

Basement Storage

Item #T7

Problem Description:

The locksets on the exit doors are keyed operable on both the inside and outside of the door.

Possible Consequences:

By code, a key can not be required to exit through an exit door. If this door is locked from the inside and there is a fire, someone could be trapped. This is a code violation.

Corrective Measure:

Replace the lockset with one that does not require a key to open from the inside.

Basement Storage

Item #T8

Photograph Reference #118

Problem Description:

The storage rooms is divided with a chain link fence. This fence has two lockable gates.

Possible Consequences:

If these gates are locked, the second exit from half the storage area is eliminated. In case of fire, someone could be trapped. This is a code violation.

Corrective Measure:

Remove the locking mechanism to ensure these gates are always operational.

Lagoon Pavilion

Exterior

Item #LP1

Photograph Reference #119

Problem Description:

The wood overhang soffits and fascias are peeling.

Possible Consequences:

If not protected, this wood will weather and require premature replacement.

Corrective Measure:

Scrape all wood, prime and paint. Replace damaged wood beyond repair.

Exterior

Item #LP2

Problem Description:

The steel brick lintels are rusting and peeling.

Possible Consequences:

If not protected, the steel will continue to rust until its strength is compromised. This may result in future cracking in the brick veneer.

Corrective Measure:

Clean off all the rust, prime and paint.

Exterior

Item #LP3

Photograph Reference #120

Problem Description:

The wood trim around the windows is peeling.

Possible Consequences:

If not protected, this wood will weather and require premature replacement.

Corrective Measure:

Scrape all wood, prime and paint. Replace damaged wood beyond repair.

Exterior

Item #LP4

Problem Description:

Some insect screens at the windows are torn.

Possible Consequences:

Holes in the screens will allow the passage of insects.

Corrective Measure:

Repair insect screens.

Exterior

Item #LP5

Problem Description:

Some areas of sealant are cracked and dried out.

Possible Consequences:

Failed areas of sealant may allow the penetration of water into the wall system.

Corrective Measure:

Remove all failed sealant and recaulk.

Exterior

Item #LP6

Photograph Reference #121

Problem Description:

There are several broken and chipped bricks.

Possible Consequences:

Broken brick may allow the infiltration of water into the wall system. It is also aesthetically unpleasant.

Corrective Measure:

Replace damaged brick. A less desirable solution may be to fill the void with a colored concrete that matches the brick color.

Exterior

Item #LP7

Photograph Reference #122

Problem Description:

The paint on the metal louvers are peeling.

Possible Consequences:

The louvers are not in a predominant location, but they are visible. Their appearance is aesthetically unpleasant.

Corrective Measure:

Scrape off loose paint, prime and paint.

Exterior

Item #LP8

Problem Description:

The mortar in some brick joints is cracking or falling out.

Possible Consequences:

The missing mortar can allow water to penetrate into the wall system.

Corrective Measure:

Remove all loose mortar, clean and tuck point mortar joints.

Exterior

Item #LP9

Photograph Reference #123

Problem Description:

The wood doors and frames are peeling, scratched and partially painted with colors not matching the original color.

Possible Consequences:

If not protected, this wood will weather and require premature replacement.

Corrective Measure:

Scrape all wood, prime and paint.

Lobby

Item #LP10 (ADA Compliance)

Photograph Reference #124

Problem Description:

There are two drinking fountains in the lobby and neither one of them is ADA accessible.

Possible Consequences:

Someone could file a complaint that neither one of these fountains are accessible.

Corrective Measure:

Replace both drinking fountains with ADA accessible fountains. One should be mounted in the high ADA position and one in the low ADA position.

Lobby

Item #LP11 (ADA Compliance)

Problem Description:

The public pay telephone is not ADA accessible.

Possible Consequences:

Someone could file a complaint that this telephone is not accessible to someone in a wheelchair.

Corrective Measure:

Install another public pay telephone that complies with ADA requirements.

Lobby

Item #LP12 (ADA Compliance)

Problem Description:

The acoustical tile ceiling is water stained in some areas.

Possible Consequences:

It does not appear that this staining is caused by recent roof leaking, but that possibility should be verified. The staining is aesthetically unpleasant.

Corrective Measure:

Replace all stained and damaged ceiling tile. Another solution that would negate the acoustical benefit of the ceiling tile would be to paint the ceiling.

Lobby

Item #LP13

Problem Description:

Over the years, a variety of items have been screwed into the brick mortar joints and a later time removed, leaving holes.

Possible Consequences:

The remaining holes and plugs are aesthetically unpleasant.

Corrective Measure:

Remove plugs and fill holes in joints with mortar.

Assembly Hall

Item #LP14

Problem Description:

The finish on the woodwork is coming off, especially where tape has been applied and removed.

Possible Consequences:

The woodwork does not have the protection it needs due to the failing finish.

Corrective Measure:

Repair finish where damaged by removal of tape. Refinish woodwork.

Assembly Hall

Item #LP15

Problem Description:

Some areas in the ceiling contain damaged acoustical tile.

Possible Consequences:

The damaged ceiling tile are aesthetically unpleasant.

Corrective Measure:

Replace damaged ceiling tile.

Assembly Hall

Item #LP16

Photograph Reference #125

Problem Description:

The kitchen is not ADA accessible.

Possible Consequences:

Someone who is disabled, especially in a wheelchair, could file a complaint that the kitchen cabinets are not accessible.

Corrective Measure:

Modify a section of the kitchen so it is accessible and complies with ADA requirements.

Assembly Hall

Item #LP17

Problem Description:

Some of the window glazing is broken.

Possible Consequences:

The broken glass could permit the passage of both water and cold air.

Corrective Measure:

Replace broken glass.

Assembly Hall

Item #LP18

Photograph Reference #126

Problem Description:

Some of the wood trim is either missing or is no longer properly fastened.

Possible Consequences:

The missing and hanging wood trim is aesthetically unpleasant.

Corrective Measure:

Replace missing wood trim and refasten trim.

Custodian Office

Item #LP19

Photograph Reference #127

Problem Description:

The cabinets and shelving are not ADA accessible.

Possible Consequences:

Someone who is disabled, especially in a wheelchair, could file a complaint that these areas are not accessible.

Corrective Measure:

Modify a section of the cabinets and shelving so it is accessible and complies with ADA requirements.

Men's and Women's Toilet Rooms

Item #LP20

Photograph Reference #128

Problem Description:

Paint is peeling off the ceiling.

Possible Consequences:

The peeling ceiling is aesthetically unpleasant.

Corrective Measure:

Scrape the ceiling, clean and paint.

Men's and Women's Toilet Rooms

Item #LP21

Problem Description:

The toilet partitions are dented and rusting.

Possible Consequences:

If the edges of the partitions that are rusting are not repaired, they will eventually require replacement.

Corrective Measure:

Fill the dents, remove the rust and paint.

Men's and Women's Toilet Rooms

Item #LP22

Problem Description:

The plumbing fixtures, along with the area required for the handicap stall, are not ADA accessible.

Possible Consequences:

Someone with a disability could file a complaint that some aspect of the toilet room is not accessible.

Corrective Measure:

Remodel the toilet rooms to be ADA compliant.

Office

Item #LP23 (ADA Compliance)

Photograph Reference #129

Problem Description:

The sink in the service closet along with access, is not ADA accessible.

Possible Consequences:

A disabled employee could file a complaint that this area is not accessible, especially to someone in a wheelchair.

Corrective Measure:

If this sink is necessary, the room would have to be remodeled to provide access to an ADA compliant sink.

General - First Floor

Item #LP24

Problem Description:

The terrazzo floors are cracking throughout the first floor.

Possible Consequences:

If the terrazzo flooring would shift due to the cracking, this could become a tripping hazard. In some cases, the cracking is not noticeable, in others, it is aesthetically unpleasant.

Corrective Measure:

Fill the crack and grind the floor at the crack location level.

General - First Floor

Item #LP25 (ADA Compliance)

Problem Description:

Some of the doors are not ADA accessible.

Possible Consequences:

Someone with a disability could file a complaint that access through the building is limited because they can not get through the narrower doors.

Corrective Measure:

Replace doors with ADA compliant doors where possible.

General - First Floor

Item #LP26 (ADA Compliance)

Problem Description:

The door hardware is not ADA compliant.

Possible Consequences:

Someone with a disability could file a complaint that access is more difficult or denied due to the lack of ADA door hardware.

Corrective Measure:

Replace door hardware with new ADA compliant hardware. Where existing hardware can be re-used, such as door closures, push/pull, etc, adjust and install to comply with ADA requirements.

Basement

Item #LP27 (ADA Compliance)

Photograph Reference #130

Problem Description:

The stair railings are not ADA compliant.

Possible Consequences:

Someone with a disability could file a complaint that this stair is hard to use because it is not ADA compliant.

Corrective Measure:

Install ADA compliant handrailings.

Basement

Item #LP28

Photograph Reference #131

Problem Description:

Metal components are rusting and the paint is peeling.

Possible Consequences:

Left unprotected, these materials will continue to rust until they require premature replacement.

Corrective Measure:

Remove rust, scrape, prime and paint.

Swimming Pool Bath House

Exterior

Item #SP1

Photograph Reference #132

Problem Description:

The wood overhang soffits and fascias are peeling.

Possible Consequences:

If not protected, this wood will weather and require premature replacement.

Corrective Measure:

Scrape all wood, prime and paint. Replace damaged wood beyond repair.

Exterior

Item #SP2

Photograph Reference #133

Problem Description:

The wood doors are weathering and starting to delaminate.

Possible Consequences:

Once the door starts to delaminate, it could be too late to save it. If nothing is done, the door will continue to get worse.

Corrective Measure:

Remove areas where veneer has delaminated. Patch area, prime and paint. If door is beyond repair, replace door.

Exterior

Item #SP3

Photograph Reference #133 & 135

Problem Description:

The wood door frames paint is peeling.

Possible Consequences:

The peeling paint occurs most often where the door frame contacts the concrete floor slab. If left untreated, these frames will start to decay and require premature replacement.

Corrective Measure:

Scrape wood, prime and paint. Replace damaged wood beyond repair.

Exterior

Item #SP4

Problem Description:

The wood window frame's paint is peeling.

Possible Consequences:

If not protected, the wood frames will weather and require replacement.

Corrective Measure:

Scrape wood, prime and paint.

Exterior

Item #SP5

Photograph Reference #134

Problem Description:

The mortar in some of the brick joints is cracked or falling out.

Possible Consequences:

The missing mortar can allow water to penetrate into the wall system.

Corrective Measure:

Remove all loose mortar, clear and tuck point mortar joints.

Exterior

Item #SP6

Photograph Reference #135

Problem Description:

The concrete base in some areas is cracked and spalling.

Possible Consequences:

This cracking allows water to enter into the wall and cause further damage.

Corrective Measure:

Clean and seal cracks. Patch concrete where spalling has occurred.

Exterior

Item #SP7

Photograph Reference #136

Problem Description:

There are several broken and chipped bricks.

Possible Consequences:

Broken brick may allow the infiltration of water into the wall system. It is also aesthetically unpleasant.

Corrective Measure:

Replace damage brick. A less desirable solution may be to fill the void with a colored concrete that matches the brick color.

Exterior

Item #SP8

Photograph Reference #137

Problem Description:

The ceramic tile floor base is loose or has fallen off.

Possible Consequences:

The missing base is a code violation. In addition, it can allow moisture to enter behind the adjacent base and cause delamination.

Corrective Measure:

Replace missing and loose ceramic tile floor base.

Boy's Toilet/Changing Room

Item #SP9

Problem Description:

The toilet room is not ADA accessible.

Possible Consequences:

Someone who is disabled could file a complaint stating that they are not able to use this room.

Corrective Measure:

Remodel this room to be as handicapped accessible as the floor area allows.

Boy's Toilet/Changing Room

Item #SP10

Problem Description:

The wood door is decaying.

Possible Consequences:

If not repaired, the door will decay to the point where it will require replacement.

Corrective Measure:

Patch and repair door. Prime and paint door with water resistant paint. Keep floor as dry as possible.

Boy's Toilet/Changing Room

Item #SP11

Problem Description:

Areas within the ceramic tile contain damaged or missing grout.

Possible Consequences:

Missing grout allows water to penetrate into the flooring and possibly cause delamination of the ceramic tile.

Corrective Measure:

Remove all loose and failing grout. RegROUT.

Boy's Toilet/Changing Room

Item #SP12

Problem Description:

The supporting steel that secures the toilet partition to the ceiling is rusting.

Possible Consequences:

If not properly protected, the steel will continue to rust.

Corrective Measure:

The steel was not painted with the correct paint. The rust should be removed, primed and painted with a paint formulated for coating metal.

Girl's Toilet/Changing Room

Item #SP13

Photograph Reference #138

Problem Description:

The paint is peeling off the wall.

Possible Consequences:

The room is aesthetically unpleasant.

Corrective Measure:

Scrape walls, clean, and paint.

Girl's Toilet/Changing Room

Item #SP14

Problem Description:

The toilet room is not ADA accessible.

Possible Consequences:

Someone who is disabled could file a complaint stating that they are not able to use this room.

Corrective Measure:

Removable this room to be as handicapped accessible as the floor area allows.

Girl's Toilet/Changing Room

Item #SP15

Problem Description:

The toilet partitions are rusting.

Possible Consequences:

If nothing is done to stop the rusting, it will continue until the partitions are beyond repair and require replacement.

Corrective Measure:

Remove rust, prime and paint.

Girl's Toilet/Changing Room

Item #SP16

Photograph Reference #139

Problem Description:

The bottom of the wood door frames have decayed and will continue to decay due to the wetness.

Possible Consequences:

As long as the floor is wet around the door frames, they will continue to decay.

Corrective Measure:

Remove the decayed wood and splice in treated lumber where possible. Where beyond repair, replace wood trim. Prime and paint.

Girl's Toilet/Changing Room

Item #SP17

Problem Description:

The ceramic tile floor base is loose or has fallen off.

Possible Consequences:

The missing base is a code violation. In addition, it can allow moisture to enter behind the adjacent base and cause delamination.

Corrective Measure:

Replace missing and loose ceramic tile floor base.

Girl's Toilet/Changing Room

Item #SP18

Problem Description:

The supporting steel that secures the toilet partition to the ceiling is rusting.

Possible Consequences:

If not properly protected, the steel will continue to rust.

Corrective Measure:

The steel was not painted with the correct paint. The rust should be removed, primed and painted with a paint formulated for coating metal.

Basement

Item #SP19

Photograph Reference #140

Problem Description:

The hollow metal door and frame is rusting.

Possible Consequences:

Both the door and frame are rusted beyond the point of repair.

Corrective Measure:

Replace hollow metal door and frame with new galvanized hollow metal door and frame.
Keep floor dry.

Basement

Item #SP20

Problem Description:

Painted and unpainted steel is rusting, probably due to excessive humidity.

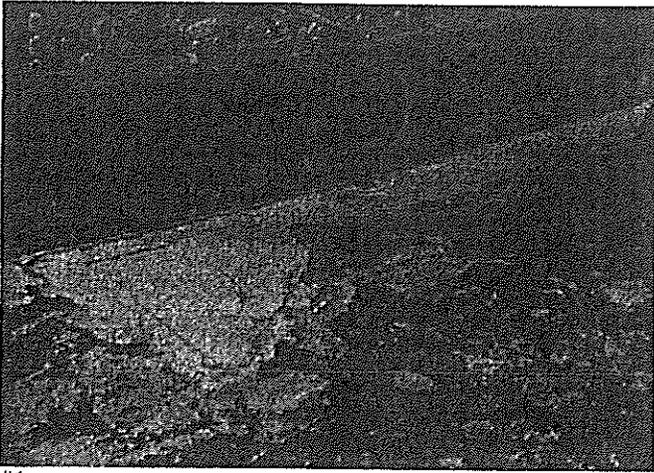
Possible Consequences:

If the rusting and humidity is not corrected, the steel will require premature replacement.

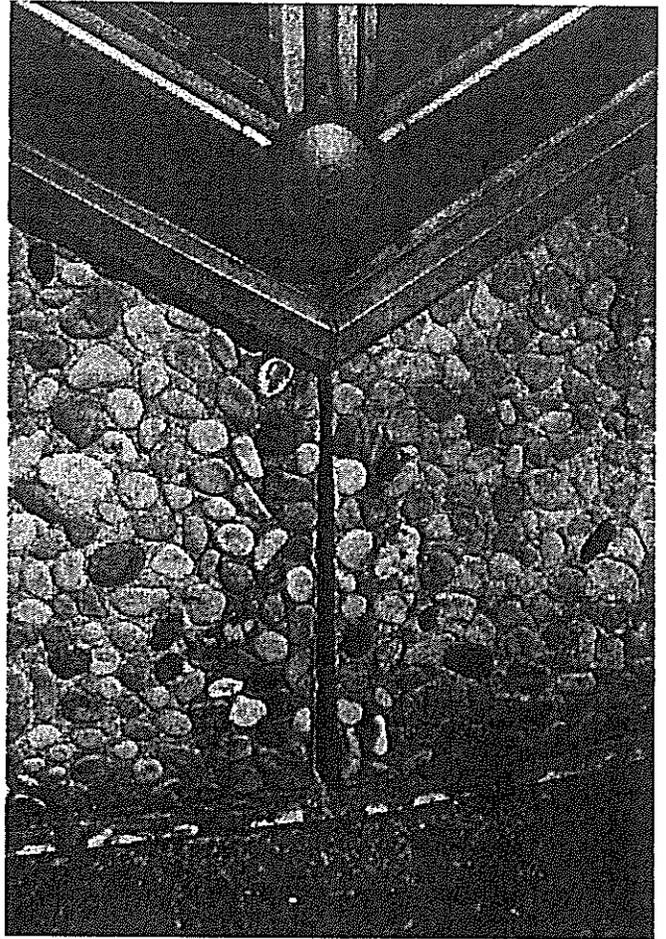
Corrective Measure:

Remove rust, prime and paint. In addition, the condition that floods the floor with water should be eliminated.

