ATTACHMENT B

RYLAND MEWS CONDOMINIUMS

Preliminary: Below Grade Waterproofing, Planter, Plaza Drains, Basement & Expansion Joint Report (Draft)

Prepared for:

RYLAND MEWS HOMEOWNERS ASSOCIATION

Date: January 9, 2001

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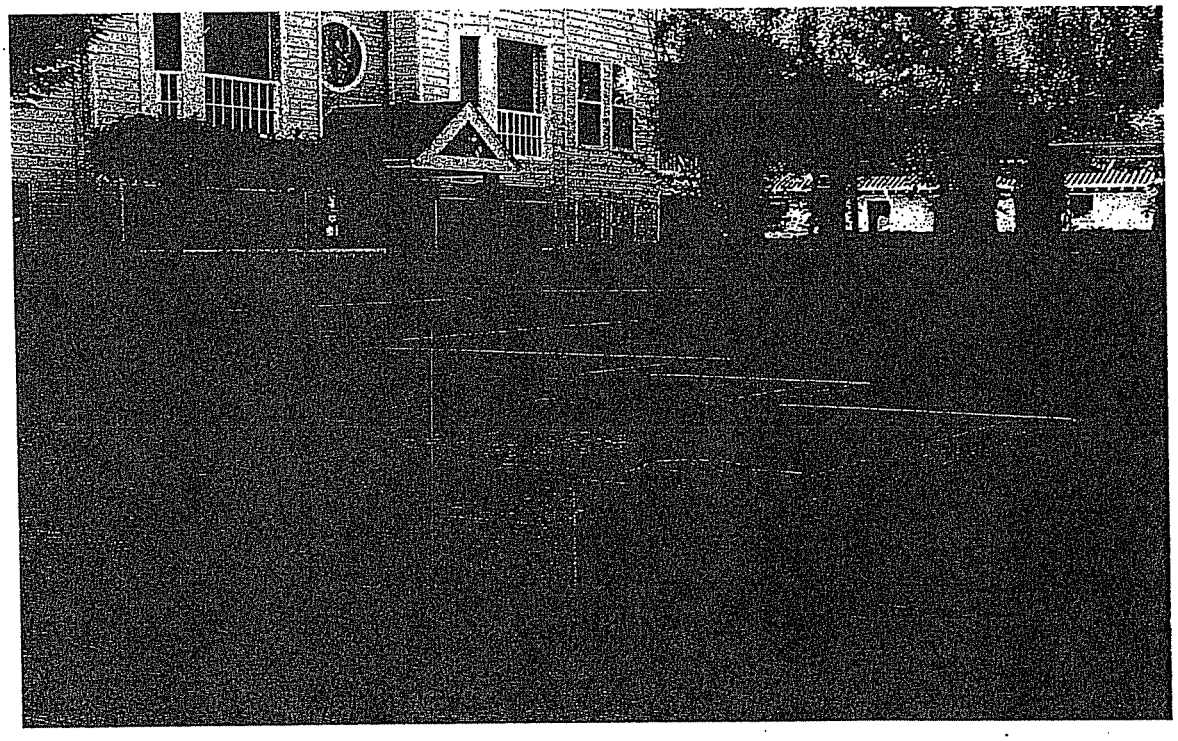
Background: This preliminary report includes a visual evaluation of the below grade waterproofing, planters, plaza drains, basement ceilings and walls and the expansion joint in the garage at Ryland Mews. Soon after construction, the exterior walls and ceilings at the basement parking area started leaking. Based on the numerous leaks in the garage area, Ryland Mew's homeowners association retained Allana-Lippert Inc. to evaluate the possible leak sources and to assist with remedial solutions. This report includes a review of the as-built construction drawings for buildings 3 and 4, field observations and analysis of causes of failure.

Building Construction: Ryland Mews is four, 4-story structures and a recreation building. Covered parking is located within the building at grade level with one level of additional parking below grade. The exterior walls at the below grade parking area are constructed out of concrete masonry units (CMU's). The drawings illustrate the waterproofing and drainage system at the below grade CMU walls. A Paraseal membrane and Miradrain mat is shown at the face of the walls with a 4" drain line installed near the bottom of the footing. Drawings indicate that the drain lines empty into the garage drainage system.

The mews and plaza level walkways and planter bottoms are shown as sloped topping slabs, which were poured over the garage and basement's flat structural ceiling slabs. As-built drawings also indicate that the structural slabs were waterproofed with a liquid membrane before the sloped topping slabs were poured and that the top surface of the sloped topping slabs and walls inside the planters were waterproofed.



Ryland Mews, San Jose, California

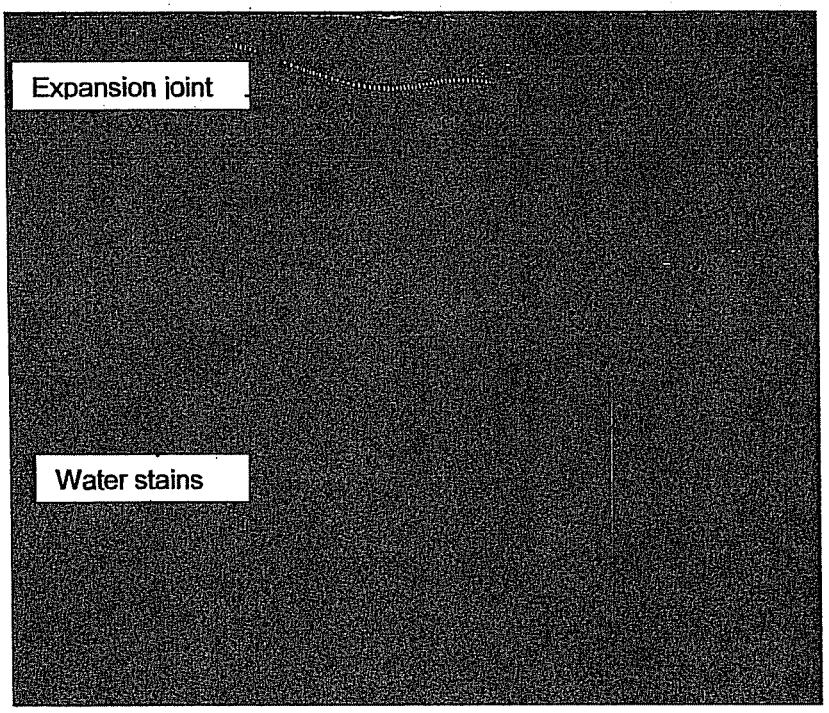
Visual observations: Our visual observations were conducted by walking the perimeters of the buildings and by inspecting the garage, basement and plaza areas. The first section in this report includes photographic documentation of water stains that are evident in the basement & garage areas. The subsequent sections include construction defects that we observed that appear to be associated with building leaks.

The patio, balcony and siding evaluation reports that were previously generated by Allana-Lippert Inc. all contain information regarding drain line penetrations at the structural slabs. The bottom side of some of those drain lines penetrate the garage and basement slabs. This report revisits and reflects on additional issues associated with improper drain placement.

Report sections:

1) Photographic documentation of water staining at the below grade parking area.
2) Construction defects associated with the leaks at the below grade parking area.
    2A) Expansion joint evaluation
3) Photographic documentation of water staining at the grade level parking area.
4) Evaluation of drainage & slab at boiler rooms.
5) Forensic analysis

1) Water stains at the below grade parking area, drain line leaks and temporary repairs. Not all photos of water stains are shown.



Lower basement (east elevation) Water stains are evident at the CMU wall below the expansion joint; water stains are also evident below the expansion joint at the west elevation too.

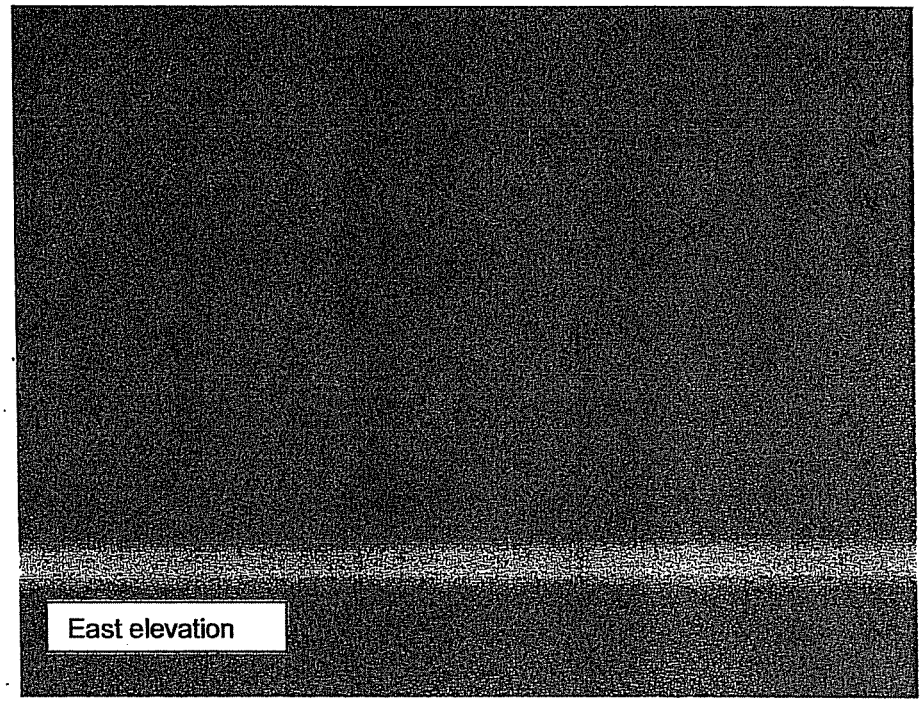
Photographs of the defects associated with the exterior waterproofing at the expansion joint location indicate why below grade leaks are probably occurring.

