

## GLOSSARY

A number of the terms which are used in this report have specific meaning in the context of this report and are therefore defined below:

**Air Barrier** refers to materials and components that together control the flow of air through an assembly and thus limit the potential for heat loss and condensation due to air movement.

**Assembly** refers to the collective layers of components and materials which together comprise the complete cross section of the wall or roof.

**Balcony** refers to a horizontal surface exposed to outdoors, and intended for pedestrian use, but projected from the building so that it is not located over a living space or acting as a roof.

**Base Flashing** refers to the part of the roofing that is turned up at the intersection of a roof with a wall or another roof penetration. It may be made of the same material as the main roofing membrane or of a compatible material.

**Building Envelope**, now called an environmental separator in Building Codes, refers to those parts of the building which separate inside conditioned space from unconditioned or outside space, and includes windows, doors, walls, roofs, and foundations.

**Cap Flashing** sheds water from the tops of walls. It is difficult to make metal cap flashing waterproof at joints and intersections, and it therefore requires a secondary, continuous and waterproof membrane below it.

**Cladding** refers to a material or component of the wall assembly which forms the outer surface of the wall and is exposed to the full force of the environment.

**Concealed Barrier** refers to a strategy for rain penetration control that relies on the elimination of holes through a combination of the cladding as well as a secondary plane further into the assembly.

**Counter Flashing** prevents water from penetrating behind the top edge of base flashing, and consists of a separate piece of flashing placed over the top of the base flashing. It is usually made of sheet metal.

**Cross Cavity Flashing** intercepts and directs any water flowing down the cavity of a wall assembly to the exterior.

**Deck** refers to a horizontal surface exposed to outdoors, located over a living space, and intended for pedestrian use in addition to performing the function of a roof.

**Deflection** refers to a water management principle that utilizes features of the building and assembly geometry to limit the exposure of the assemblies to rain.

**Drainage** refers to a water management principle that utilizes surfaces of the assemblies to drain water away from the assembly.

**Drip Flashing** directs water flowing down the face of vertical elements, such as walls or windows, away from the surface so that it does not continue to run down the surface below the element.

**Drying** refers to a water management principle that incorporates features and materials that speed diffusion and evaporation of materials that get wet.

**Durability** refers to a water management principle that utilizes materials that are tolerant of moisture.

**Element** refers to a material or component within the assembly intended to perform a function(s).

**Face Seal** refers to a strategy for rain penetration control that relies on the elimination of holes through the cladding.

**Flashing** refers to materials used to deflect water and make water proof connections at interfaces and joints within and between wall and roof assemblies.

**Horizontal Movement Joint** refers to a horizontal joint on a wall which provides capability for differential movement of portions of the building structure (expansion joint) or prevents or localizes cracking of brittle materials such as stucco (control joint).

**Housewrap** refers to a sheet plastic material which is used as a breather type sheathing membrane, generally between the wall sheathing material and the exterior cladding. Although at one time used as a proprietary term, housewrap is now used to represent a generic group of materials. One common type of housewrap consists of Spun-Bonded Polyolefin (SBPO), another is made of perforated polyethylene.

**Maintenance** refers to a regular process of inspection and minor repairs to the building envelope.

**Moisture Barrier** is generally considered to be the surface farthest into the assembly from the exterior which can accommodate moisture without causing damage to the assembly.

**Moisture Content** of wood refers to the weight of water contained in wood expressed as a percentage of the weight of oven dry wood.

**Operation** of the building or envelope refers to normal occupancy of the building where the envelope is affected by interior space conditioning, changes to light fixtures, signs, vegetation and planters, and accidental damage or vandalism.

**Penetration** refers to a intentional opening through an assembly in which ducts, electrical wires, pipes, and fasteners are run from inside to outside.

**Pressure Treatment** refers to a variety of processes for treatment of wood to provide greater durability.

**Rainscreen** refers to a strategy for rain penetration control that relies on deflection of the majority of water at the cladding but also incorporates a cavity which provides a drainage path for water that penetrates past the cladding.

**Saddle** refers to the junction of small horizontal surfaces, such as the top of a balcony guardrail or parapet wall, with a vertical surface, such as a wall.

**Sheathing** refers to a material ( generally OSB or plywood ) used to provide structural stiffness to the wall framing and to provide structural backing for the cladding and sheathing paper.

**Sheathing Membrane** refers to a material in an exterior wall assembly whose purpose is to retard penetration of water further into the structure once past the cladding. Waterproof type sheathing membranes can also perform the function of the air barrier and the vapour barrier. These materials include both breather type sheathing membranes such as sheathing paper and housewraps, and waterproof sheathing membranes.

**Sheathing Paper** refers to asphalt impregnated organic sheet material ( breather type sheathing membrane ) which creates a water shedding surface behind the cladding.

**Stepped Flashing** is installed at the junction between a sloping roof and a wall running parallel to the slope. Both base and counter flashing are overlapped and installed in pieces following the slope to form the complete stepped flashing.

**System** describes a combination of materials and components that perform a particular function such as an air barrier system, or moisture barrier system.

**Through-wall Flashing** refers to a water proof membrane or metal flashing placed under segmented precast concrete, stone masonry or brick units known as copings close to the tops of masonry walls to prevent water from entering the wall at joints in the coping. Through-wall flashing is also used to prevent capillary transfer of moisture through porous materials such as concrete or masonry if they extend from high moisture locations such as below grade.

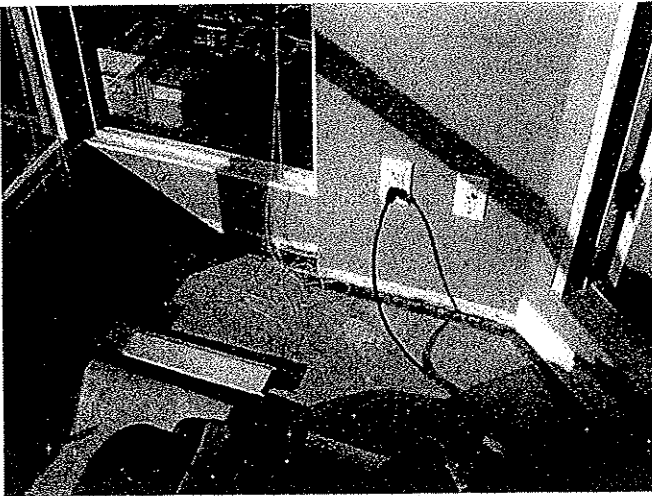
**Valley Flashing** is installed in the valleys of sloping shingle roofs to give continuity to the roofing system.

**Vapour Barrier** refers to a material with low vapour permeability which is located within the assembly to control the flow of vapour and limit the potential for condensation due to diffusion.

**Walkway** refers to a corridor exposed to outdoors which provides pedestrian access between suites and stairwells or elevators. It may or may not also be a roof.

## **APPENDIX A - PHOTOGRAPHS**

**Appendix A - 1188 Richards Street Photos**



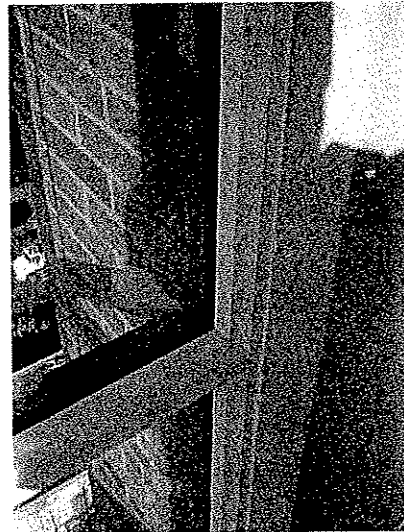
101 1608 south east corner of living room at leak



102 1608 Interior finishes removed at spandrel



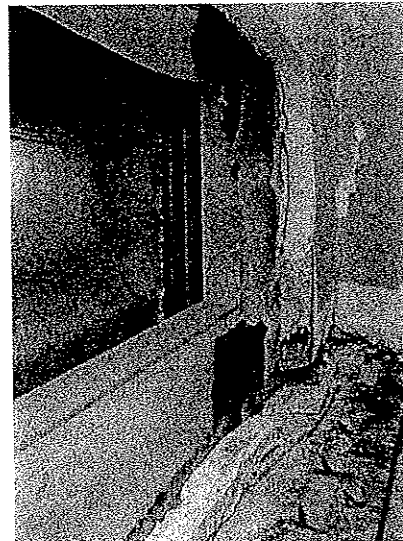
103 1608 Moisture damage at window sill, south east



104 1608 Staining on brock adjacent to interior leak



105 1608 Further staining at window adjacent to



106 1608 showing insulation on back of spandrel pan

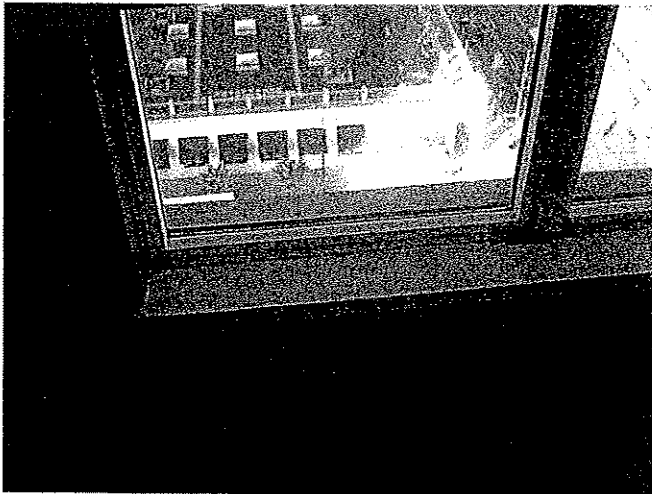
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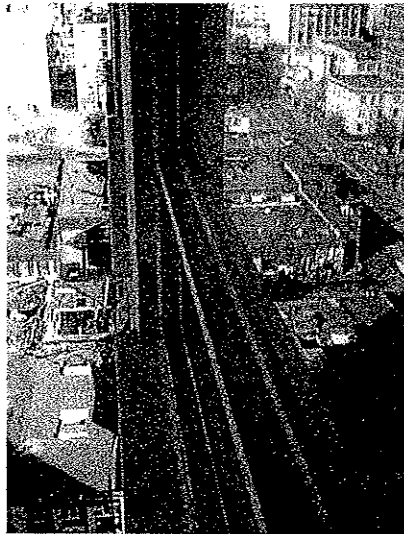
107 1608 window assembly at spandrel pan