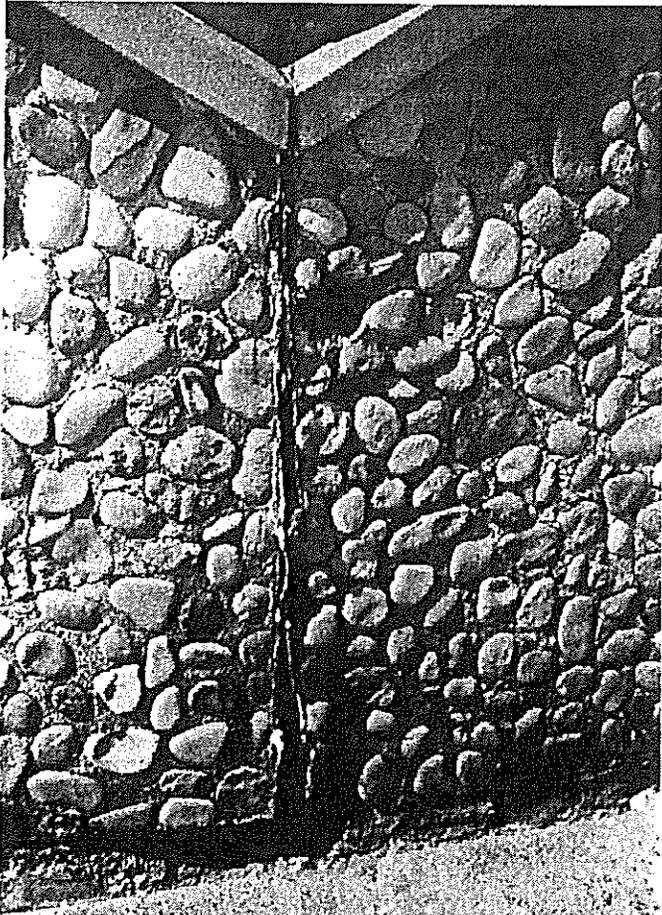
Mitchell Park Final Report



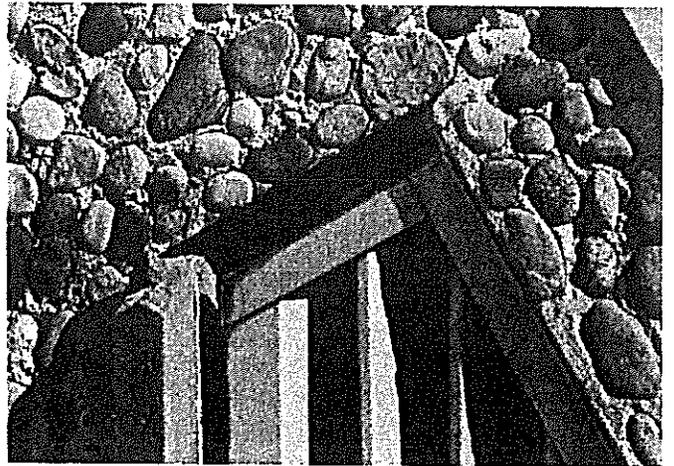
#1



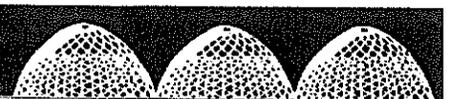
#2



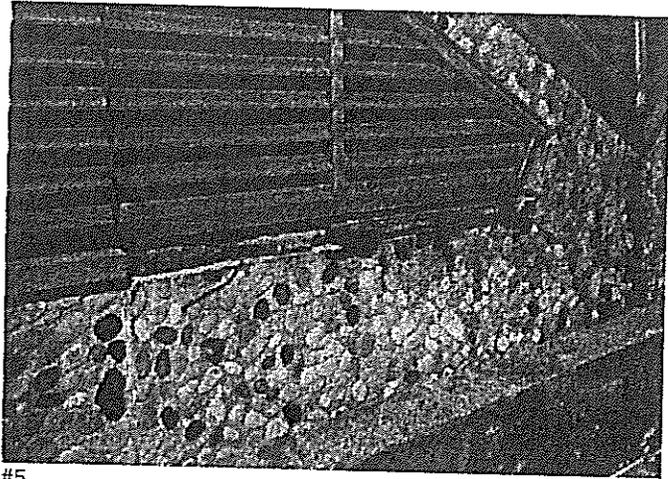
#3



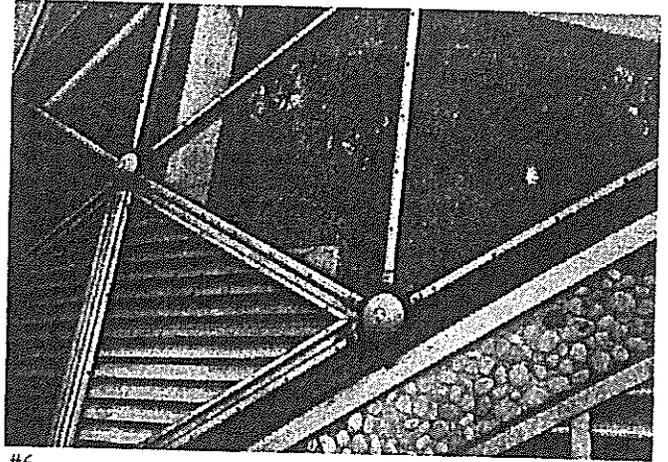
#4



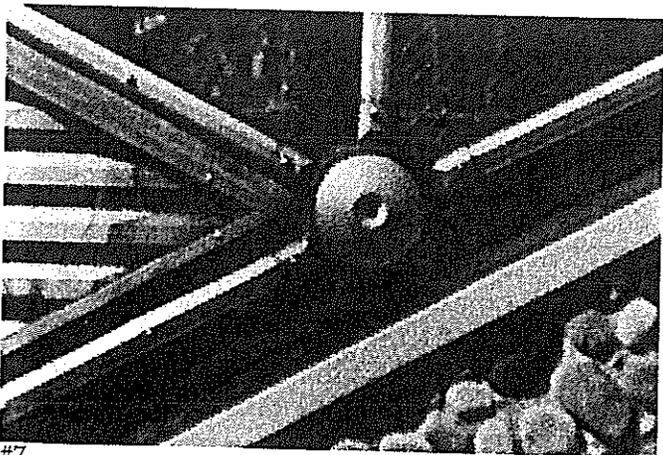
Mitchell Park Final Report



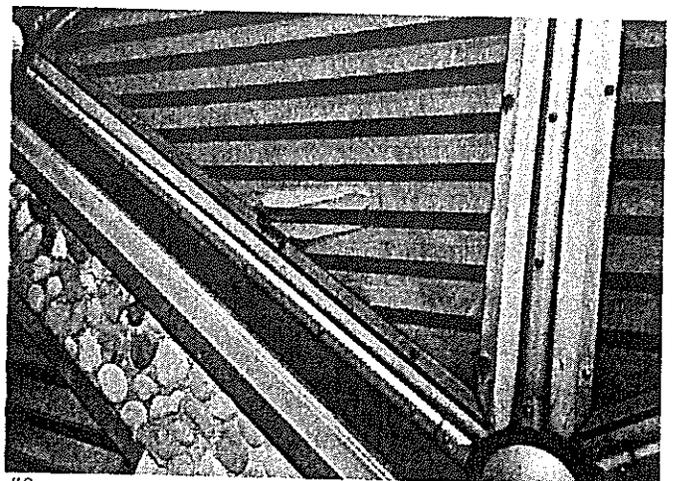
#5



#6



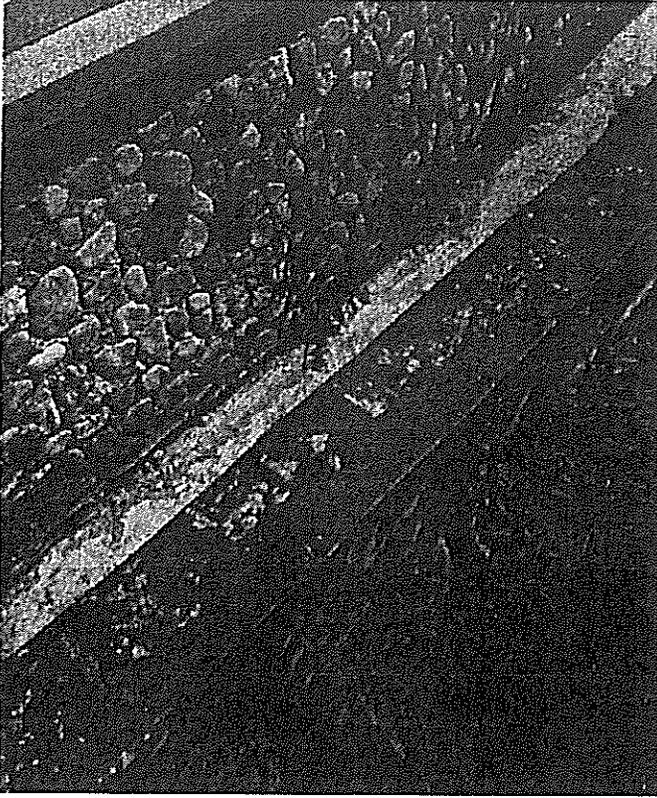
#7



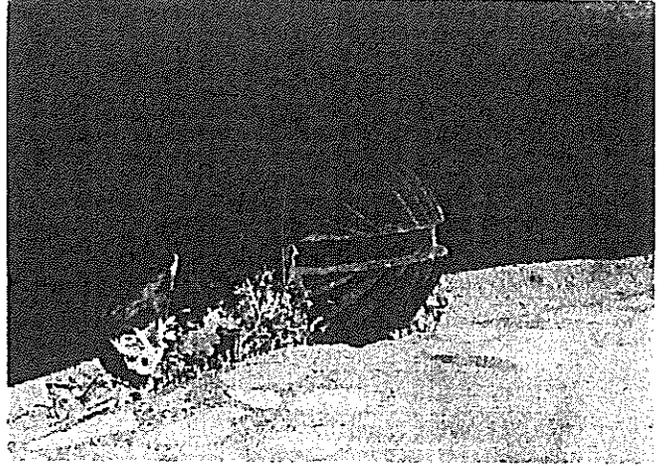
#8



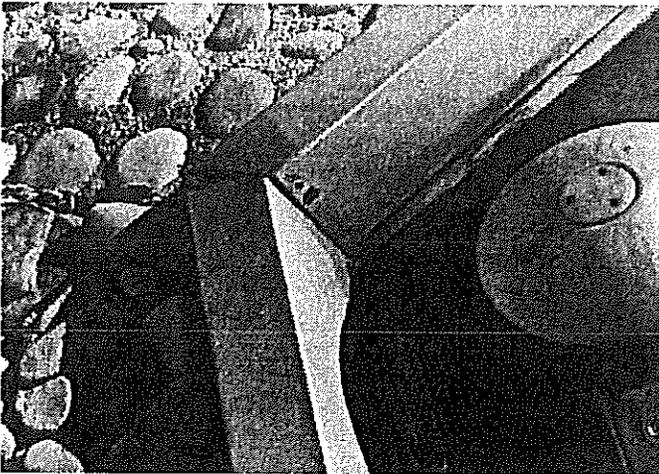
Mitchell Park Final Report



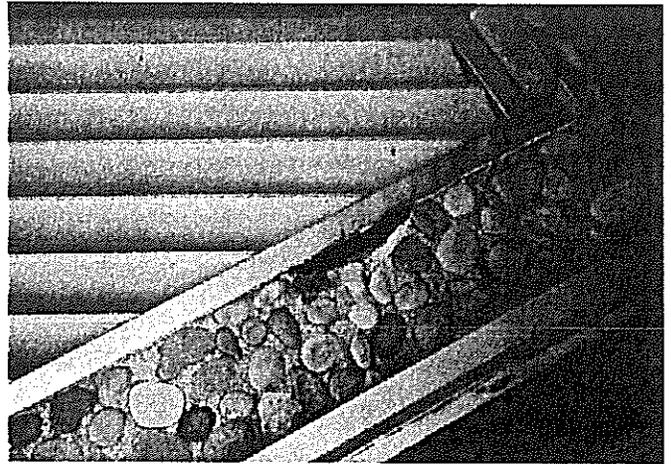
#9



#10



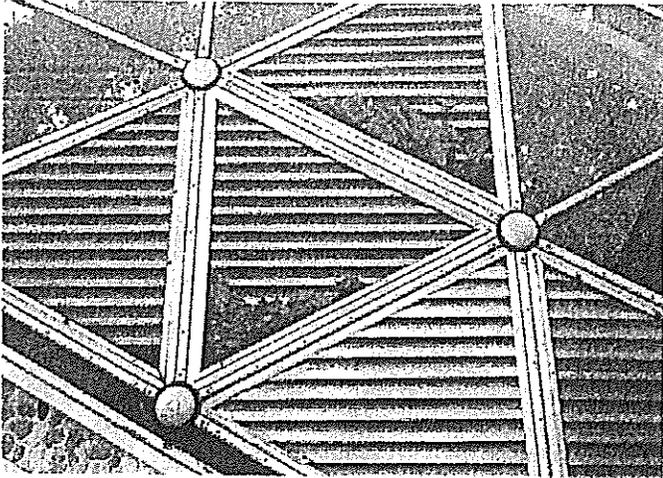
#11



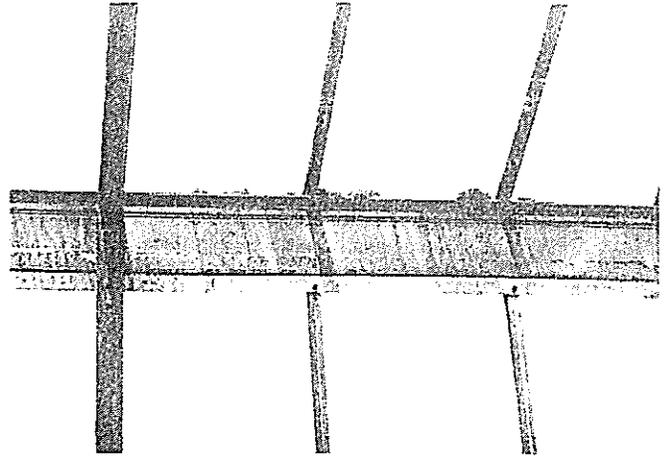
#12



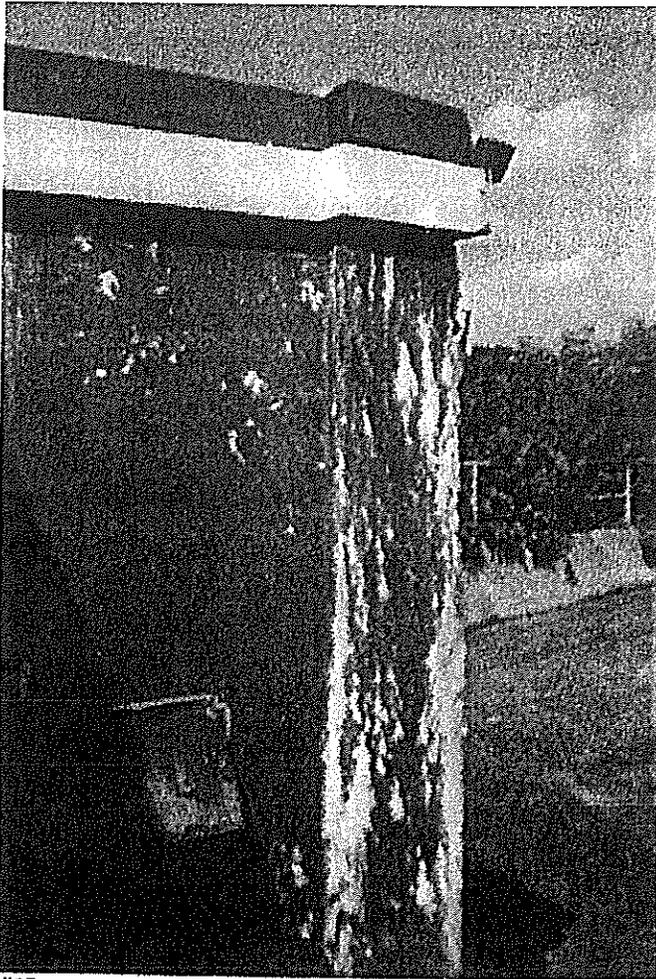
Mitchell Park Final Report



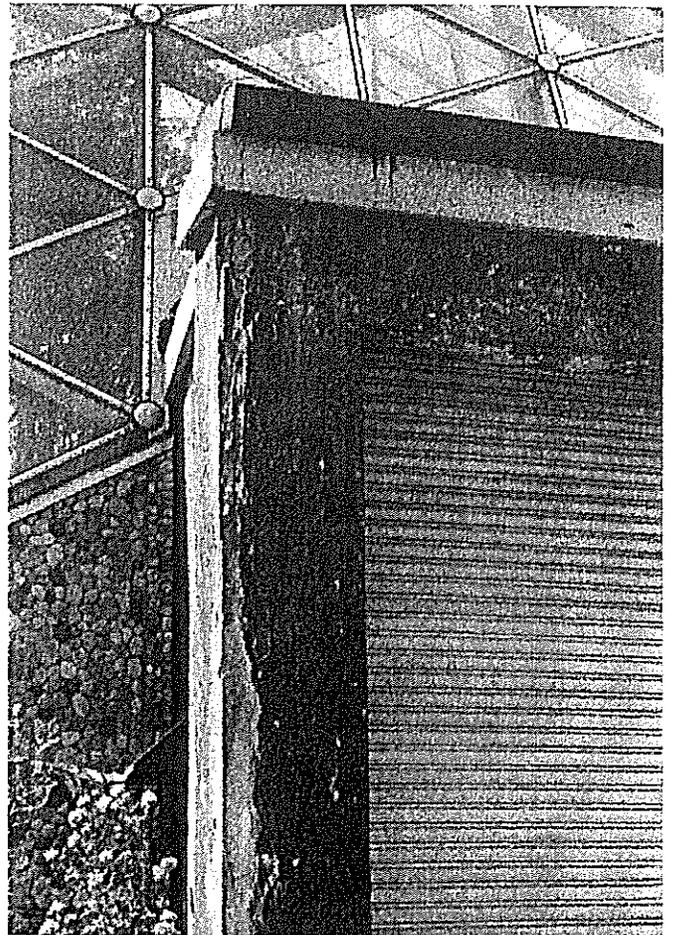
#13



#14



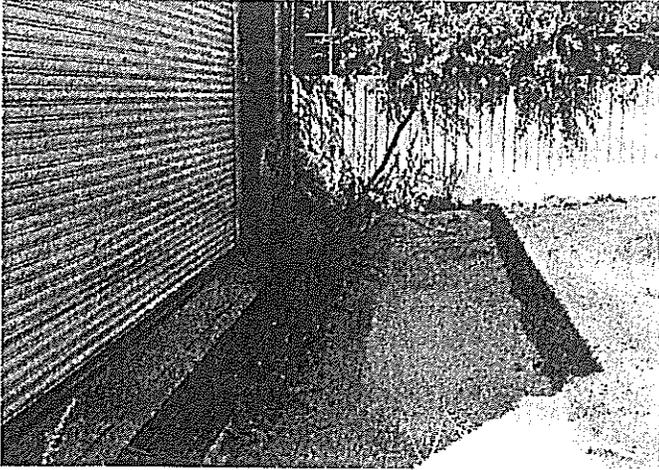
#15



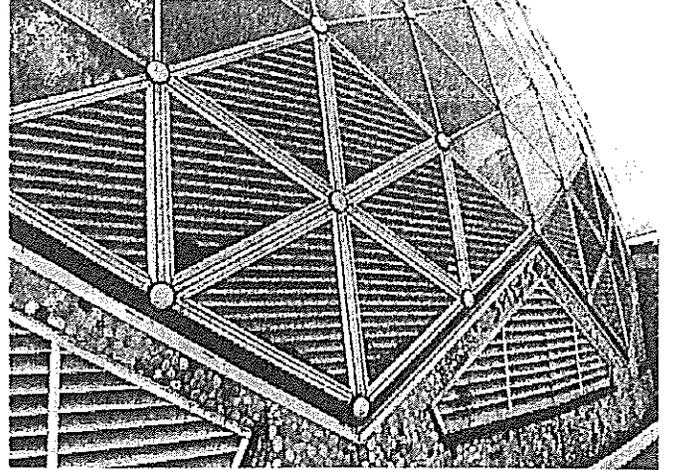
#16



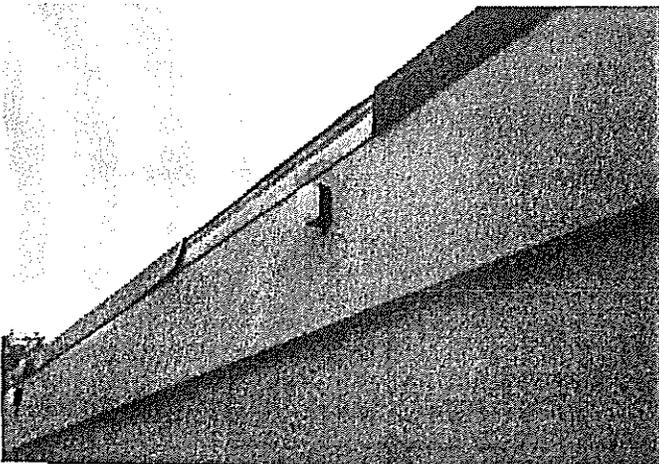
Mitchell Park Final Report



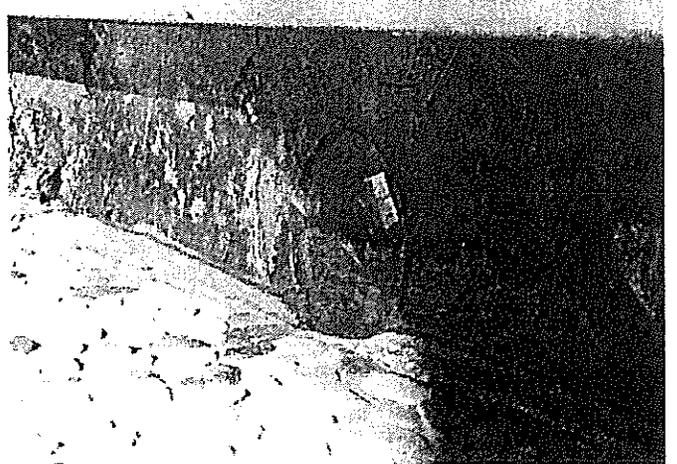
#17



#18



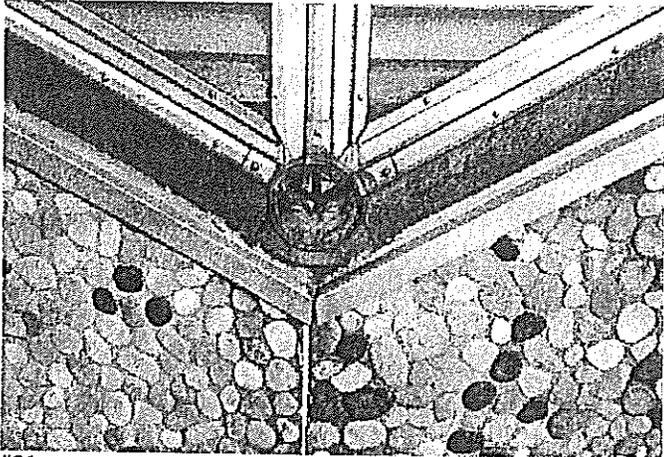
#19



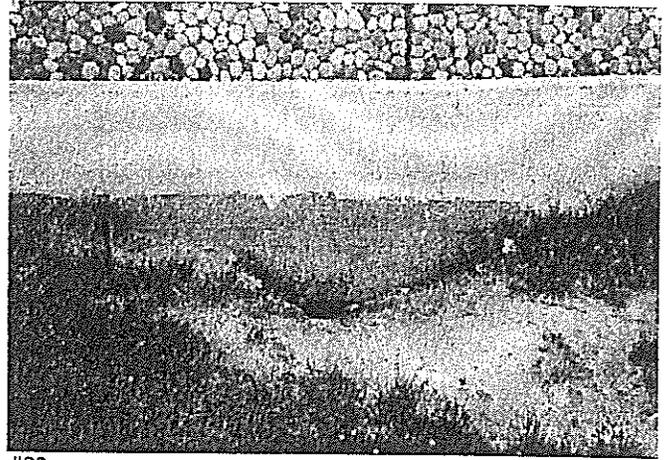
#20



Mitchell Park Final Report



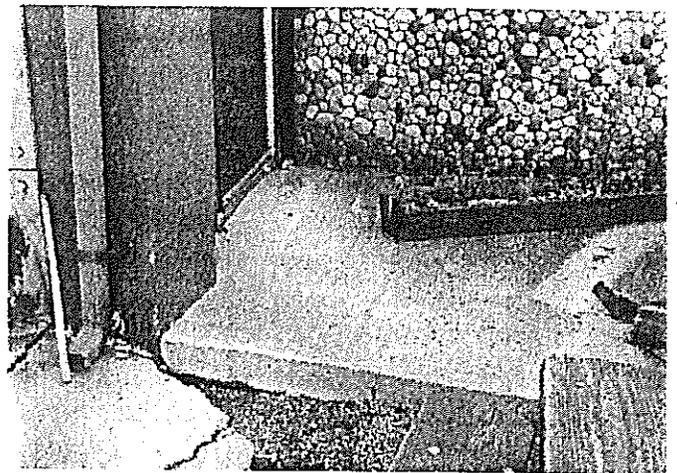
#21



#22



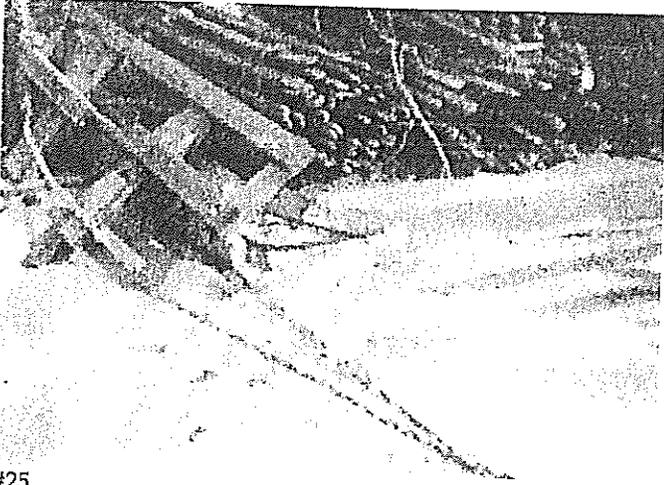
#23



#24



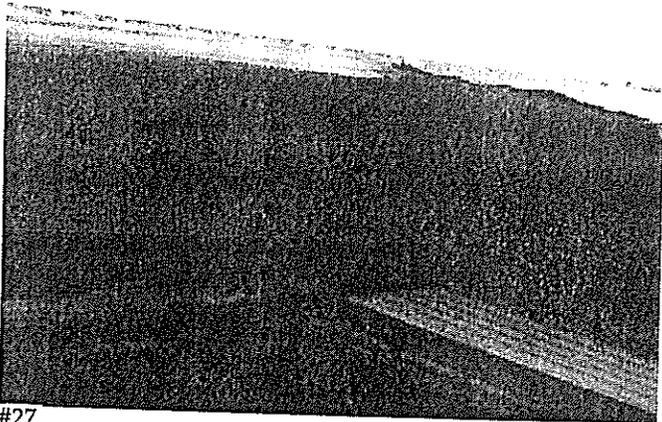
Mitchell Park Final Report



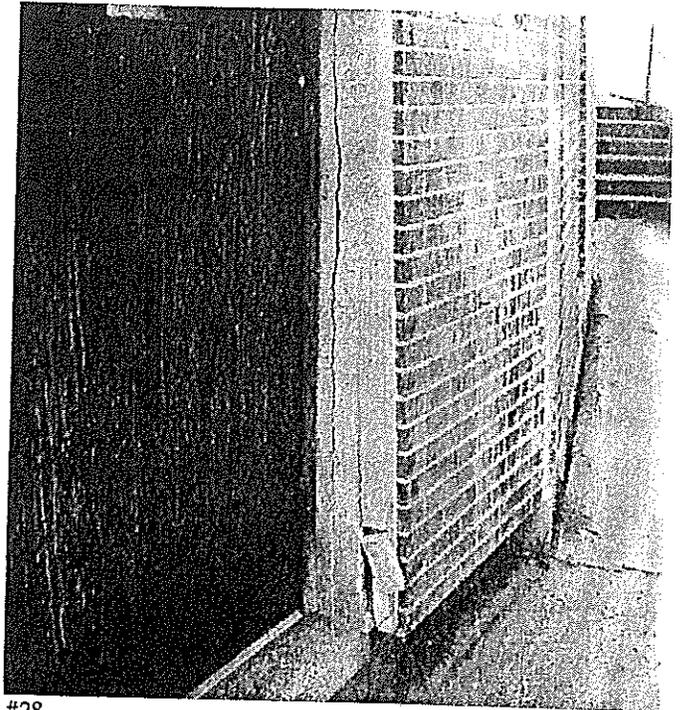
#25



#26



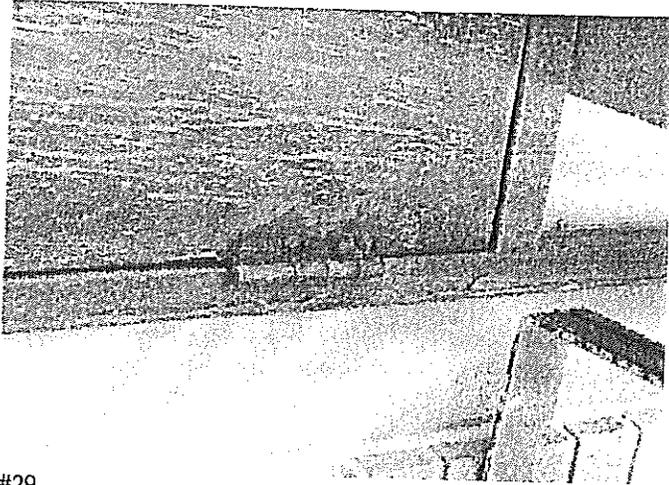
#27



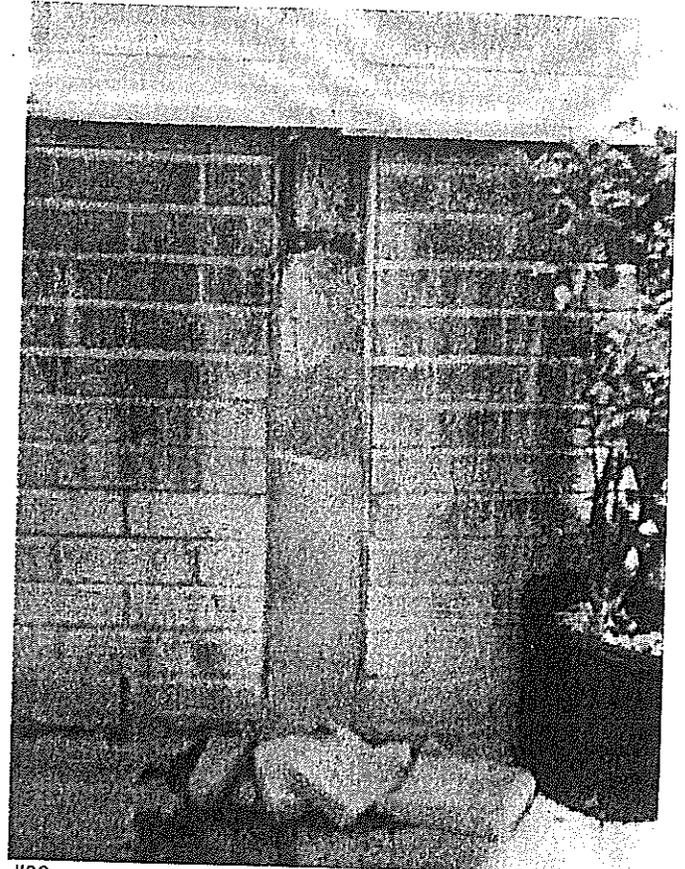
#28



Mitchell Park Final Report



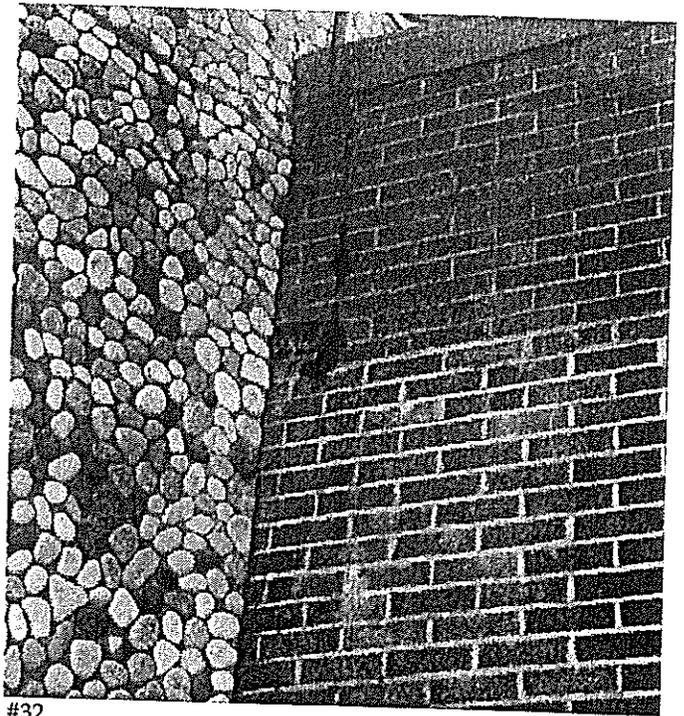
#29



#30



