



State of West Virginia
 Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER
 DNRB11006

PAGE
 1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
 FRANK WHITTAKER
 304-558-2316

VENDOR

RFQ COPY
 TYPE NAME/ADDRESS HERE

SHIP TO

DIVISION OF NATURAL RESOURCES
 PARKS & RECREATION SECTION
 324 4TH AVENUE
 SOUTH CHARLESTON, WV
 25303-1228 304-558-3397

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
08/20/2010				

BID OPENING DATE: 08/31/2010 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
***** ADDENDUM NO. 1 *****						
THIS ADDENDUM IS ISSUED TO PROVIDE THE ATTACHED TECHNICAL QUESTIONS AND ANSWERS.						
THE BID OPENING DATE AND TIME HAVE NOT CHANGED.						
***** END ADDENDUM NO. 1 *****						
0001	1	LS		906-00-00-001		
ARCHITECTURAL AND ENGINEERING SERVICES						
***** THIS IS THE END OF RFQ DNRB11006 ***** TOTAL:						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

GENERAL TERMS & CONDITIONS
REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125 fee.
4. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods this Purchase Order/Contract becomes void and of no effect after June 30.
5. Payment may only be made after the delivery and acceptance of goods or services.
6. Interest may be paid for late payment in accordance with the *West Virginia Code*.
7. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
8. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
9. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
10. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern the purchasing process.
11. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
12. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, the State may deem this contract null and void, and terminate such contract without further order.
13. **HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, is available online at www.state.wv.us/admin/purchase/vrc/hipaa.htm and is hereby made part of the agreement. Provided that the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.
14. **CONFIDENTIALITY:** The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/noticeConfidentiality.pdf>.
15. **LICENSING:** Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, and the West Virginia Insurance Commission. The vendor must provide all necessary releases to obtain information to enable the director or spending unit to verify that the vendor is licensed and in good standing with the above entities.
16. **ANTITRUST:** In submitting a bid to any agency for the State of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the State of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, or person or entity submitting a bid for the same material, supplies, equipment or services and is in all respects fair and without collusion or fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division. Complete all sections of the quotation form.
2. Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Unit prices shall prevail in case of discrepancy. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
4. All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130
5. Communication during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited (W. Va. C.S.R. §148-1-6.6).

EXPRESSION OF INTEREST
Canaan Valley Resort State Park
Sleeping Unit Replacements and Other Improvements
DNRB 211006

Addendum #2

The following is submitted as addendum #1 as a response to questions received.

1. *Could I get an official copy of this EOI?*
A copy of the EOI may be requested from the Division of Purchasing.
2. *The copy I have indicates a report from CAS Structural Engineering. Can I get a copy of this report?*
A copy is attached to this addendum.
3. *The existing facility, according to the website, has a 250 room lodge but the project description indicates a total of 150 rooms. Is it the intention of the project to demolish a significant number of guest rooms?*
The Owner anticipates constructing 100 new guest rooms and renovating 50. Depending on information provided to the Owner as a result of this contract, we may modify our current plans. Therefore, a considerable number of rooms will be demolished.
4. *Do you have a list of Civil Engineers interested in this project that we could team with?*
No.
5. *What is the Department of Administration/Purchasing Division's history in awarding similar type projects to out of state firms?*
In accordance with §5g of the West Virginia State Code the Evaluation Committee may short list at least 3 firms on the basis of qualifications, experience and concept. Oral interviews are to be conducted by the evaluation committee of only the short-listed firms.

EXPRESSION OF INTEREST
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4. *Do you have a list of Civil Engineers interested in this project that we could team with?*
No.
5. *What is the Department of Administration/Purchasing Division's history in awarding similar type projects to out of state firms?*

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DIVISION

**Structural Observation Report
Canaan Valley Resort State Park
Overnight Sleeping Facilities
Davis, West Virginia
January 2010**



Prepared by
CAS Structural Engineering, Inc.
Post Office Box 469 Alum Creek, West Virginia 25003-0469 (304)756-2564

INTRODUCTION

Canaan Valley Resort State Park and Conference Center is located in Davis, WV and currently hosts many activities within the park property, including overnight accommodations at the lodge. The purpose of this report is to summarize structural deficiencies and provide recommendations for structural repairs and general maintenance items for the 5 overnight sleeping facilities surrounding the main lodge. The 5 facilities are Raven Lodge, Wild Goose Lodge, Deer Lodge, Woodcock Lodge, and Beaver Lodge, and will be referred to as such throughout the entirety of this report. As part of this report, an Order of Magnitude Cost Estimate for Structural Repairs has been prepared as well as an Order of Magnitude Cost Estimate for General Maintenance Items.