108 1608 Window at south bedroom interior



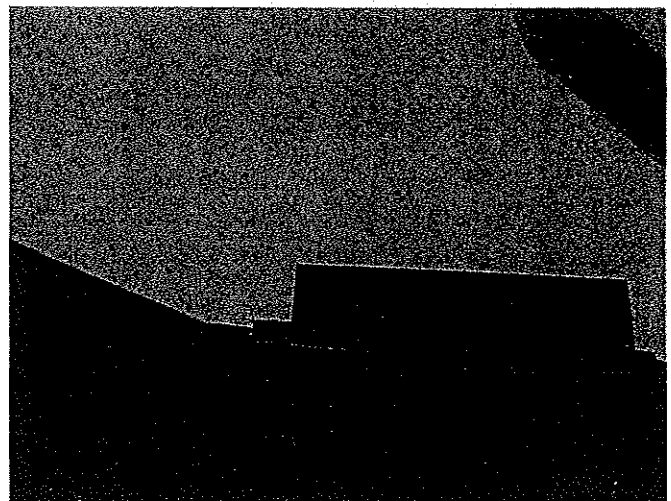
109 1608 Moisture damage on window sill



110 1608 Window at south bedroom

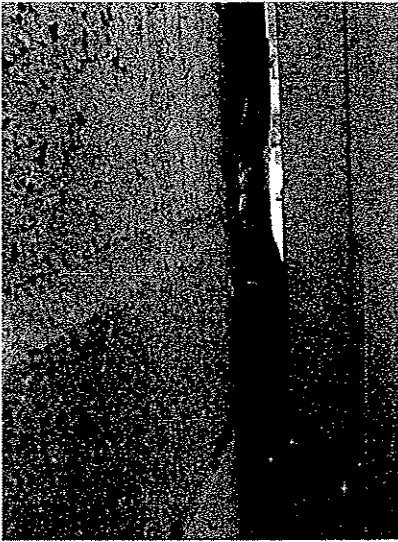


111 1608 window and pre-cast sill



112 1608 Vent above window

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113 1608 sealant and interior finishes at window to



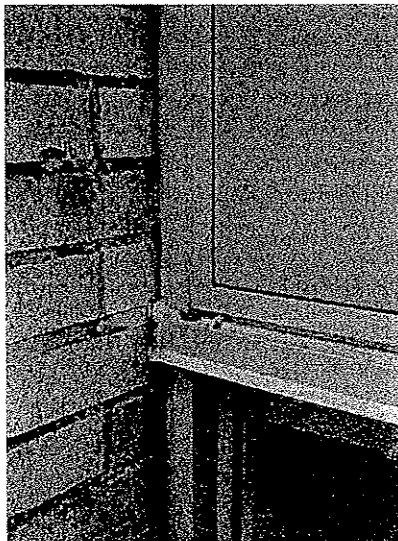
114 1608 showing concrete structure behind brick



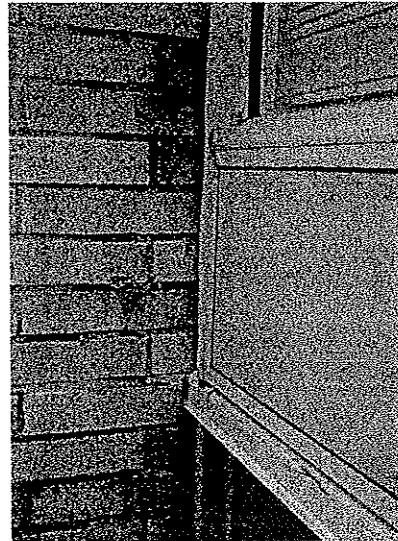
115 1608 showing path to exterior with interior



116 1608 With interior finishes removed at window to

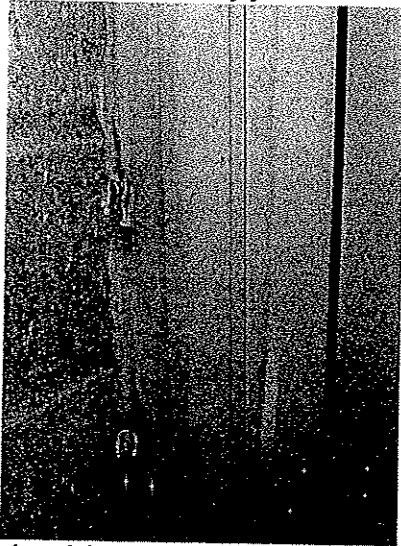


201 1608 brick to window transition showing sealant



202 Moisture at brick to window transition

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203 Sealant failure at window to brick transition



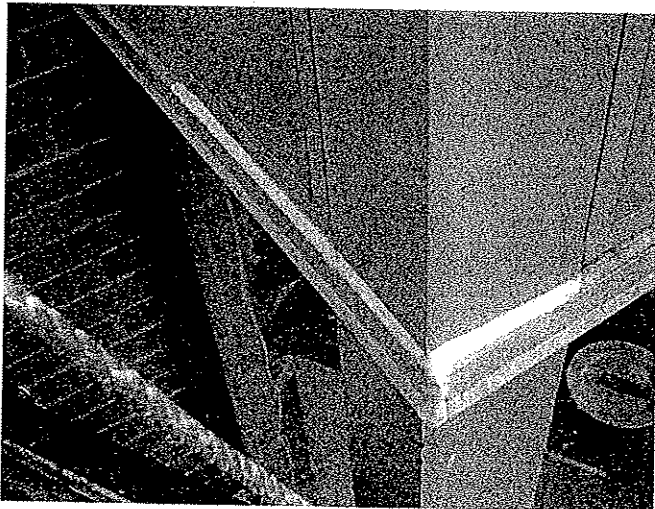
204 Sealant and backer rod at shelf angle



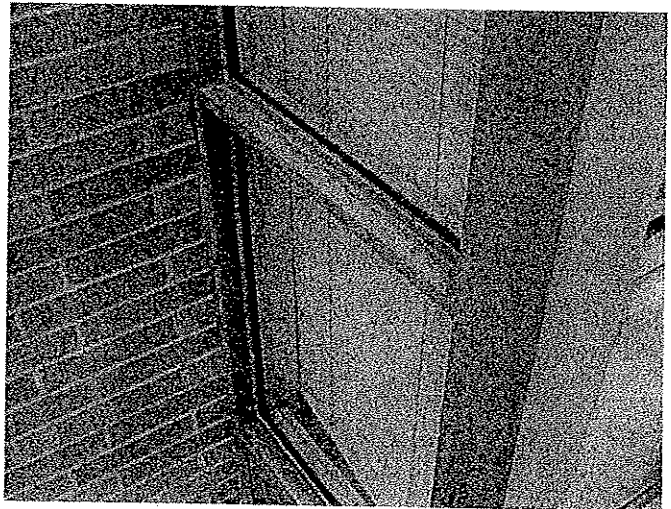
205 1608 sealants removed from shelf angle and



206 Discolouration behind sealant



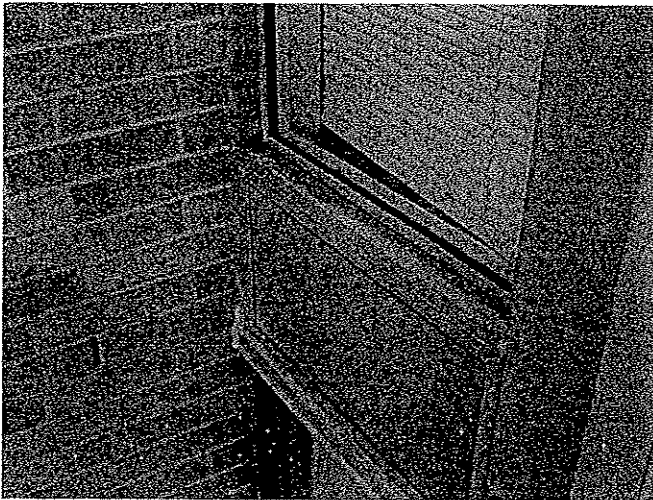
207 Additional caulking at window head, south east



208 Discolouration of window finish at 12th floor



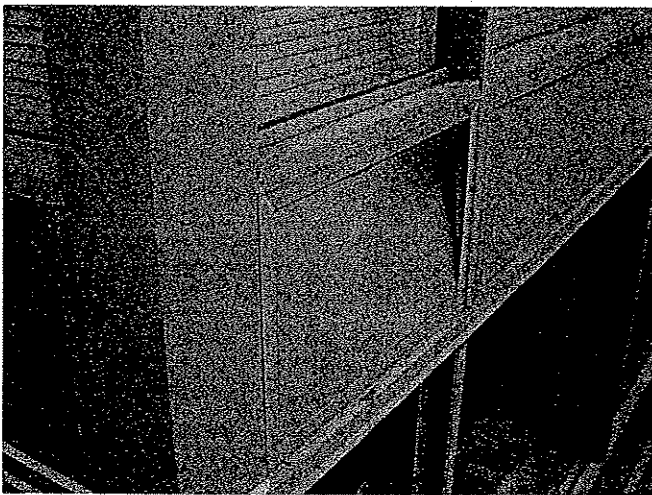
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209 Moisture accumulation on window frame at 8th