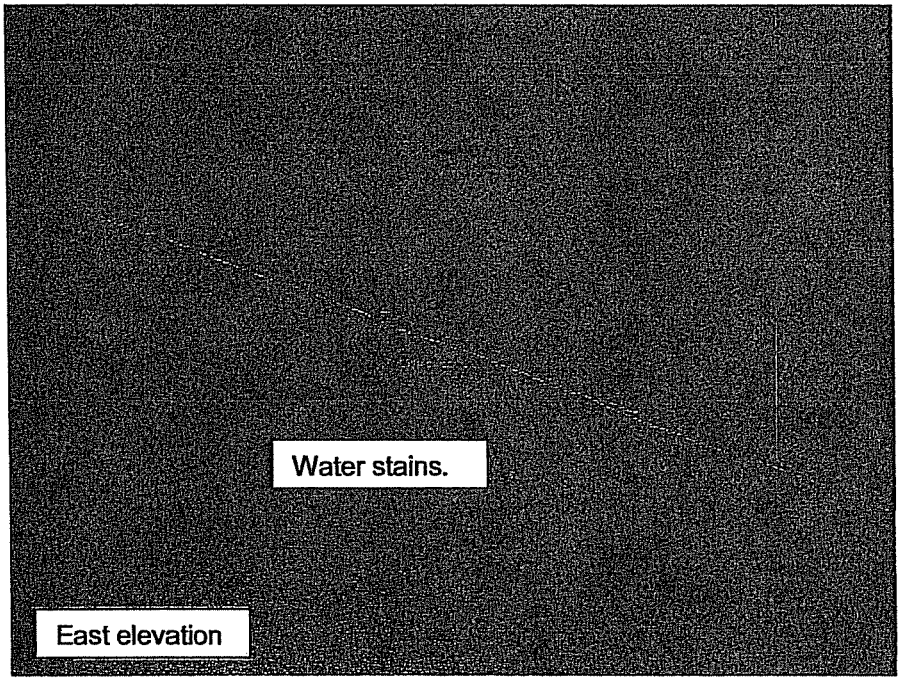
The east elevation wall has the most leaks.

East Elevation-
Leaks appear to run the full length of the wall.

Water stains around pipe penetrations at the CMU walls is common.

It seems likely that the waterproofing at CMU walls and around the pipe penetrations at the exterior walls have failed.





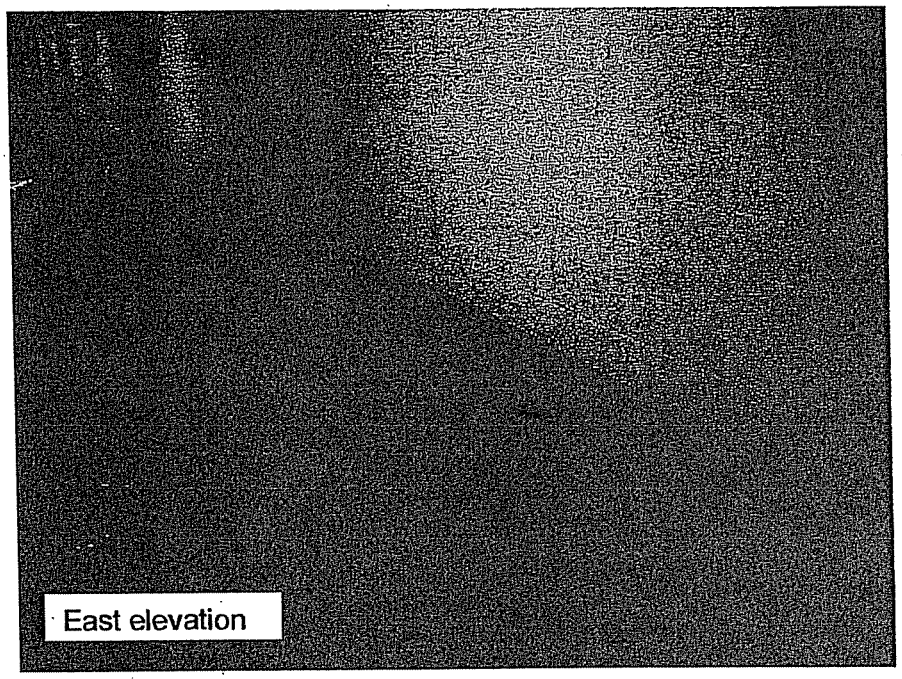
Water stains are noticeable at the ceiling slab, just above the CMU wall.

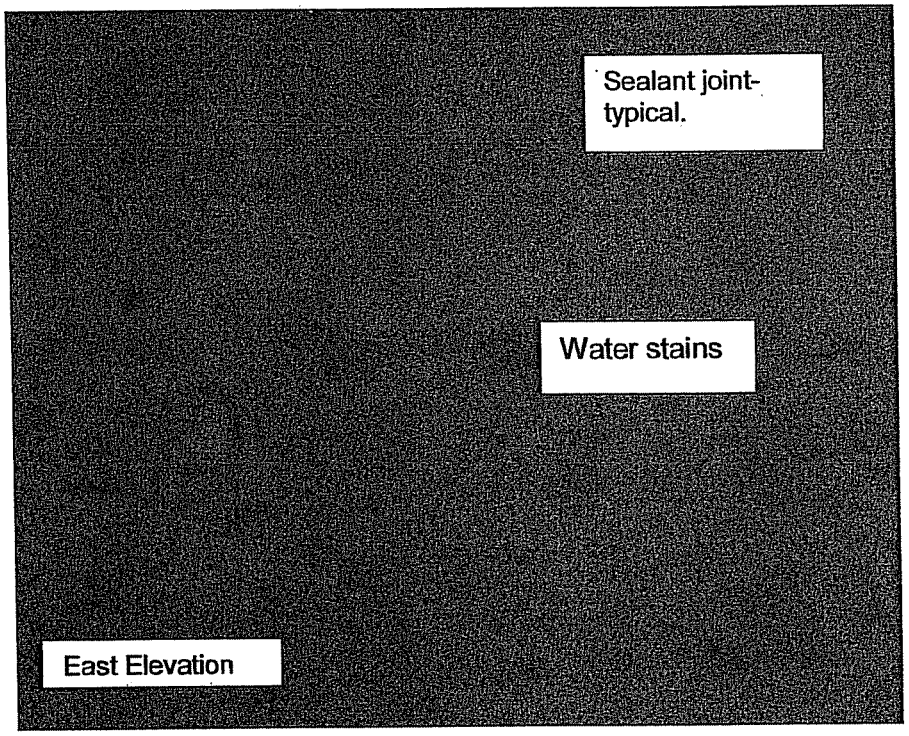
Defects associated with the membrane termination and the cantilevered patios at the exterior walls suggest why leaks are occurring.

Below grade waterproofing defects follow this report.

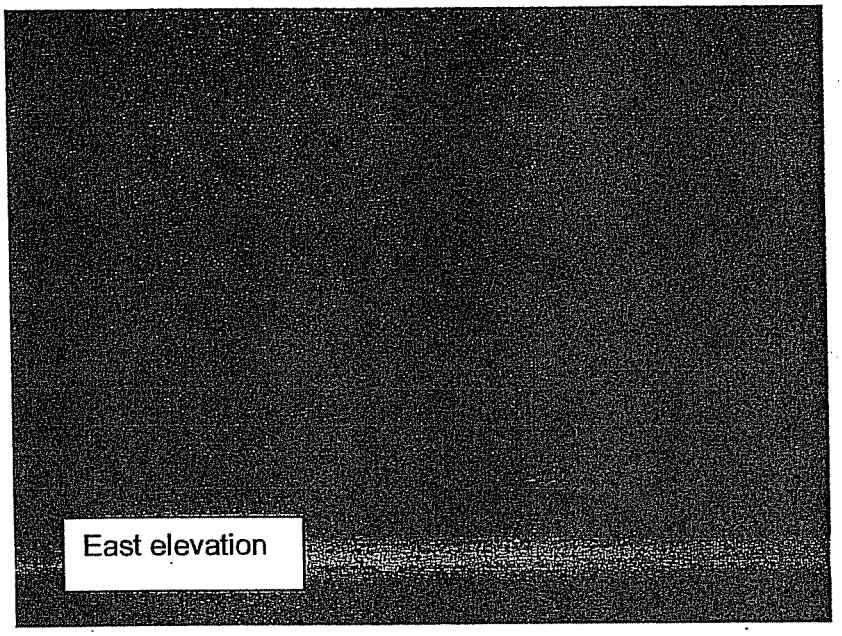
Water stains at the slab location indicate that the joint between CMU wall and slab leak.

Column line A-13





Water stains are showing up next to some of the sealant joints at the structural columns between CMU walls.



Example of a typical vertical crack in the CMU wall.

All CMU walls have these vertical cracks.

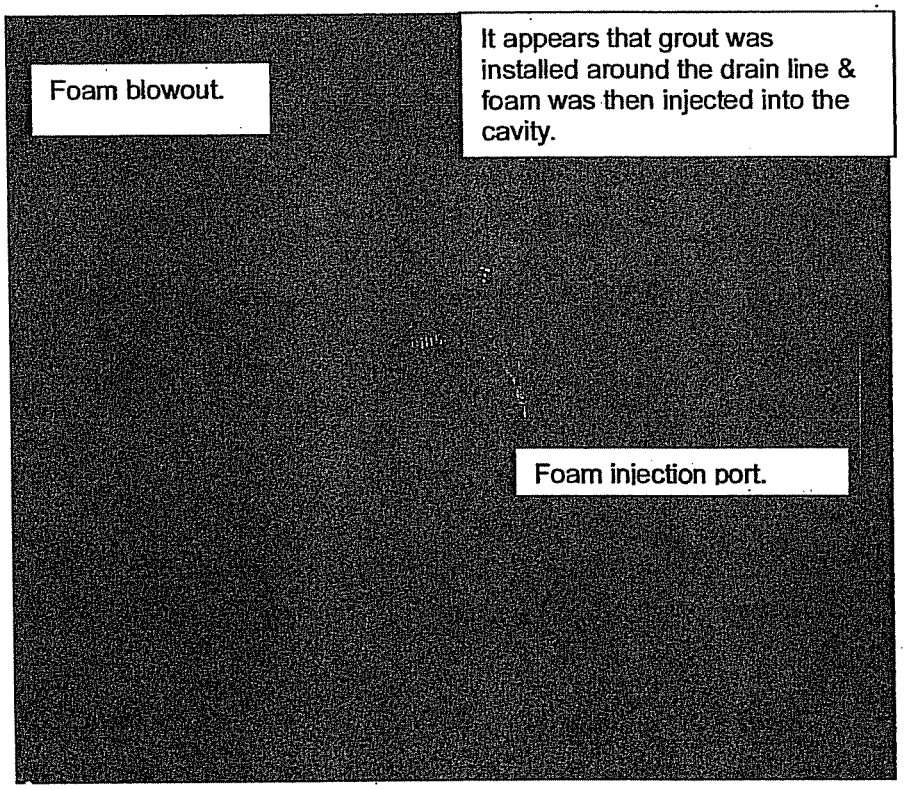
The cracks run the full length of the wall from the floor to the ceiling.