At the request of the WVDNR, a *detailed* structural review of the Raven Lodge and Wild Goose Lodge was performed on November 16-18, 2009. Additionally, a *limited* structural review of the Deer Lodge, Woodcock Lodge, Beaver Lodge, and the covered walkways between the 5 lodges was performed during this same time period.

The 2 story, pre-fabricated sleeping units were constructed in the mid 1970's, and utilize conventional concrete footings with block foundation walls, wood frame construction for exterior walls and floors, a masonry firewall that extends from the crawlspace to approximately 2 feet above the roof line, and structural steel with a poured in place concrete deck for the 2nd floor balconies. Each overnight lodging facility is comprised of approximately 50 rooms.

All drawings used or referenced in this report were provided by the Owner.

Photographs are located in Appendix A, and Order of Magnitude Costs are located in Appendix B. The costs are separated into two categories: Structural Repairs and Maintenance Items.

Raven Lodge/Wild Goose Lodge

In order to provide a detailed review of the Raven and Wild Goose Lodges, a thorough investigation was required in each of the crawlspaces. Moisture conditions, foundation wall cracks, signs of supplemental foundation wall reinforcing, and conditions of deteriorated first floor framing were some of the items that were of concern during this part of the investigation.

At the conclusion of the crawlspace investigations, an extensive review of the exterior of the building was conducted. Proper use of joint sealants, roof drains, balcony structure, and overall condition of the exterior were some of the items that were of concern during this part of the investigation.

Once the exterior review was completed, the interior of numerous sleeping rooms were observed for signs of deficiencies in the structure (i.e. drywall cracks, sloping floors, inoperable doors etc.), as well as any pertinent maintenance recommendations.

Lastly, an observation of the roof was required to complete the review. It should be noted that a formal roof inspection was not conducted at this time. Areas of standing water, improper use of flashing, roof drainage system, and overall condition of the roof were some of the items that were of concern during this part of the investigation.

Deer Lodge/Woodcock Lodge/Beaver Lodge

The review of Deer Lodge, Woodcock Lodge, and Beaver Lodge was similar to the review of Raven and Wild Goose Lodges; however, limited access was made to the crawlspace and roof.

OBSERVATIONS

Raven Lodge (See Photos 1-44 Appendix A)

Foundations/Crawlspace

- The crawlspace was noticed to be damp
- Areas of missing vapor barrier on the bottom side of the first floor framing were noticed (See Photo 3-Appendix A)
- **Areas of standing water were noticed on top of the perimeter strip wall footing** (See Photos 2, 5, 6, and 7-Appendix A)
- **Mold/algae growth in the crawlspace is prevalent** (See Photo 8-Appendix A)
- **The foundation walls and firewall appear to be unreinforced**
- **Cracks at end foundation wall** (See Photo 14-Appendix A)
- **Masonry separation at end foundation wall** (See Photo 15-Appendix A)
- Soil placed up against front foundation wall at the southwest side of the firewall (See Photos 9 and 10-Appendix A)
- **New masonry buttresses were added along front foundation wall** (See Photo 2-Appendix A)
- Missing insulation was observed in numerous locations
- **Crawlspace vents are allowing water to enter the crawlspace** (See Photo 11-Appendix A)
- **Crawlspace vent pipes do not extend through the entire block foundation wall allowing water to dump into the block cores**
- **The depth of the frost wall for the sidewalk and the foundations for the columns supporting the balcony are not below the frost line****
- Out-of-plumb framing at crawlspace access hole (See Photo 12-Appendix A)
- **Deteriorated/inadequate floor framing under 1st floor mechanical/vending area** (See Photo 13-Appendix A)

** The frost wall for the exterior slab around the perimeter of the building, in addition to the exterior column foundations, are shown on the construction documents as having a frost cover depth of 2'-6" to the bottom of footing. This dimension was unable to be verified during the site investigations, but it should be

noted that geotechnical recommendations for frost depth in this area suggest a minimum cover of 3'-0" to bottom of footing. Footings that rest above the frost depth will experience cyclical exposures to freeze-thaw and can also experience frost-heave. Frost-heave can be very damaging to the structure as a result of vertical movement of the ground.