210 Moisture behind sealant at leak location of 1608



211 Spandrel damage at lower floor, south east



212 Water accumulation at window frame

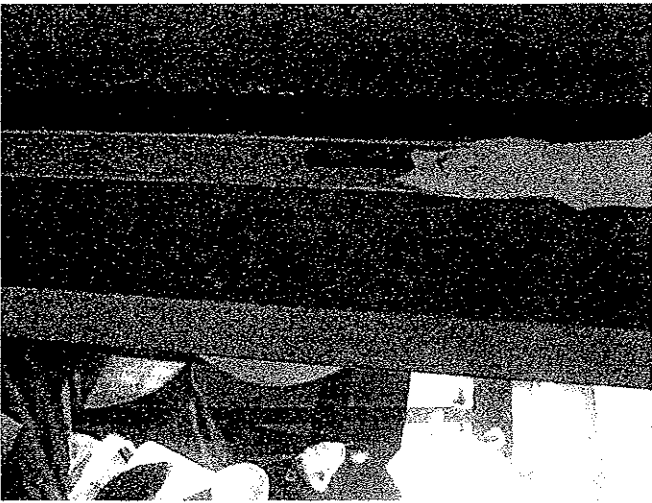


301 Exterior view of 1608 at south east corner

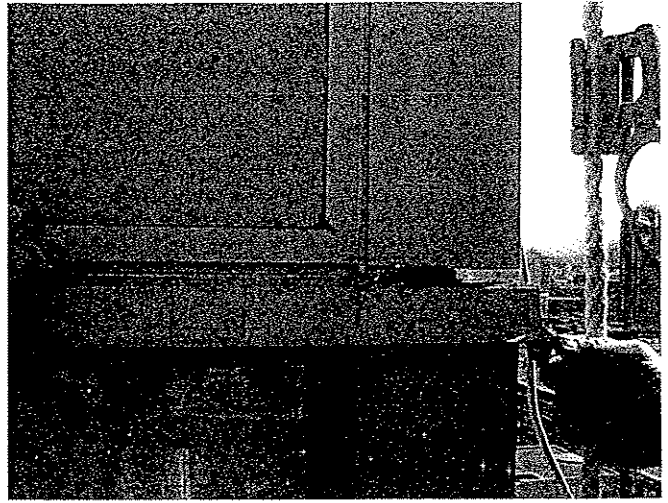


302 General view of window head below 1608

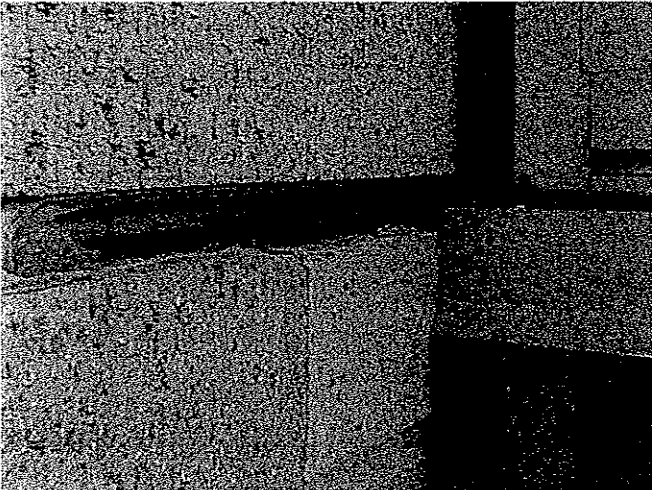
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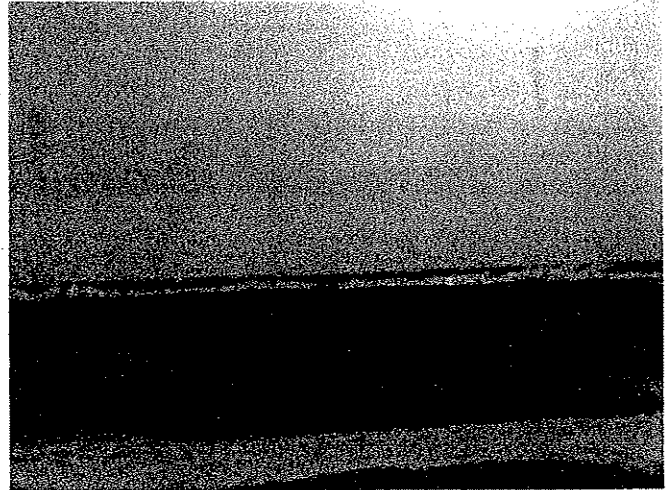
303 Sealant at head flashing below 1608 showing



304 1608 lower 1cm of corner mullion removed



305 1608 sealant at shelf angle removed



306 Membrane at corner mullion, 1608



307 View within spandrel region with insulation



401 1608 Repair prior to end dam installation

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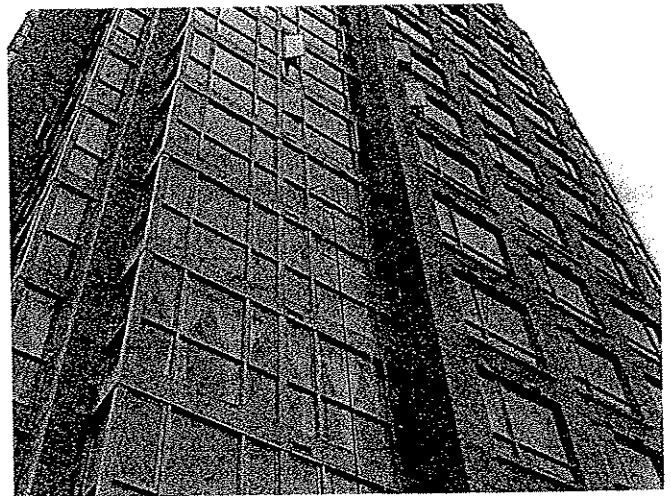
402 1608 Sealant at bituthene membrane to seal top



403 1608 End dam installed and sealant ramp



404 1608 New liner pan inside spandrel sealed at



405 Window test apparatus at Unit 605



406 Window test #1 at window wall, unit 605

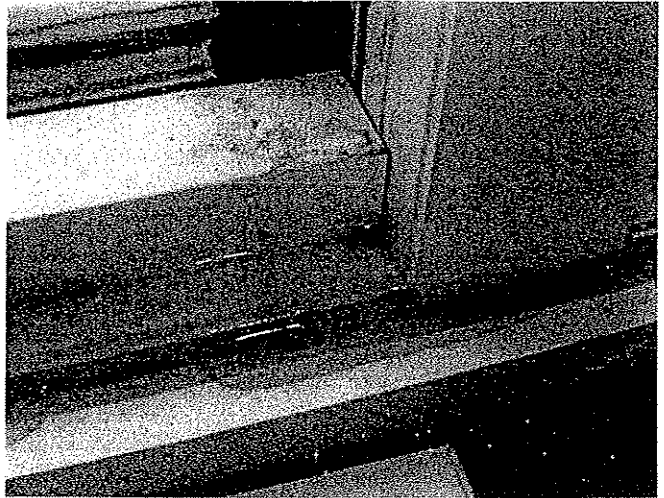


407 Moisture ingress at floor, test #1

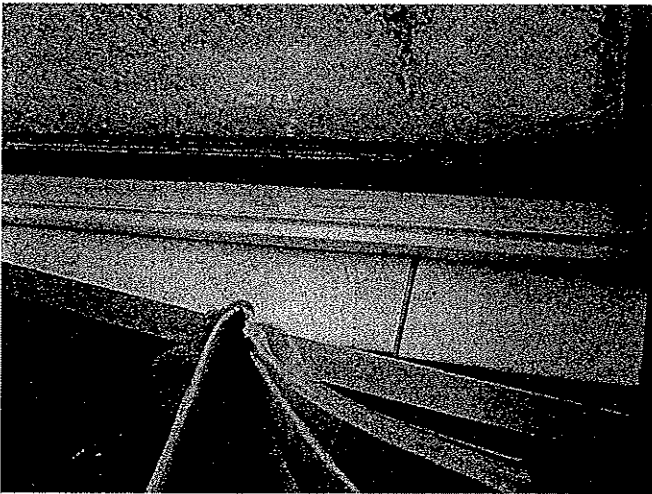
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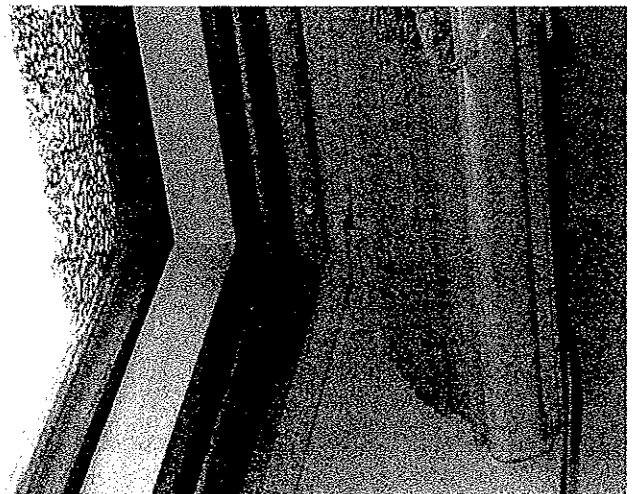
408 Water ingress at window frame, test #1



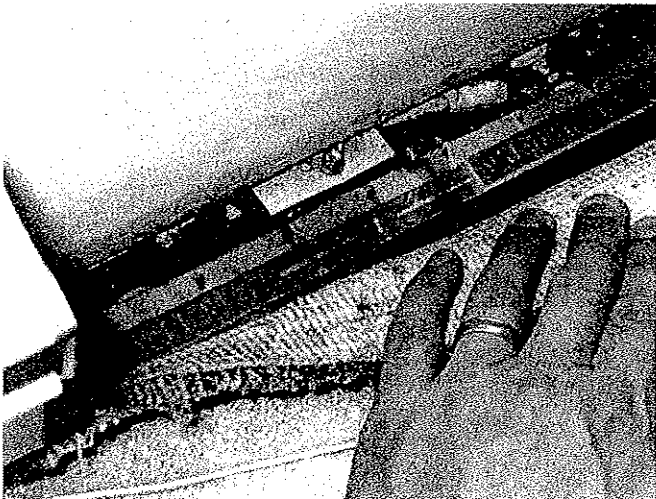
409 Water ingress at coupler mullion, test #1



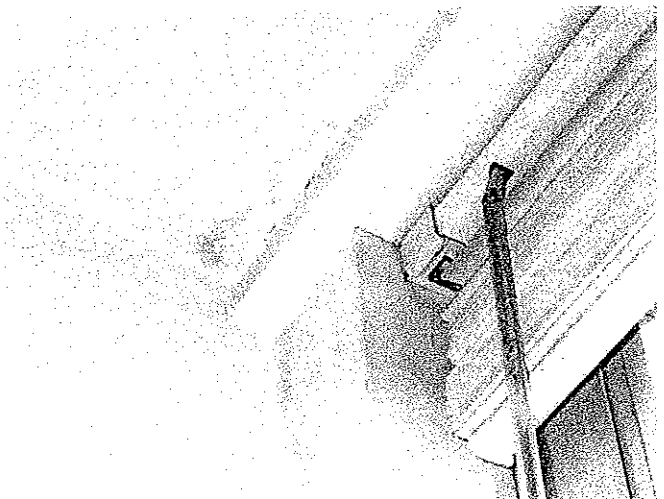
410 Water ingress at sill, test #1



411 Water ingress into suite below (505) during



412 Water ingress at floor slab, unit 505 test #1



413 Previous water stain in unit 505 (did not leak

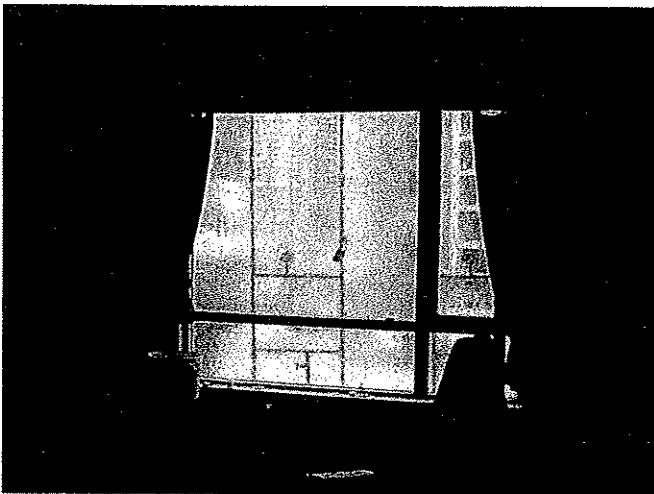
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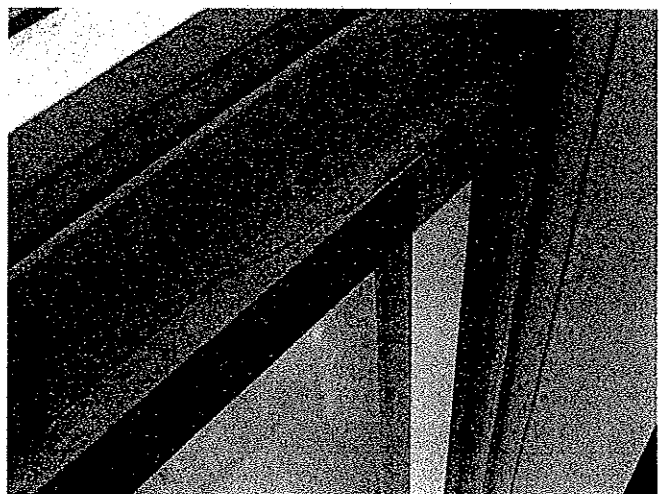
414 Failed seal in window unit, suite 505.