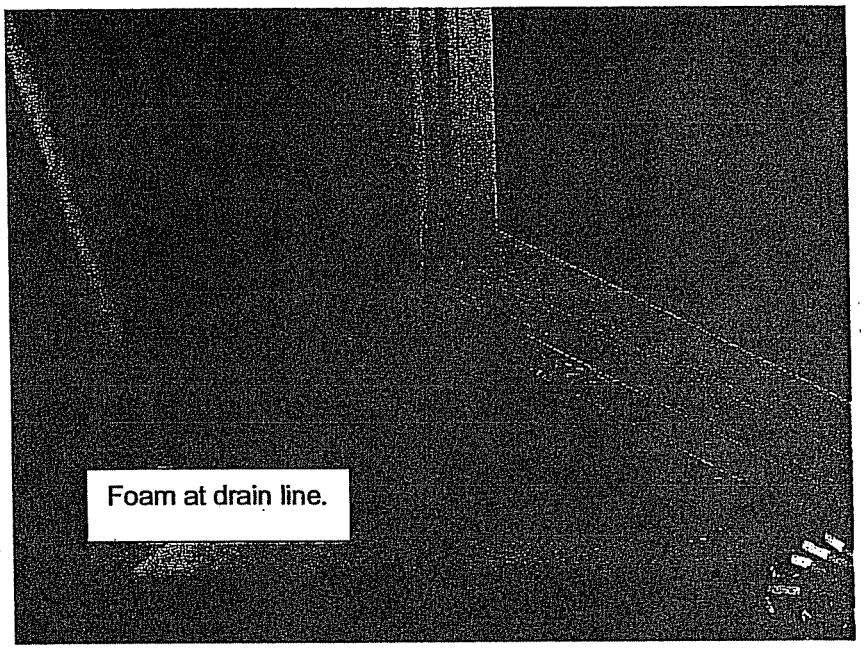
Water staining at the cracks is not evident.

Foam repairs are evident around the drain line penetration thru the structural ceiling slab. The temporary foam repairs were required because many of the drain line penetrations are where leaks have occurred. This drain line extends through a patio slab and picks up the storm water from a roof scupper. The drain placement was to close to the inside corner of the patio which prevented proper flashing, which resulted in leaks. The improper drain placement and foam repairs prevents the proper flashing details to be installed when the patios have to be recoated.

The photograph below shows how the foam repairs look from the patio.

Column line A-5





As noted above, drain line placement is to close to the inside corner which does not allow for proper flashings.

Foam repairs at this location have been over sprayed onto the sliding door frame.

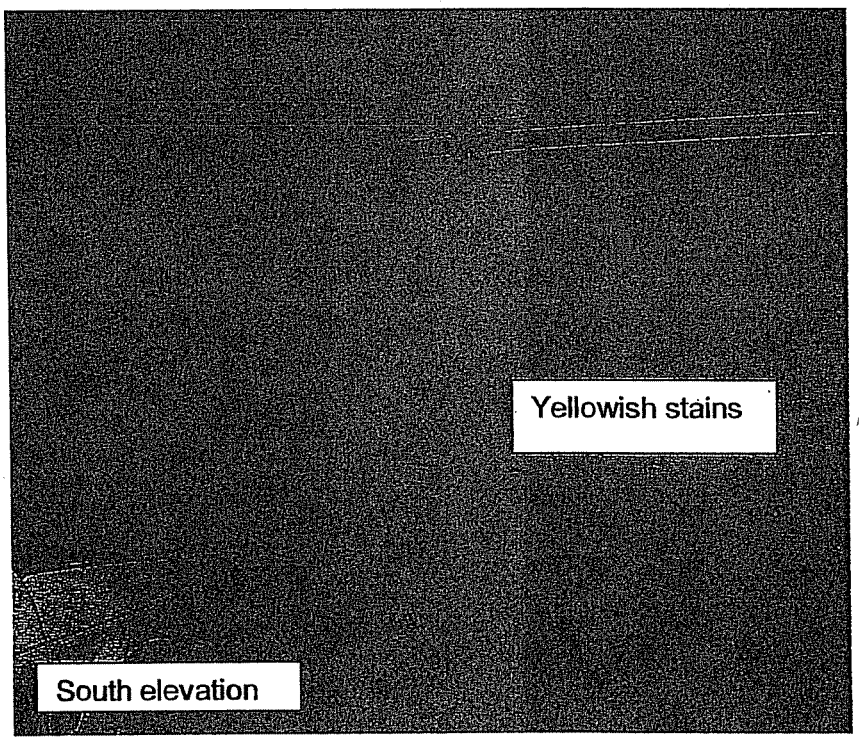
There are many drain line penetrations through patio slabs that have been foamed because of improper drain placement.

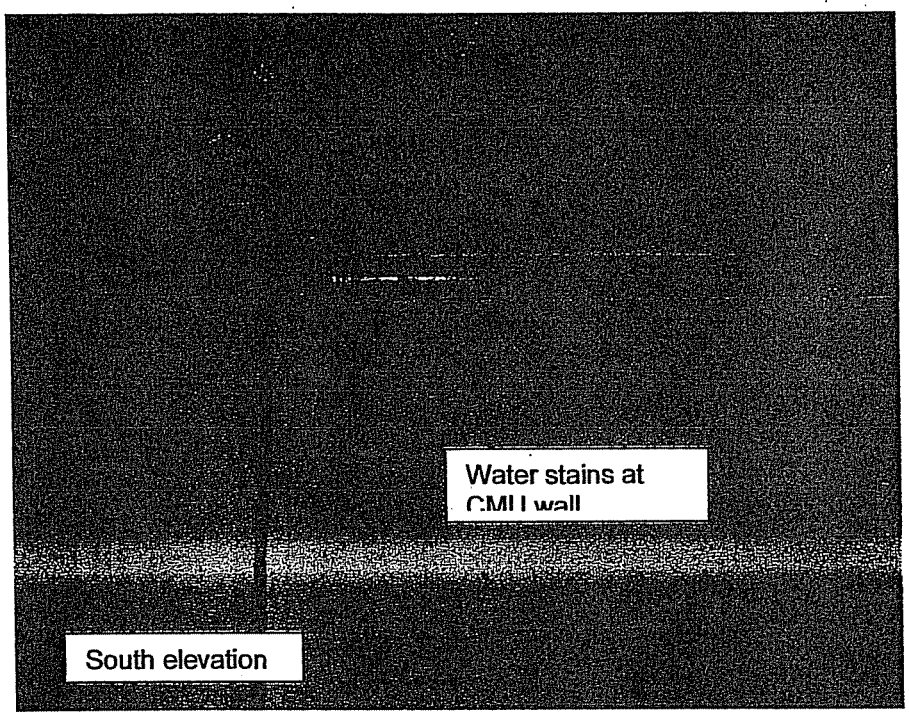
Lower basement (south elevation)

Light yellowish staining appears to be occurring at the CMU wall, at the inside corner where the CMU wall & column intersect.

The south wall is rated 3rd for the amount of water stains.

Column line B-16





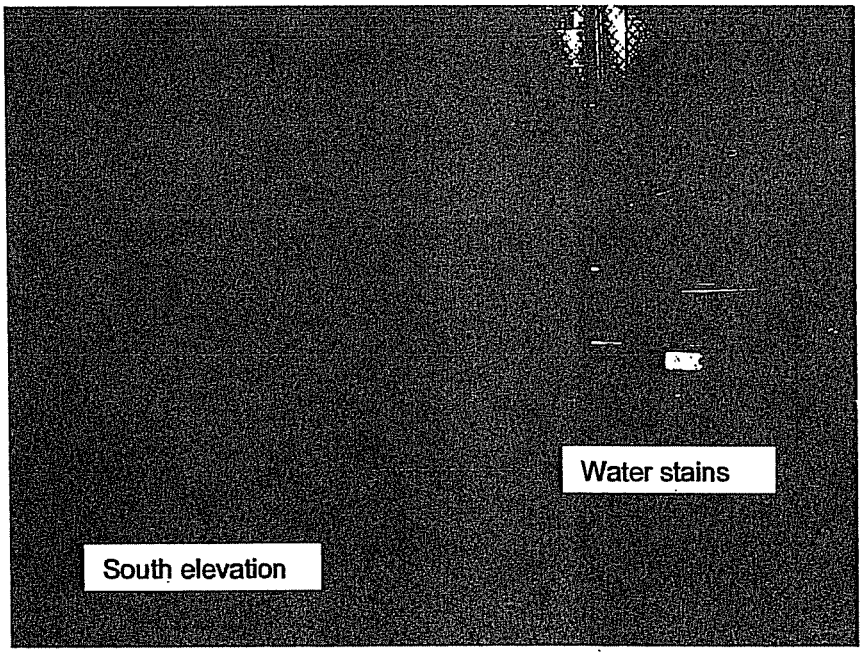
Water stains are evident on the CMU wall, below the hole in the ceiling slab for the drain line.

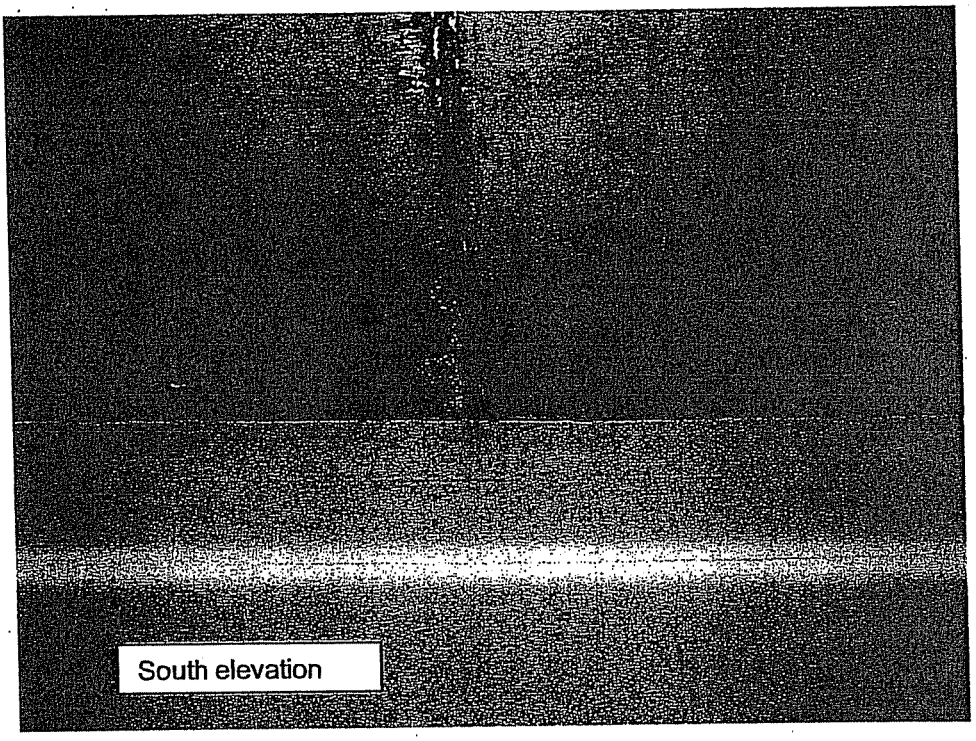
Water appears to be leaking through the hole in the ceiling slab.

Approximate column location K-16.

Water stains are evident at the slab to CMU wall location.