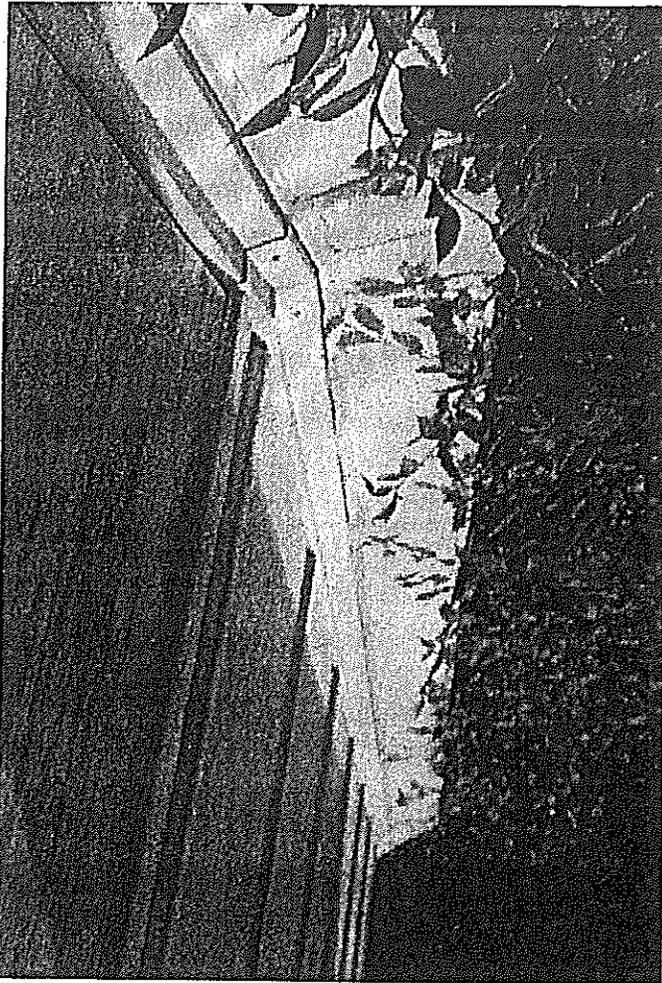
#31



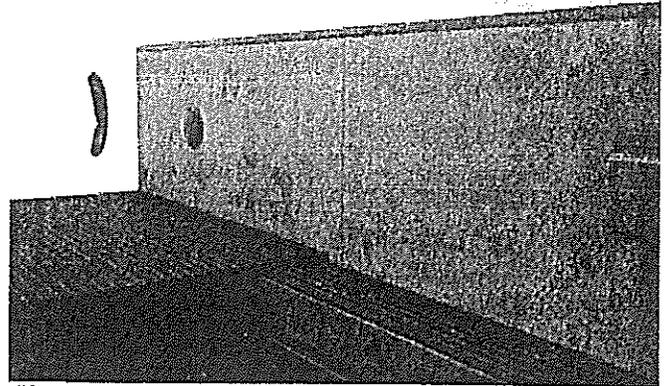
#32



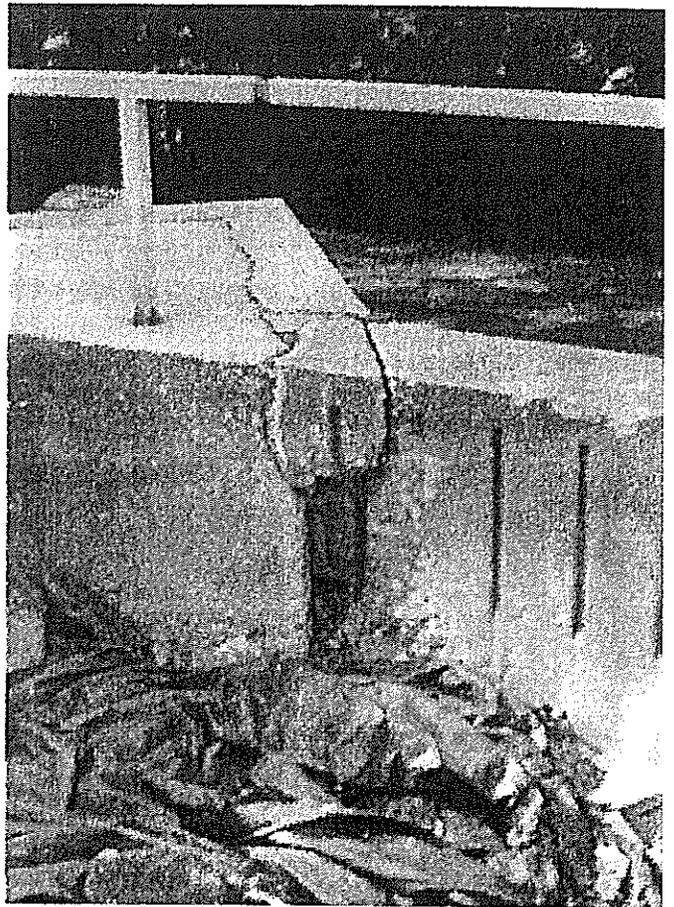
Mitchell Park Final Report



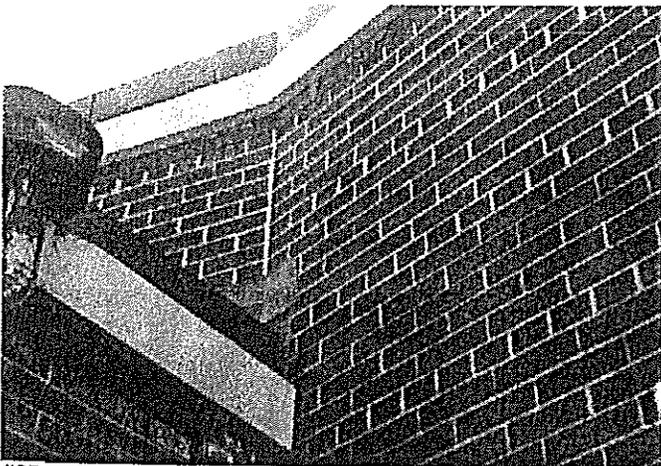
#33



#34



#36



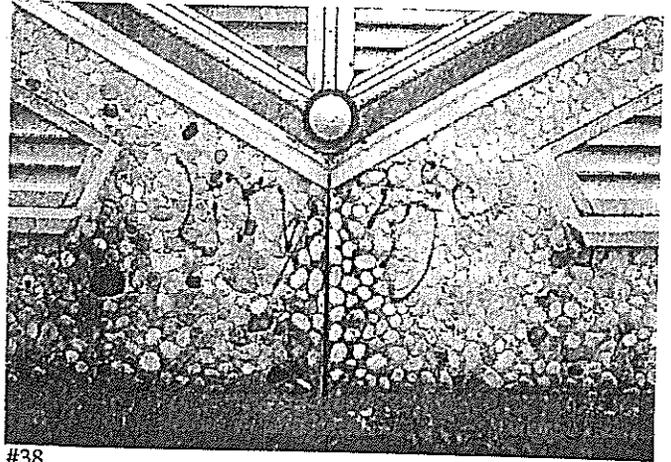
#35



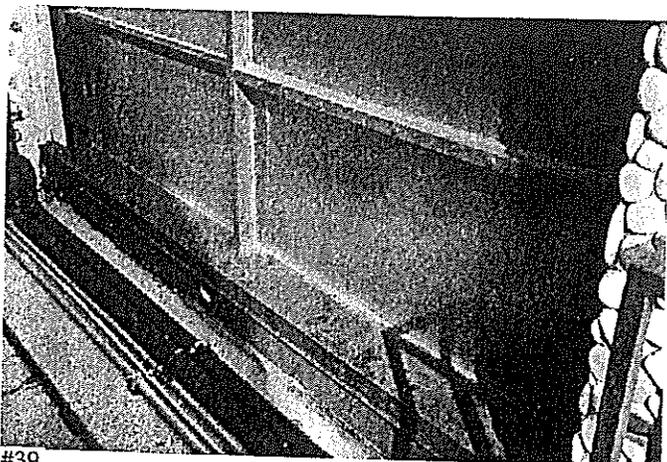
Mitchell Park Final Report



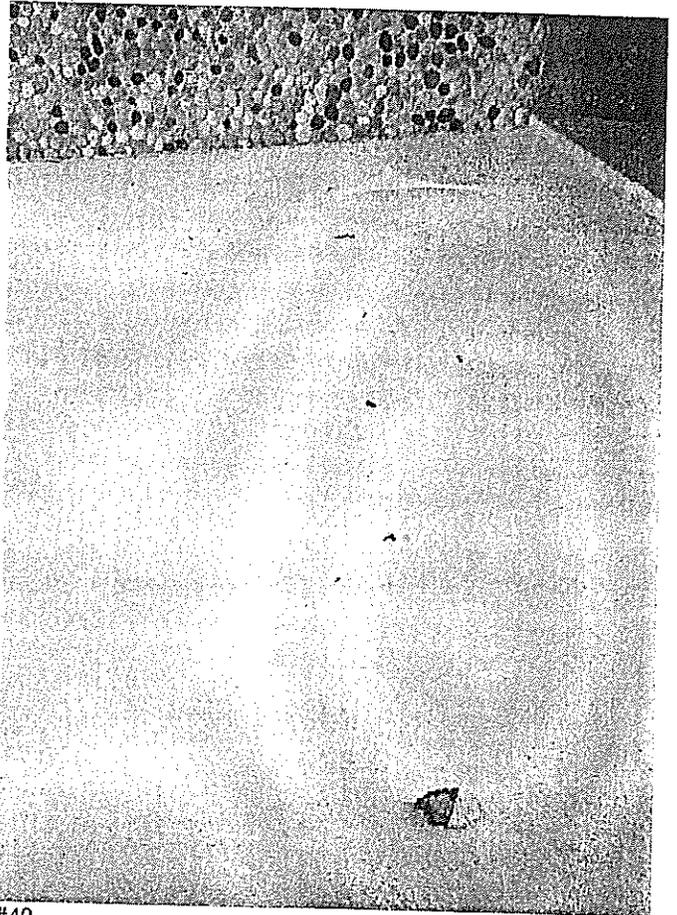
#37



#38



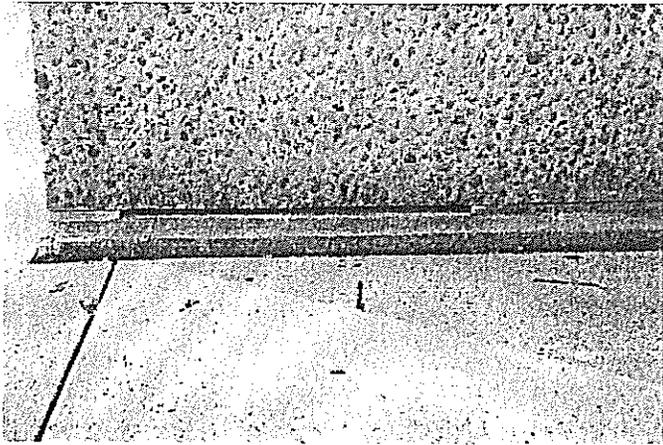
#39



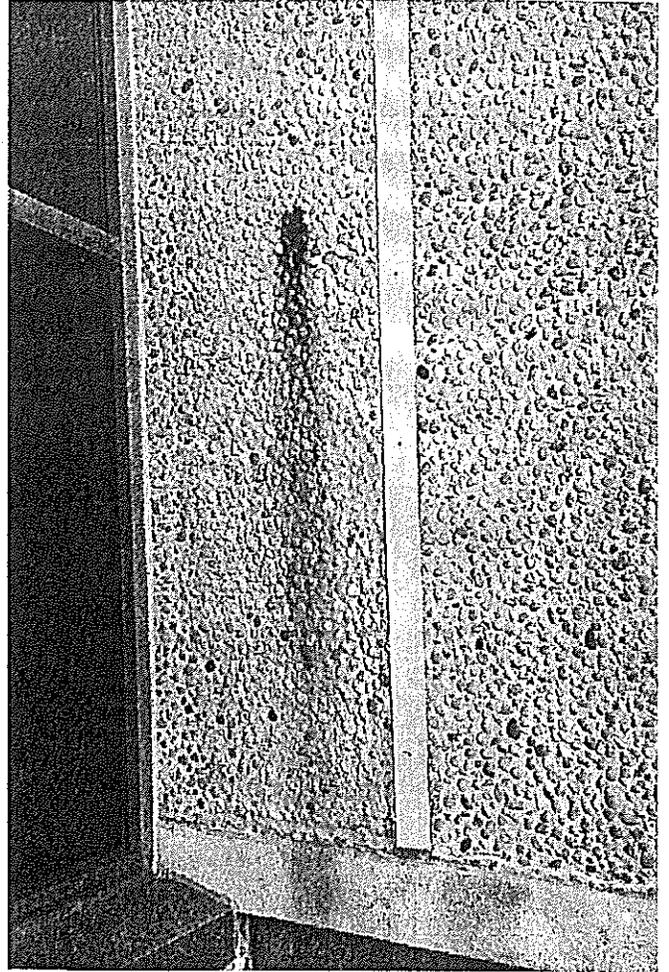
#40



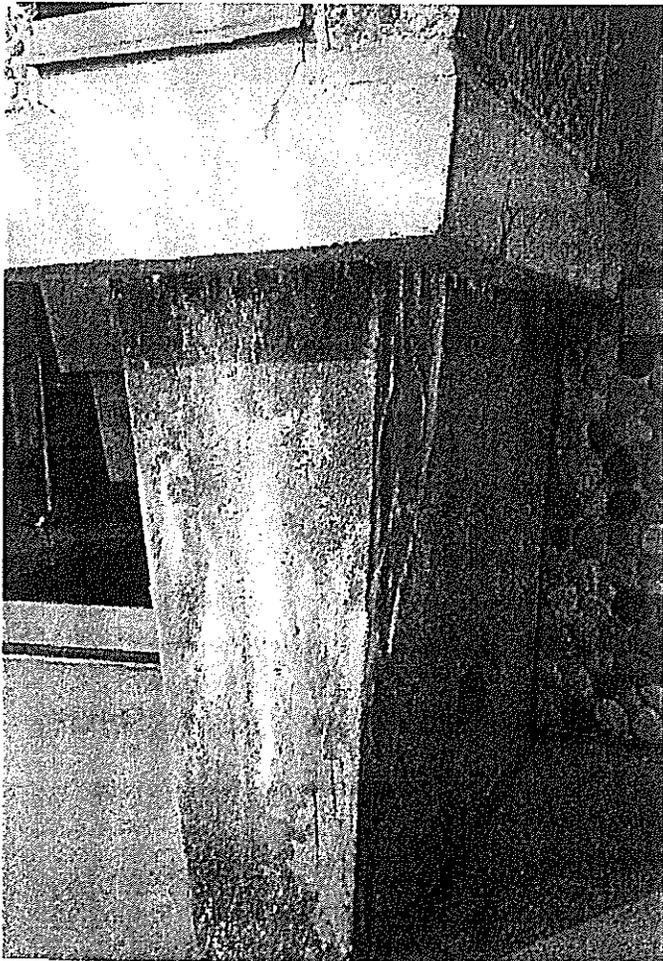
Mitchell Park Final Report



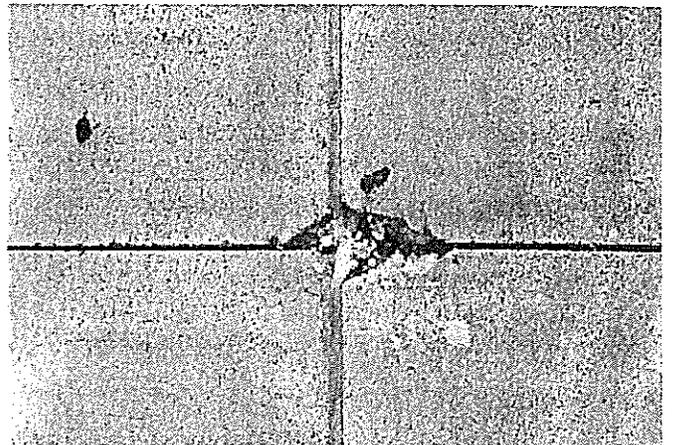
#41



#42



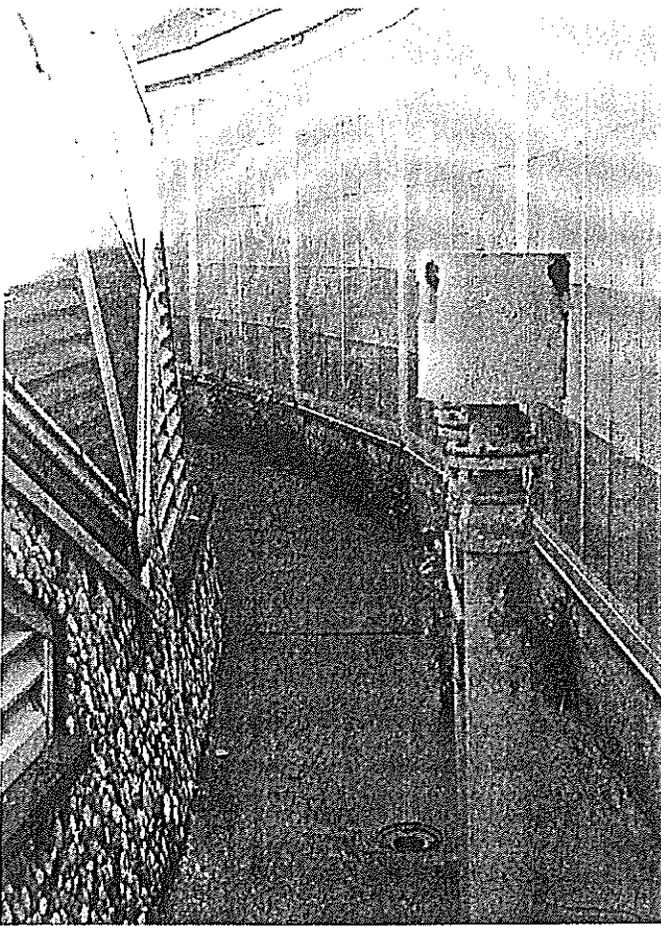
#43



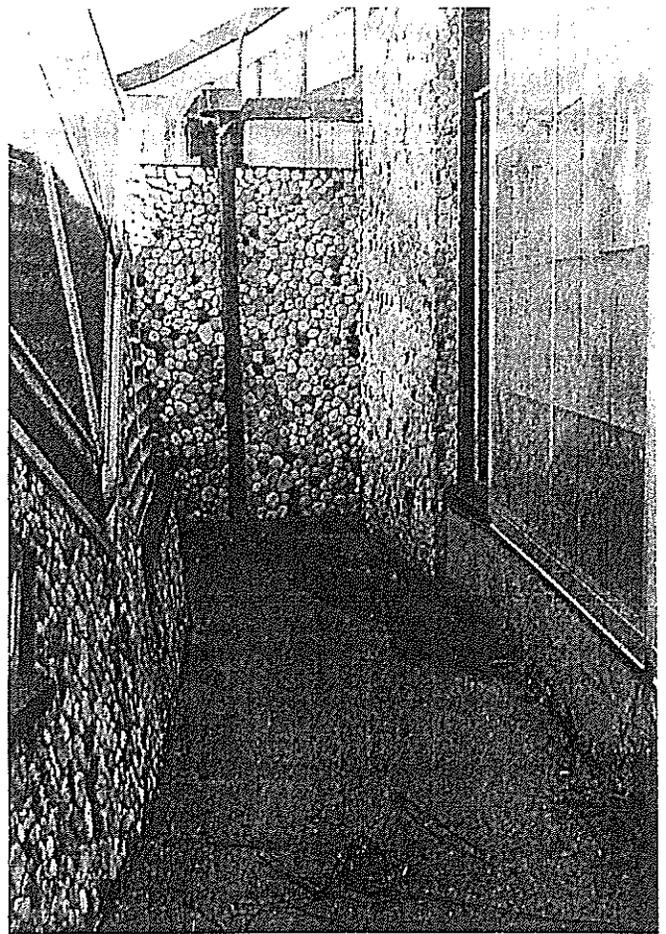
#44



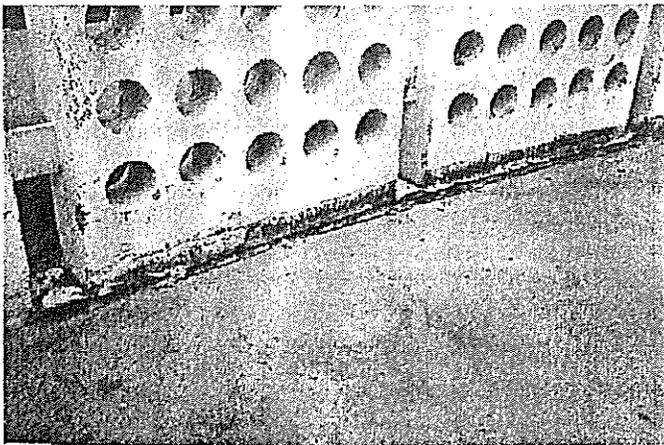
Mitchell Park Final Report



#45



#46



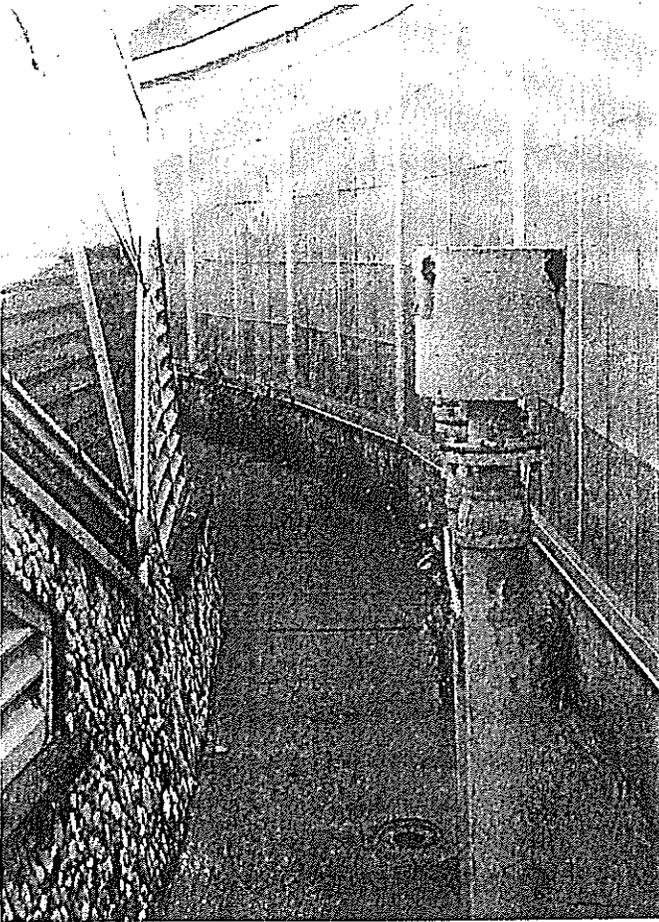
#47



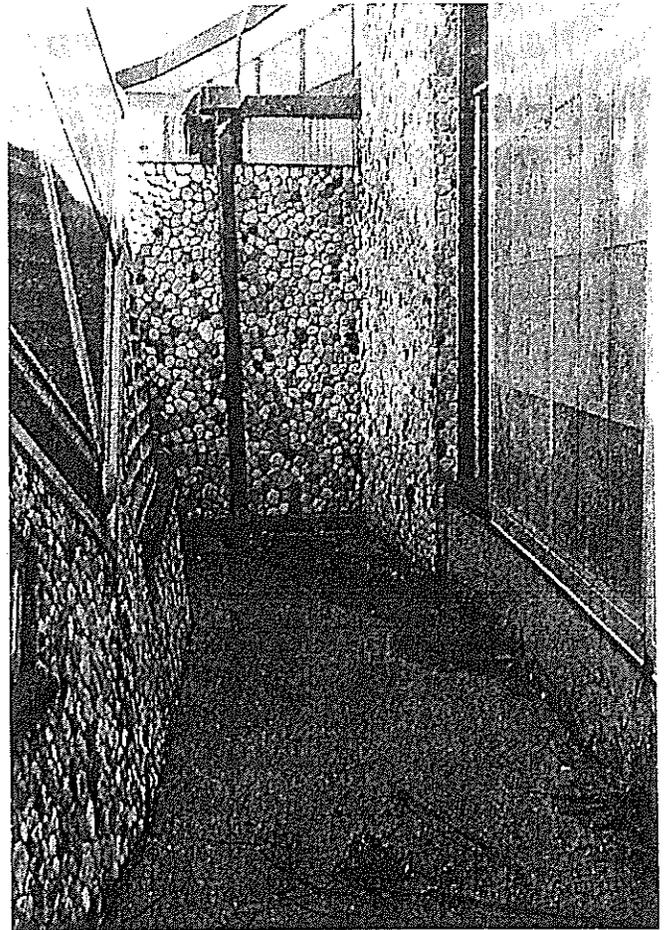
#48



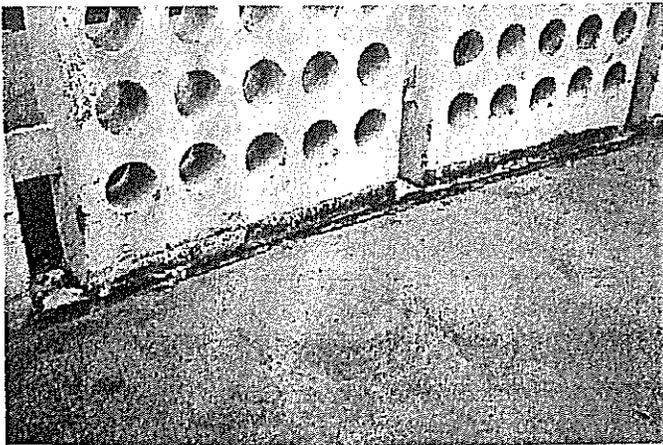
Mitchell Park Final Report



#49



#50



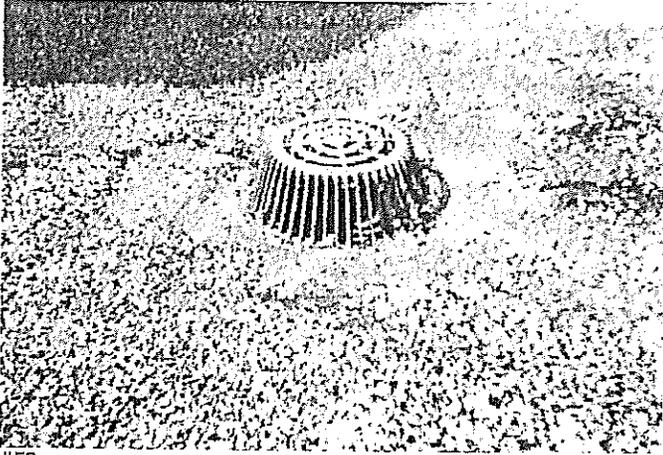
#51



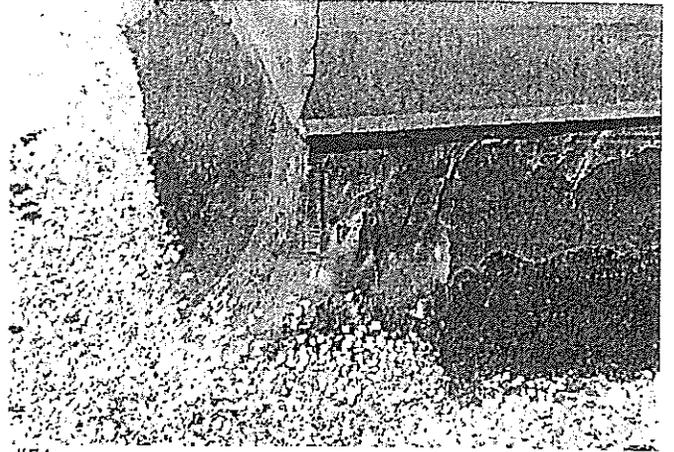
#52



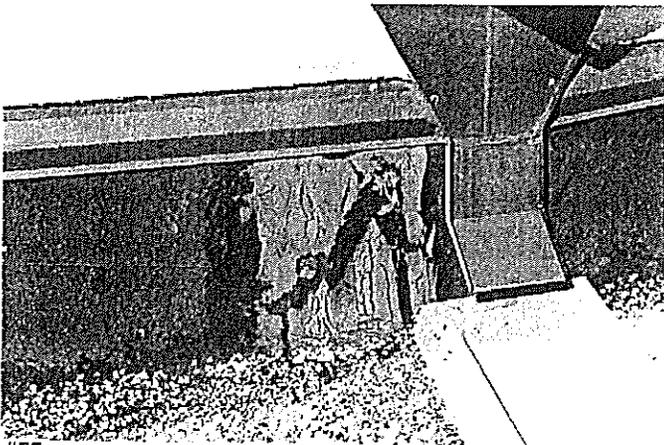
Mitchell Park Final Report



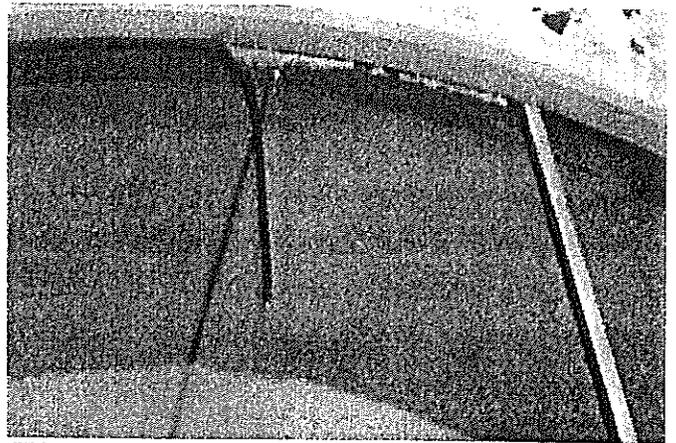
#53



#54



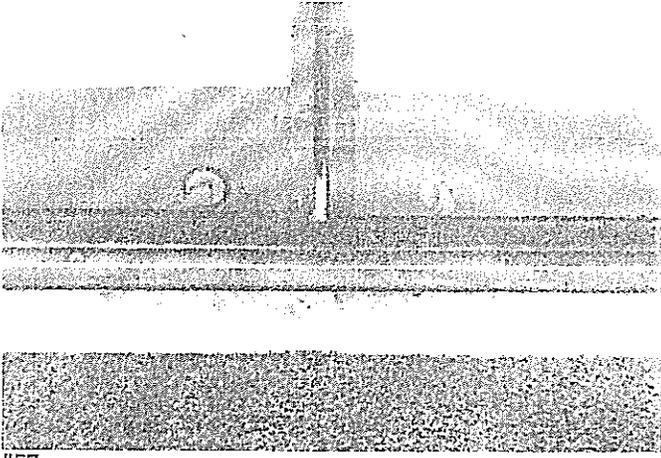
#55



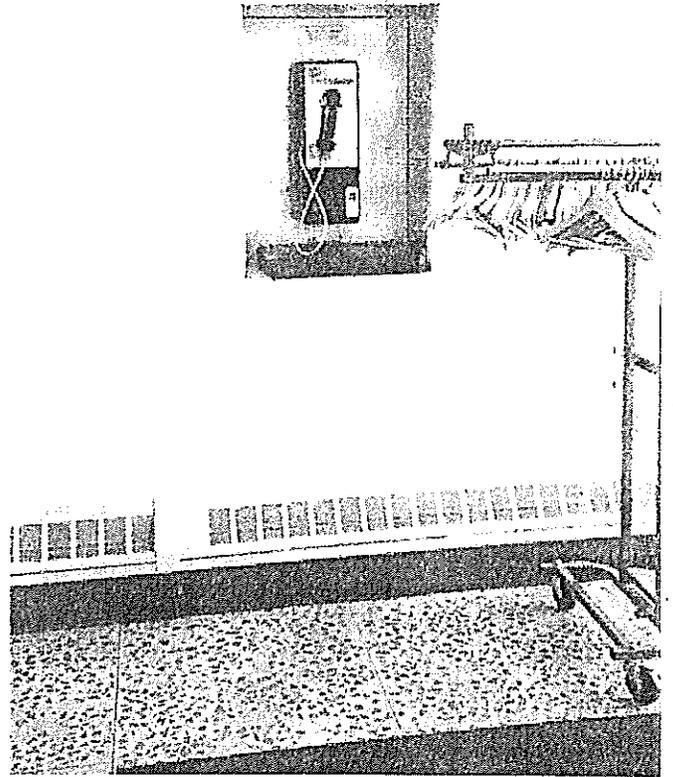
#56



Mitchell Park Final Report



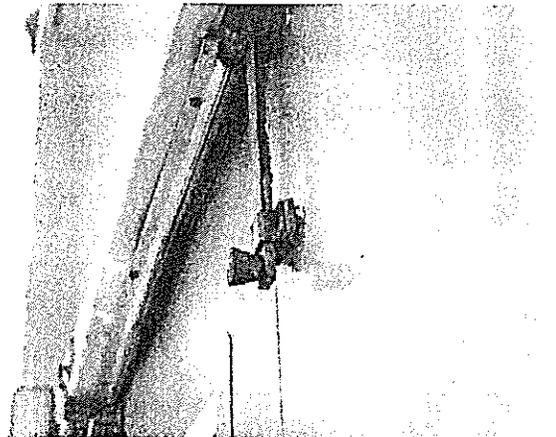
#57



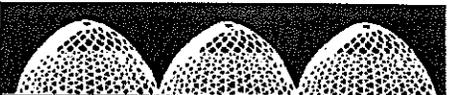
#58



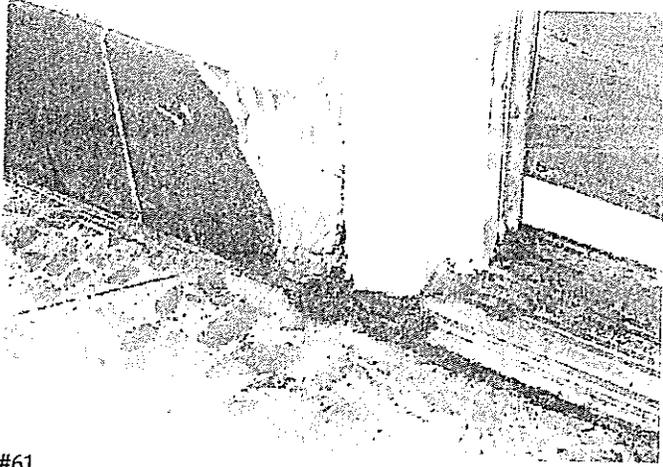
#59



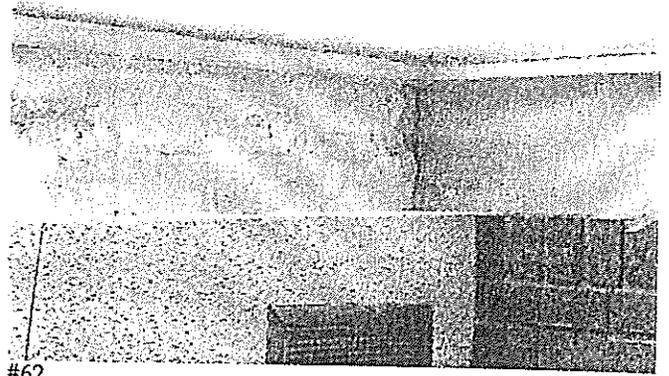
#60



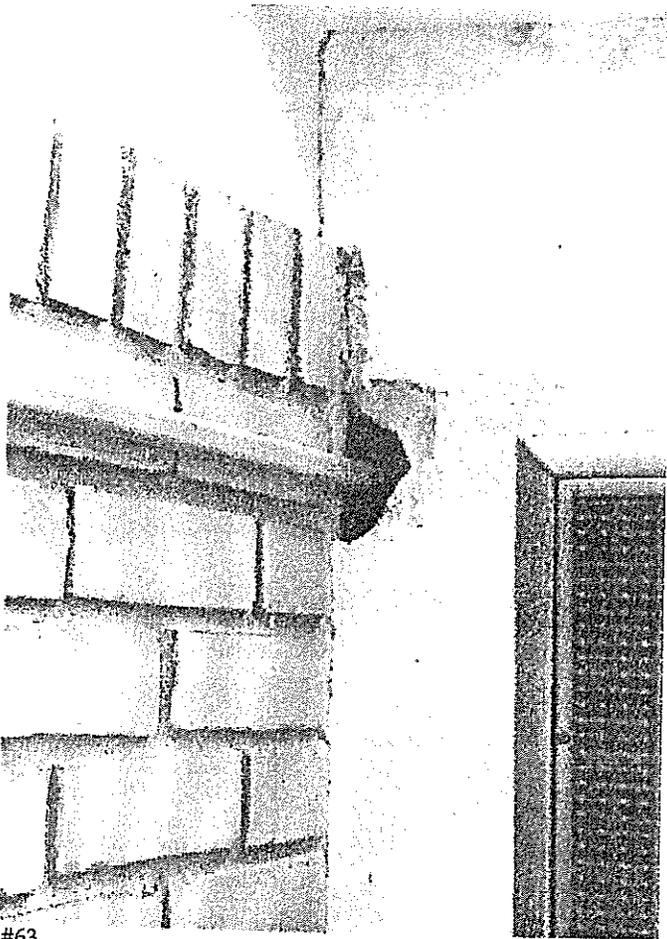
Mitchell Park Final Report