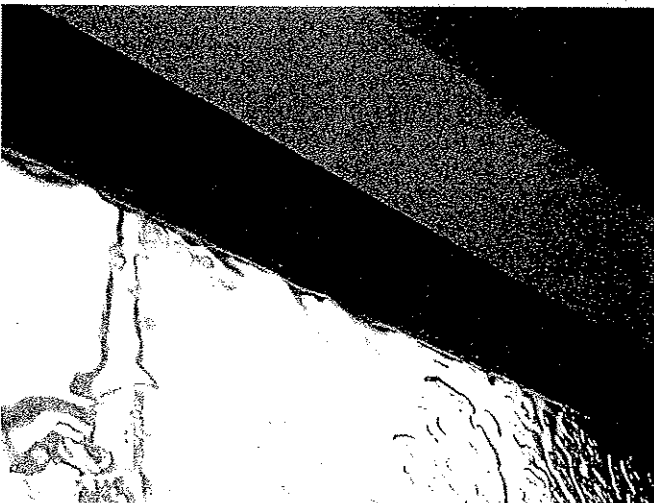
415 Moisture ingress within window wall assembly at



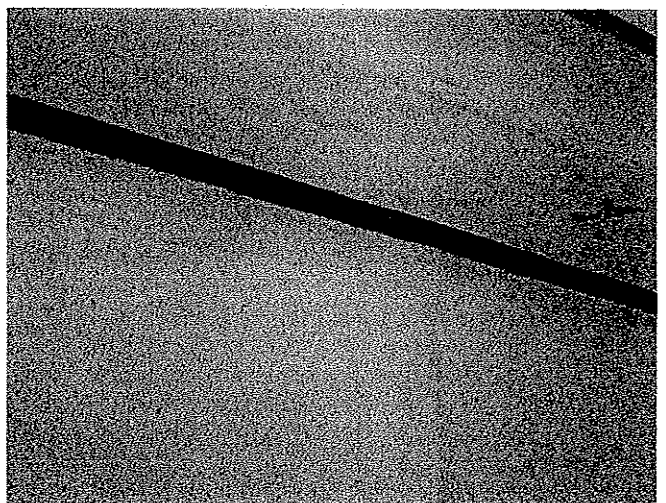
416 Window test #2, suite 605 at punch window in



417 Water ingress at minton jamb transition, test #2



418 Water ingress at window head, test #2

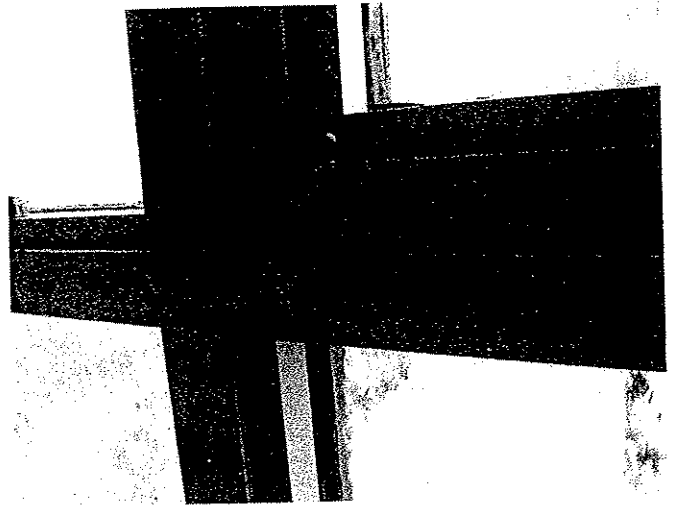


419 Water ingress under the window sill, test #2

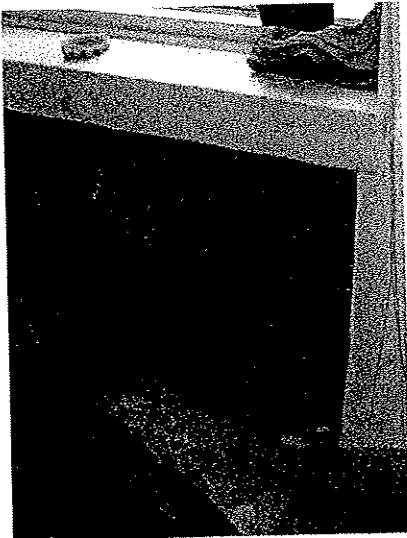
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420 Water under the window sill, test #2



421 Water ingress at the operable window sill, test



422 No moisture ingress into steel stud cavity after



501 1608 brick removal, no ties for minimum 28

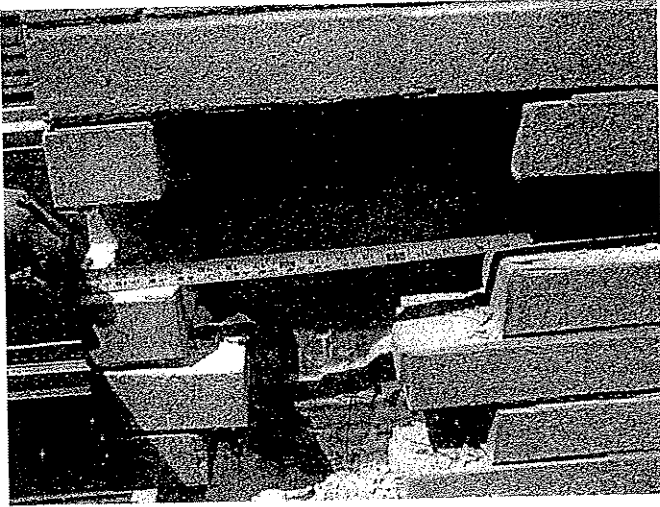


502 1608 Brick removals



503 1608 Brick removal showing mortar droppings

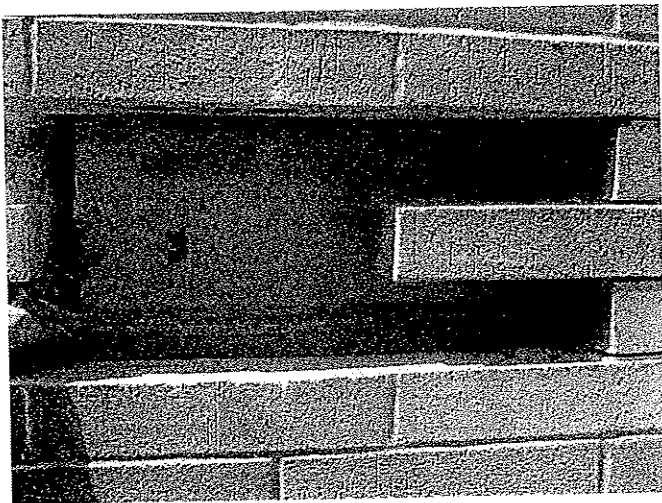
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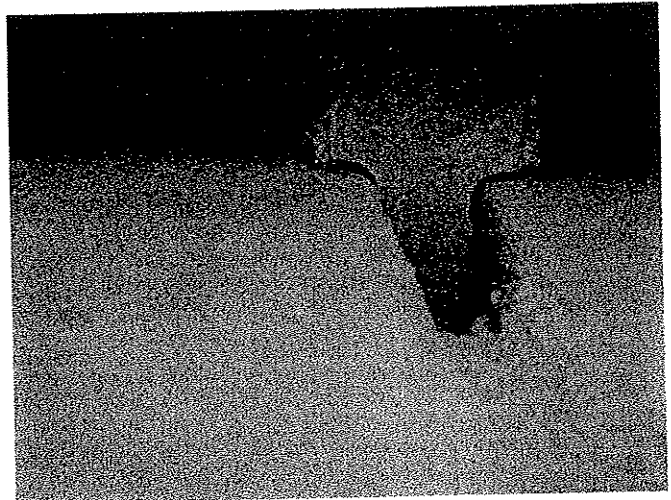
504 1608 Brick removal, no masonry ties across



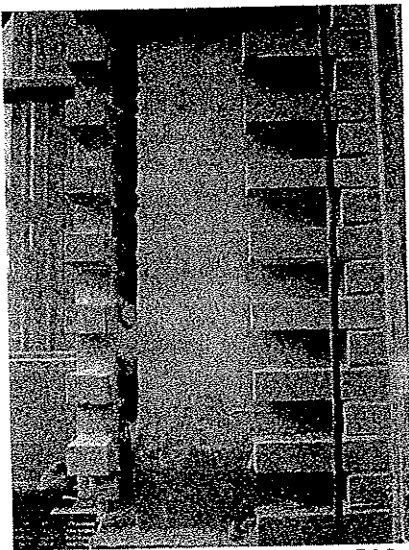
601 16th Floor masonry removal at shelf angle



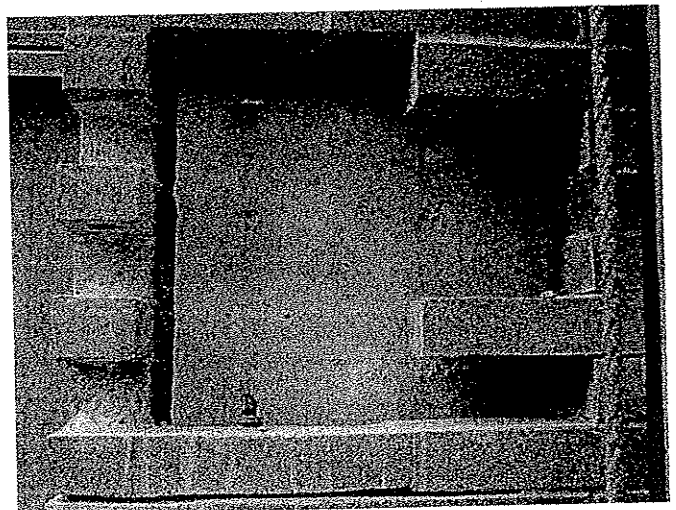
602 16th floor masonry removal below upper shelf



