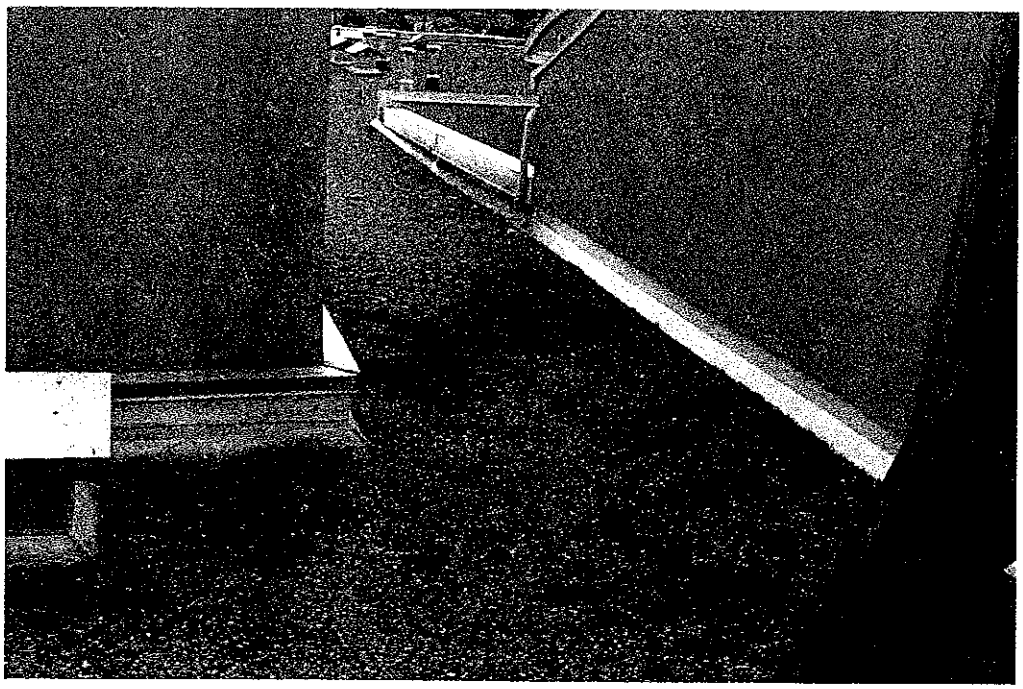


Photo No. 21 and 22