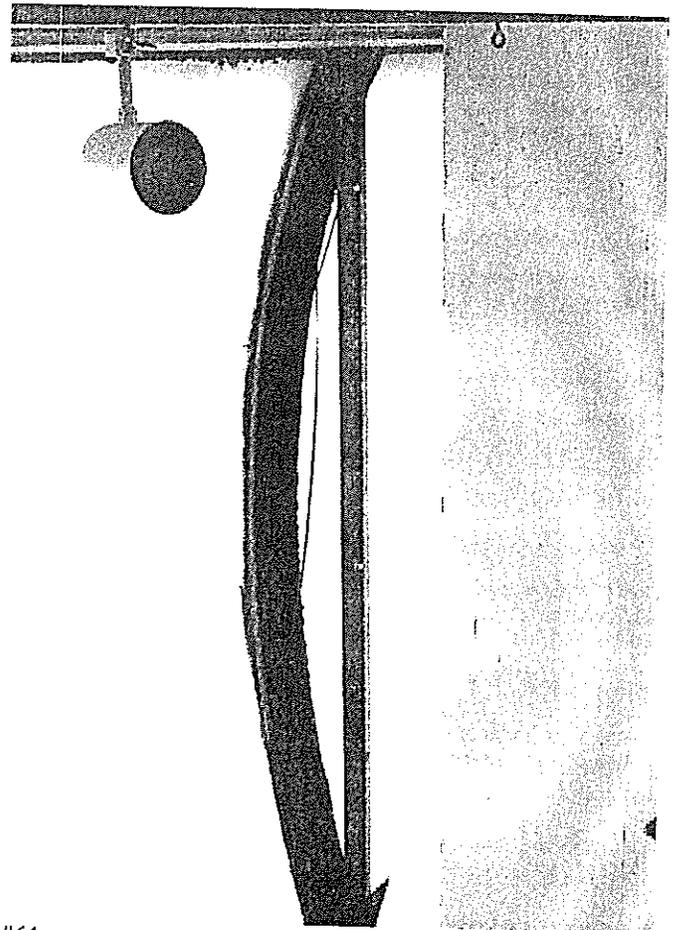
#61



#62



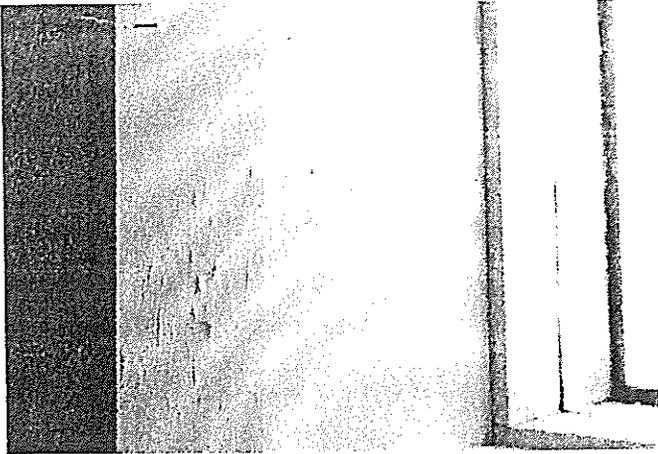
#63



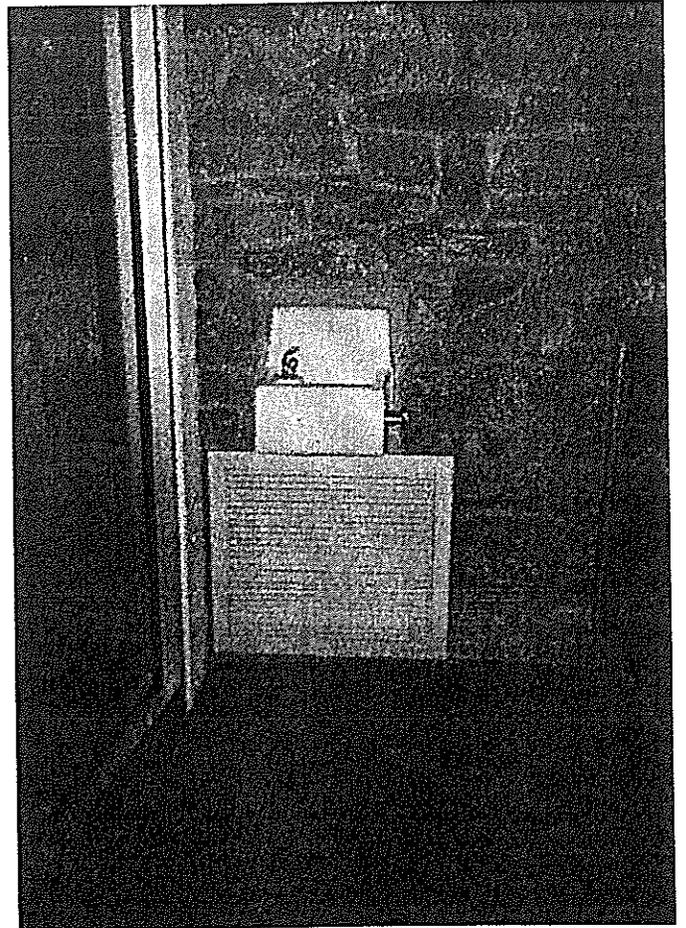
#64



Mitchell Park Final Report



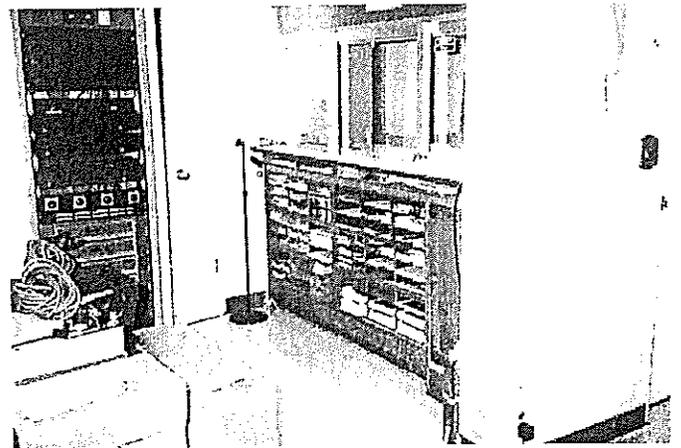
#65



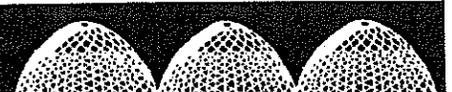
#66



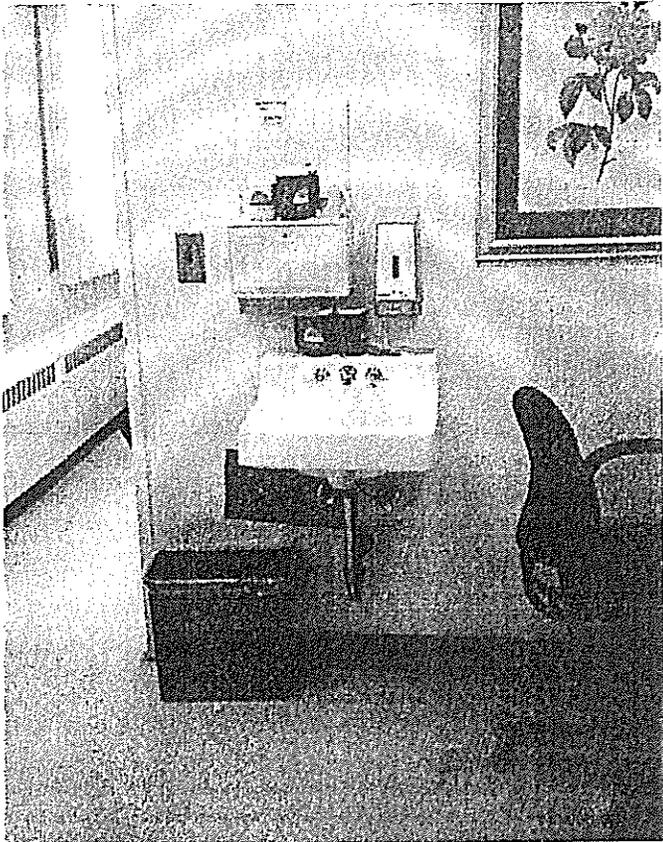
#67



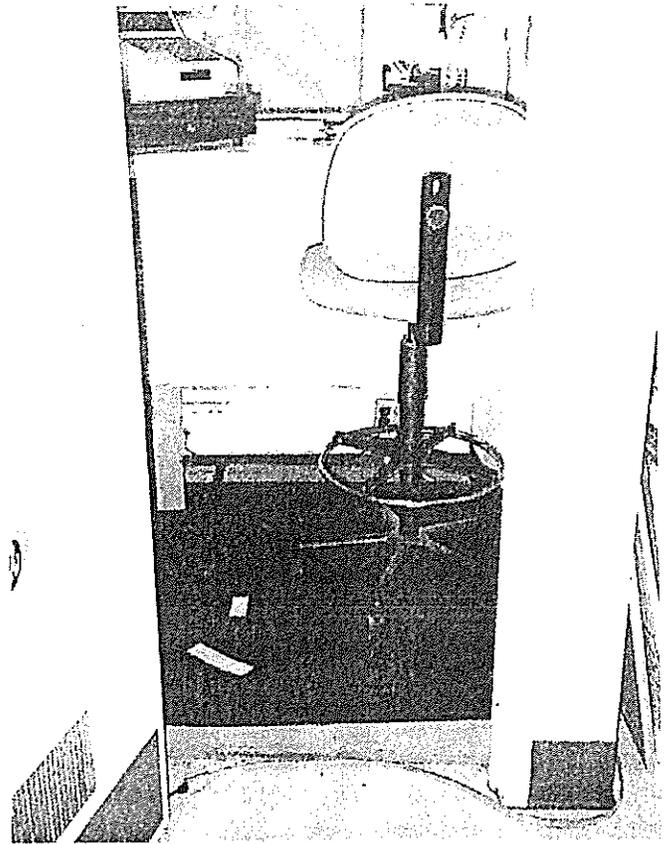
#68



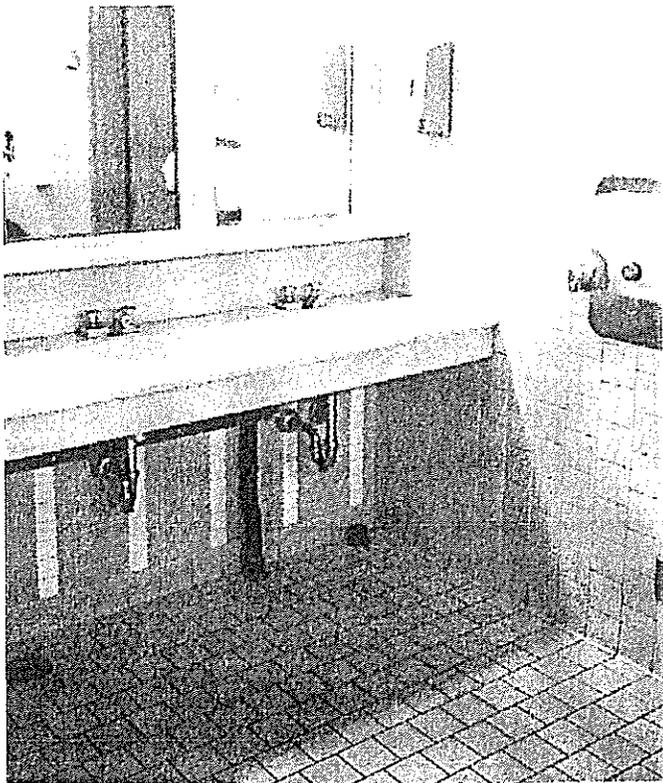
Mitchell Park Final Report



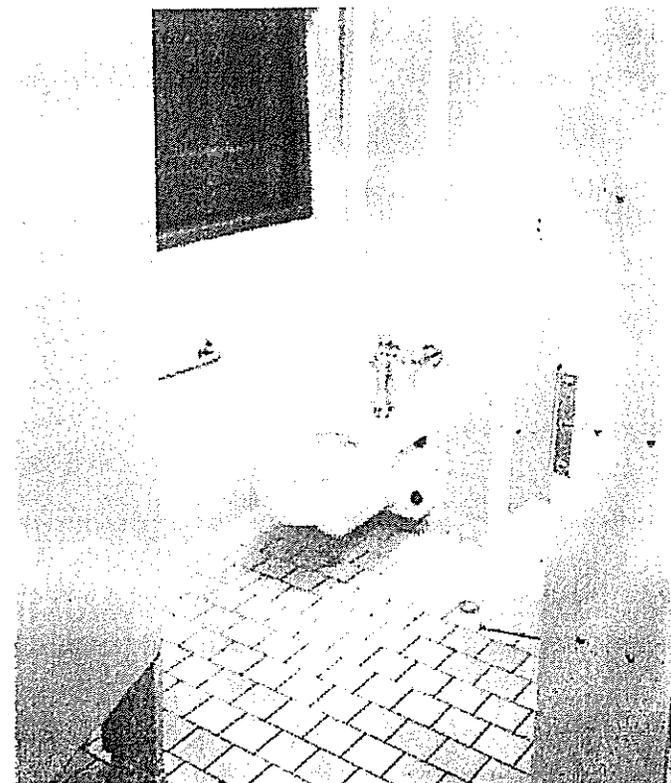
#69



#70



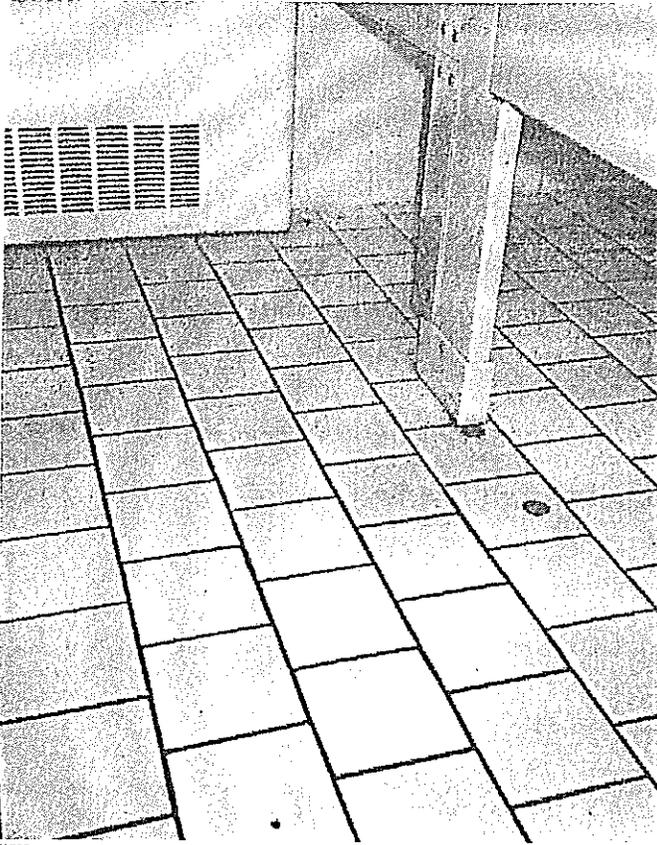
#71



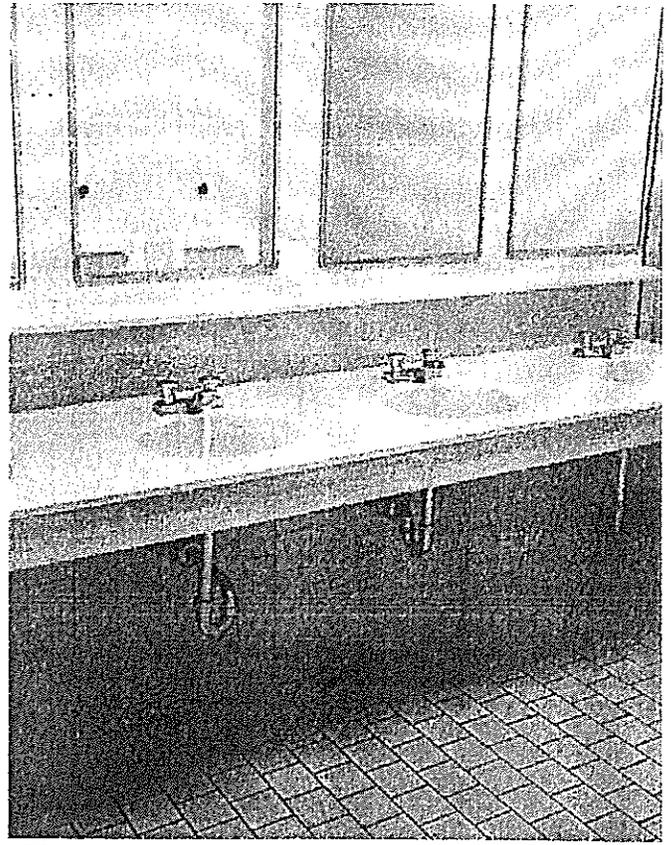
#72



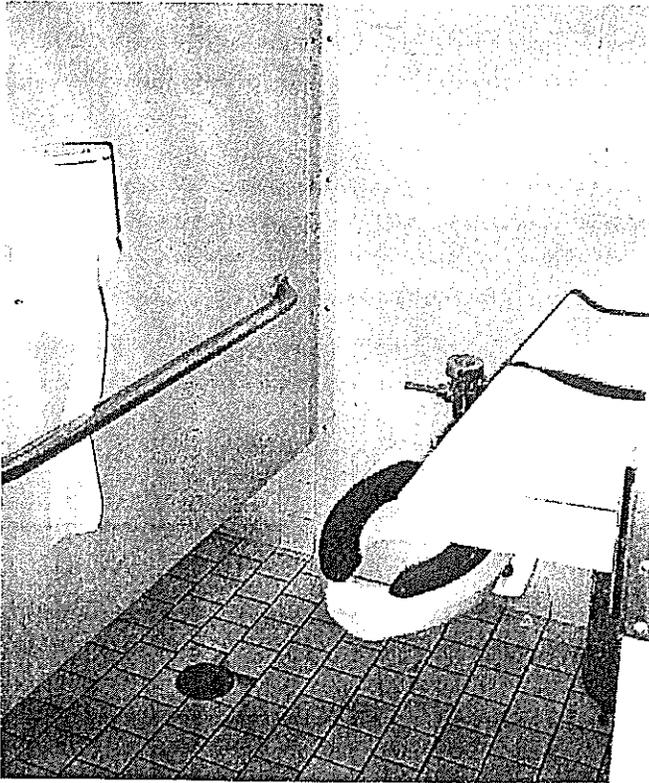
Mitchell Park Final Report



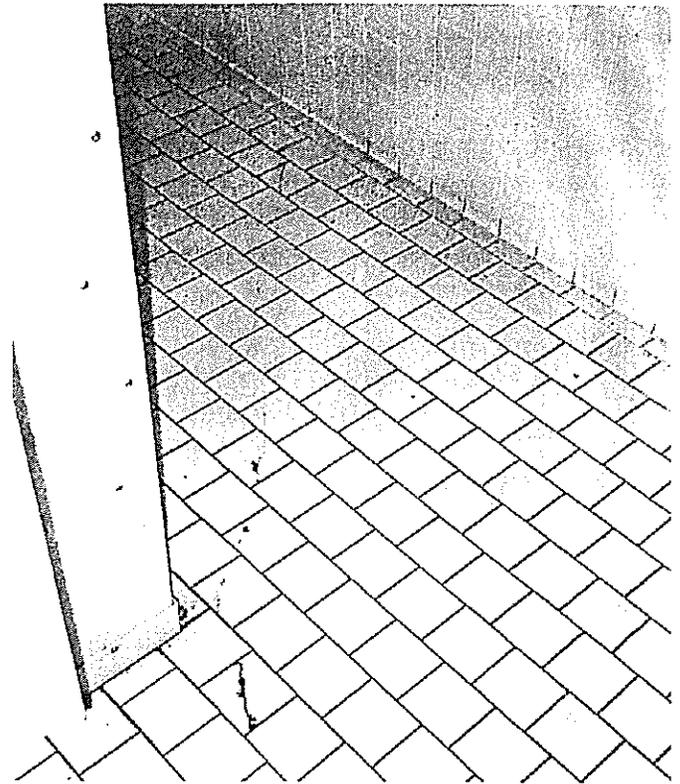
#73



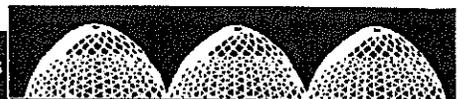
#74



#75

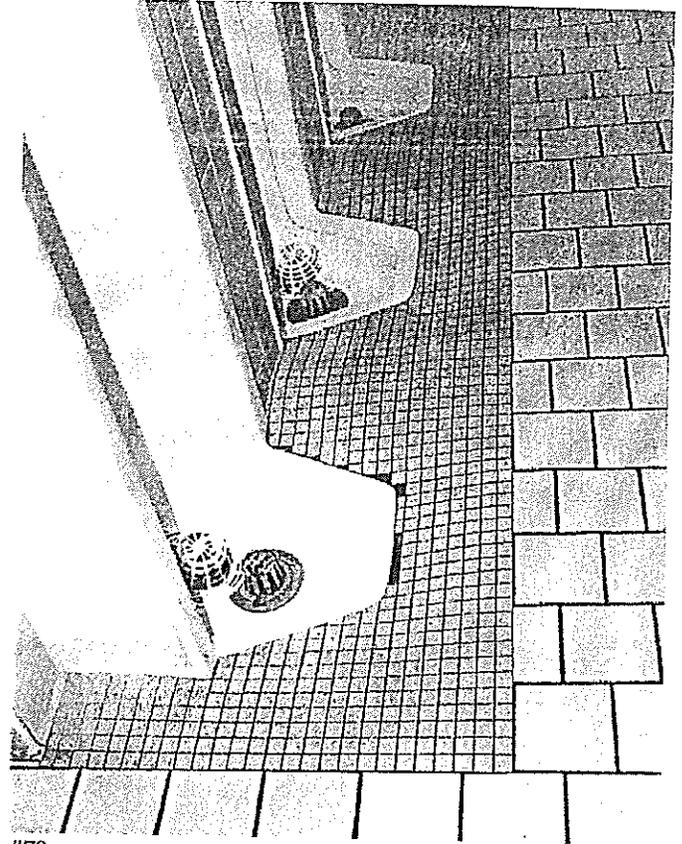


#76

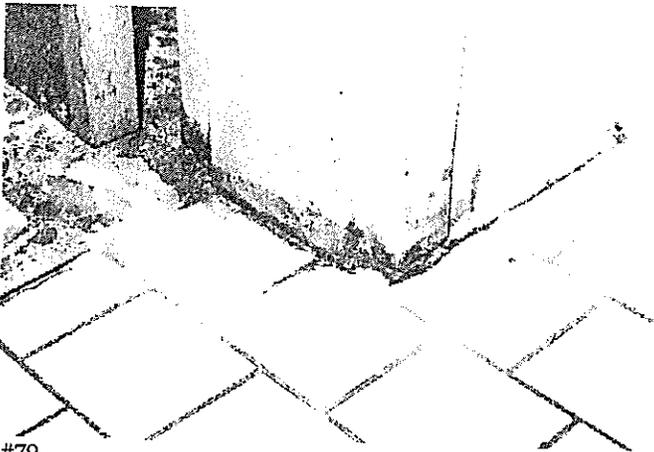


Mitchell Park Final Report

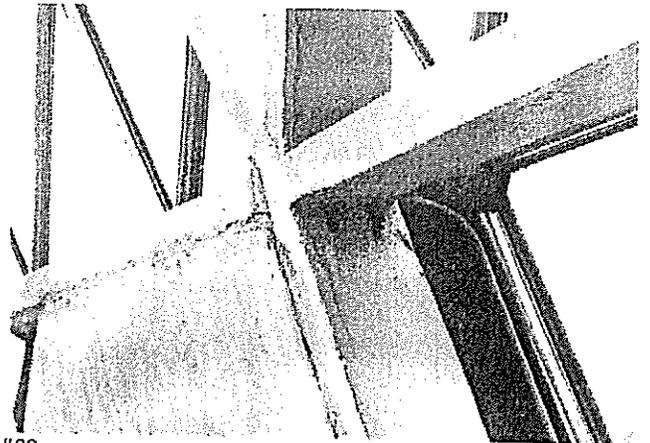
#77



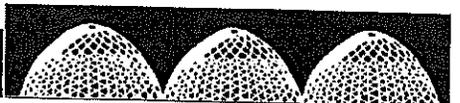
#78



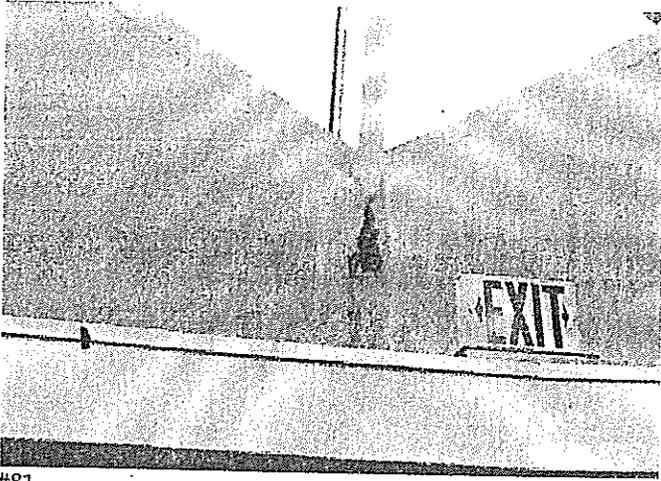
#79



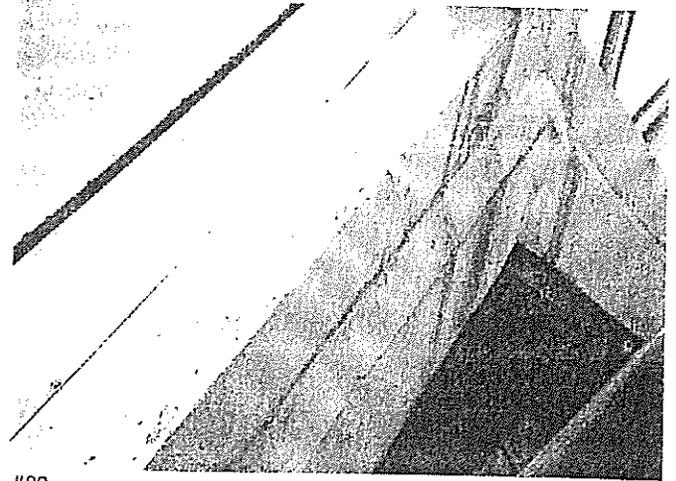
#80



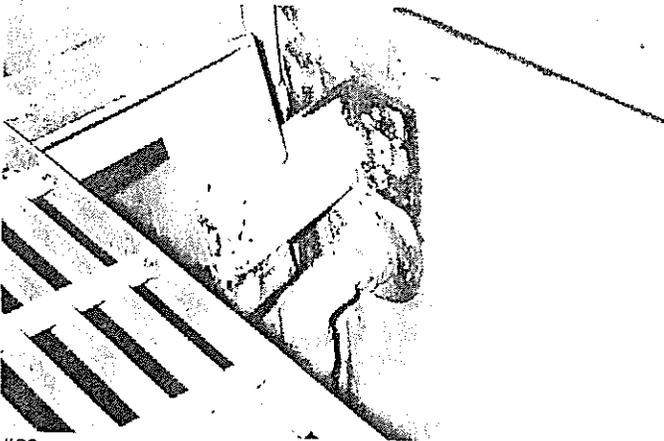
Mitchell Park Final Report



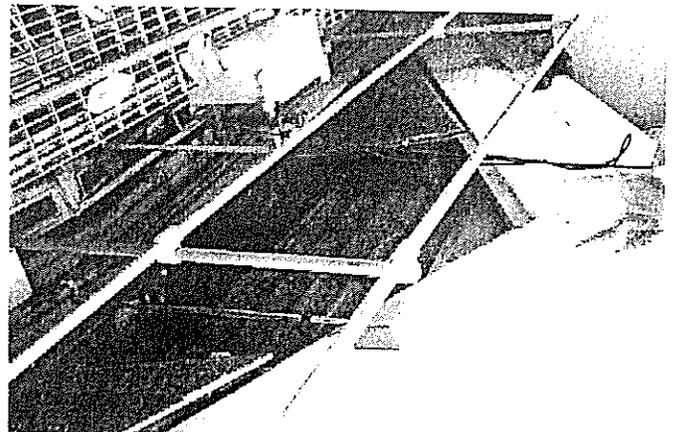
#81



#82



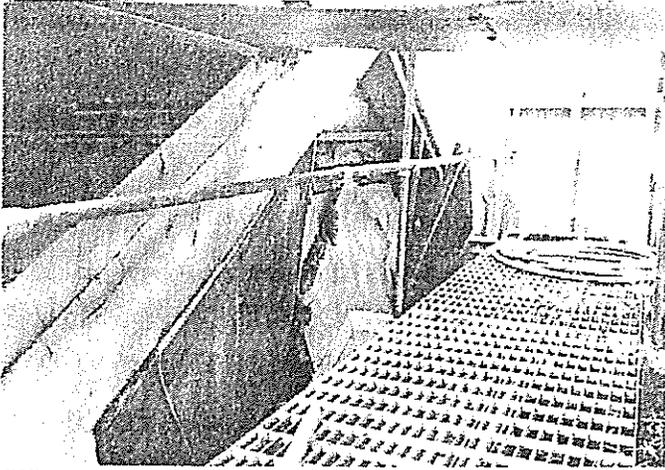
#83



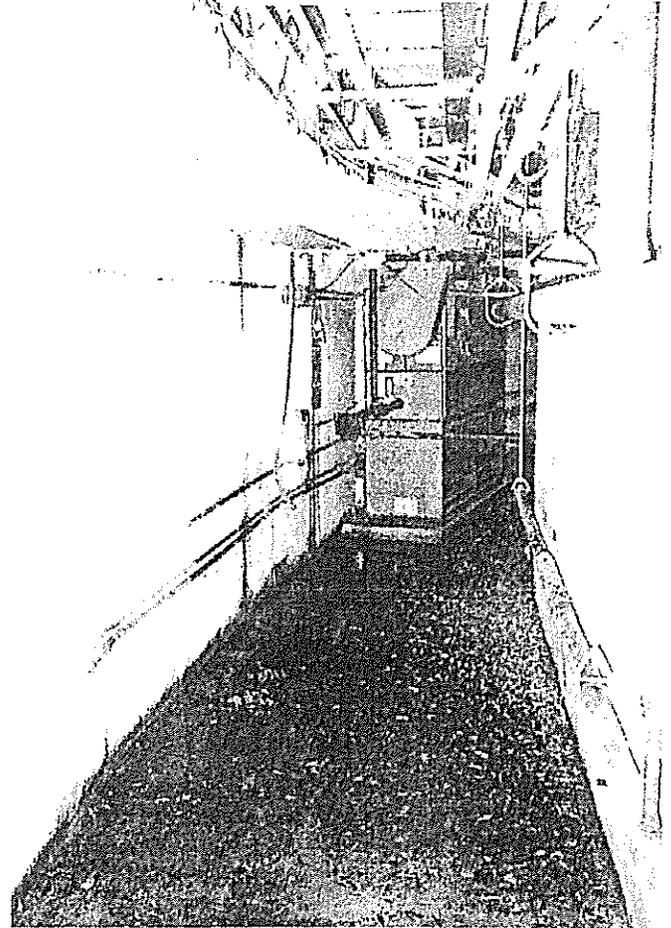
#84



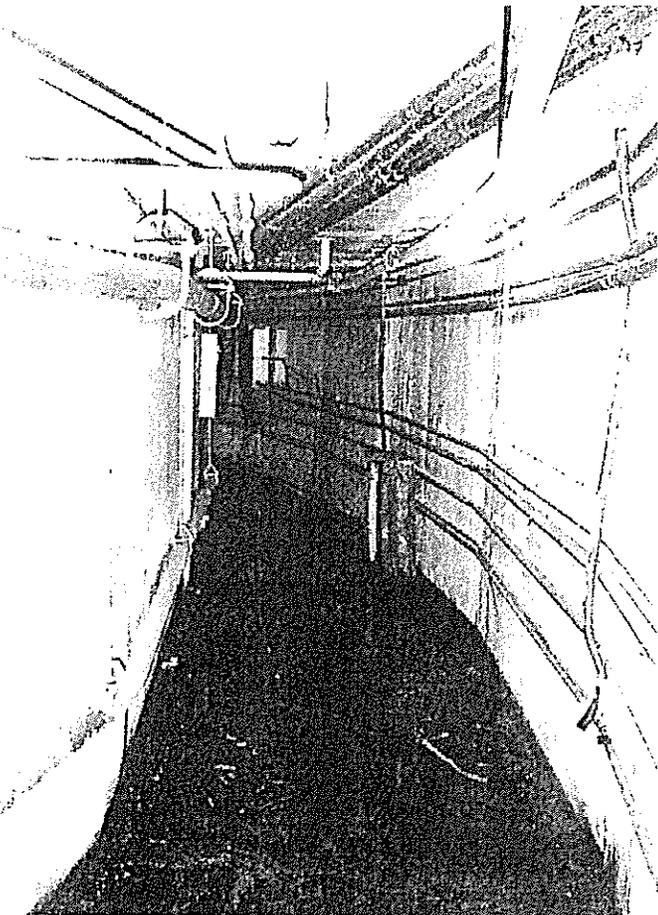
Mitchell Park Final Report



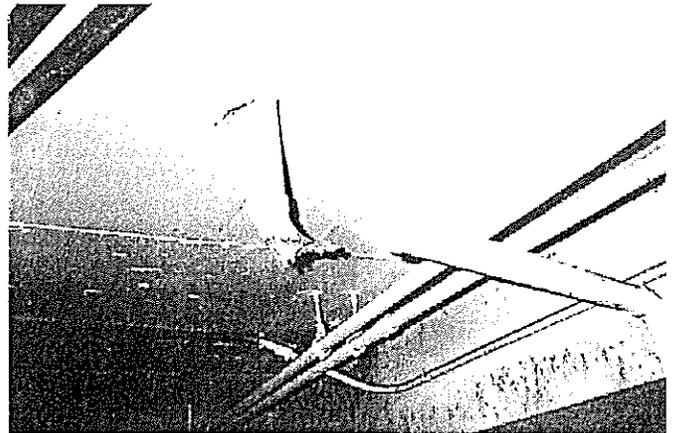
#85



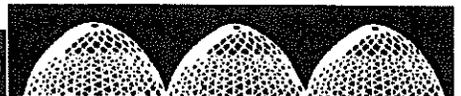
#86



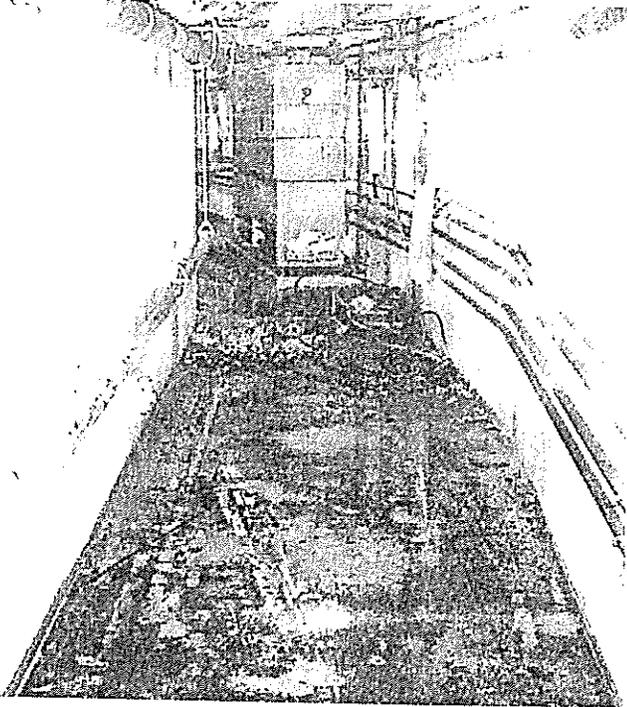
#87



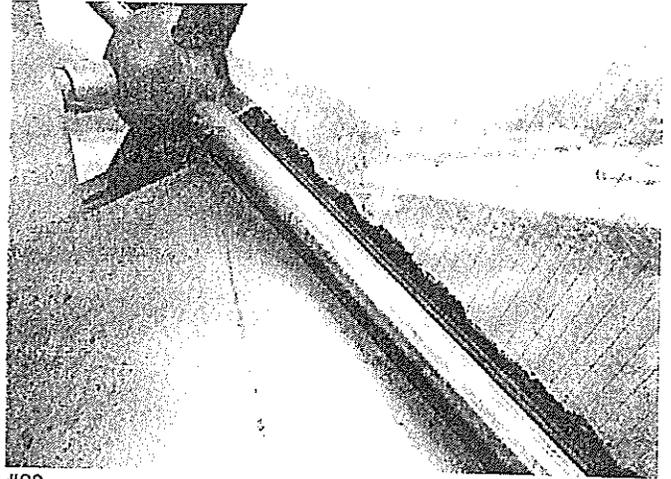
#88



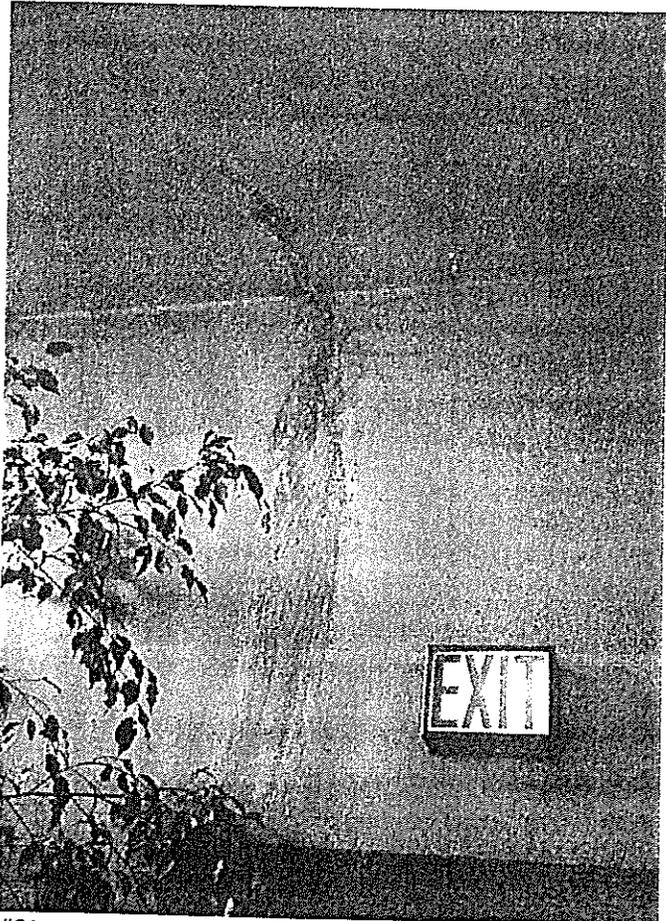