603 Dove tail masonry tie at the 3rd masonry course

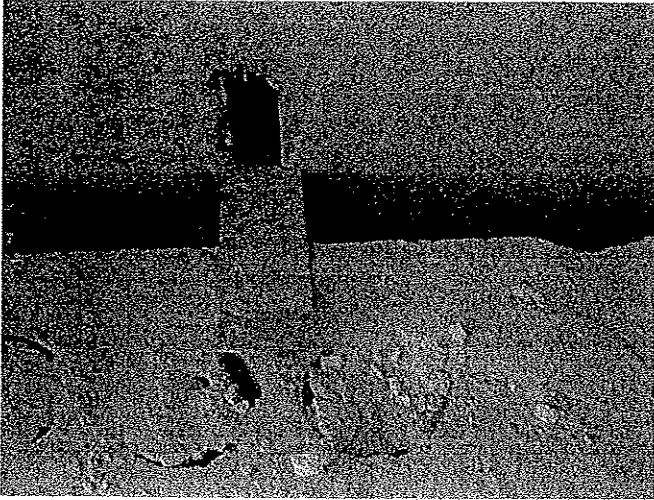


701 Brick removal at floor 508



702 Dove tail ties at upper third of masonry region

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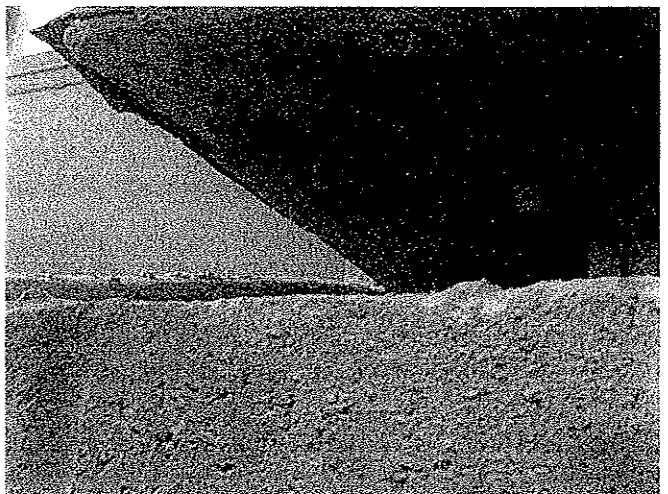
703 Dove tail ties as installed



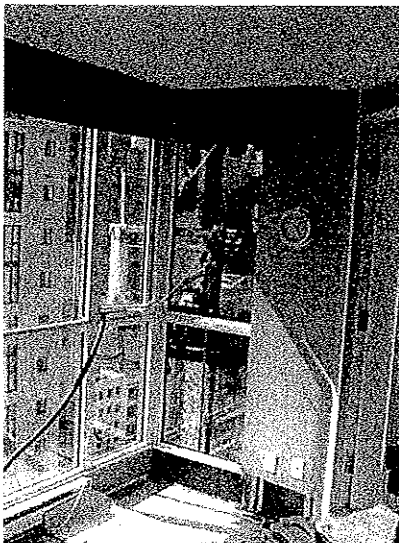
704 Blueskin membrane partially removed at shelf



705 Blueskin membrane partially removed at shelf



706 Underside of shelf angle



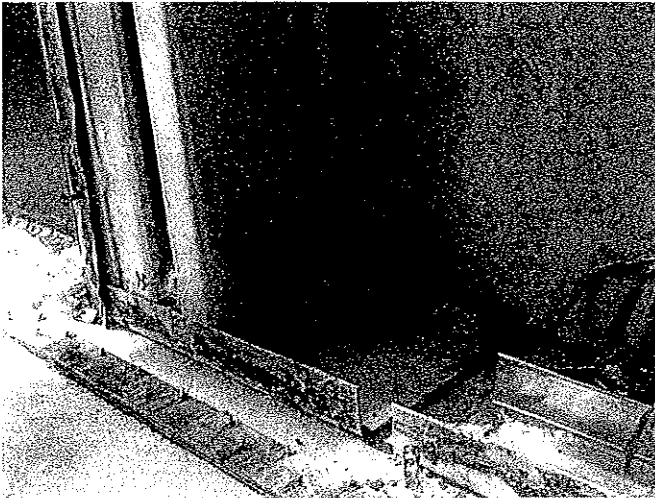
707 Water test at 1608



708 Region dry at conclusion of test



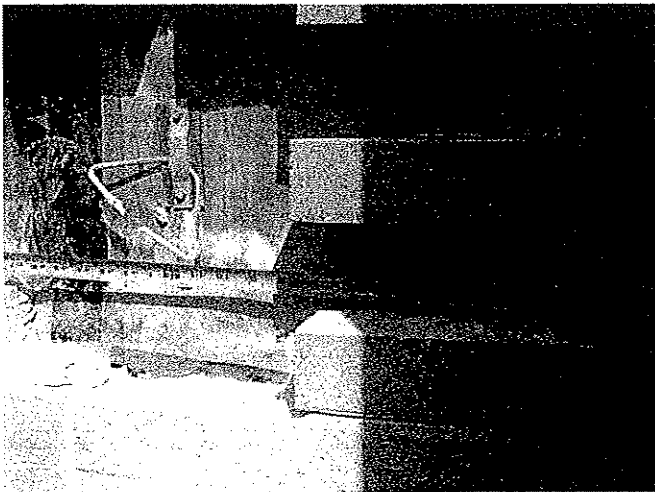
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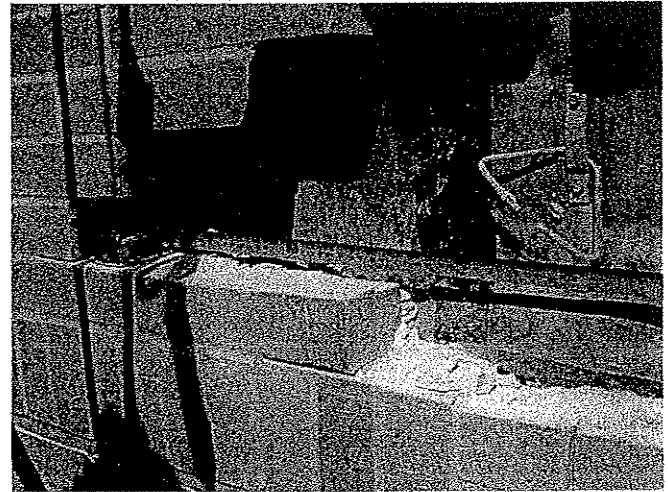
709 No water ingress from long pole water test



710 No water ingress during test



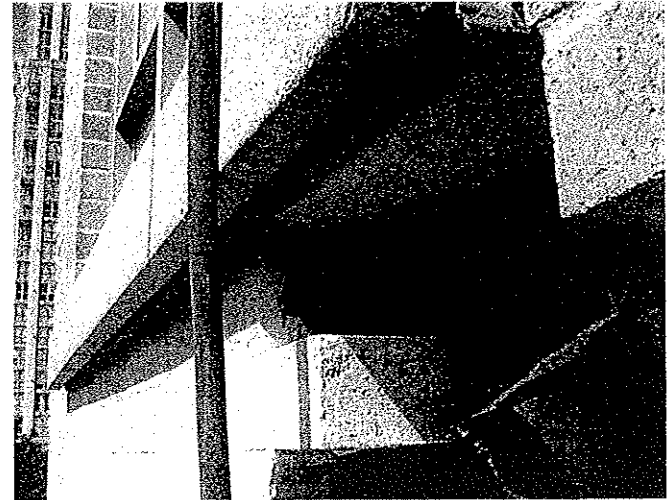
801 3rd floor, east wall brick removal at steel stud



802 Masonry ties at 16 inch centre (horizontal)



803 Pre cast concrete window sill

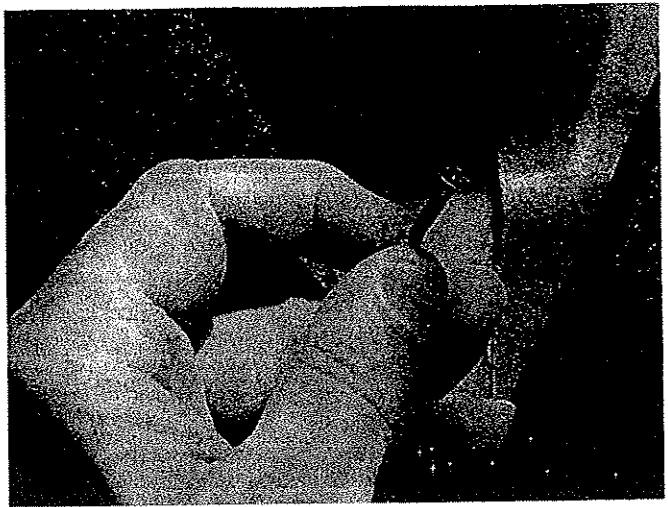


804 Precast window sill at brick veneer wall

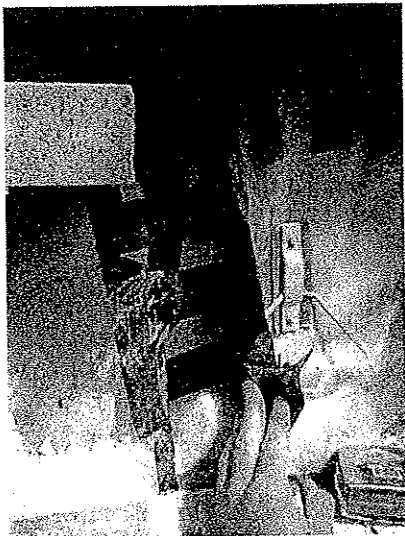
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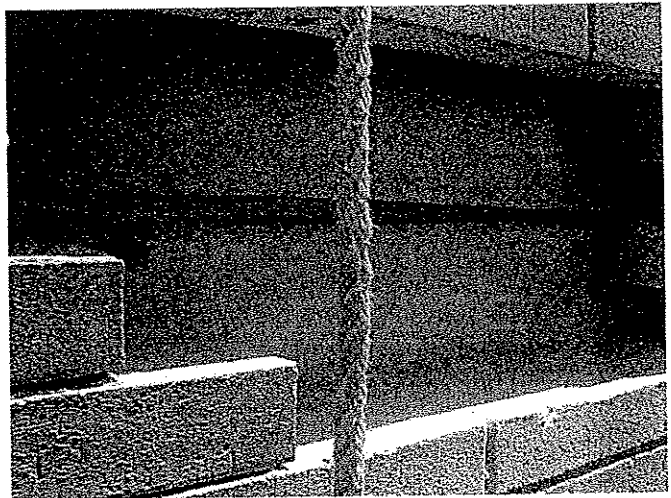
806 Cut test through sheathing membrane, exterior