Columns L-16





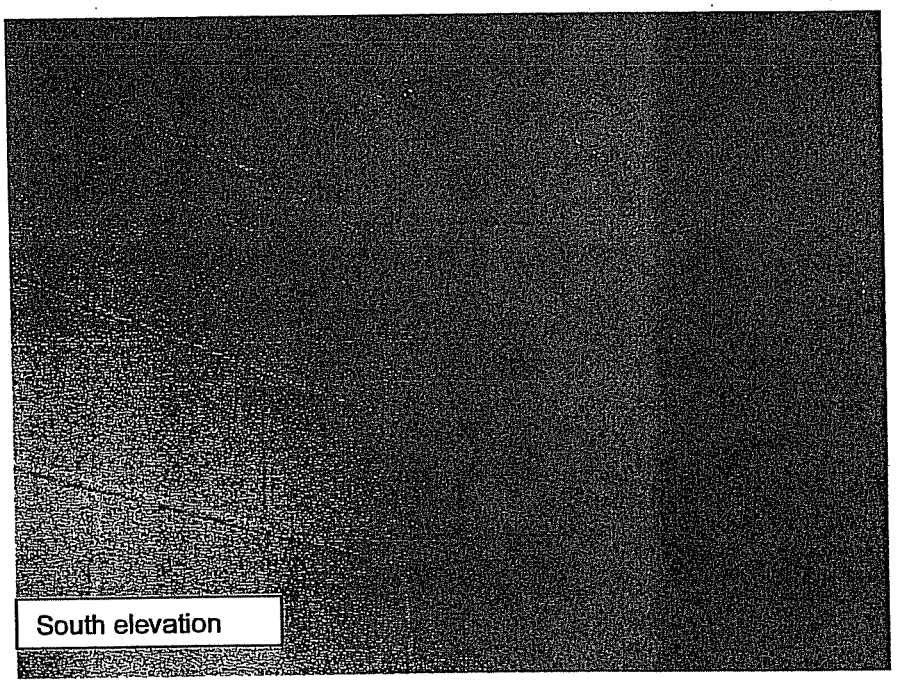
Water stains are evident at the ceiling slab.

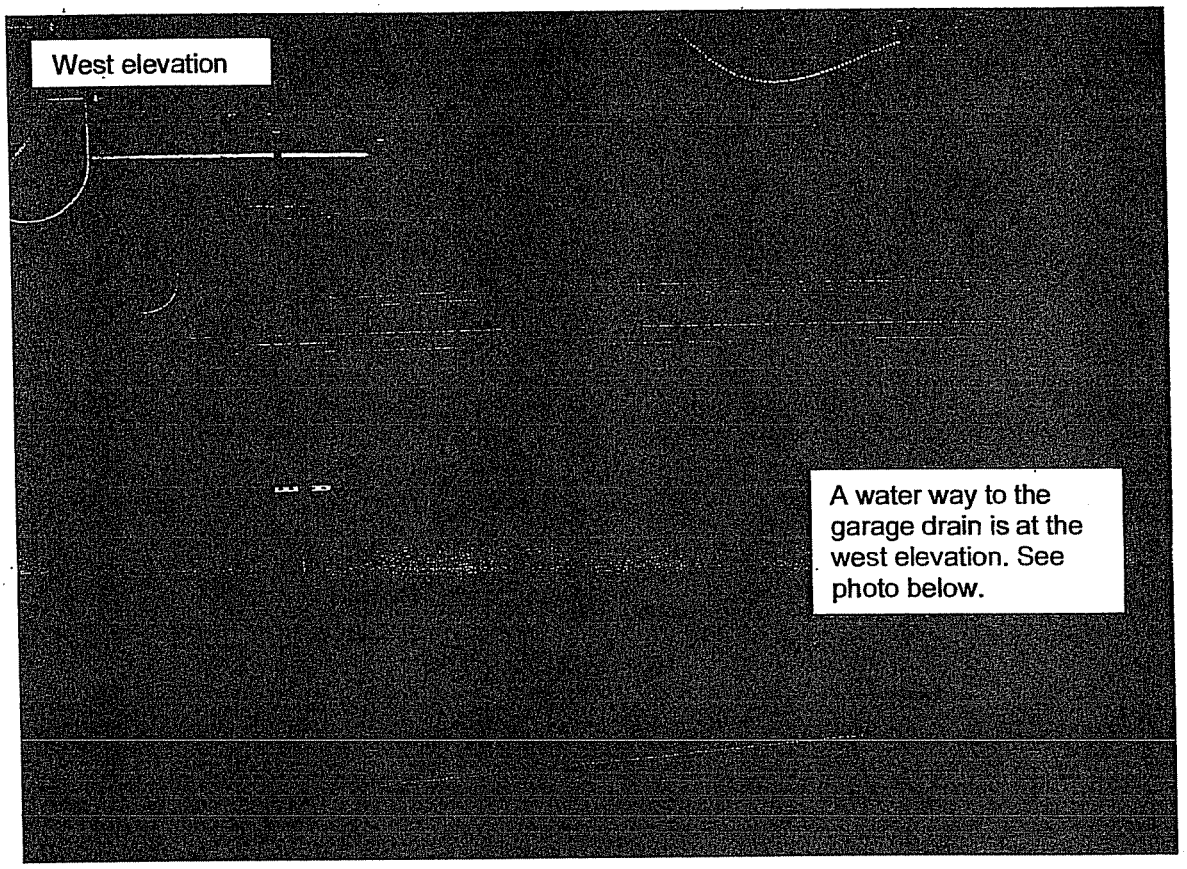
Columns K-16.

Water staining appears to be occurring around the sprinkler lines.

The CMU walls & ceiling slab appear discolored.

Column lines R-17.

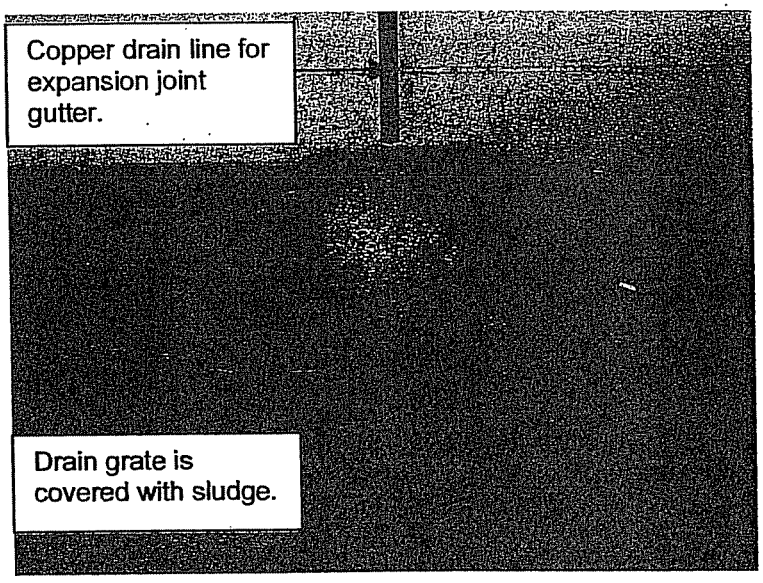


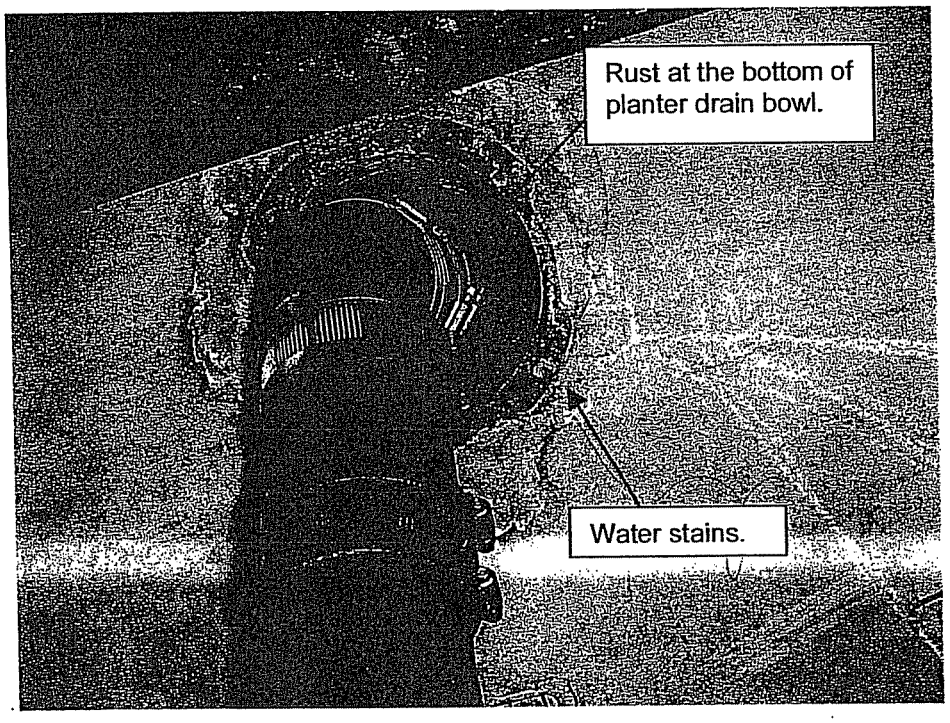


The west elevation wall appears to have the 2nd most amount of water staining. This photograph shows the stains at the CMU wall below the expansion joint. Other stains include pipe penetrations through the wall-column line R-11, Foam repair at a drain line through ceiling slab-column line R-13, efflorescence next to structural column-column line R-4. The north wall appears to have only one water stain at the CMU wall/ceiling slab above parking stall 22.

The drain grate is covered with sludge like slime and probably does not drain.

The copper line against the CMU wall is a drain line for the gutter below the expansion joint.





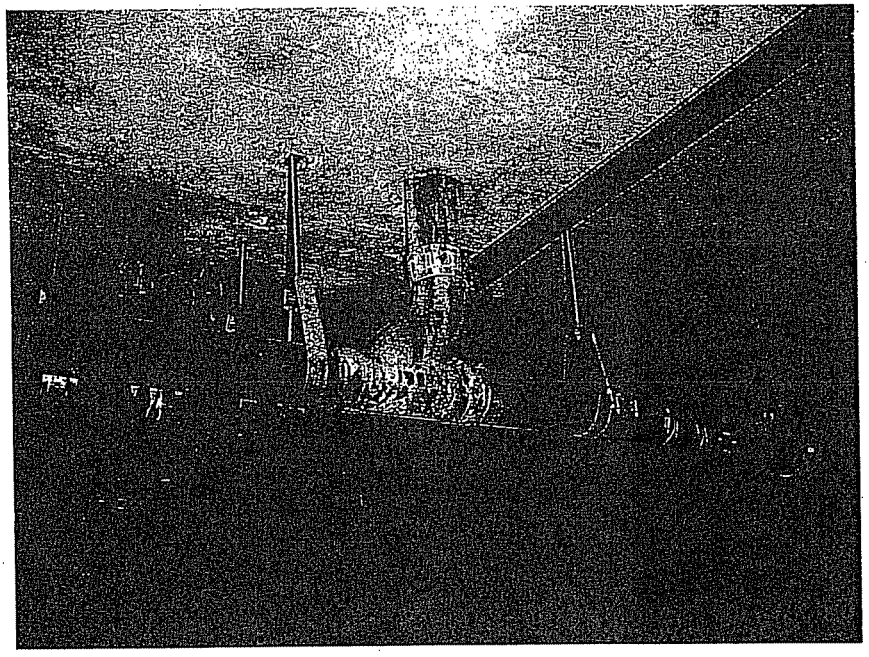
This is a photograph of the bottom side of a planter drain bowl.