Mitchell Park Final Report



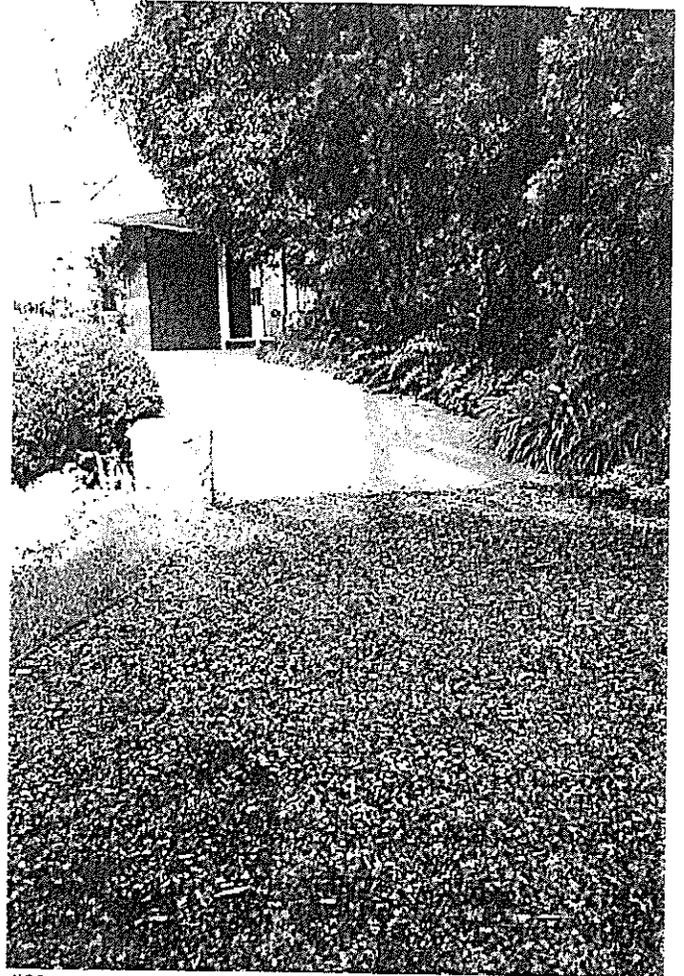
#89



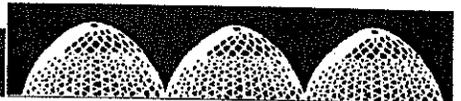
#90



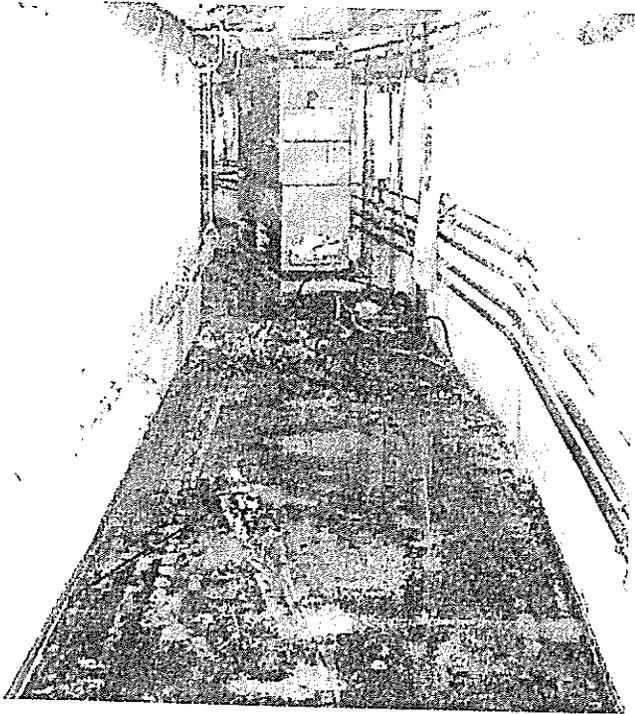
#91



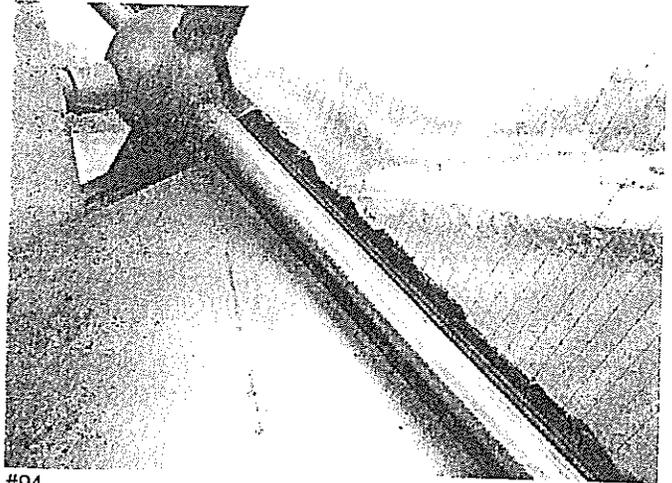
#92



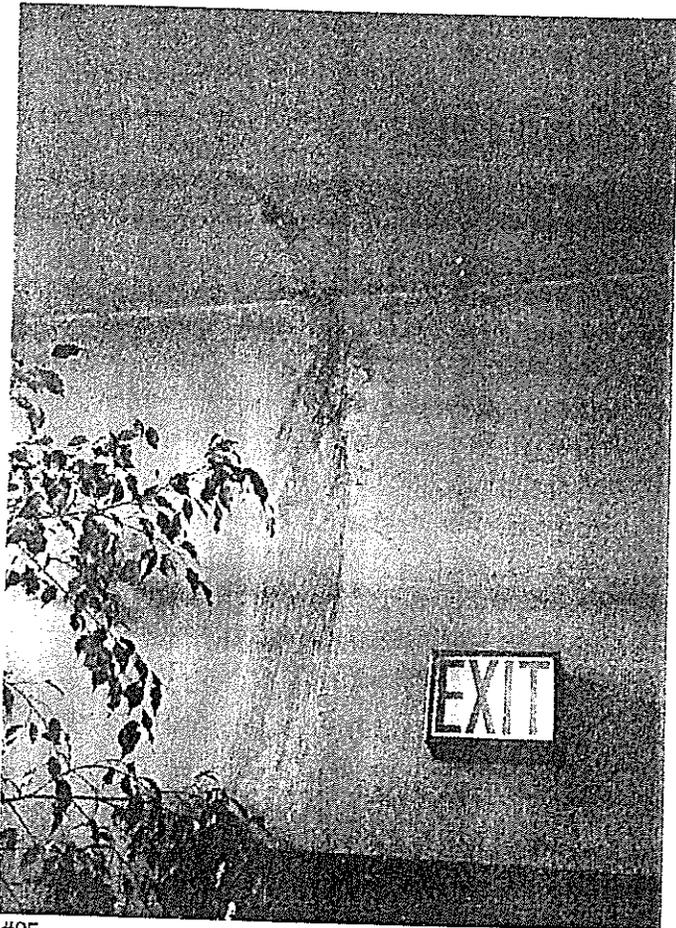
Mitchell Park Final Report



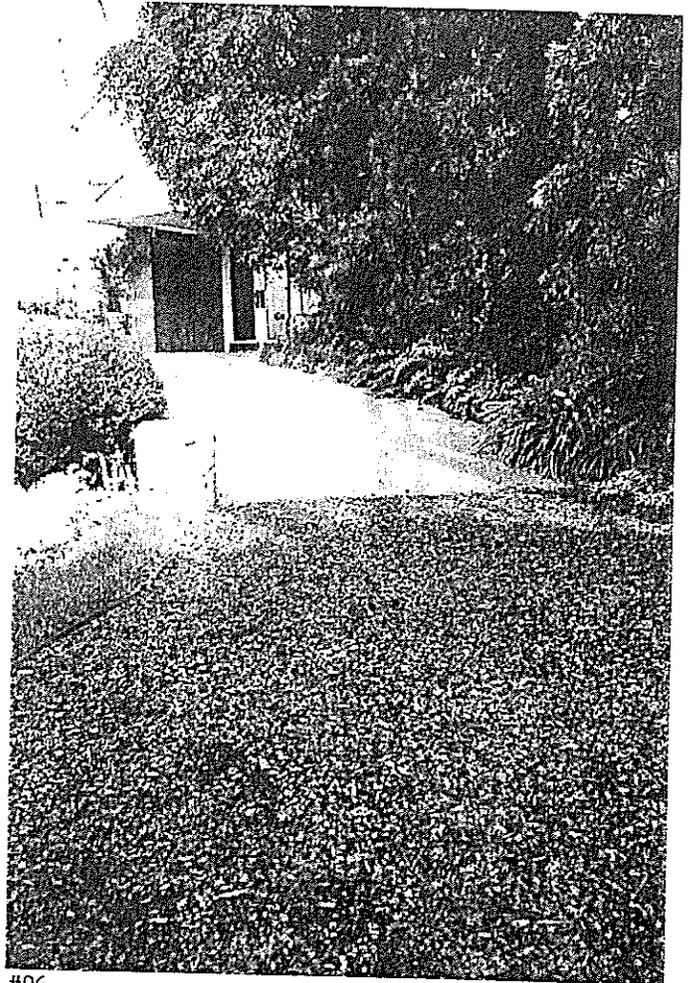
#93



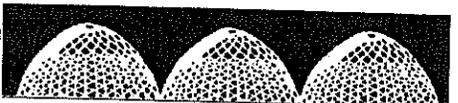
#94



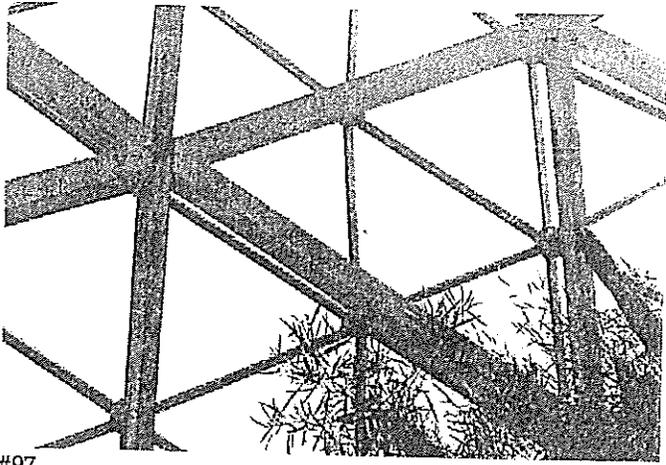
#95



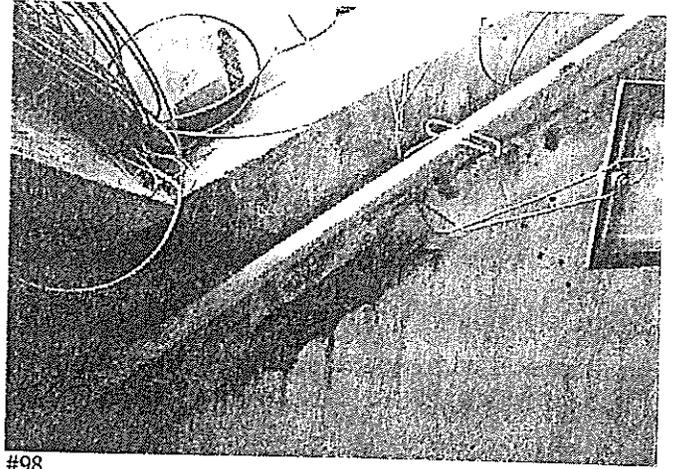
#96



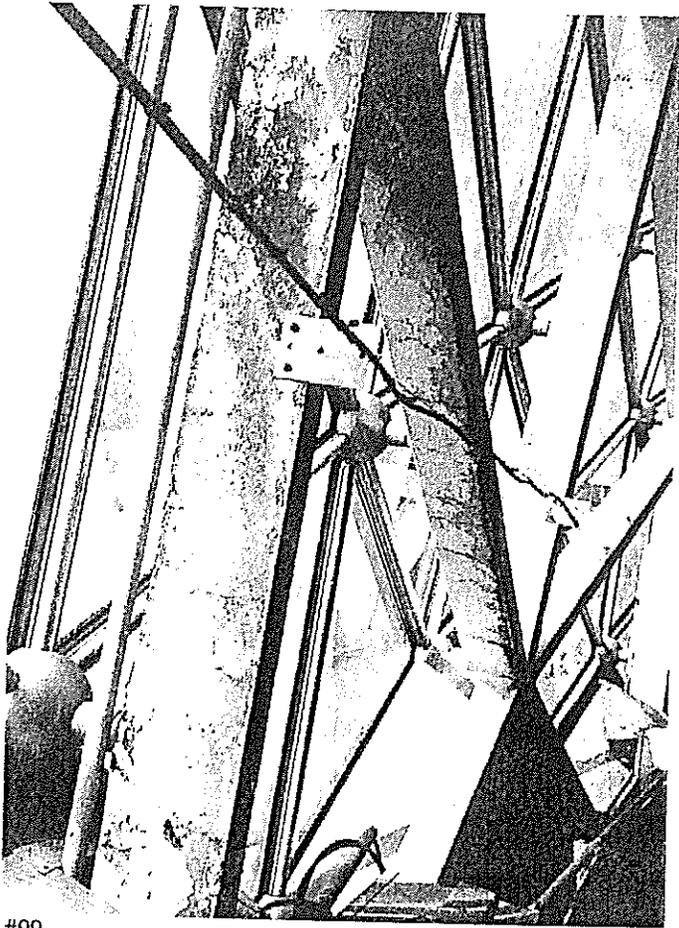
Mitchell Park Final Report



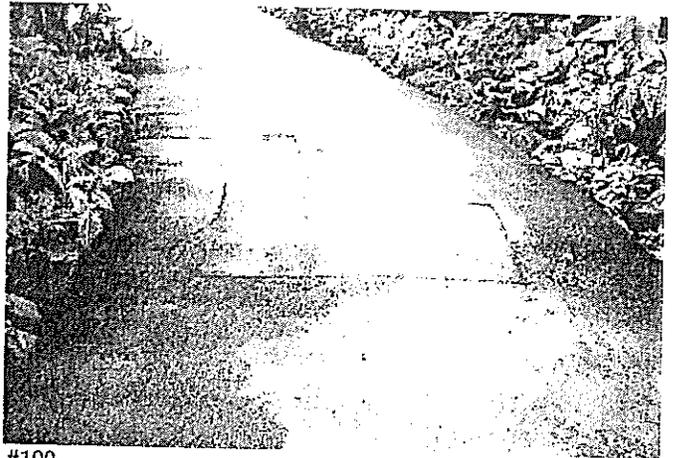
#97



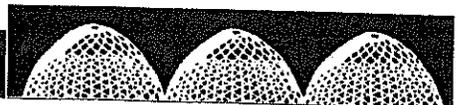
#98



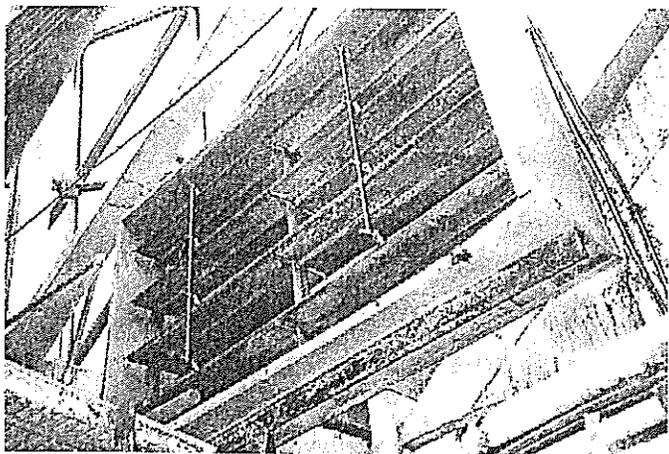
#99



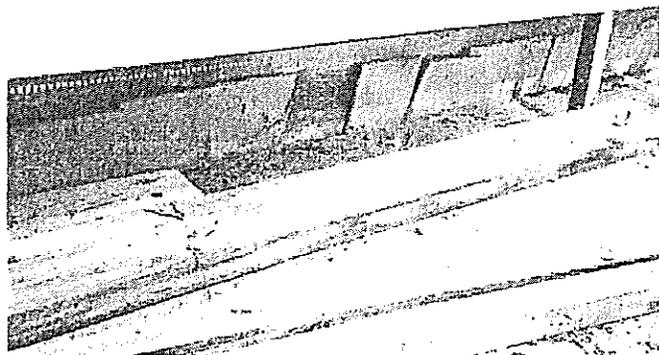
#100



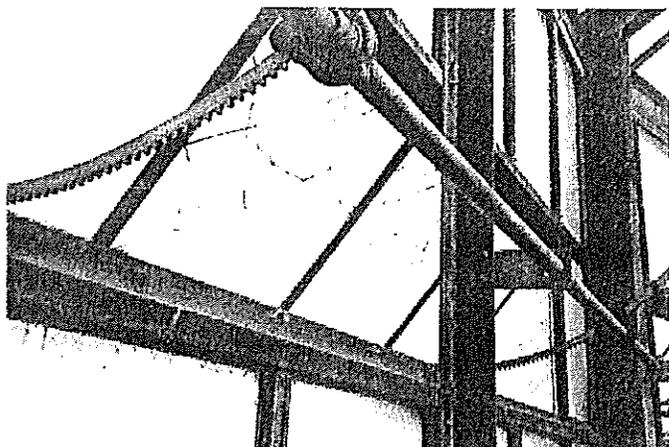
Mitchell Park Final Report



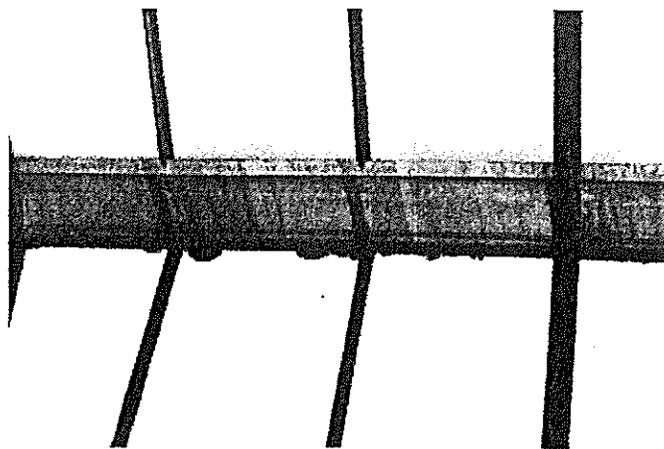
#101



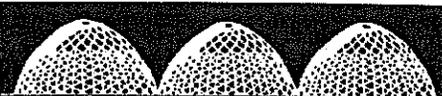
#102



#103



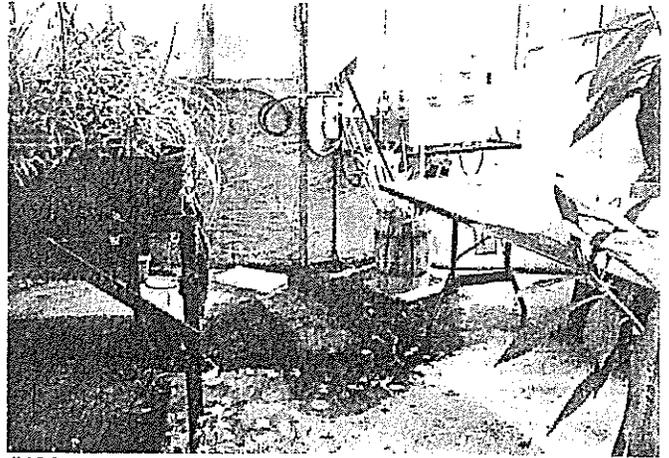
#104



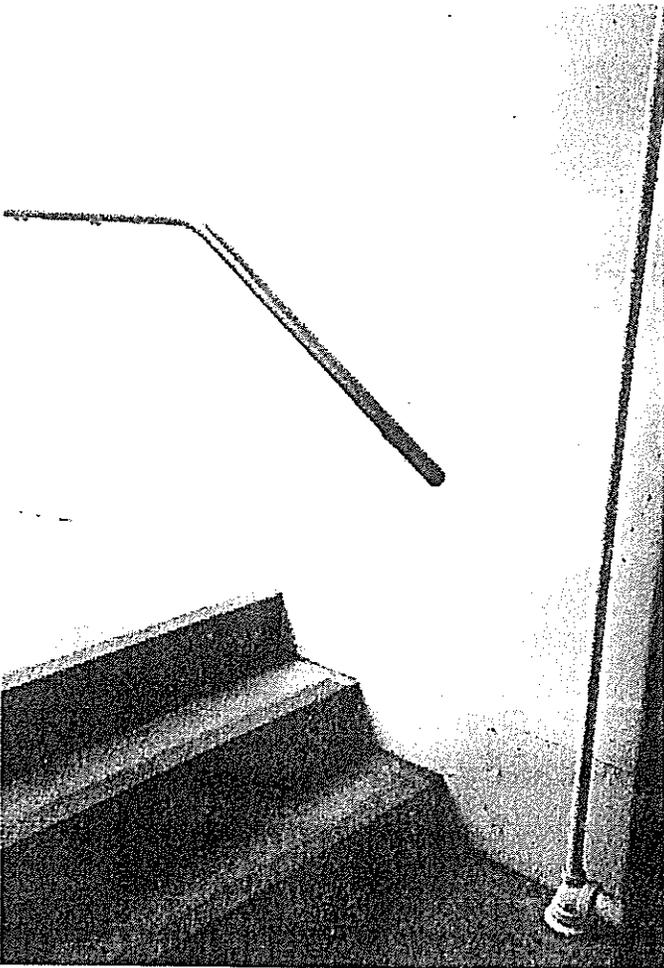
Mitchell Park Final Report



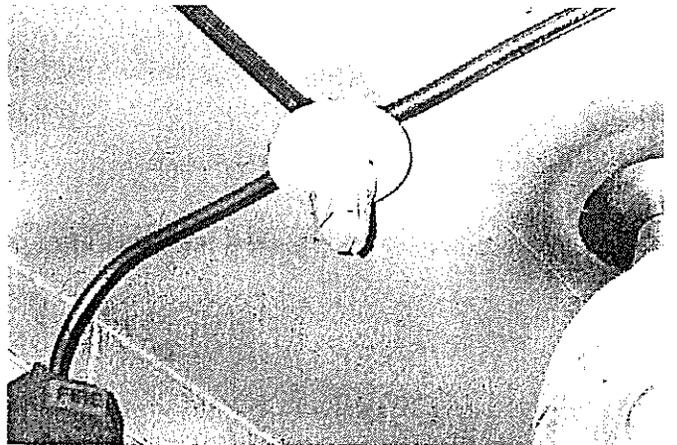
#105



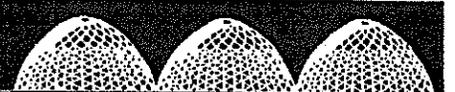
#106



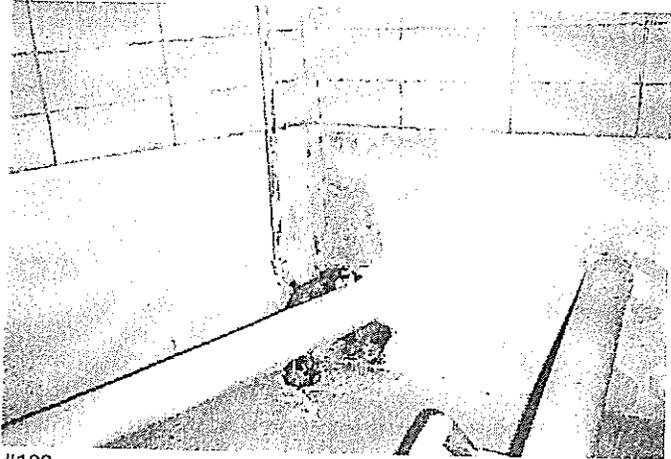
#107



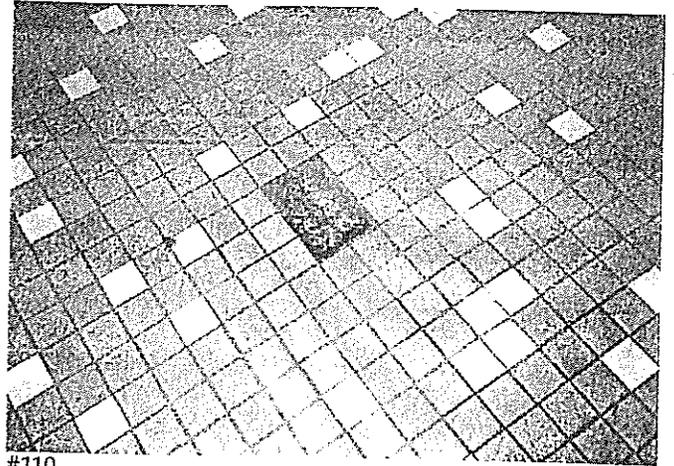
#108



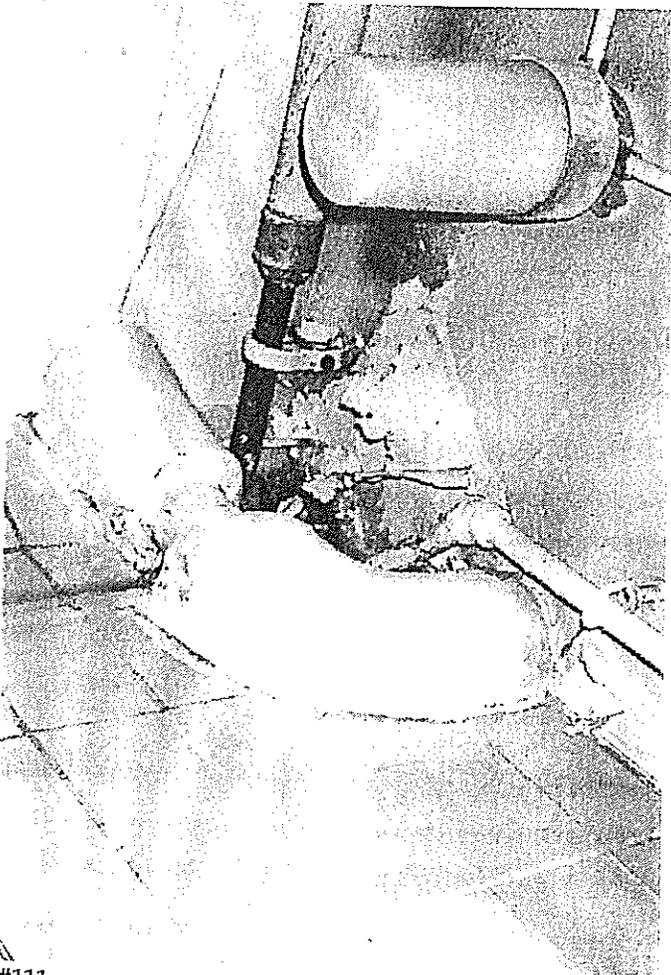
Mitchell Park Final Report



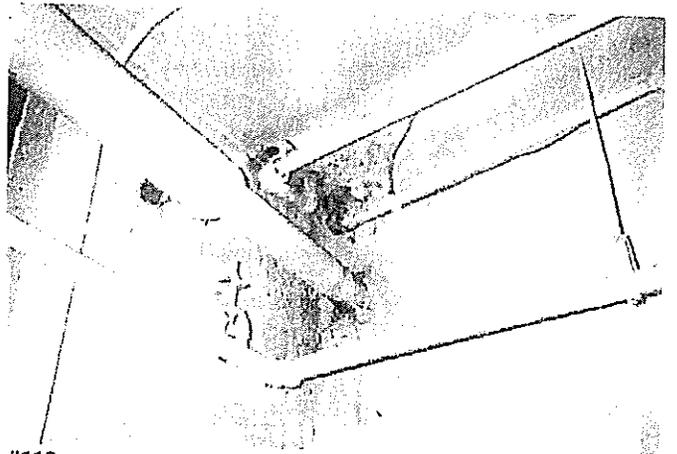
#109



#110



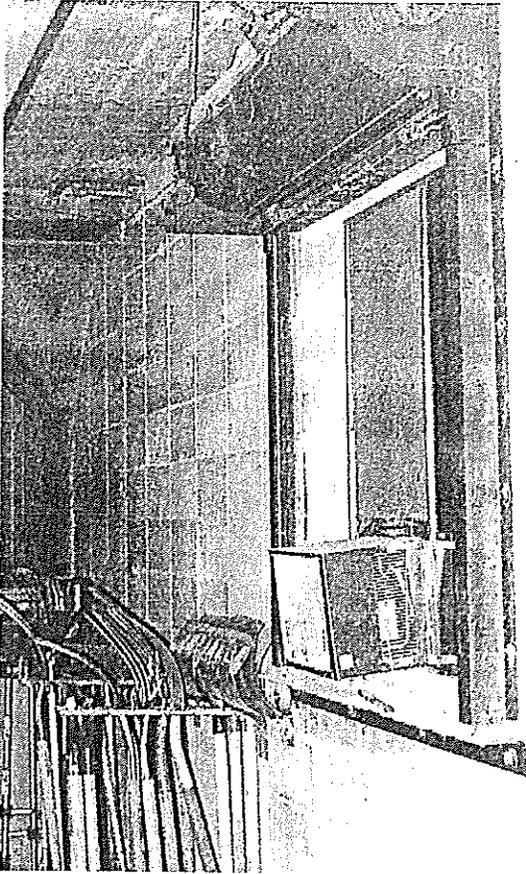
#111



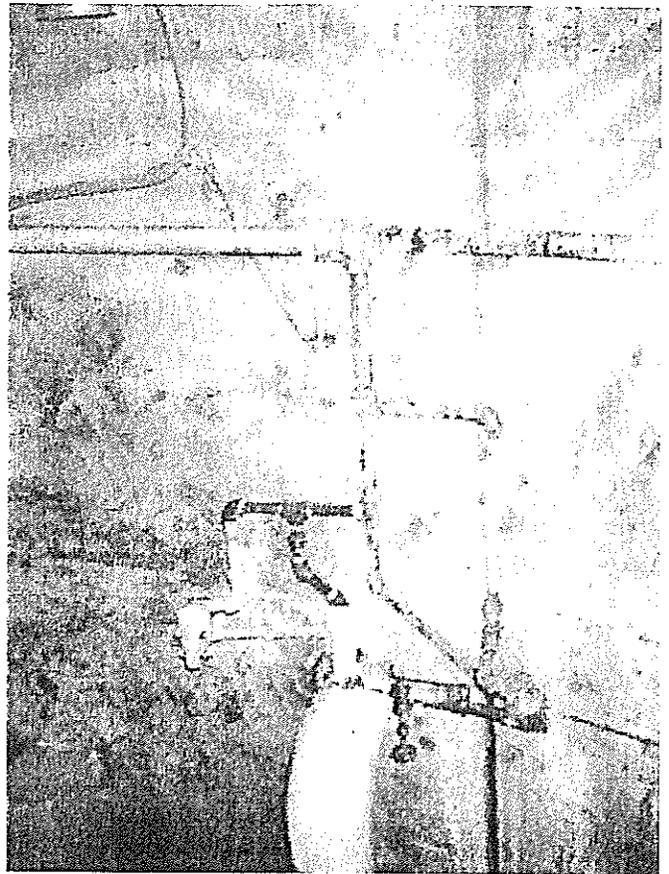
#112



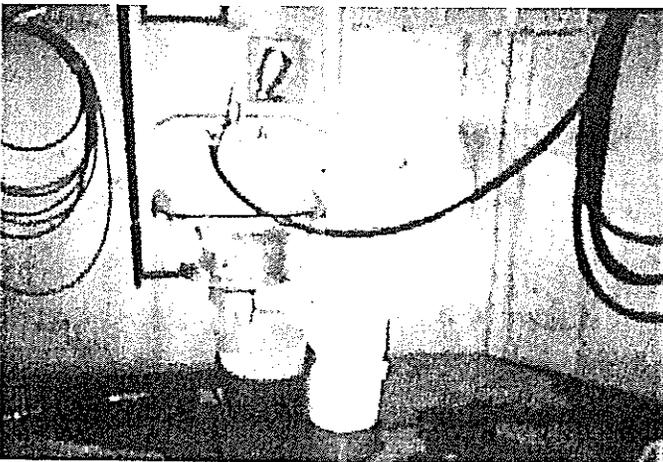
Mitchell Park Final Report



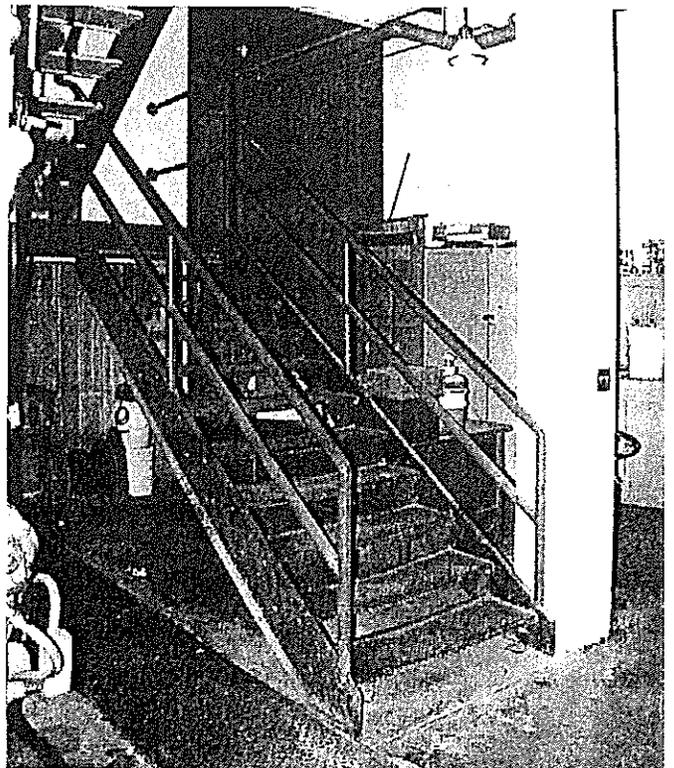
#113



#114