807 Exterior GWB fastener



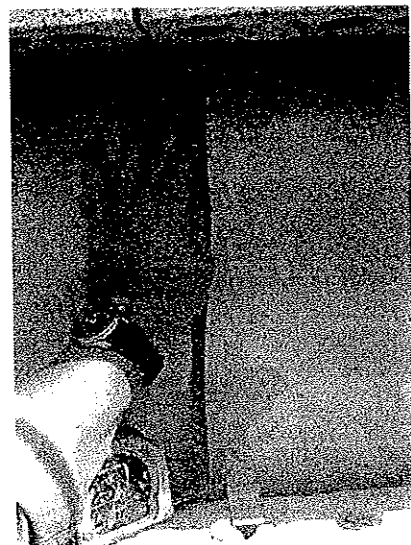
808 Taped seams of sheathing membrane



809 Two foot horizontal tie spacing



812 Mortar droppings filling cavity in the bottom three



813 Vertical tie spacing 32 inch

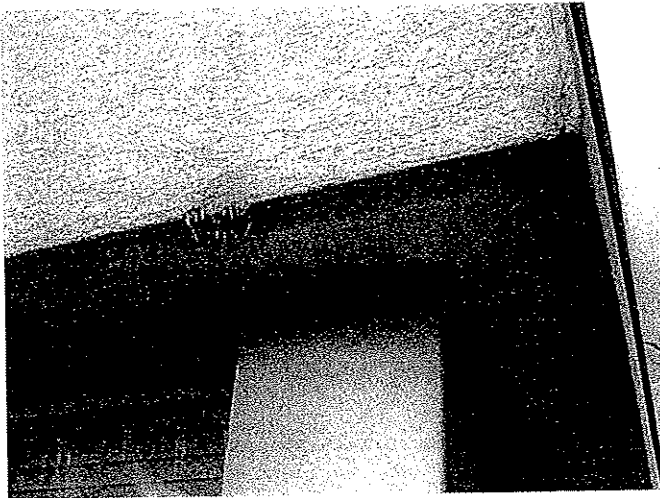
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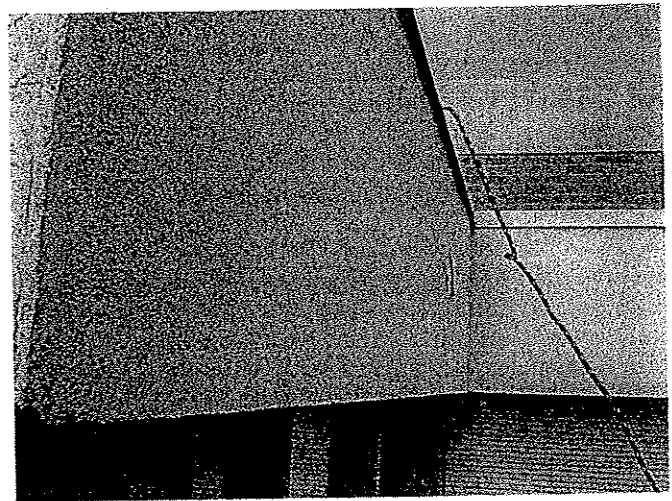
814 Upper tie located in third brick course



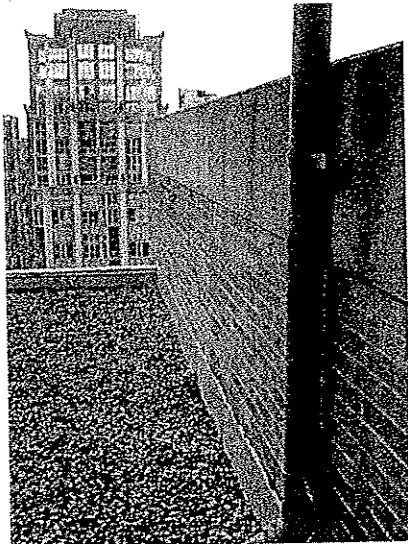
901 EIFS band at window wall of roof deck



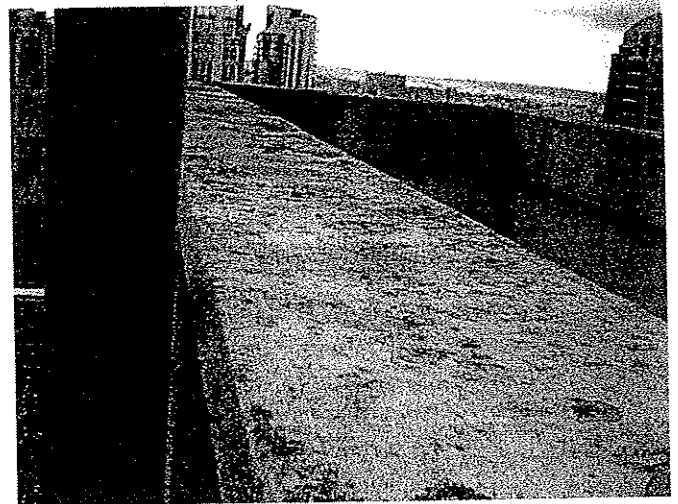
903 Localized damage at eifs band, upper roof deck



904 Delamination of EIFS band at upper roof deck

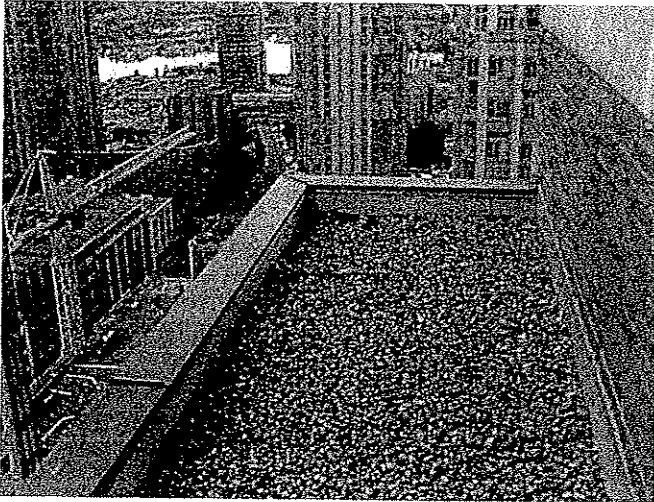


905 Main roof at concrete upstand wall

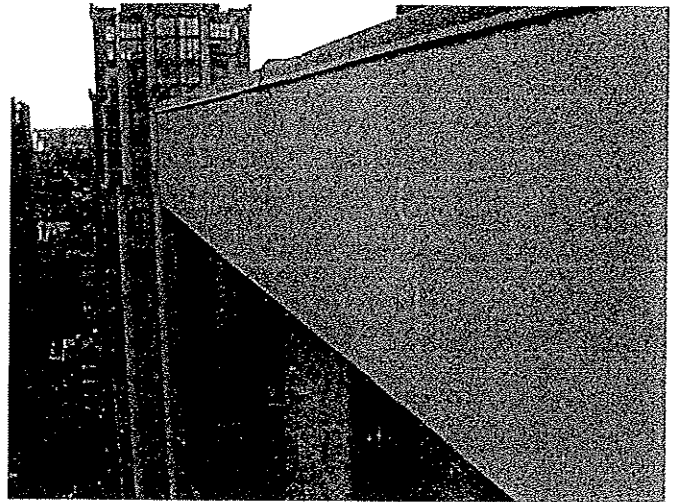


906 Concrete parapet atop concrete upstand wall

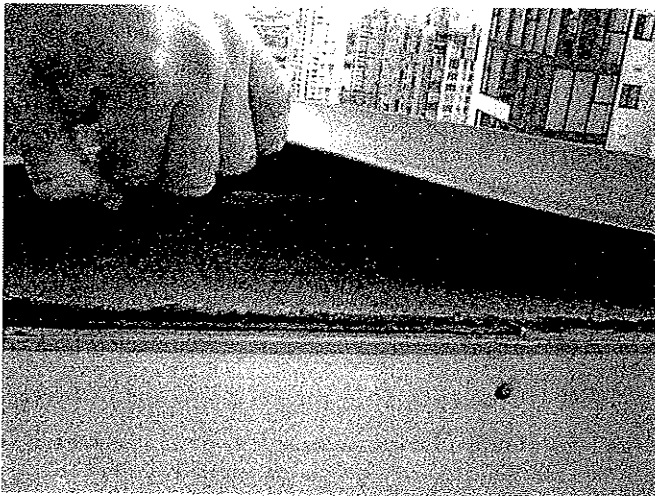
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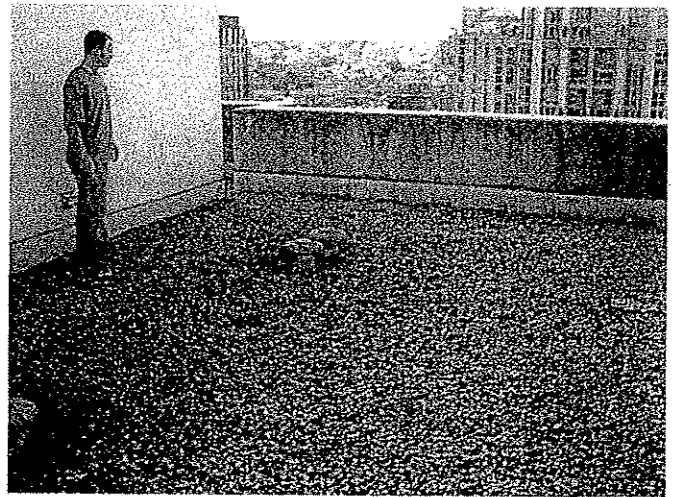
908 Lower roof section over window wall



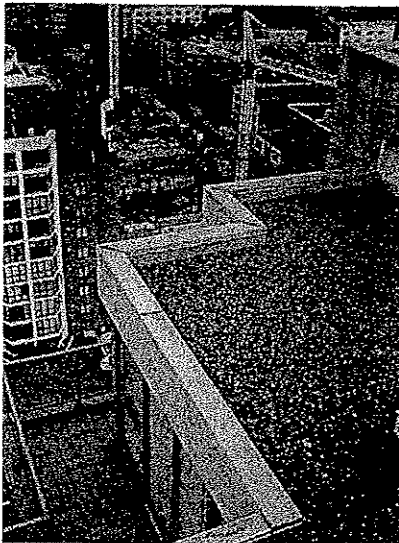
909 Concrete curb at lower roof section (over



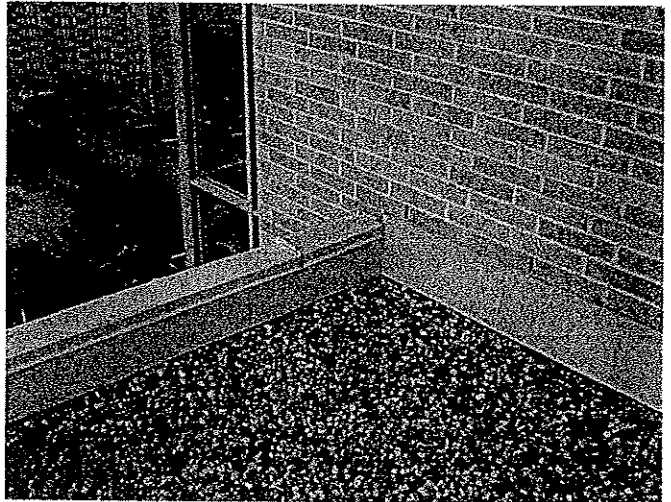
910 Concrete roof curb under flashing at lower roof