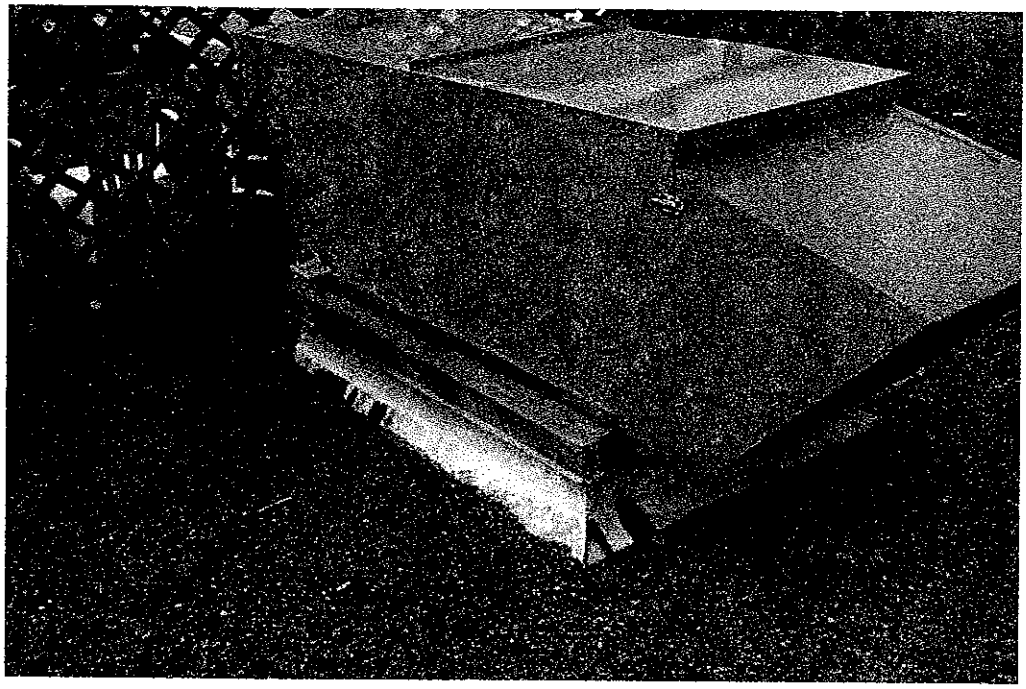
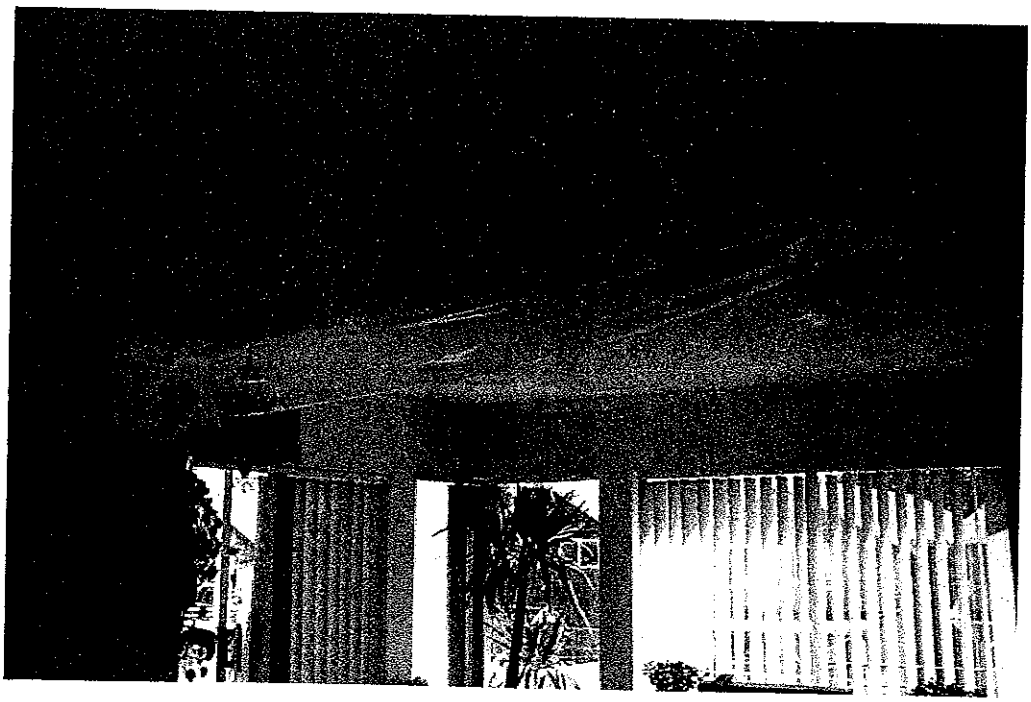