Several of the bottom of the drain bowls are exhibiting signs of rust.

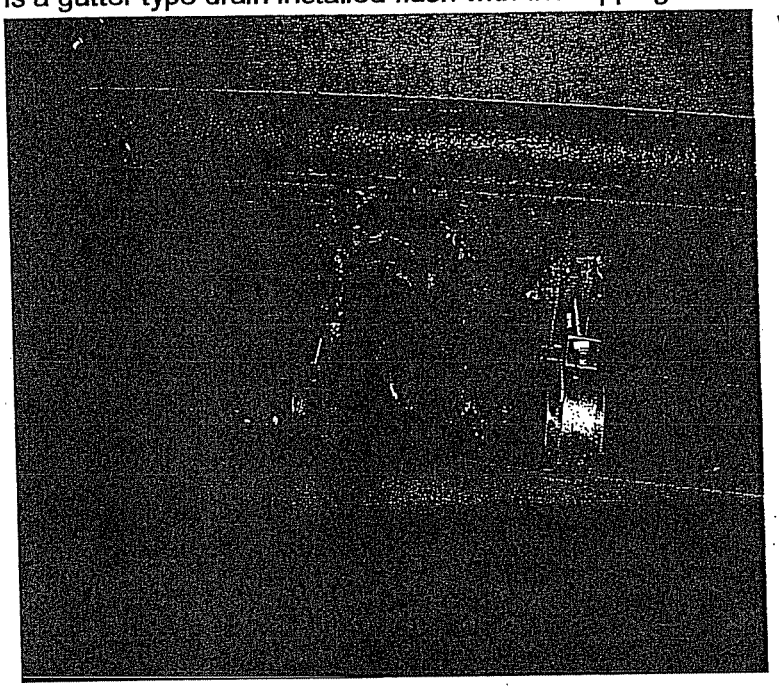
Some water stains are evident around the perimeter of the slab.

Drain lines for the roof are installed through the planters on the west & east elevations. Some of the drain lines appear to be installed to close to the inside corners of the planters for proper flashings.

Inspections at the basement area indicate that water & rust staining are evident at some of the drain lines .



At the low side of the mews level walkway, below & parallel to the expansion joint there is a gutter type drain installed flush with the topping slab. The brand name is Polydrain, which is stamped onto the stainless steel components of the gutter.

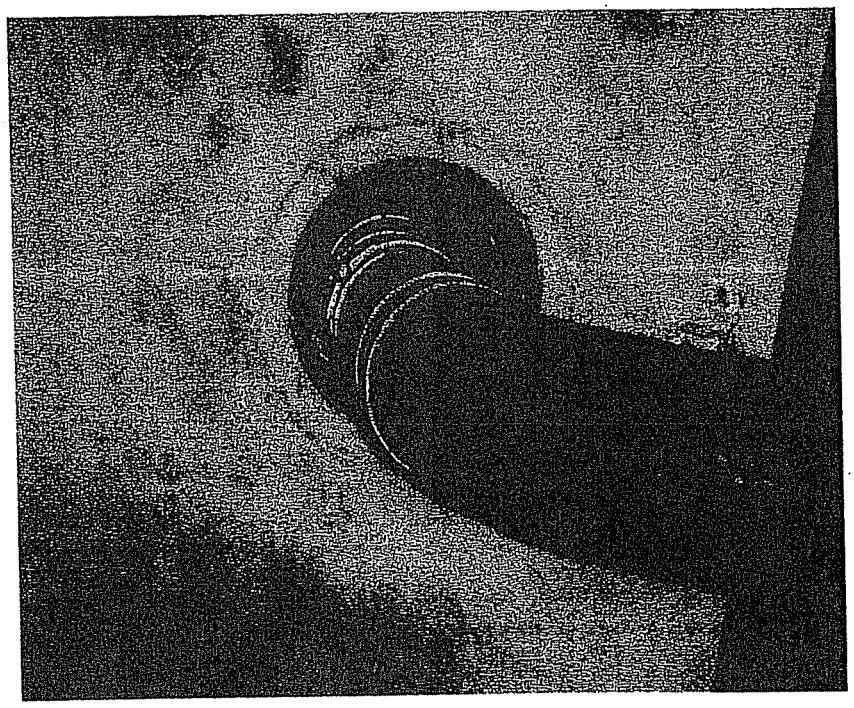


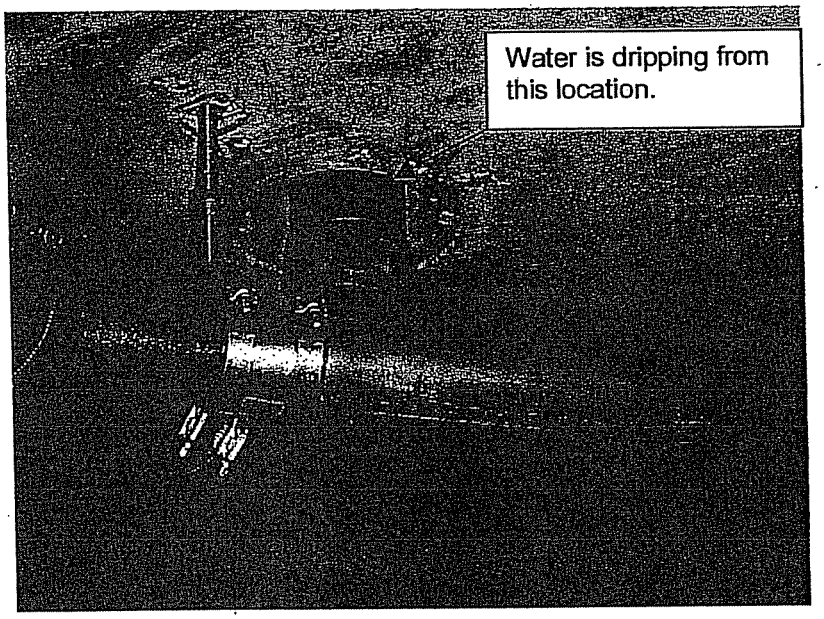
The gutter empties into drain lines in the basement area.

The gutter was inspected from above & has several defects that will be outlined later in this report.

Several of the gutters drain lines have water & rust staining & foam repairs which indicate leakage.

Rust is evident at the underside of a walkway drain bowl at the center of the mews level walkway.



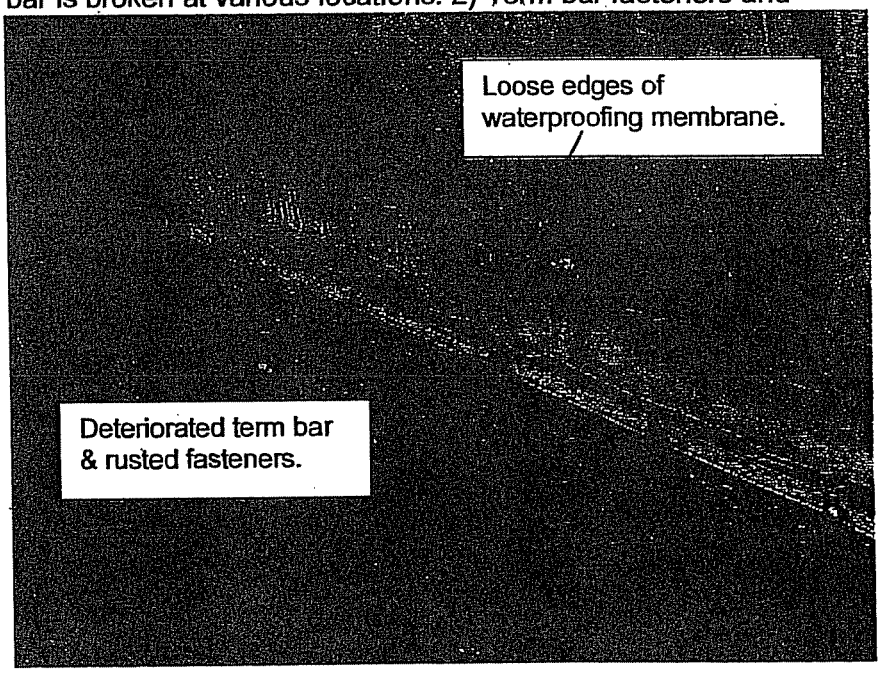


During our inspections we observed a puddle of water on the floor area of parking stall 118.

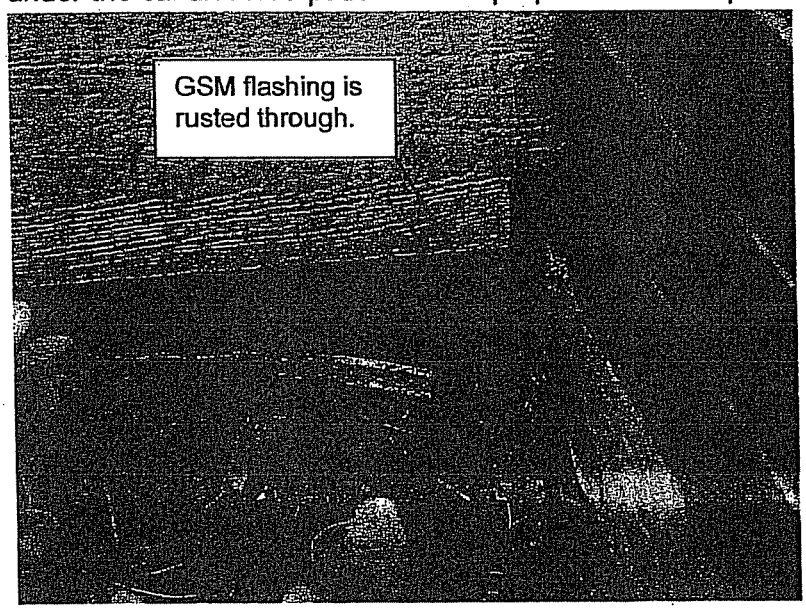
Water was dripping from the drain line penetration.