911 Main inverted roof assembly



913 Lower main roof and tiled roof deck below

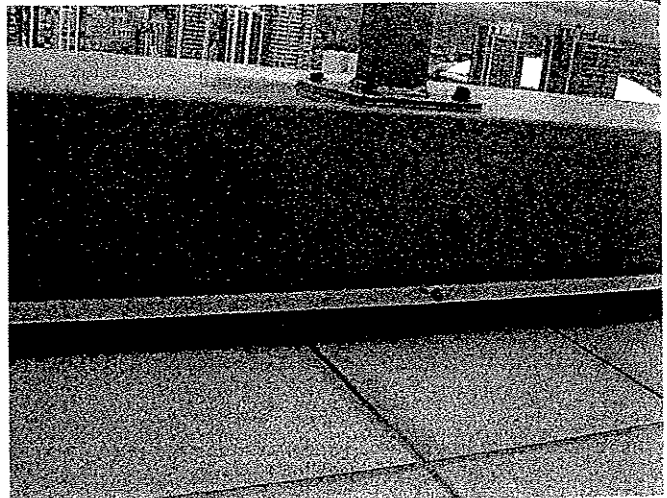


914 Typical curb detail at main roof

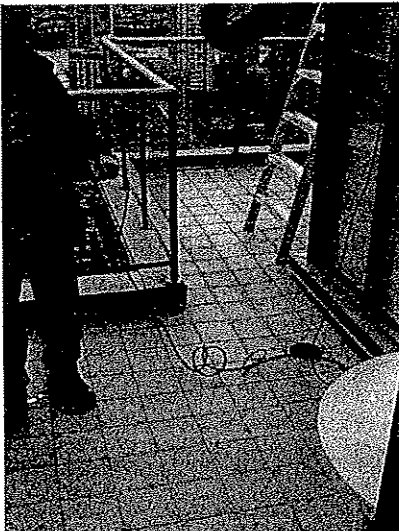
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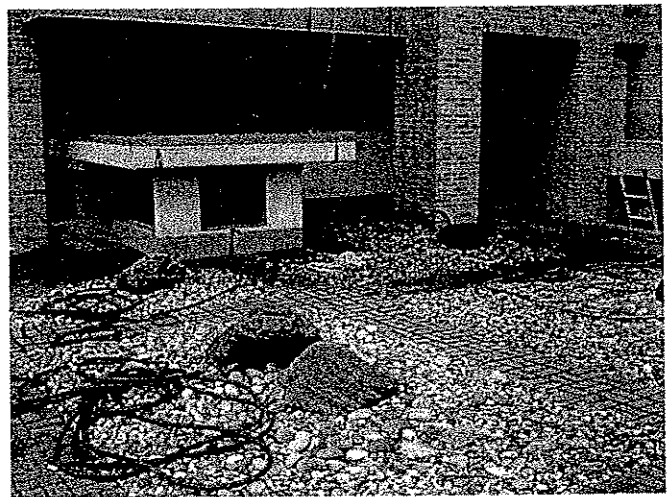
915 Roof membrane termination at flashing gum



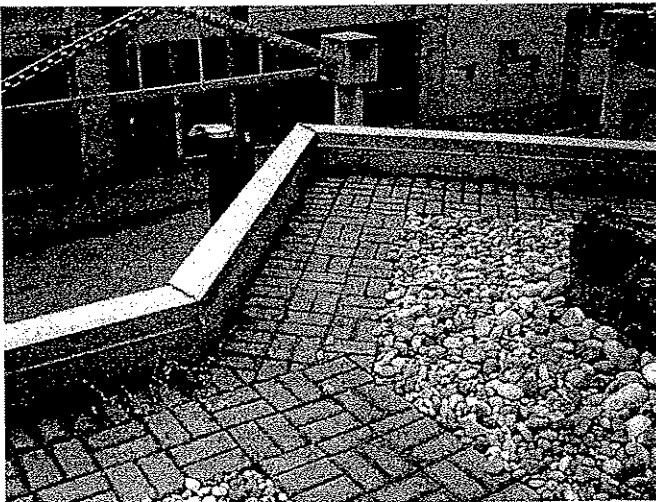
916 Corroded fasteners at tiled roof deck railing



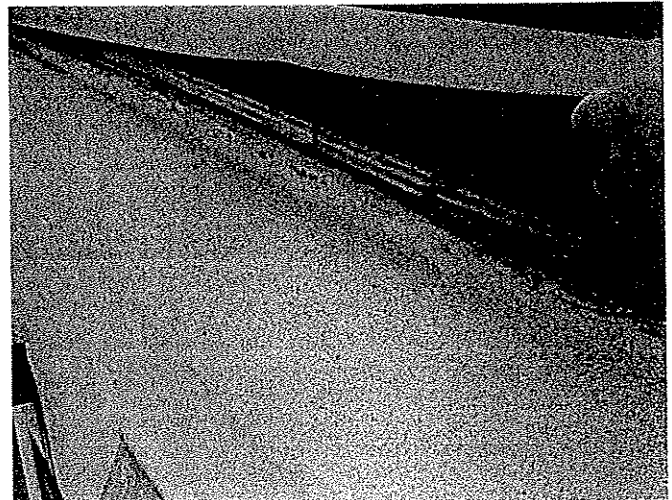
918 Tiled roof deck bonded over membrane



919 Lower garden roof



920 Curb at garden roof perimeter



921 Wood blocking under cap flashing at garden

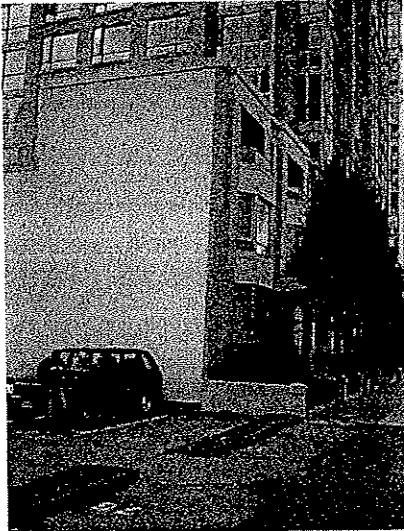
## Appendix A - 1188 Richards Street Photos



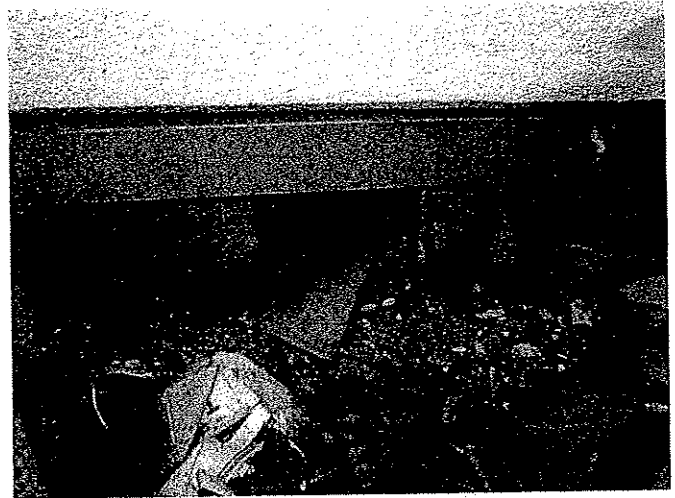
923 Paver removal for membrane examination, north



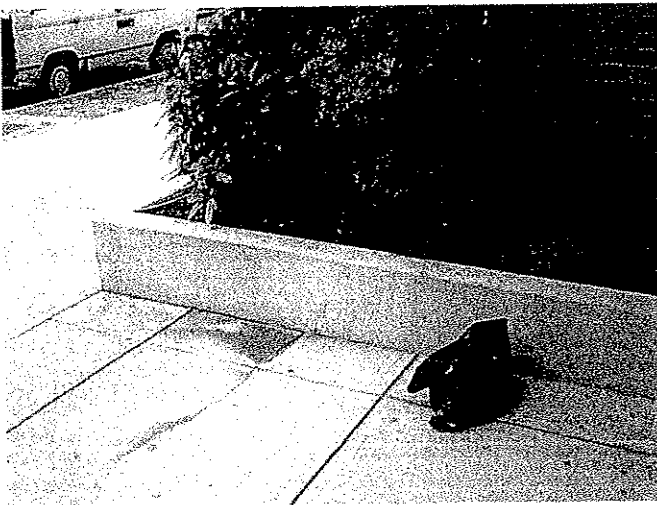
924 Liquid applied membrane under pavers up to



925 At grade condition at north west corner



926 At grade detail under west townhouse alcove

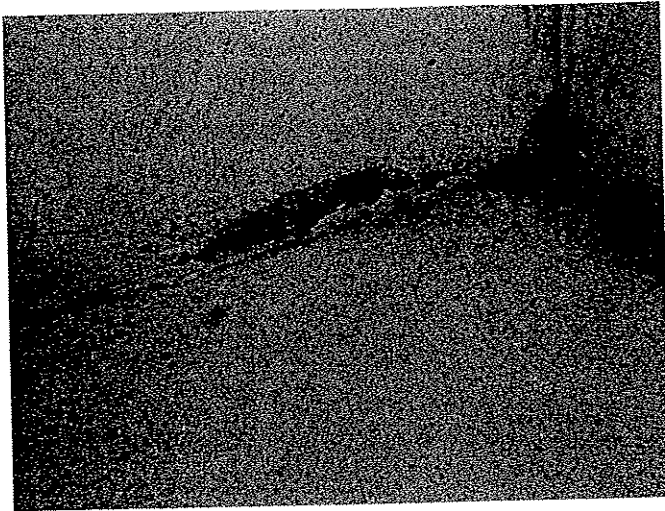


928 Staining at planter indicating drainage path

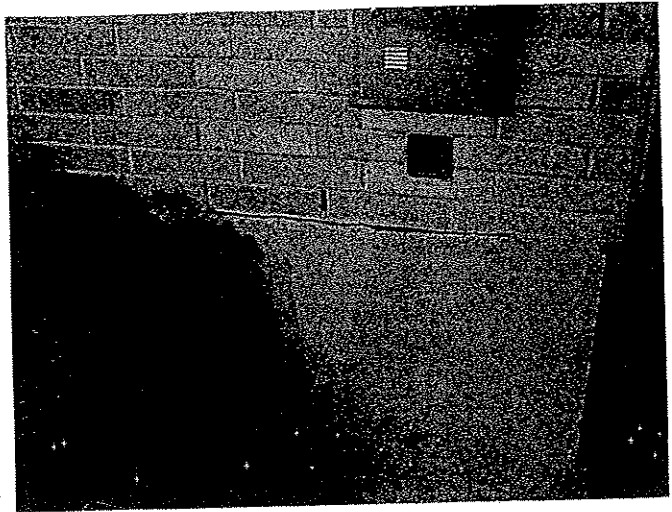


929 Hot, rubberized membrane and insulation

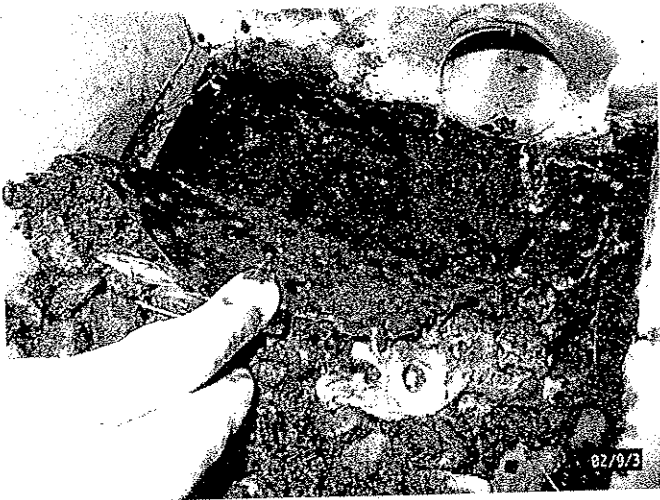
# Appendix A - 1188 Richards Street Photos