Photo No. 23 and 24

Photo No. 25 and 26



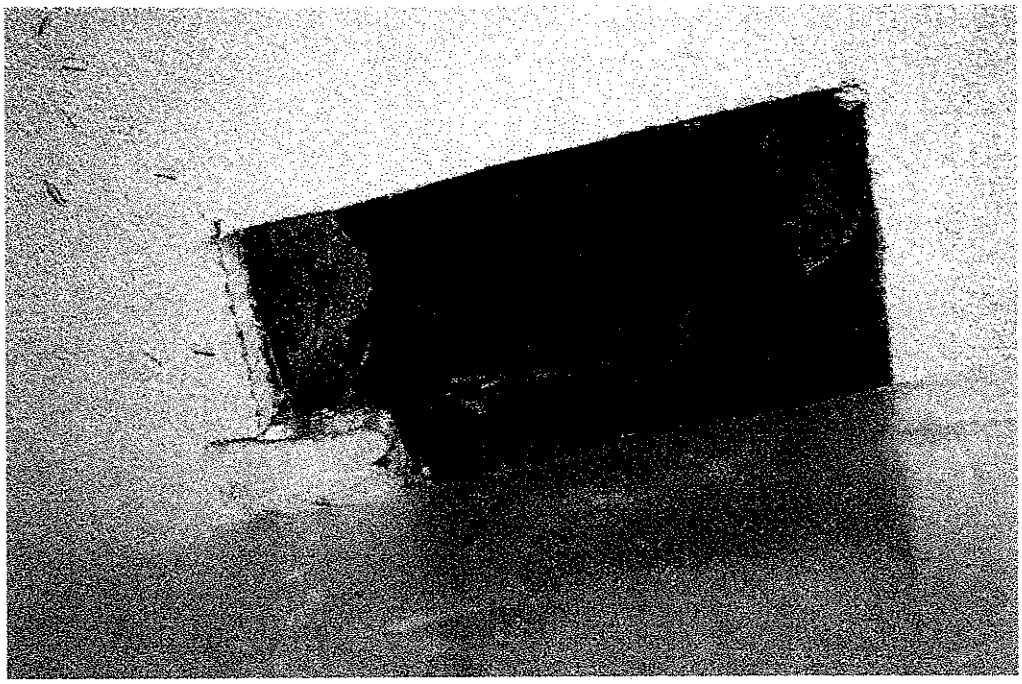


Photo No. 27

Our File No. S03-092

WESTPOINTE
3210-3280 WEST BROADWAY, VANCOUVER, B.C.
PHOTOGRAPHS TAKEN BY JIM FEDORCHUK, JUNE 25 TO JULY 3, 2003
CORES

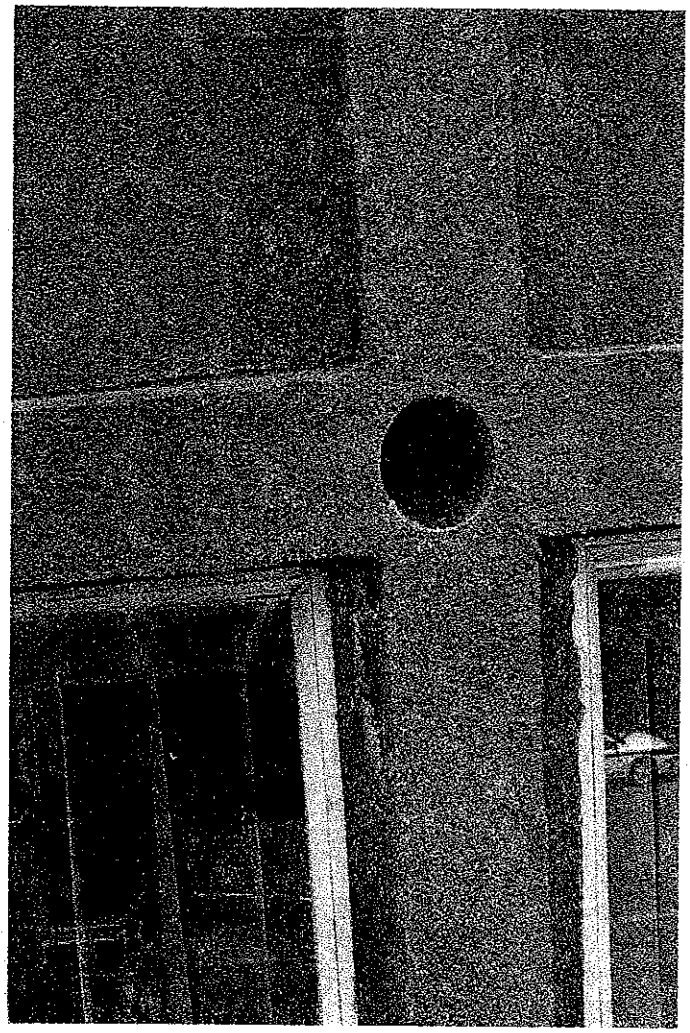


Photo No. C-2 (Core No. 2)

CORES

June 25 to July 3, 2003

Photo No. C-4 (Photo No. C-4)

Photo No. C-6 (Photo No. C-6)