2) Construction defects associated with the below grade basement leaks.

The waterproofing membrane & the components that were installed to prevent water intrusion into the below grade parking area are deteriorating at various locations. Defects associated with the membrane that appear likely to promote water intrusion include the following: 1) The term bar is broken at various locations. 2) Term bar fasteners and plates are rusted, broken, under driven & deteriorated at various locations. 3) Membrane is loose at some locations & below the grade. 4) A membrane termination at a cantilevered patio was deteriorated- see photo below.



The patios at grade level cantilever the below grade CMU wall. Membrane application under the cantilevered patio must be proper in order to prevent water intrusion into the basement.

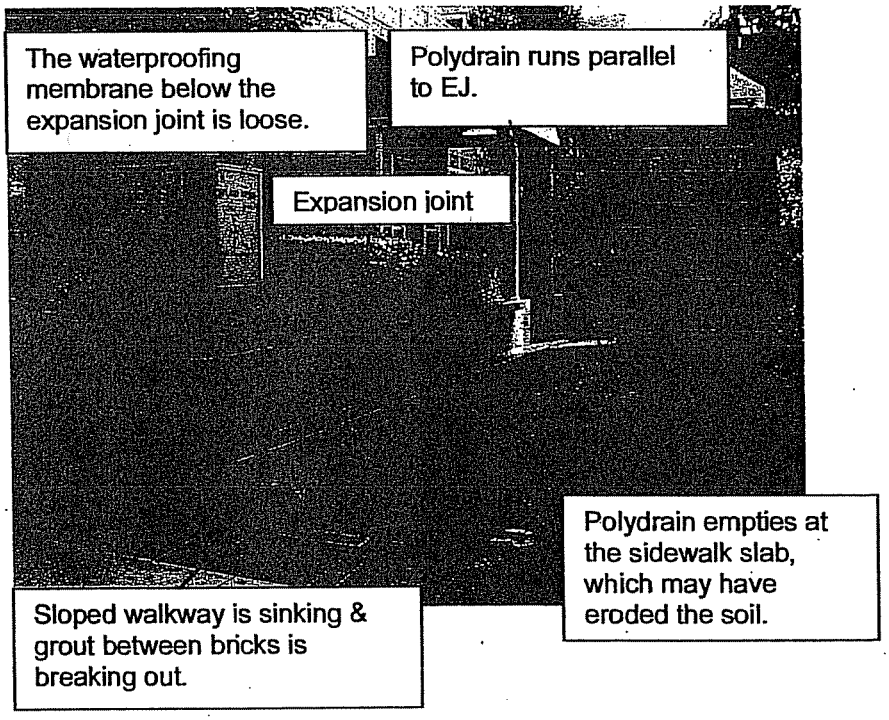


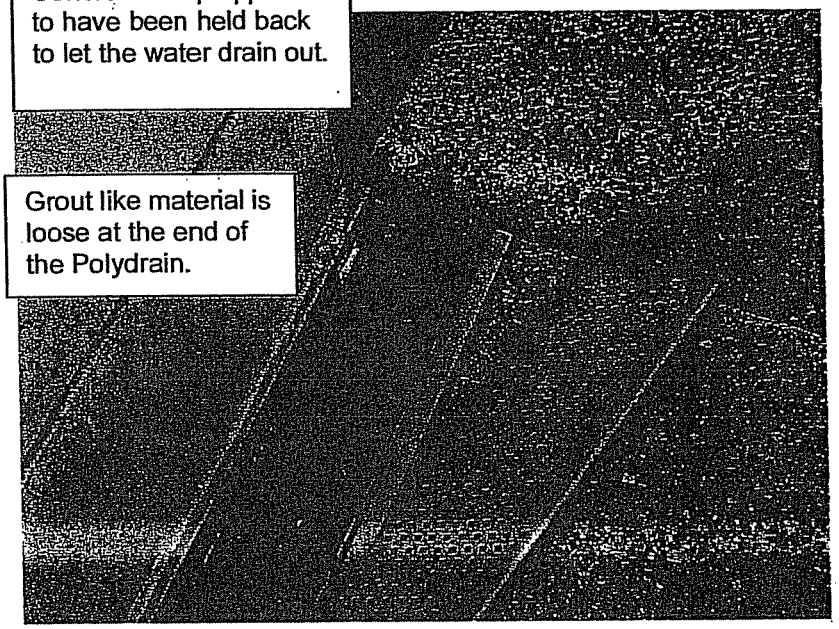
At this location some defects were noted: 1) Term bar is pulled away from foundation. 2) Loose membrane is under grade. 3) GSM flashing next to the slab is rusted through. 4) Siding is to low to the dirt

Elevation shot of mews walk way, expansion joint & Polydrain. (east elev.)

Expansion joint defects & Polydrain defects are outlined below.

Sloped walkway leading to topping slab is sinking & the mortar between the bricks is breaking out.





The Polydrain at the east elevation does not empty into a drain line. The water discharges into the planter where the sloped walkway is.

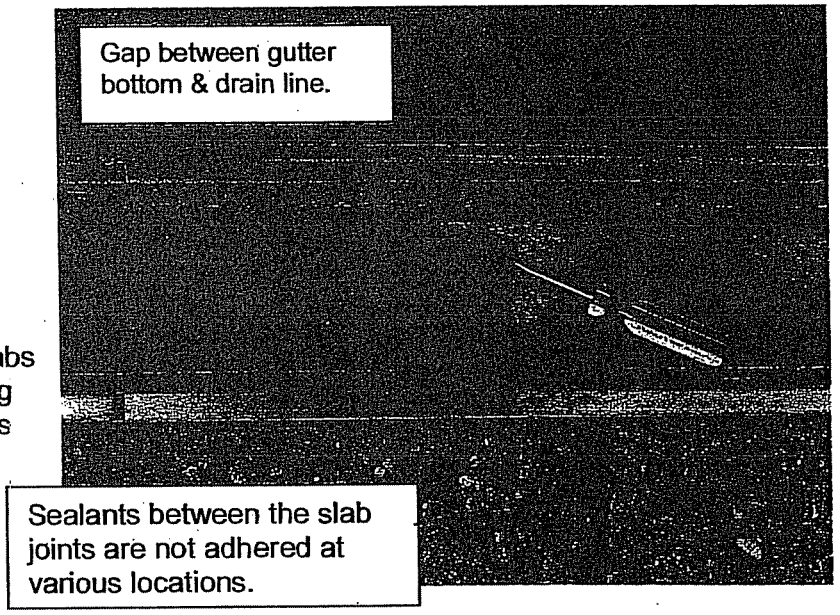
Polydrain empties into cast iron drain lines at interior locations.

The flashing details at the drain line penetrations is improper. See photo below.

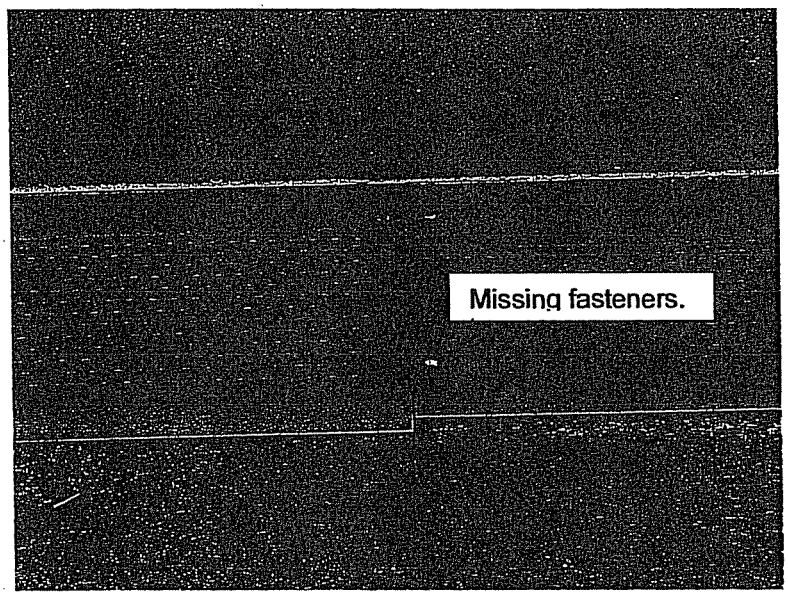
Plan view of an existing drain line inside the Polydrain.

The drain line does not have a flange. Cast iron drain line appears to be sealed to the gutter with foam only.

Sealants between the slabs is not adhered and pulling out of the joints at various locations.

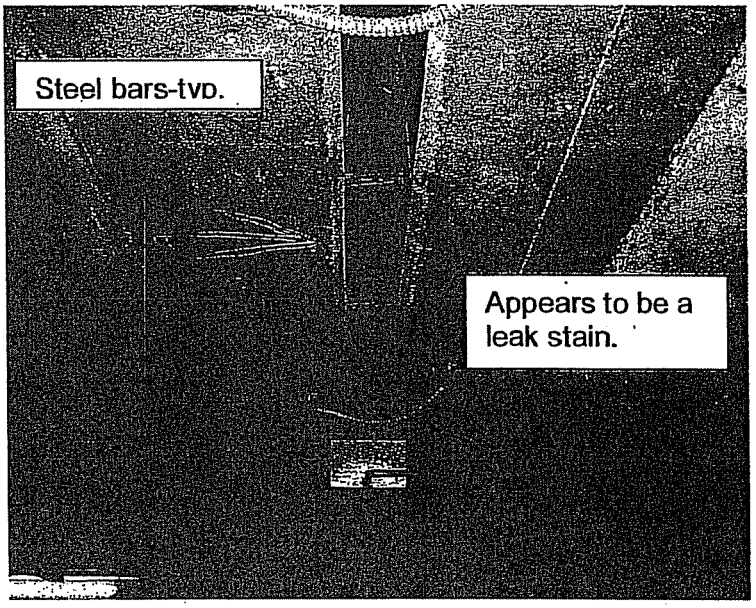


2A) Expansion joint assessment



Some of the defects associated with the plaza side of the expansion joint include the following: 1) Some fasteners at the vertical flange are missing, not driven home & are spalling the concrete. 2) Sealant under the vertical flange is deteriorated, missing and cracked at various locations. 3) Vegetation is growing out of the expansion joint at some locations.

The defects associated with the expansion joint at the underside of the structural slab include; expansion joint leaks where it dies into the east & west walls as noted in section 1. Embedded steel bars appear to restrict seismic movement in north & south direction. Also, various types of rigid pipes cross under the expansion joint and are not designed for seismic movement.