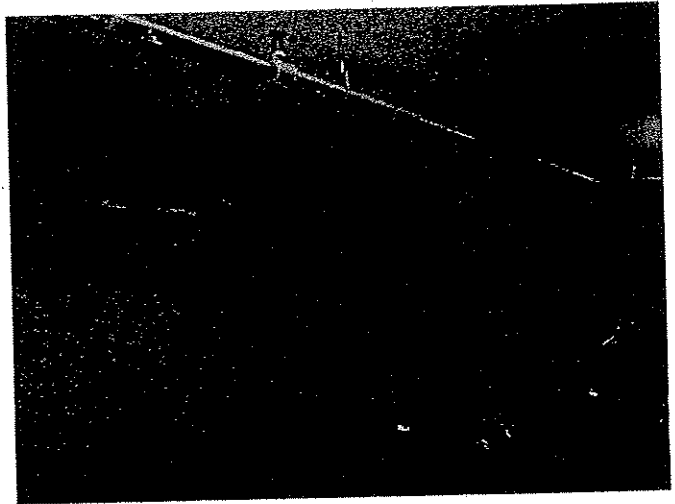
930 Membrane edge at main entrance



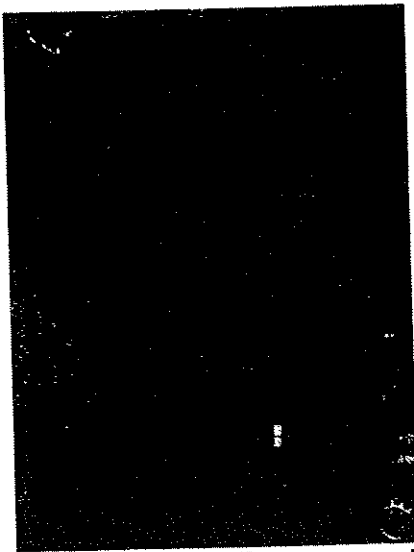
931 Self adhered membrane at base of masonry



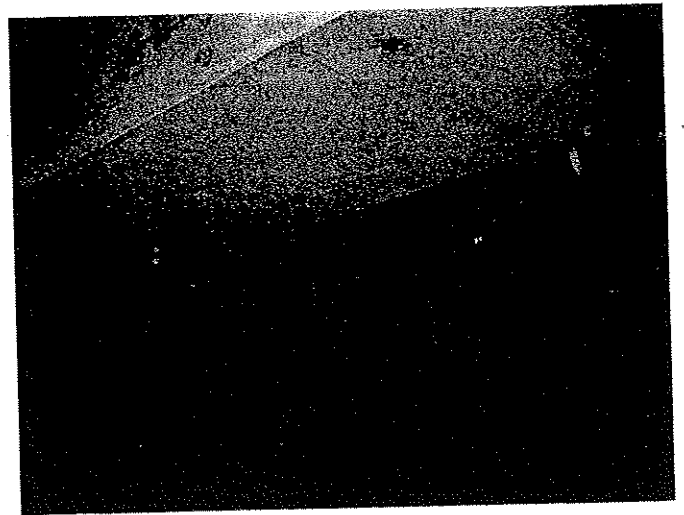
933 Hot rubberized membrane at overflow scupper



934 Parkade level 1, minor efflorescence at slab wall

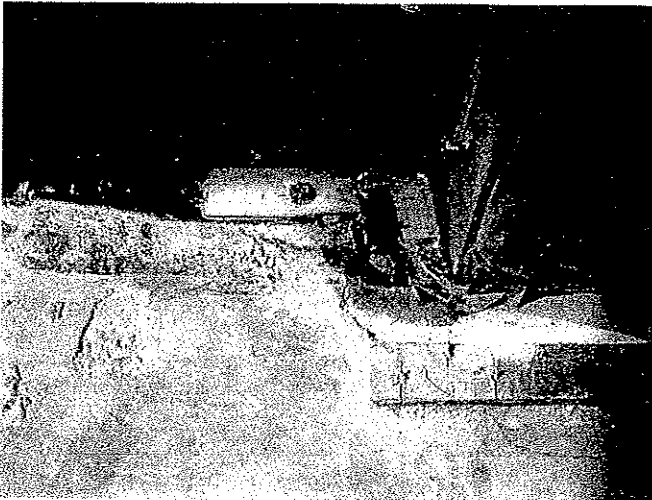


935 Parkade level 2 minor efflorescence at wall crack



936 Parkade level 2 moisture around drain at

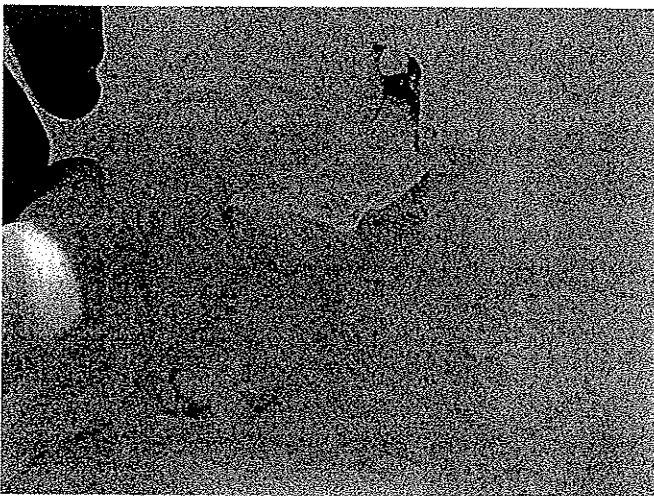
**Appendix A - 1188 Richards Street Photos**



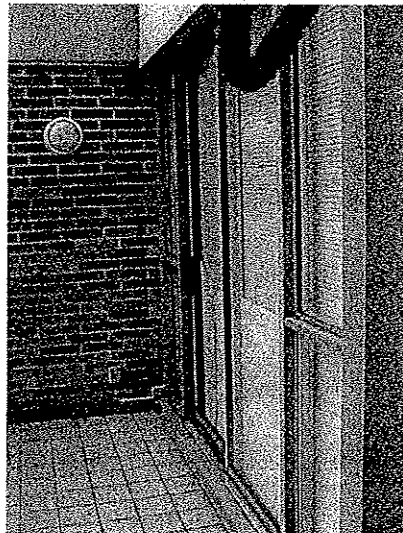
711 No water ingress at spandrel to brick transition



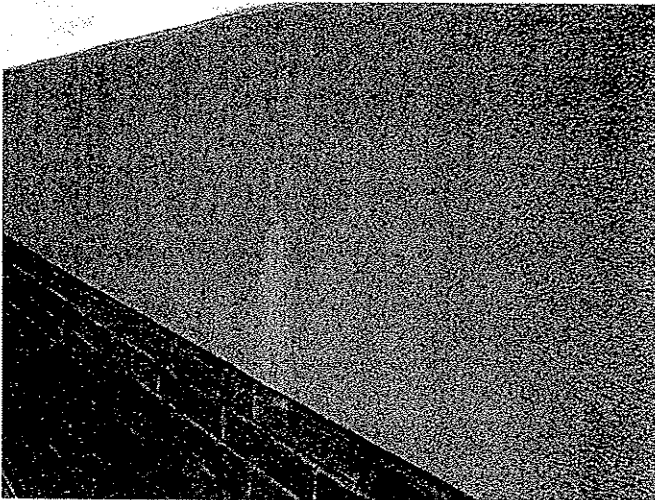
805 Pin connection of precast window sill into top



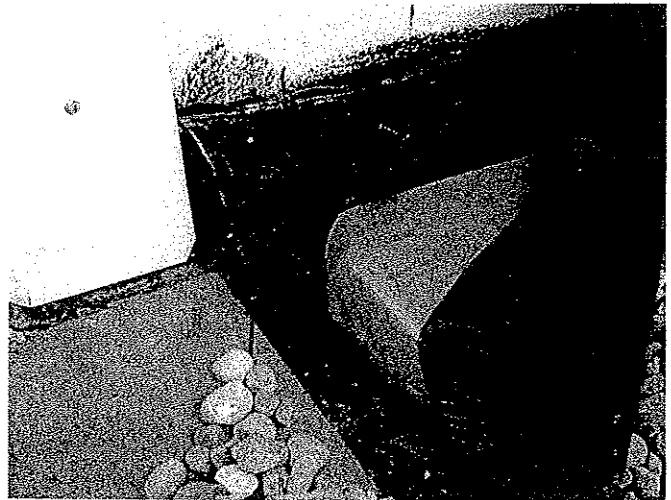
811 Condition of Dove Tail tie



902 Exposed window wall and slider door at upper



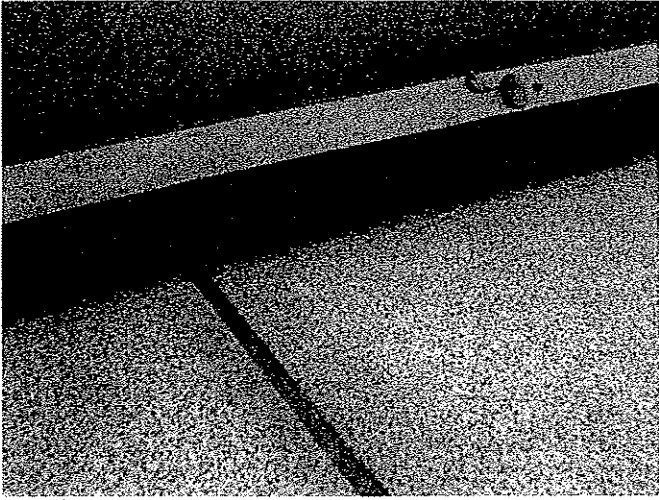
907 Efflorescence at concrete parapet (typical)



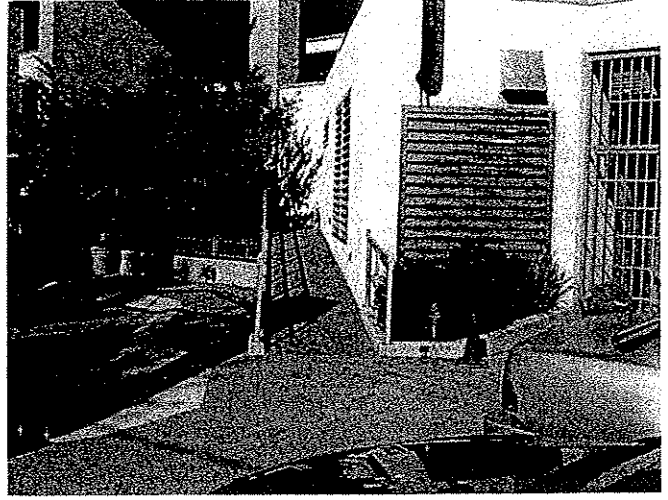
912 Hot applied rubberized asphalt roof system at  
20/21



## Appendix A - 1188 Richards Street Photos



917 No membrane continuation above tile elevation



922 At grade detail at north east corner of structure



927 Hot rubberized membrane and vertical sheet



932 Hot rubberized membrane and sheet membrane