Our File No. S03-092

CORES

June 25 to July 3, 2003

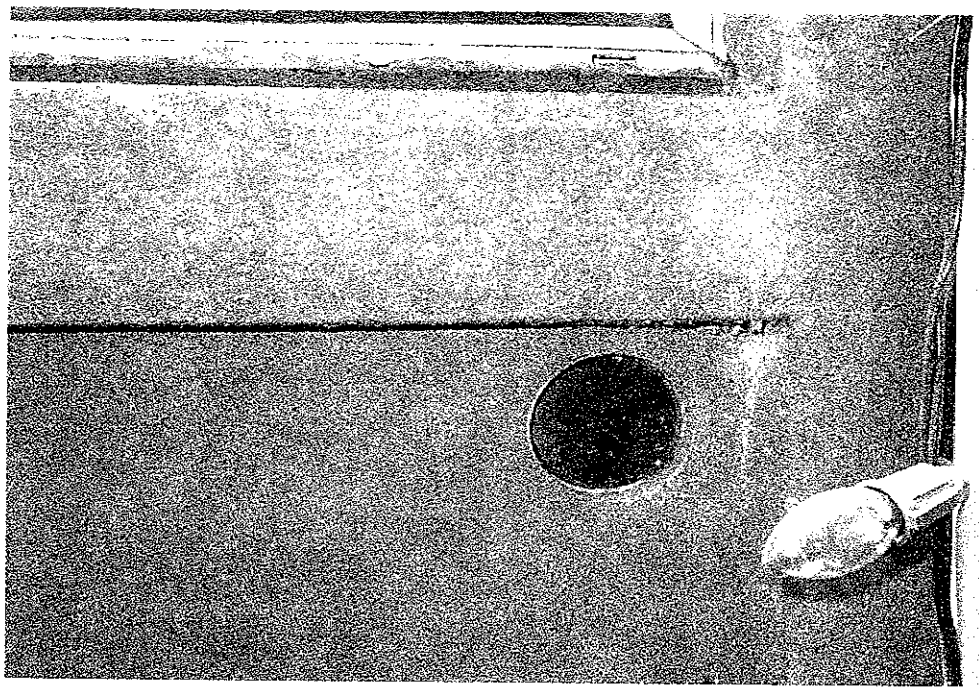


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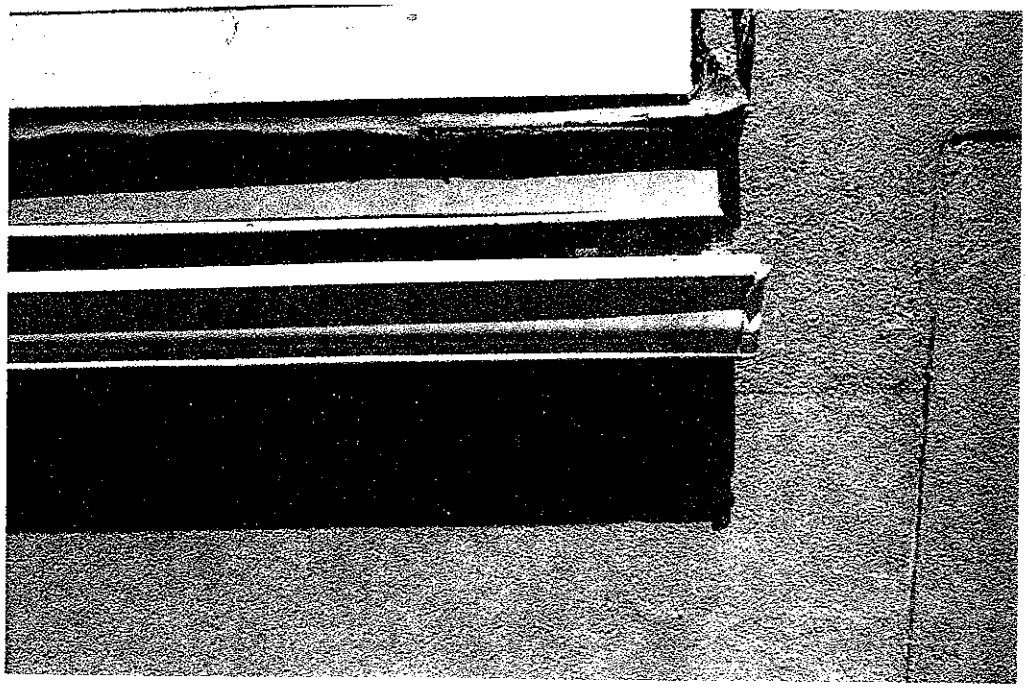
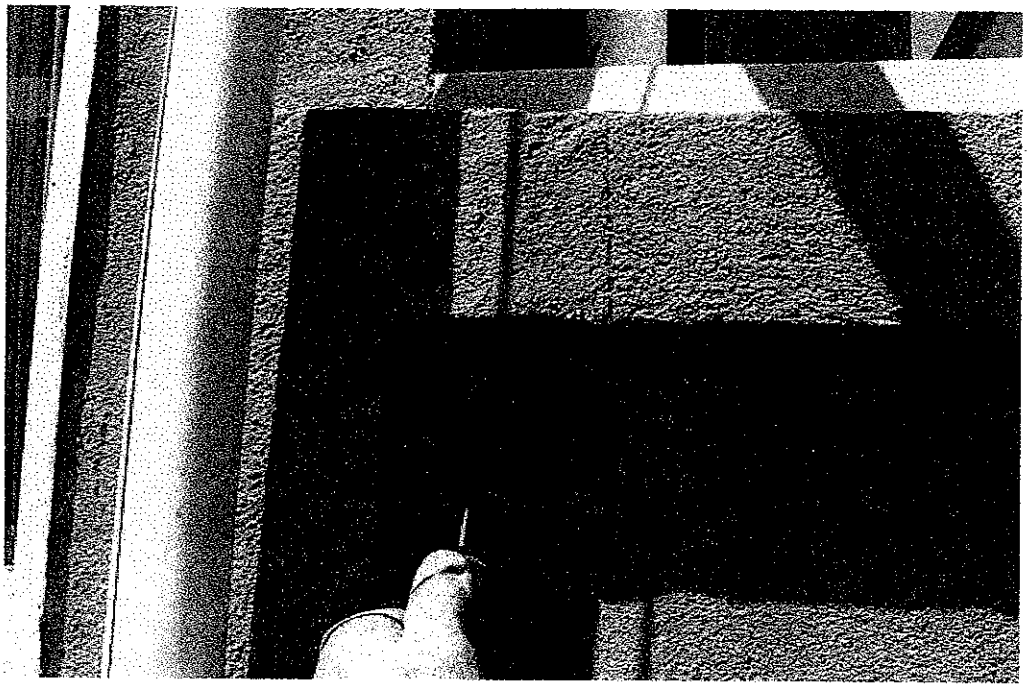
Photo No. C-8 (Core No. C-8)