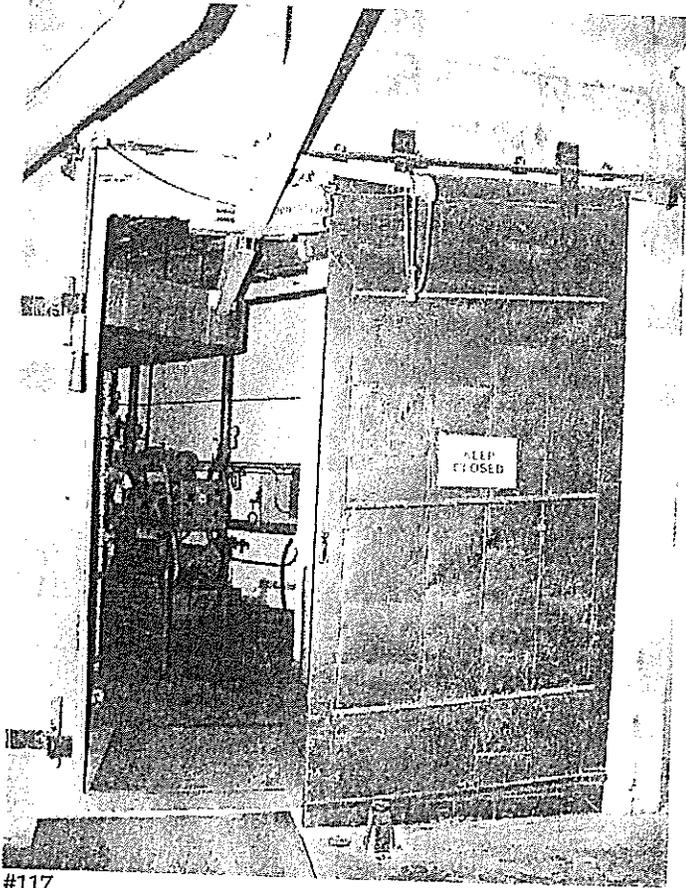
#115



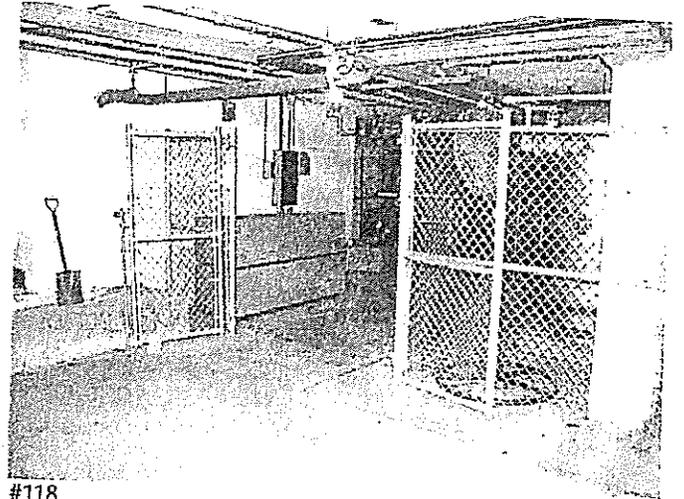
#116



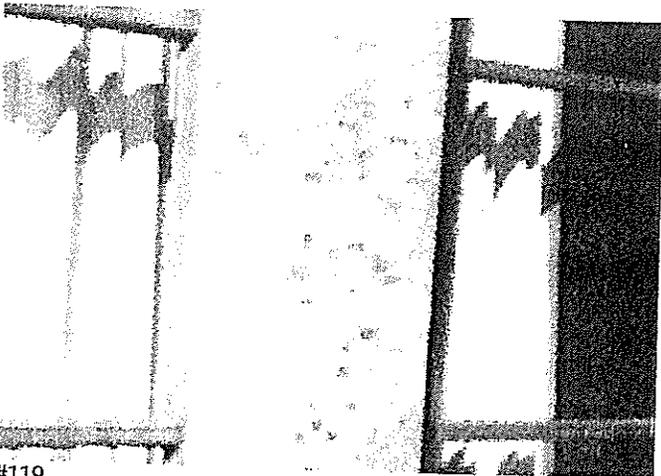
Mitchell Park Final Report



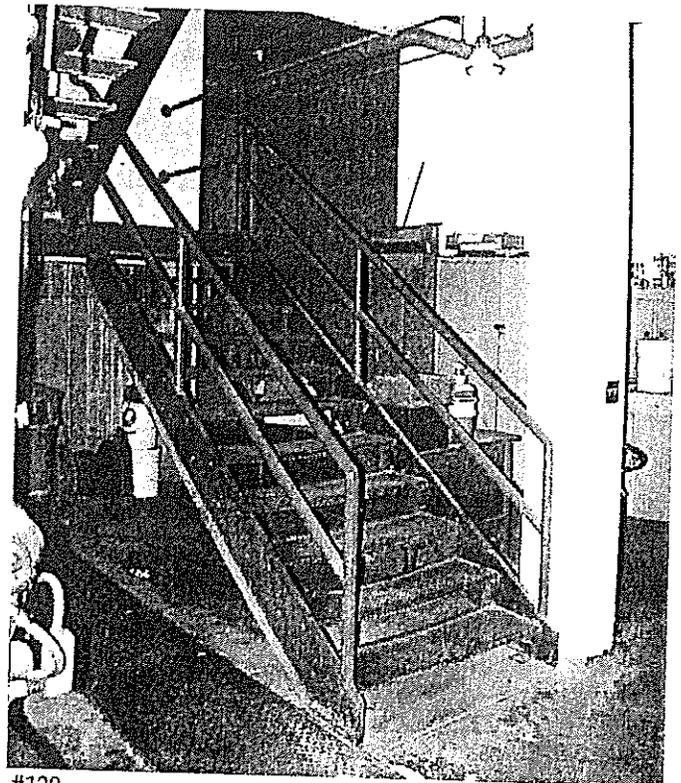
#117



#118



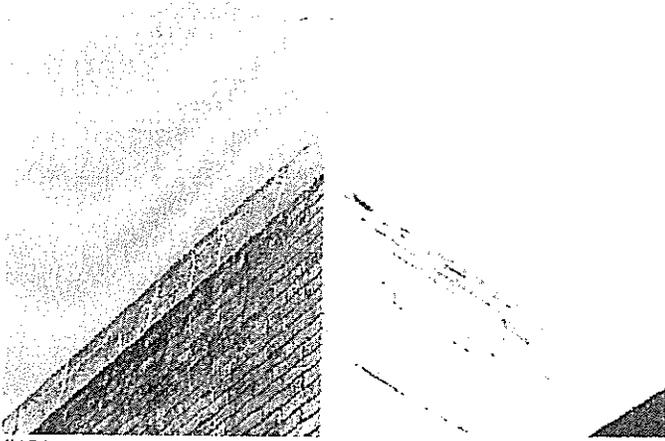
#119



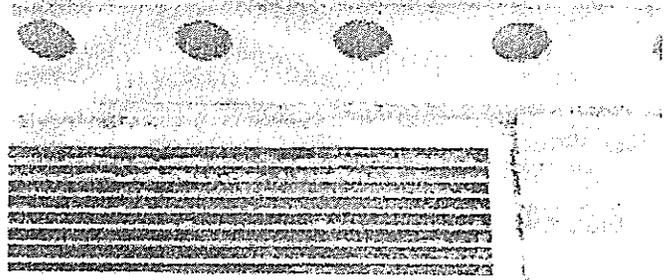
#120



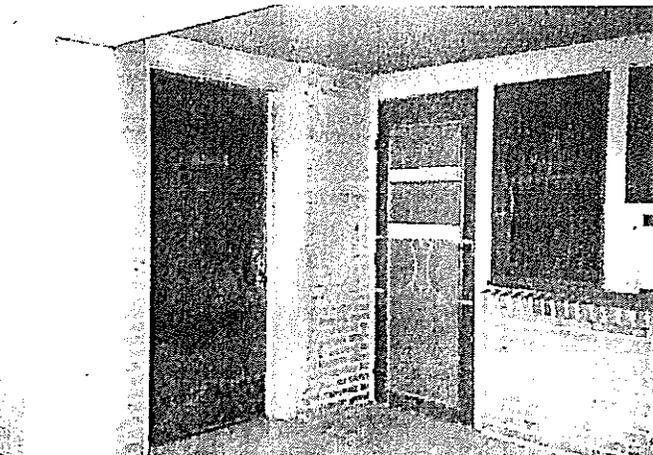
Mitchell Park Final Report



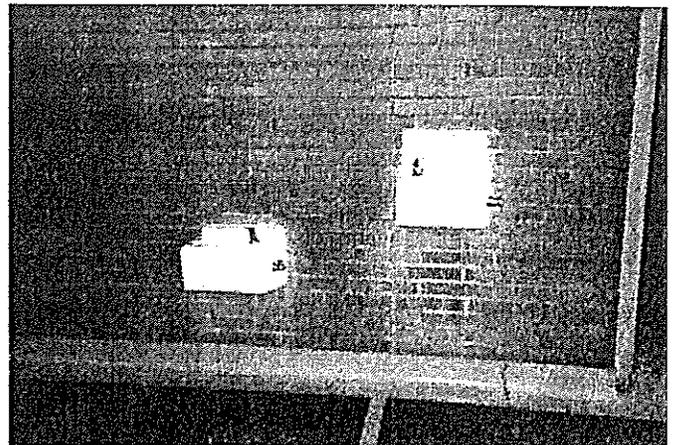
#121



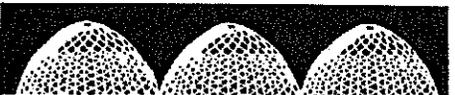
#122



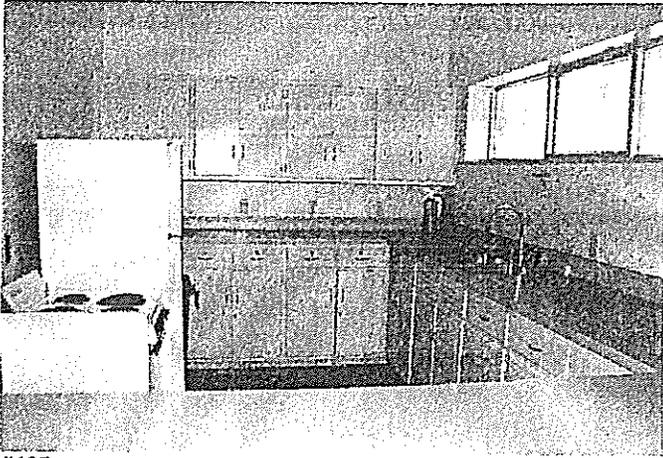
#123



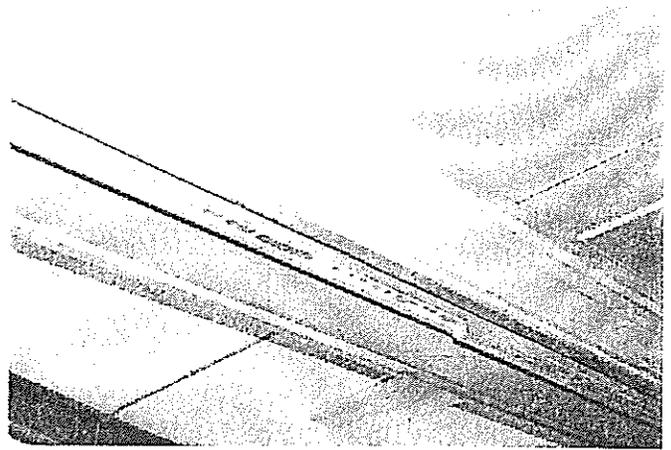
#124



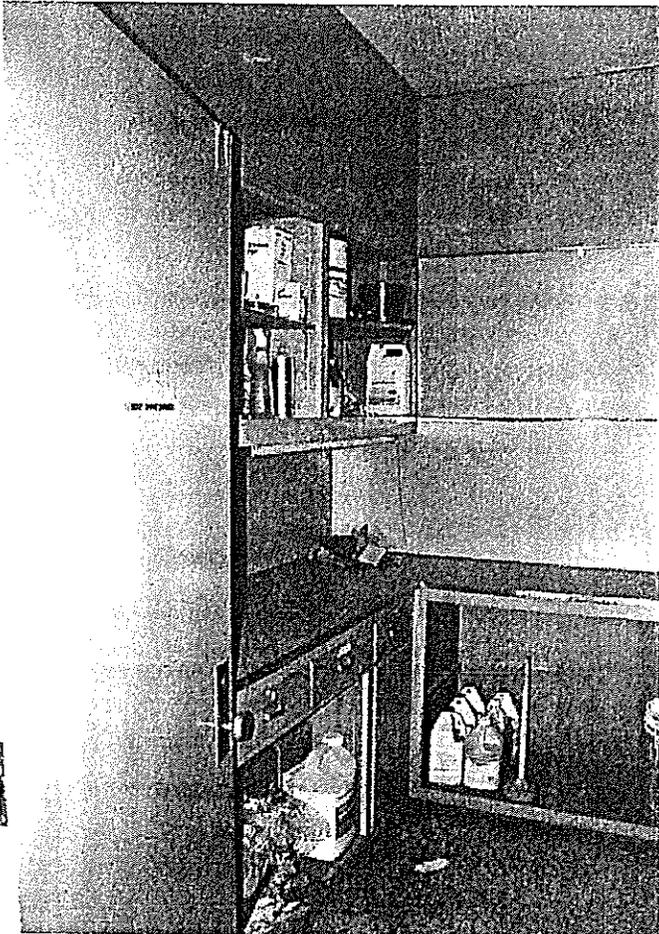
Mitchell Park Final Report



#125



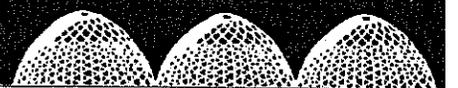
#126



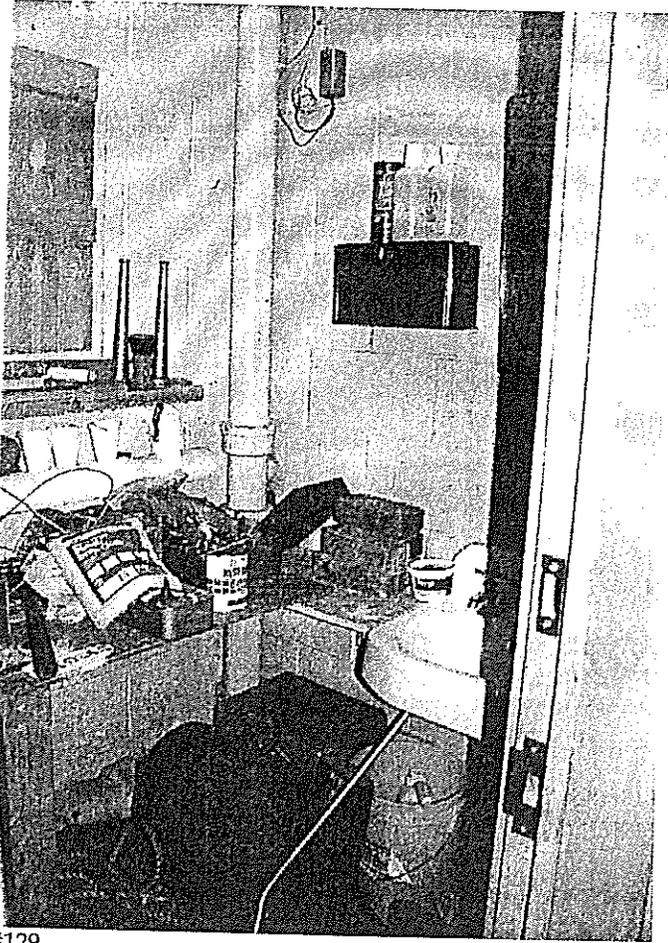
#127



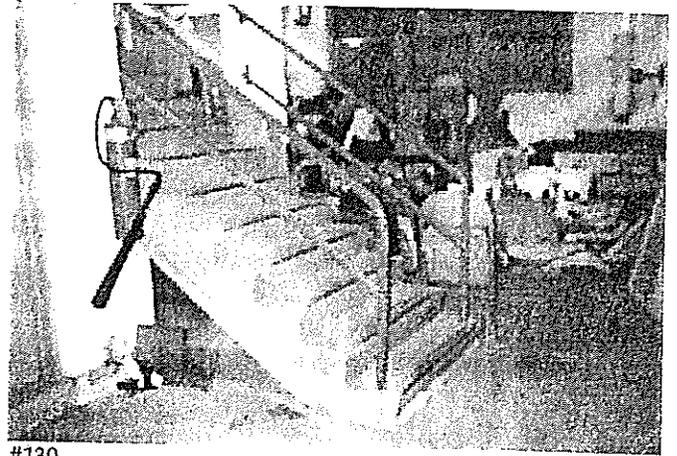
#128



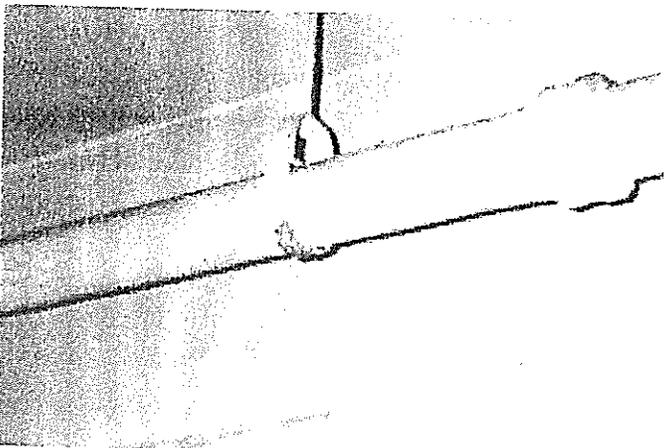
Mitchell Park Final Report



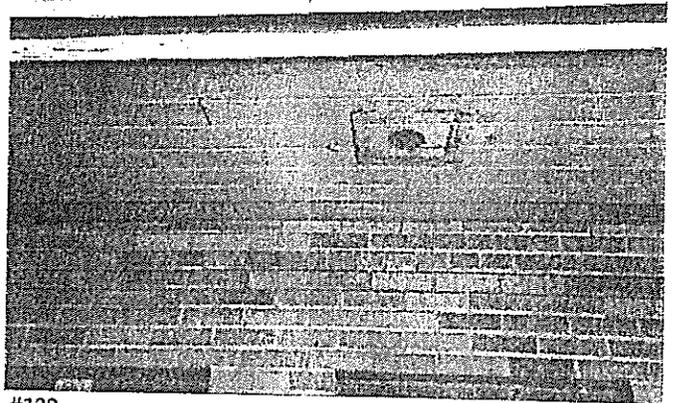
#129



#130



#131



#132



Mitchell Park Final Report



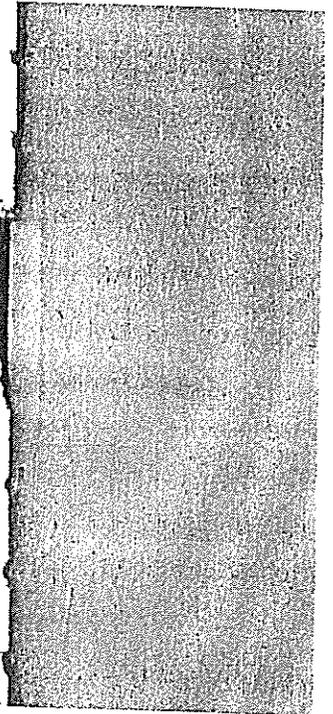
#133



#134



#135



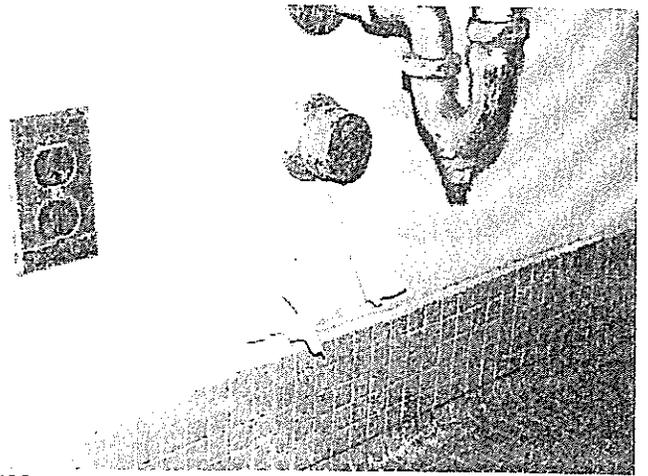
#136



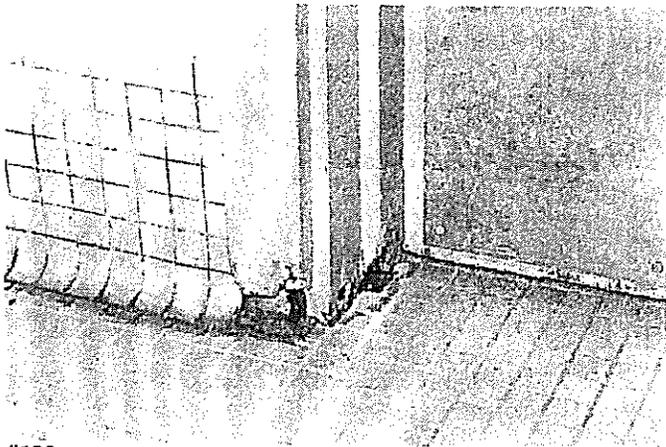
Mitchell Park Final Report



#137



#138



#139



#140



Mitchell Park Domes Structural Inspection of the Lobby, Boiler Room, Transition Dome and Air Lock Structures

Introduction

The Mitchell Park Horticultural Conservatory consists of three main domes (the Show, Desert and Tropical Domes), a Central Lobby, Boiler Room, Transition Dome and Air Lock structure. Also on the grounds is a Pavilion, a Pool Building and Amphitheater. This report addresses all of the above structures except the three main domes. A structural condition study of the Domes was prepared for Milwaukee County in February of 1994 by Graef Anhalt Schloemer and Associates, Inc. recommending repairs to the concrete structural frame and the glazing system. Partial implementation of glazing repairs has been on going. Drawings from 1959 and 1962 were available for many of the structures reviewed.

The Central Lobby building includes concession, offices, vestibule, toilet room and lobby areas. It is a two-story, steel joist on steel pipe column roof system over a concrete two-way slab structure on concrete columns. The entryway is capped with precast concrete arches. The interior of the Central Lobby building is in generally good condition, although components which are exposed to the elements are showing signs of deterioration and neglect.

The Boiler Room structure is a one-story, concrete structure between the Transition Dome and the Desert Dome. It houses the mechanical equipment and cisterns. It is also in generally good condition except for the trenches in the slab on grade. The exterior components are showing signs of deterioration.

The Transition Dome is a 40'-9" diameter, approximately 25'-0" high, galvanized steel dome with a supported cast-in-place concrete slab over a lower level. The exterior, exposed, lower level has a brick veneer. The galvanized steel framing system for the glazing and the cast-in-place floor system are in good condition. The exterior window jams and sills are deteriorating, as well as exposed steel components.