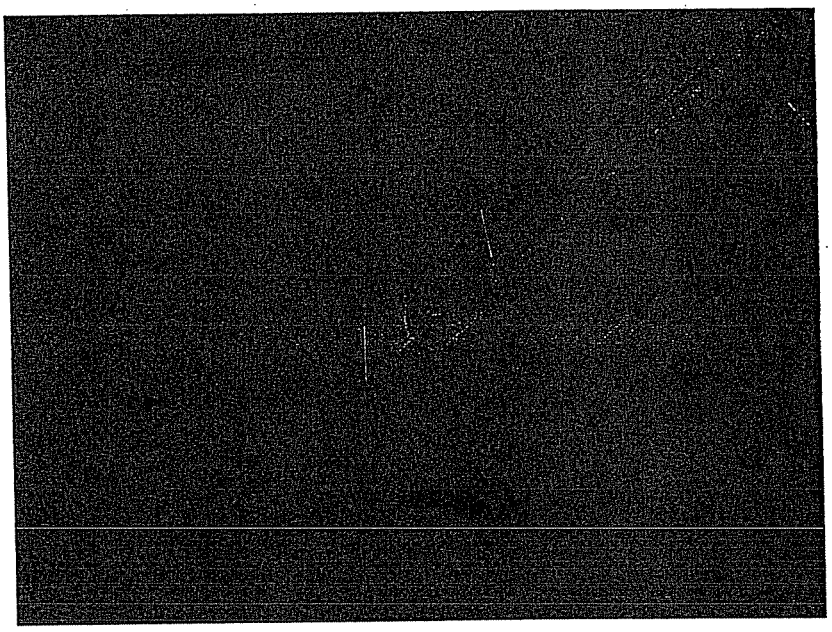
A GSM gutter is located beneath the expansion joint. The gutter is held back approximately 12' from each wall.

This gutter was installed because the seismic joint was leaking. Water stains on the slab are evident at a couple locations that are not under the expansion joint.

3) Photographic documentation of water staining & temporary type repairs associated with the drain lines at the grade level parking area.

Water stains are evident at the ceiling around a drain line penetration.

Column lines J-4



Foam repairs are evident at some drain line penetrations.

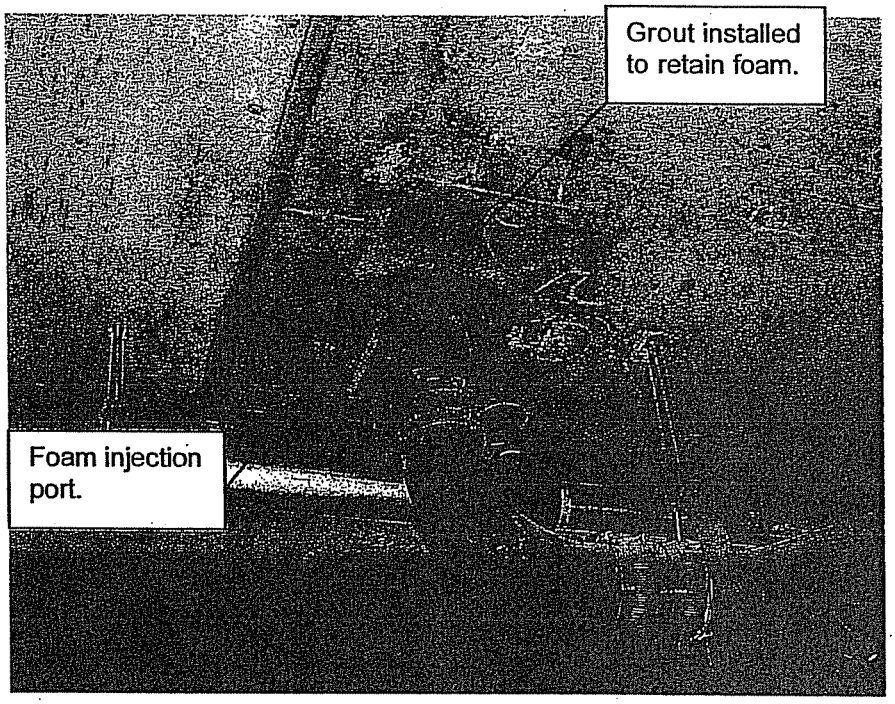
Not all drain lines that were repaired with foam are shown in this report

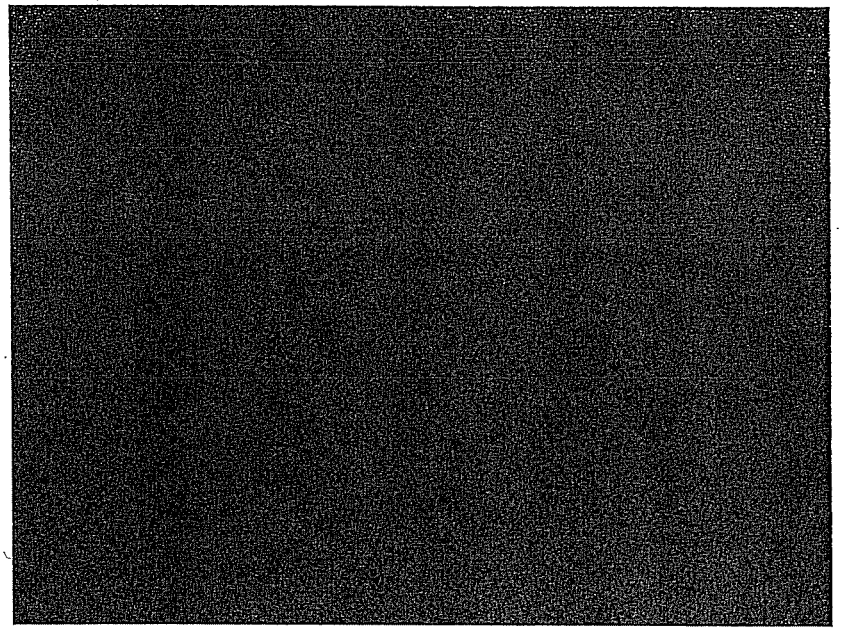
Column lines E-3, F-7

Some drain lines have been red tagged.

This drain line area still has the foam injection port hanging from the cavity that was repaired.

Column lines F-5



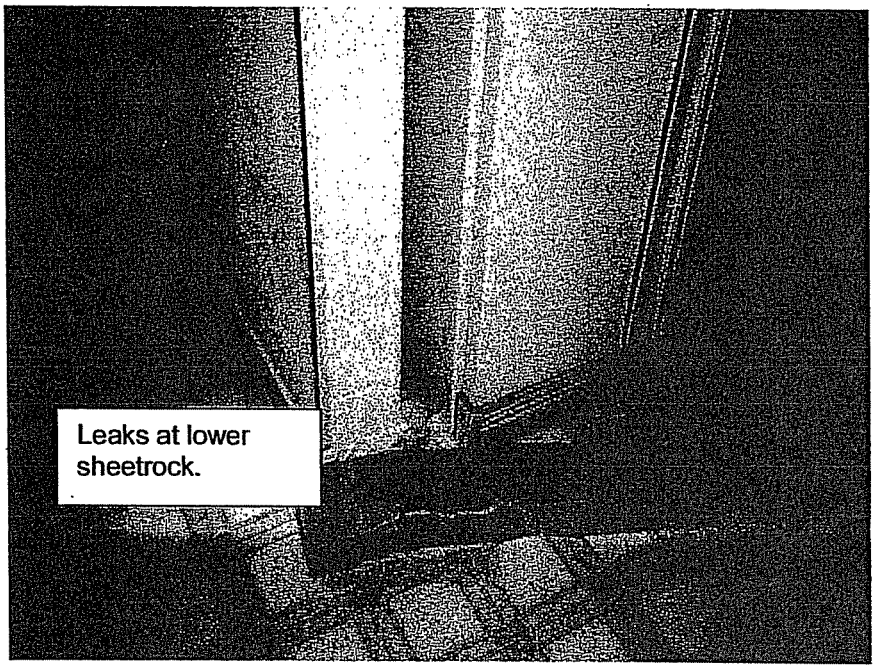


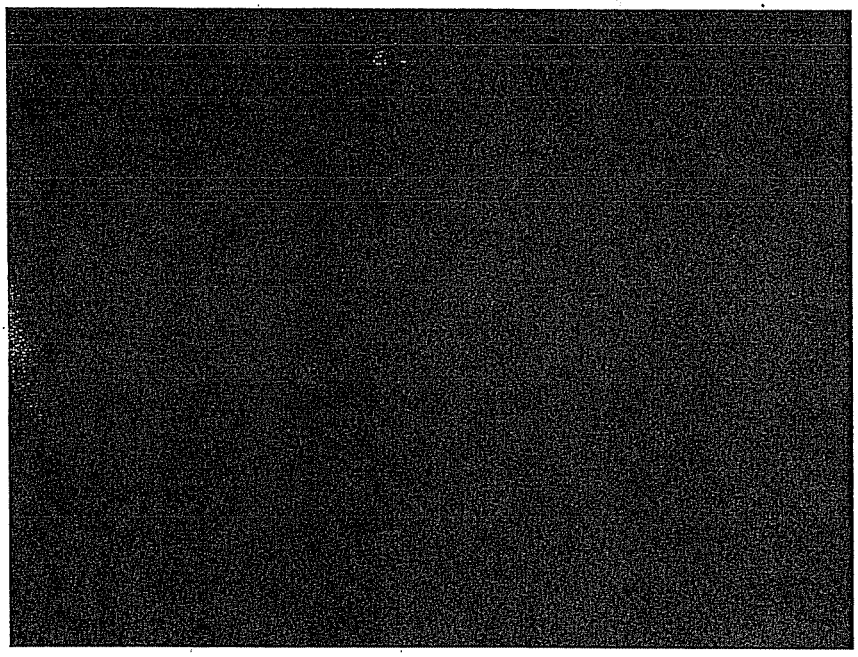
The sheetrock in this location is water damaged from a leaky drain line penetration at the ceiling slab.

The cavity has been foam filled and still has the injection port hanging down from the repair area.

The CMU wall & the sheetrock are the backside of the kitchen in unit 109, which has been experiencing water intrusion.

During the patio inspections, the tenant from unit 109 gave us this photo of the wall leaks in her kitchen.