Our File No. S03-092

CORES
June 25 to July 3, 2003



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Our File No. S03-092

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June 25 to July 3, 2003

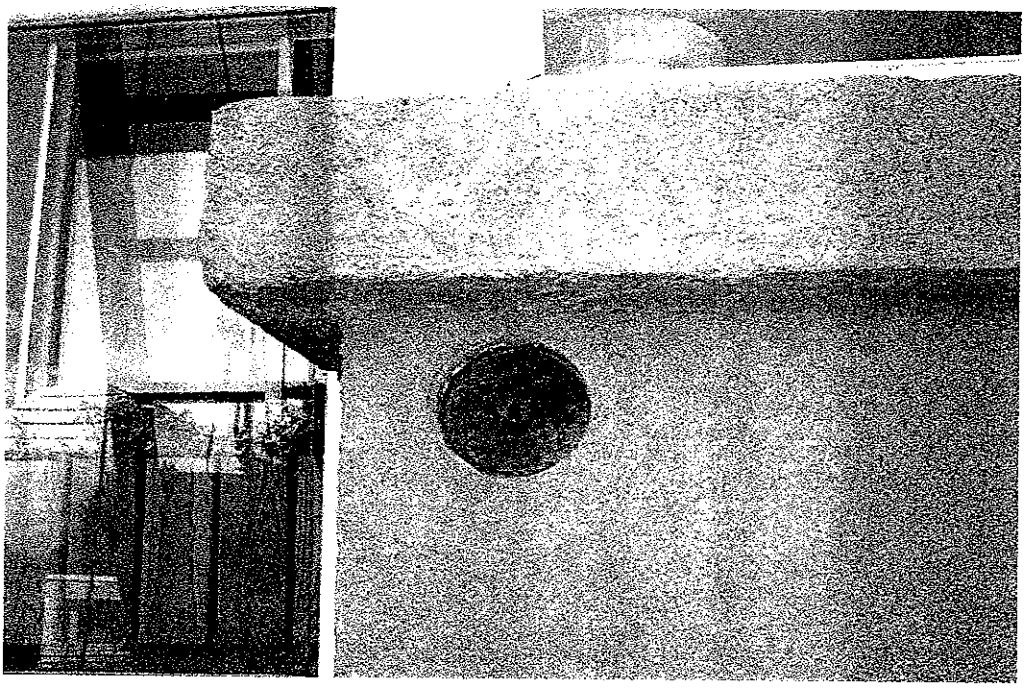
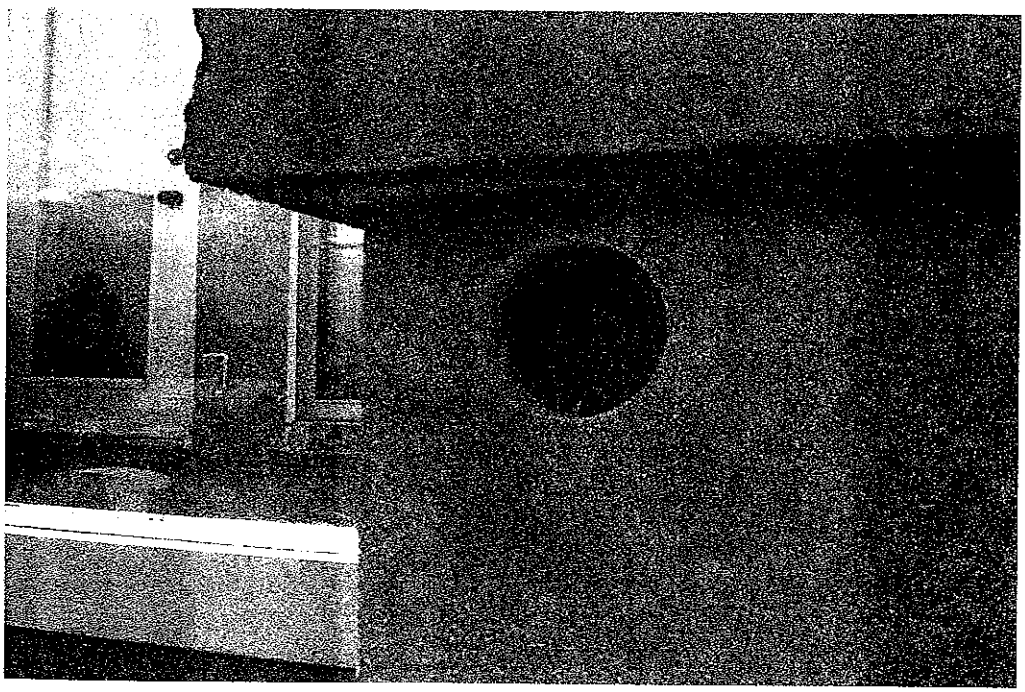