The Air Lock building is between the Transition Dome and the Show Domes. It is a one-story, steel joist on load-bearing masonry structure. The slab on grade is at the same elevation as the adjacent domes. The slab needs attention, as well as exterior, exposed steel components.

The Pavilion is a one-story structure with a partial basement. It houses a meeting room and some park offices. The large meeting room has a sloped roof supported with laminated wood beams and columns. The remainder of the building has a flat roof and is supported with load bearing masonry. The basement walls and the floor over the basement are cast in place concrete. The building is in generally good condition.

The Pool Building is a one-story masonry, wood beam and steel pipe column structure with a basement. The basement walls are CMU and the first floor slab is precast plank. It houses restroom facilities and mechanical equipment for the adjacent wading pool. The facility is in generally good structural condition except for some moisture problems in the basement.

The Amphitheater is a small, masonry storage facility with a cast-in-place concrete roof. The roof of the structure is concrete slab which serves as a small stage for park events. The exterior brickwork is deteriorating and there are moisture problems inside the building.

Observations

Central Lobby

Exterior:

The slabs on grade are spalled and cracked in both of the north and south reflecting pools. The short, parapet walls separating the reflecting pools from the domes are cracked and have been repaired some time in the past.

The walls of the exterior stairwells, just north and south of the main lobby entry have been coated with a spray-on concrete material that is now spalling off or has been scraped off in areas. The curb beneath the door of the south stairs is cracked and deteriorating.

The lobby entry is made of precast concrete arches. Several, isolated spalled areas are located on the north and south wall faces. The membrane in these areas has been damaged. Exposed reinforcing bars can be seen in several locations at the undersides of most of the arches. The concrete piers that support the precast arches are cracked and deteriorated in some cases. Where the arches come down to grade level at the north and south ends, there is deterioration at the setting plates. The long, narrow, embedded metal plates at the sides of the arches are rusting.

Interior (first floor level):

The main lobby area has a terrazzo floor over a two-way cast-in-place floor slab. Several cracks in the terrazzo are noted at this level. The cracks are generally in a radial direction between domes. Most cracks could not be seen at the underside of the slab from the lower level. There are several cracks between the Show Dome entry and the Desert Dome that are more substantial. At least two of the cracks run side by side almost all of the way across the lobby floor, with additional cracks closer to the Show Dome.

The gift shop did not show any signs of problems. There are finish materials over most of the structural components. There were no drawings available for this area.

The ceilings in the lobby area are plastered, therefore, the structure is not open to view. There is no evidence of problems with the roof structure.

Interior (lower level):

There are only a few cracks visible in the floor slab above. These are likely to be the same, more substantial cracks located between the Show Dome entry and the Desert Dome as noted above. These cracks appear to be related to a change in slab reinforcement and thickness at this area as well as a wall at the lower level partially supporting the slab. The cracks on the underside of the slab are just larger than hairline, do not show any signs of recent movement and are not structurally significant. The rest of the underside of the slab that is visible and the walls look to be in good condition.

There were no drawings available which reflected the lower level correctly. The drawings dated 1959 show this level as being primarily foundations with a slab on grade lobby.

Boiler Room

Interior

The slab on grade concrete adjacent to the covered trenches is spalled and the trench cover plate steel and edge angles are rusting and bent. There are also some isolated, small pop outs. The channels which protect the large overhead doors are rusting.

There is a horizontal crack in the southwest cast-in-place wall at the corner leading into the area which houses the air-conditioning equipment. There is moisture penetrating the crack. The crack does not appear to be structurally significant.

The inside of the cistern was viewed, however, it is covered with a membrane or waterproofing material.

It looks like the west wall was patched, probably done for mechanical access.

Roof Deck:

There are cracks in the topping above the boiler room concrete slab. Some of the joints appear to have been repaired at one time, however, they are deteriorating again. The waterproof membrane is bubbled up, torn and damaged in several locations.

The handrail around this area is rusting heavily.

All of the drawings we have available show the Boiler Room building as an existing structure, therefore, detailed construction drawings were not included.

Transition Dome

Exterior (below glazing):

Some of the concrete piers have small cracks through them. Two piers have deteriorated to the point that all of the concrete reinforcing cover has completely spalled off.

Around the lower portion, most of the concrete window jams have exposed rebar and rusting lintels. Some of the concrete window jams are cracked and spalled. The handrail around the outside of the Transition Dome walkway is rusting heavily. The handrail and edge angles at the roof level are also rusting.

Interior (lower level):

The underside of the elevated slab is exposed from the loading dock and appears to be in good condition. The CMU walls surrounding the loading dock also appear to be in good condition.

Interior (first floor level):

The masonry pilaster on the south side of the entrance needs patching. It looks like an electrical box may have been relocated.

The steel frame system supporting the glazing is galvanized and the surfaces have oxidized. The supported cast-in-place slab looks to be in very good condition.

Drawings for the dome framing were available, however, the drawings for the elevated cast-in-place slab and lower level were not.

Air Lock Structure

Interior:

The roof joists and CMU in this area appear to be in good condition. The slab on grade shows some cracks. There are also some large gaps in slab joints that need to be filled.

Exterior:

There is some deterioration on the northeast facade of the airlock building at the roof line. The steel brick ledge is rusting. There is also some rusting of the steel lintel across the door just immediately west of the Transition Dome at the north face.

The slabs outside of the Air Lock Building are cracked and are in bad condition. The asphalt approach ramp is also in bad condition. The trench drain at the loading docks is not functional.

Pavilion

Interior:

The roof structure was not accessible for view. The terrazzo covered slab on grade has some cracks. A diagonal crack was noted above the window at the southeast corner of the building. These cracks are not structurally significant. The rest of the building is in good structural condition.

Exterior:

The brick on the exterior was in good condition.

Drawings for the Pavilion were not available.

Pool Building

Interior:

The roof structure was not accessible for view. The CMU basement walls and precast floor plank are in good structural condition, however, there is considerable dampness in the basement. Moisture could be seen at the west basement wall and slab above as well as at portions of the east side of the basement.

Exterior:

The brick on the exterior was in good condition.

Wading Pool:

The slab on grade which forms the wading pool is in relatively good shape. There are occasional concrete pop outs. The slab construction joints need repair.

Drawings for the Pool Building were not available.

Amphitheater

Interior:

The CMU block walls and cast in place floor slab are in good condition, however, there is considerable dampness. The slab on grade has some cracks in it.

Exterior:

The exterior brickwork needs repair and tuckpointing in several locations.

Drawings for the Amphitheater were not available.

Summary

Many of the exterior portions of the structures reviewed are showing signs of significant deterioration. Although, the problems do not yet pose a safety hazard, they do affect the functionality of the buildings. If maintenance is delayed, these deficiencies will only escalate and become even more costly to correct.

Mitchell Park Domes Proposed Addition

The proposed addition to the Mitchell Park Domes lends itself to the following structural systems:

Cast-in-place concrete retaining walls at the service corridor. The walls and roof for the corridor may all need to be cast-in-place concrete due to the desire to retain soil in this area. Note that the outside wall will need a retaining wall style foundation since there is not a counter-acting soil load on the opposite side of the structure.

Steel wide flange columns with spread footings on the interior of the structure.

Composite steel beams with concrete deck at the first elevated floor.

Metal deck, steel joists with wide flange beams at the roof.

The new structure shall be designed to State of Wisconsin Type 2 Fire Resistive Construction.

48173
Jim
Tom
Chuck



PSJ ENGINEERING, INC.

Consulting Engineers

7665 North Port Washington Road
Milwaukee, Wisconsin 53217-3175

Phone: (414) 352-2211

Fax: (414) 351-8823

E-Mail: jjaspal@execpc.com

Web Site: www.execpc.com/~jjaspal

October 14, 1998

Mr. James Otto, AIA, NCARB
Engberg Anderson Design Partnership, Inc.
611 North Broadway
Milwaukee, Wisconsin 53202

ENGBERG ANDERSON

OCT 19 1998

Re: Condition Report
Conservatory, Pavilion and Wading Pool Buildings - Mitchell Park
Milwaukee, Wisconsin

RECEIVED

Dear Mr. Otto:

INTRODUCTION

We have completed a condition report of the above-referenced properties in accordance with our proposal. Site visits were completed in early September 1998.

SURVEY AND EVALUATION PROCEDURES

The condition report was performed by qualified professionals employed by PSJ Engineering, Inc., practicing within their respective area of expertise.

In general, the study involved a visual survey of the buildings. After the visual examination, additional information required for the report was collected by the professional in charge.

We wish to emphasize the following point. The mechanical systems evaluations did not include mechanical examining and/or disassembling the equipment to ascertain the physical condition of individual parts or components. Rather, our survey was directed at developing an opinion of the condition of the mechanical systems and identifying a potential list of maintenance, repair recommendations, and recommendations for accommodating future expansion.

SUMMARY

A detailed description of each of the buildings is presented in the attachments to this report.

If you have any questions regarding our report, please contact us.

Sincerely,
PSJ ENGINEERING, INC.

Robert Wagner
Project Manager

MECHANICAL SYSTEMS SURVEY AND EVALUATION

SCOPE OF WORK

Tour the building Domes Conservatory located at Milwaukee County, Mitchell Park, Milwaukee, Wisconsin and visually examine the mechanical systems to ascertain the overall configuration and system types and the overall condition of the systems. Develop an opinion of the condition of the mechanical systems and identify probable maintenance and repair recommendations.

METHODS AND PROCEDURES

The building was visually inspected for the main mechanical equipment that is contained within. Model numbers were taken from units critical to the systems. The mechanical units and plumbing units were visually evaluated at the time of the building tour. Certain equipment manufacturer literature was researched after the site tour to obtain and verify information on the mechanical units.

SUMMARY OF INVESTIGATIVE RESULTS

PLUMBING SYSTEMS

- Natural Gas
 - Natural gas is supplied to the water heater, (3) boilers, and emergency generator located in the mechanical equipment room. The water heater type is Model RF98-18, has a capacity of 97 gallons, an input of 180,000 Btu/hr., and a recovery rate of 194 gal/hr. The serial number is as follows: 844-E12-669PSHCP.
- Piping Systems
 - Hot water is produced by the natural gas water heater located in the mechanical room. The water heater is appears to be in good condition. The existing hot water pressure recirculating pump is a 1/6 HP by Bell & Gossett.
 - All observed domestic water piping was a combination of galvanized and copper.
- Acid/Fertilizer Piping
 - Socket fusion polypropylene and is in need of repair. Acid waste piping is deteriorating. Cast iron and galvanized non-potable water, waste and vent piping is deteriorating.
 - Numerous abandoned and non-operating large pieces of equipment, tanks, pumps and piping from fertilizing, softening and irrigation systems were noted.
- Fertilization/Irrigation System
 - Contains working and abandoned components. The operating pumps are leaking from the packings and are manually controlled. Model numbers were not accessible. Pumps and controls need to be upgraded. In the plant housing areas, "Enviro Mist" units are being used to water plants along with manual watering.
- Dome "C" has a pump used for the waterfall - pump is in a pit and was not accessible. Building maintenance says pump is in need of replacement.

Fertilization/Irrigation System:

1. Replace circulating pumps and modernize controls. Pumps to run when activated from point-of-use misting apparatus and not manually at pumps. This will eliminate the pumps from running continuously as they do now. (Pumps to be sized to handle future).
2. Replace the existing deteriorating piping and extend piping to future expansion.
3. Review system specific to Domes and Green Houses for sizing and controls.
4. Remove all the abandoned equipment.
5. Replace pumps at the Dome "C" waterfall.
6. Inspect the holding tanks for leaks, sediment buildup, and condition of mechanical components.

Fixtures:

1. Replace fixtures in staff locker/toilet rooms.
2. Main toilet rooms will be relocated to the new expansion, thus eliminating the existing rooms.
3. Clean and clear all drains around building exterior and replace missing grates, and install small animal screening in grates.

Fire Protection:

1. Automatic Fire Sprinkler System should be installed in the lower level mechanical and storage areas.

HVAC Systems:

1. The existing low pressure steam boilers produce 15.3 million BTUH. The existing process and comfort load is 13.9 million BTUH. The new process load is estimated to be 2.5 million BTUH. The existing and new process load can be handled from the existing steam boilers by removing the comfort load from the low pressure steam system. This will require new main steam supply and returns from the existing boiler room to the new greenhouse loads.
2. The heating for the new office and support areas should be supplied from a new heating hot water system for improved temperature control, energy efficiency and ease of maintenance.
3. The cooling for the new office and support areas should be supplied from a new 200 ton chilled water system.
4. Variable air volume systems should be utilized for the new office and support areas due to the varying people densities and differing temperature control zones.
5. The new heating hot water boilers for the new comfort heating hot water system could be a modular boiler set-up consisting of three (3) high efficiency condensing type natural gas fired boilers. The material cost without labor for this system would be approximately \$65,000.00 including a factor supplied energy management/control system for appropriate staging of the boilers.

- Exterior Systems
 - Front of building fountain pump is off line as fountain is leaking and has not been repaired.

FIXTURES

- Main toilet room fixtures appear to be in good working condition. First level janitors closet fixture need replacing. Drinking fountains located in building are adequate. (Note -- at this time there are no ADA drinking fountains in the building.) Staff locker/toilet rooms fixtures in need of replacement.
- Visual inspection of exterior drainage at Dome bases, revealed numerous missing grates and at least two drains plugged.

FIRE PROTECTION

- The building is not sprinklered.

HVAC SYSTEMS

- Three existing Cleaver Brooks low pressure steam boilers appear to be in satisfactory condition with oil stand-by (rebuilt in 1985).
- Manual control is utilized more than automatic due to the age and condition of the Johnson Control system.
- Boiler vacuum return and feed water system are in need of repairs or replacement due to their age.
- Traps need to be rebuilt or replaced due to age and use.
- Temperature control in Domes is more manual due to control valves not working. (on/off of 10 air handling units and fans).
- Existing Trane chiller is an R-12 system which has leaks that have not been located and repaired. The chiller and associated refrigerant heat exchangers need to be replaced.
- Preliminary heating and cooling loads have been calculated for the proposed new work to evaluate the capacity of the existing steam plant and resizing of new chiller replacement.

RECOMMENDATIONS

Domestic Water System:

1. With the future expansion replace existing water heater with new higher efficiency model with electronic ignition.
2. Replace cold, hot, and hot water return piping and recirculating pump with new system sized for expansion.
3. Verify that entire system is protected from contamination with the use of reduced pressure backflow preventers/vacuum breakers throughout all areas.

MECHANICAL SYSTEMS SURVEY AND EVALUATION

SCOPE OF WORK

Tour of the Pavilion building and visual examination of the mechanical systems to ascertain the overall configuration and system types and the overall condition of the systems. Develop an opinion of the condition of the mechanical systems and identify probable maintenance and repair recommendations.

METHODS AND PROCEDURES

The building was visually inspected for the main mechanical equipment that is contained within. Model numbers were taken from units critical to the systems. The mechanical units and plumbing units were visually evaluated at the time of the building tour. Certain equipment manufacturer literature was researched after the site tour to obtain and verify information on the mechanical units.

SUMMARY OF INVESTIGATIVE RESULTS

PLUMBING SYSTEMS

- Natural Gas
 - Natural gas is supplied to the boiler located in the mechanical equipment room.
- Domestic Water
 - Hot water is produced by an electric water heater located in the mechanical room. The water heater is in need of replacement. no booster pumps are present. All observed domestic water piping was galvanized piping. Within the mechanical equipment room, the domestic water piping is partially insulated with Armaflex closed-cell insulation. All plumbing fixtures are in need of replacement.

FIRE PROTECTION

- The building is not sprinklered

HVAC SYSTEMS

- Original systems were installed 1952 or 1953 as a hot water radiant panel system and is still functional for a heating only system.
- The boiler and pumps were replaced in 1986 and appear to be in good working order.

MECHANICAL SYSTEMS SURVEY AND EVALUATION

SCOPE OF WORK

Tour of the Wading Pool Building and visual examination of the mechanical systems to ascertain the overall configuration and system types and the overall condition of the systems. Develop an opinion of the condition of the mechanical systems and identify probable maintenance and repair recommendations.

METHODS AND PROCEDURES

The building was visually inspected for the main mechanical equipment that is contained within the mechanical equipment room. Model numbers were taken from units critical to the systems. The mechanical units and plumbing units were visually evaluated at the time of the building tour. Certain equipment manufacturer literature was researched after the site tour to obtain and verify information on the mechanical units.

SUMMARY OF INVESTIGATIVE RESULTS

PLUMBING SYSTEMS

- Natural Gas
 - Natural gas is supplied to the water heater located in the mechanical equipment room. The units are not equipped with flue dampers. The combustion air intake for the water heaters consists of a wall-mounted sheet metal hopper located behind the water.
- Domestic Water
 - Hot water is produced by a natural gas water heater located in the mechanical room. The water heater is in need of replacement. All observed domestic water piping was galvanized. Within the mechanical equipment room, the domestic water piping is partially insulated with Armaflex closed-cell insulation. All plumbing fixtures are in need of replacement.
- Wading Pool Filtration System
 - Filtration and pump system should be upgraded to closed type system with updated controls.

FIRE PROTECTION

- The building is without any automatic fire sprinkler protection.

HVAC SYSTEMS

- The Mammoth heating and ventilating units appear to be in satisfactory condition.
- Exhaust needs to be added for the pool equipment located in the basement.

**Mitchell Park &
Conservatory**

Master Plan

Electrical Systems Summary

September 14, 1998

Mitchell Park & Conservatory

Electrical Systems Summary

Existing Electrical Service

Building Electrical Service

The electrical service to the Conservatory Building consists of a 3810 Volt primary electrical service. The equipment appears to be the original equipment installed in 1959. The primary Substation contains two (2) transformers to transform the primary voltage to building utilization voltages. One of the transformers is rated 150 KVA and provides the 480Y/277 Volt service. The other transformer is rated 250 KVA and feeds a 208Y/120 Volt Switchboard. Both of the transformers are rated 80°C rise.

The Primary Service room exhaust fan was not working and the room had several floor mounted fans running to keep the room cool. It appeared that the cooling fans in the Substation were not functioning. The room was dirty and did not appear to be cleaned on a regular basis. There is no indication that the transformers were serviced or cleaned on a regular basis. At a minimum the following should be done with the primary substation:

- 1) Repair the room exhaust /ventilation system.
- 2) Clean and test the substation. Repair or replace the cooling fans and temperature sensing system in the substation.

Based on the age of the service equipment, almost 40 years old, the equipment is considered at end of useful life and should be scheduled for replacement. The following are two options for the service equipment

- 1) Replace the existing primary equipment.
- 2) Based upon the electrical service size, a primary service appears to be excessive. A secondary service at 408Y/277 Volt from a WEPCO pad mounted transformer is recommended. The cost for a new secondary electrical service should be significantly less than replacing the primary equipment.

Electrical Switchboard and Distribution

The 480 Volt service extends from the primary substation and terminates in a distribution panel rated at 400 Amps. The panel directory indicates that the panel mainly feeds building humidification units. The 480 Volt distribution panel appears to be 1959 vintage equipment and should be considered at end of useful life.

The 208Y/120 Volt service extends from the primary substation to a GE switchboard rated at 1600 Amps. The switchboard has an integral automatic transfer switch fed from a 200

KW emergency generator. The entire switchboard appears to be backed up by the emergency generator. The switchboard is of original building vintage and is at end of useful life. It was mentioned at the time of the site visit that there is a least one conduit that comes into the switchboard that weeps water into the unit. A fan is placed in front of the switchboard to keep water from accumulating in front of the switchboard. This conduit should be examined and corrective measures be taken to eliminate the water seepage.

Emergency Electrical System

The building has an on-site emergency generator. The generator is rated at 200KW and is powered by #2 fuel oil with an on site fuel supply. The generator is tested every 2 weeks. It is not known if this test is performed under load, but the generator is at least started and runs regularly. As with the other electrical equipment, the generator is original equipment and should be considered at end of useful life.

The generator currently backs up the entire 208Y/120 Volt switchboard. Any upgrade on the emergency system would require that the emergency services be broken into current code required emergency branches. (i.e. Life Safety, and optional Critical and Equipment branches) This would require separate transfer switches for each of the emergency branches.

The Life Safety branch could only feed the code required life safety loads. These loads would be:

- Emergency lighting
- Exit lights
- Fire alarm systems
- Other code required life safety systems.

The optional emergency branches would feed the heating and cooling systems required to maintain the "plant" required environments.

Electrical Panelboards and Branch Circuits

Electrical panelboard, particularly those in the Dome service trench are in poor shape. These panelboards are exposed to the dome environment and many are deteriorating. It was noted, by the maintenance staff that some of the circuit breakers are inoperable and that spare parts cannot be obtained. This is an unsafe condition and should be corrected. All of the panelboards in these areas should be replaced and the location for the panelboards evaluated.

Lighting Systems

Exterior Lighting Systems

Exterior lighting systems surrounding the Conservatory appear to have been replaced in the middle to late 1980's. The fixtures appear to be in good shape. The fixtures are located mainly in the parking lots surrounding the Dome area and along the entry drives.

Although the fixtures may do an adequate job of illuminating the walkways and parking areas they do not add architectural style or interest to the space. The fixtures are cut-off style and do not provide a high level of vertical footcandles. In an environment where security is a perceived problem, higher vertical footcandles allow people to view faces and vertical surfaces better, thereby allowing individuals time to avoid problem situations. The fixtures are currently lamped with High Pressure Sodium lamps. Current standards would recommend that Metal Halide lamps be used to improve the quality of light. It is recommended that walkway units and entry drive fixtures be selected and added to provide a visual attraction and entice more patrons to utilize the facilities after daylight hours. Care should be taken in regards to color, scale and visual style in addition to the photometric performance.

Dramatic lighting, including landscape lighting, in-water lighting, and color should be added to enhance the visual environment of the facilities in the evening. Providing movement using changing colors in each of the Domes would definitely attract attention and draw people to the site. The domes would be visible at all hours from the freeway.

Interior Lighting Systems

There appears to be several Capitol Projects that are in the works relative to the interior lighting. These Capitol Projects should be reviewed relative to the overall recommendations of the master plan. If the overall dome lighting is changed to a Metal Halide source and the master plan calls for dome areas to be used in an intimate dinner setting, the proposed change may not make sense relative to the proposed use.

The Dome lighting system should first address the intended use of the space and then address maintenance, energy usage and controls issues.

Backstage support area lighting systems should be upgraded to current standards. Most of the support areas are lit with incandescent lamps. These areas should be lit with HID or fluorescent fixtures. The replacement of the incandescent fixtures will reduce the energy cost for these areas as well as reduce the maintenance costs.

Lighting Control Systems

Consideration should be given to a complex wide lighting control system. If the use of the facilities increases, controls for the facility should be consolidated and computerized so that scenes or programs could be selected by proposed usage. These scenes could incorporate interior and exterior lighting systems. Normal operating hours could be programmed into the system and operate automatically based upon predetermined schedules. After hours scenes could then be turned on as an over-ride to the normal evening settings.

1011 North Mayfair Road
Suite 206
Wauwatosa, WI 53226-3448
Phone: 414-774-4543
Fax: 414-774-4579

Dolan & Dustin, Inc

Fax

To: Jim Otto - Engberg Anderson **From:** James B. Knoerr

Fax: speed dial **Date:** October 2, 1998

Phone: 207-7000 **Pages:** 1

Re: Mitchell Park Master Plan **CC:**

Urgent **For Review** **Please Comment** **Please Reply** **Please Recycle**

•Comments:

Jim:

Upon review of the Master Plan Drawings dated 21 September, 1998, I feel the following items should be included in the cost estimate you are preparing:

Lighting for the public spaces should be integrated into and compatible with the architecture. The system should include controls to utilize daylight when available. The controls must comply with the requirements of the Wisconsin Energy Code.

Exterior lighting should include lighting at the entry canopy, and front door, loading dock, required building exits, building mounted flood lights to highlight the greenery adjacent to the Library, Exhibit, and Banquet Hall. Security lighting should also be included. Landscape lighting should be included.

The banquet hall should have a lighting system to meet the various proposed uses for the space. The lighting system should provide for multi-level lighting levels and scenes to facilitate lighting for activities for elegant dinners, wedding receptions, business meetings, craft shows, etc. Include a preset architectural dimming control system.

Extend the existing building fire alarm system to the new space. Include smoke detectors and heat detectors for elevator recall.

Provide a pre-set dimming system and lighting system for the audio/visual room.

Mitchell Park Domes Description of Proposed Electrical Service/Distribution-

- ELECTRICAL SERVICE:

A new 480Y/277 volt electrical service will be provided from a Wisconsin Electric Power Company transformer located near the existing service location. The new service should be sized to accommodate the existing building loads and the proposed additions.

The emergency system, consisting of a new Standby Emergency Generator will provide power to code required egress lighting, exit lights and fire and smoke alarm system and to building required emergency loads required to maintain the plants. The emergency system will be separated into code required life safety and emergency branches via multiple transfer switches.

- ELECTRICAL DISTRIBUTION SYSTEM:

Feeders: Wire in conduit feeders will extend directly from a new main electrical switchboard to the 480Y/277 volt electrical distribution panels located throughout the building. Conductors will be copper.

Transformers: dry type step down transformers will serve 208Y/120 volt panelboards and feed the replacement switchboard for the existing building 208Y/120 volt switchboard. Transformers shall be rated K-4 minimum.

Branch Circuits and Distribution Panels: Branch circuit distribution panels will be circuit breaker type mounted in panel cabinets equipped with lock-type hinged door, sized to accommodate active and spare circuit breakers as required. Breakers will be plug-in type.

A transient voltage surge suppressor (TVSS) will be provided at the main switchboard.

Panelboards will be located throughout the building. 480Y/277 volt panelboards will serve fluorescent and HID lighting and miscellaneous 3 phase motors. 208Y/120 volt panelboards will serve receptacles, office equipment, single phase motors and miscellaneous small outlets. Each panelboard will contain an equipment ground bus.

Branch Circuits: Branch circuits will be extended from distribution panels to lighting fixtures, receptacles and miscellaneous equipment in a metallic raceway system. Separate neutral conductors will be installed for each 120 and 277 volt branch circuit. An equipment ground wire will be provided in each conduit that serves 120 volt receptacles.

- Structural Condition Study of the Mitchell Park Domes, Feb. 7, 1994 (GAS)
- Mitchell Park Domes Seasonal Repairs Phase 2, Final Report, Nov. 7, 1997 (GAS)
- HVAC Study & Design Report, Oct. 15, 1999 (PSJ Engineering, Inc.)