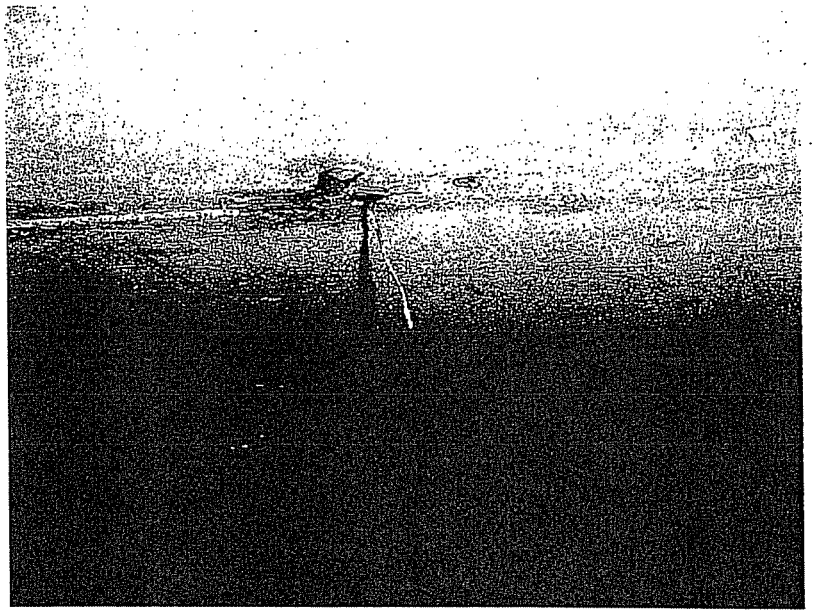
Water stains or efflorescence is evident at the ceiling at column lines D-5.

Other ceiling locations that are exhibiting signs of water staining or temporary repairs at drain lines include column lines: P-16, M-16, L-18, K-18,F-3.

ALI also investigated a reported leak above parking stall 249. ALI met with the tenant and inspected the material that was dripping from this wire & onto the tenants automobile.

The material was blackish brown. (unknown material) There was not enough of the substance to take a sample.

ALI transferred the measurements to the plaza & determined that the wire is about 1' outside the planter.



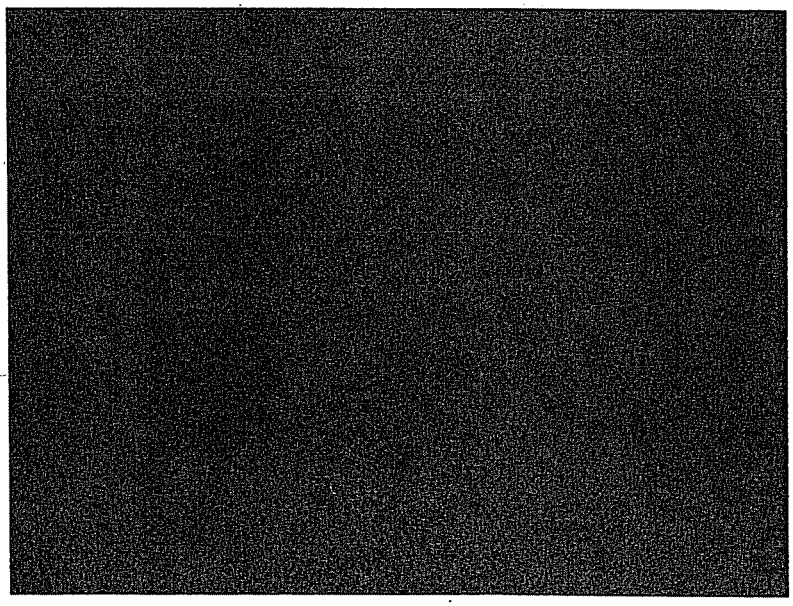
4) Evaluation of drainage and slabs at boiler rooms

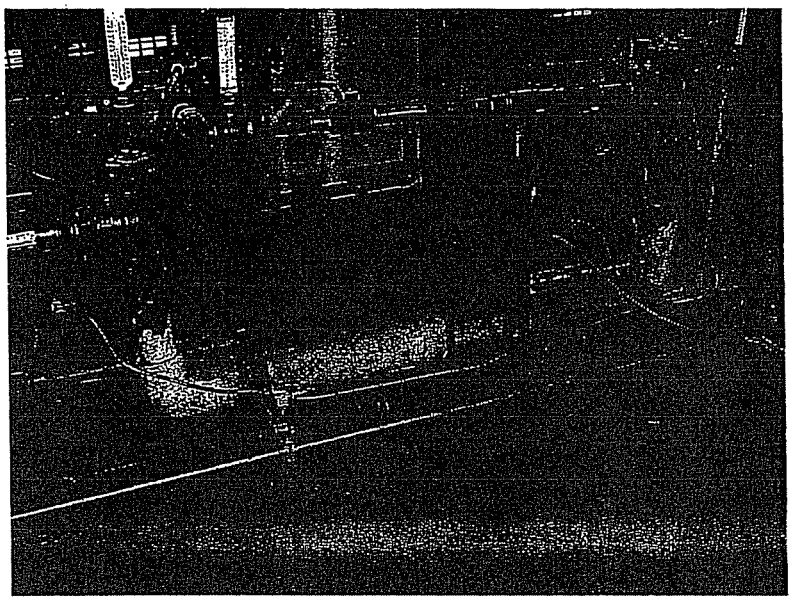
A cursory inspection of the boiler room slabs and drains in buildings 2 and 4 were checked because of leaks into the adjacent apartments when the boilers overflow or leak. The boiler room slabs were checked with a smart level and do not appear to have positive slope. Slope to the drains in both rooms varied from 0+ to 1/8-.

Water stains are evident at the slab next to the backside of the sheetrock walls of building units.

Cove molding base was installed and sealed at the slab location by Barry Swenson Builders in an attempt to prevent water intrusion into the apartments.

The remedial repairs have been reported as unsuccessful and water intrusion into adjacent apartments is still occurring.

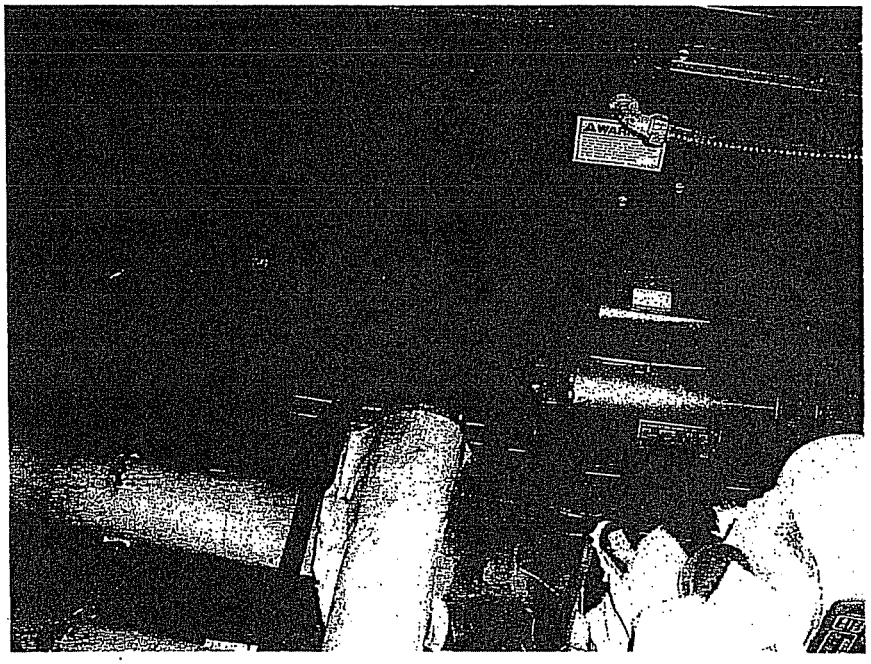




Water stains at the slab location around the boilers indicate that water is not draining.

Each boiler room has one, approximately 5" floor drain.

Copper overflow drain lines run from the boilers and empty into the floor drains at both buildings.



5) Analysis and Recommendation Conclusion: Basement and interior building leaks can be attributed to various reasons.

1) Expansion joint leaks at the east & west basement walls (page 2 & 9) can probably be attributed to improper flashing and drainage details. D/T at the east & west end of the expansion joint at the planter locations is recommended.

2) Below grade basement wall leaks below the pipe penetrations (top of page 3) at the CMU walls can probably be attributed to improper flashing details around the pipe penetrations. Dirt should be removed around a pipe penetration behind the CMU wall so the through wall flashing can be evaluated.

3) Leaks at the CMU wall (bottom of page 3 & 7) to slab locations may be occurring because of the below grade waterproofing defects as noted on the bottom half of page 12. The defects appear to be a result of poor workmanship and repairs are required. No D/T required.

3a) Deterioration of the below grade membrane and flashings (top of page 13) is evident at the cantilevered patios. D/T is recommended at this location.

4) Water stains at the slab to CMU wall locations (top of page 4) at the below grade basement may be a result of an improperly installed membrane or drainage system at the bottom of the footing. Dirt should be removed at the backside of the CMU wall so the membrane & drain line can be evaluated.

5) Sealant joints between the columns and CMU wall (bottom of page 4) that are exhibiting signs of leaks can be evaluated if D/T is performed.

6) Wall cracks in the basement's exterior CMU walls (top of page 5) should be evaluated by an engineer.

7) Water stains and temporary foam repairs are evident at many types of cast iron drain line penetrations though the slab (bottom of page 5). Foam repairs are evident at patio drains, plaza drains, planter drains and the Polydrain at the mews walkway.

7a) Patio drain lines (bottom of page 5 & top of page 6)-Cast iron drain lines were installed to close to the inside corners of the buildings which prevented proper flashings which resulted in leaks. These drain lines may have to be moved in order to allow proper flashings to occur. Remedial solutions need to be developed.

7b) Leaks were evident at the drain line penetration above parking stall 118 (top of page 12) but the drain location above was not identified.

7c) Plaza drains (top of page 12)-A leaking drain indicates that the drain bowl may not properly flashed between the structural and topping slab. D/T of the topping slab around a couple of drains so the drain bowl and associated flashings can be evaluated is recommended.

7d) Planter drain lines (bottom of page 10) -cast iron drain lines were installed up through the planters. GSM RWL's empty into the cast iron drain lines. The cast iron drain lines were installed to close to the inside corners of the planters which probably prevent proper flashings which resulted in leaks. Dirt should be removed around a cast iron drain line in the planter so the flashings can be evaluated.

7f). Planter drain bowls (top of page 10)-rusted drain bowls indicate that drains may not be properly flashed. Dirt should be removed around a drain bowl so the drain bowl assembly can be evaluated.

7g) Polydrain at mews walkway (top of page 11) –leaks, foam repairs and rust are evident at the cast iron drain line penetrations through the slab. These drain lines can probably be properly flashed from inside the Polydrain gutter. D/T is not required.

8) The stainless steel grate over the expansion joint (top of page 15) should be removed so the expansion joint can be evaluated.

8a) An engineer should evaluate the expansion joint and pipes that cross under it to determine if they are properly installed.

9) D/T at the bottom or above the slab at parking stall 249 (top of page 19) might determine the leak source.

10) Boiler room slabs/drains (pages 19 & 20) Water proofing membrane could be installed on the slab and extended up the wall; which would eliminate apartment leaks. Option 2-reslope slab floors and install a waterproof membrane. Floor mounted water lines would have to be raised if option 2 were used.