Photo No. C-21 (Core No. 21)

Photo No. C-22 (Core No. 22)



Our File No. S03-092

CORES
June 25 to July 3, 2003

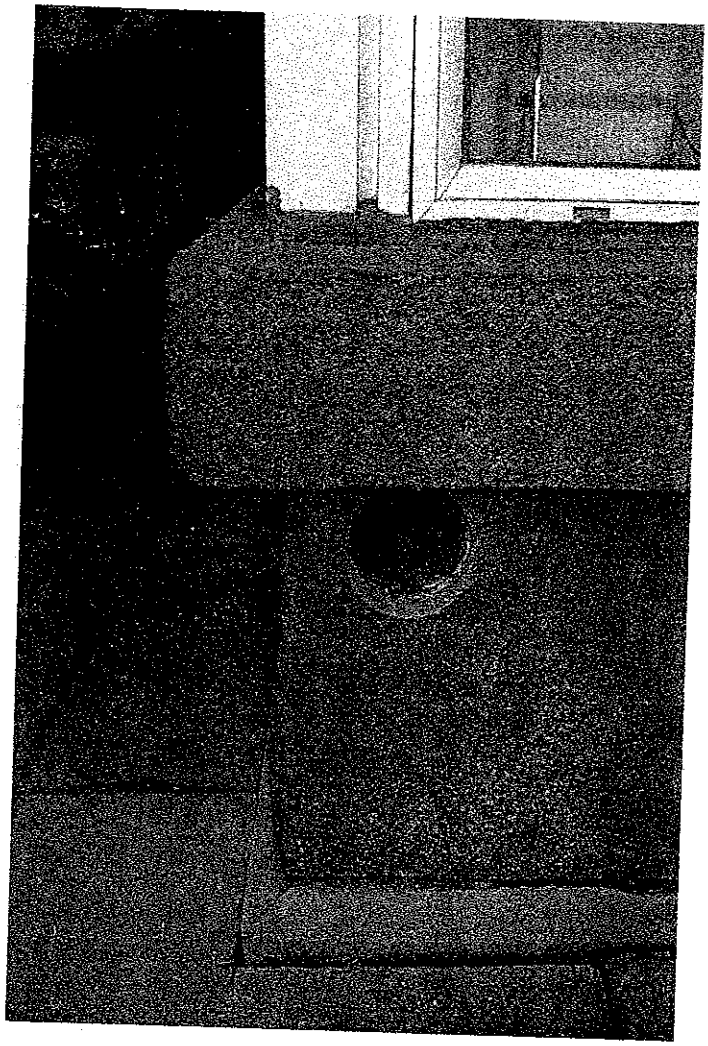


Photo No. C-23 (Core No. 23)