Balcony Structure

- The balcony structure is aging and showing signs of deterioration
- **The structural steel tube columns are being used as downspouts - holes have been drilled at the bases of certain columns to allow water to pass** (See Photo 16-Appendix A)
- Prior repairs to the beams supporting the concrete deck are evident (See Photo 26-Appendix A)
- Structural steel angle below the railing has been removed and a wood board was added in place (See Photo 24-Appendix A)
- Structural steel (exterior columns, beams, and stairs) deterioration is prevalent (See Photos 17, 19, 21, 29, and 30-Appendix A)
- Concrete slab deterioration is prevalent. **Cracking has occurred on the topside and underside of most every slab section** (See Photos 25 and 27-Appendix A)
- Staining has occurred on the slabs from the corroding structural steel
- **There is standing water inside some of the columns** (See Photo 20-Appendix A)

Exterior/Roof

- **The exterior portion of the firewall that extends beyond the face of the building is showing signs of movement and deterioration** (See Photos 31, 33, and 34-Appendix A)
- The flashing for the mansard roof has pulled away from the block pier (See Photo 32-Appendix A)
- The structural steel supporting the balcony has caused staining on the T1-11 siding
- The existing perimeter joint sealant is inadequate to provide proper protection against moisture penetration
- The cedar shake and flashing for the mansard roof is deteriorated (See Photo 38-Appendix A)
- The T1-11 siding is warped at numerous locations
- The outside face of the sleeping room doors are weathered
- **Limited ventilation for the mansard roof exists and is causing the paint to peel at the soffit** (See Photo 43-Appendix A)
- Water is ponding at various locations on the roof (See Photos 35 and 36-Appendix A)
- **Leaves and other deleterious materials are blocking the roof drains** (See Photo 37-Appendix A)

- Open joints in the cap flashing over the block firewall exist (See Photo 39-Appendix A)
- Prior repairs to the roof are showing signs of aging (See Photo 40-Appendix A)
- Peeling paint from the soffit over roof of balcony exists (See Photos 41 and 42-Appendix A)
- The bulkhead was removed at the firewall location after noticing signs of movement (See Photos 43 and 44-Appendix A)

Interior

- Deteriorated floor board capacity at the bath area exists in numerous sleeping rooms

Wild Goose Lodge (See Photos 45-80 Appendix A)

Foundations/Crawlspace

- The crawlspace was noticed to be damp
- Areas of missing vapor barrier to the bottom side of the first floor framing were noticed (See Photo 54-Appendix A)
- **Mold/algae growth in the crawlspace is prevalent** (See Photo 53-Appendix A)
- Supplemental framing has been added below the water heaters (See Photos 47 and 48-Appendix A)
- Supplemental framing has been added below the telephone equipment room (See Photo 49-Appendix A)
- **The foundation walls and firewall appear to be unreinforced** (See Photo 75-Appendix A)
- Missing insulation was observed in numerous locations (See Photo 54-Appendix A)
- **Crawlspace vents are allowing water to enter the crawlspace** (See Photos 51 and 52-Appendix A)
- **Crawlspace vent pipes do not extend through the entire block foundation wall allowing water to dump into the block cores**
- **The depth of the frost wall for the sidewalk and the foundations for the columns supporting the balcony are not below the frost line****
- The wood sill plate and rim joist are showing signs of moisture damage (See Photo 55-Appendix A)
- The floor framing has been modified to allow for the crawlspace entrance (See Photo 56-Appendix A)
- Local moisture damage to the first floor sheathing exists (See Photo 57-Appendix A)
- **One of the pilasters supporting first floor framing is pulling away from the foundation wall** (See Photo 58-Appendix A)
- **One of the pilasters supporting first floor framing is showing evidence of cracking at the exterior foundation wall** (See Photo 59-Appendix A)

** The frost wall for the exterior slab around the perimeter of the building, in addition to the exterior column foundations, are shown on the construction documents as having a frost cover depth of 2'-6" to the bottom of footing. This dimension was unable to be verified during the site investigations, but it should be noted that geotechnical recommendations for frost depth in this area suggest a minimum cover of 3'-0" to bottom of footing. Footings that rest above the frost depth will experience cyclical exposures to freeze-thaw and can also experience frost-heave. Frost-heave can be very damaging to the structure as a result of vertical movement of the ground.

Balcony Structure

- The balcony structure is aging and showing signs of deterioration
- **The structural steel tube columns are being used as downspouts - holes have been drilled at the bases of certain columns to allow water to pass (See Photo 65-Appendix A)**
- Prior repairs to the beams supporting the concrete deck are evident
- Structural steel angle below the railing has been removed during prior structural repairs
- Structural steel (exterior columns, beams, and stairs) deterioration is prevalent (See Photos 63 and 66-Appendix A)
- Concrete slab deterioration is prevalent. **Cracking has occurred on the topside and underside of most every slab section (See Photo 64-Appendix A)**
- Staining has occurred on the slabs from the corroding structural steel
- **The wood railing is showing signs of deterioration (See Photo 72-Appendix A)**

Exterior/Roof

- **The exterior portion of the firewall that extends beyond the face of the building is showing signs of movement and deterioration (See Photos 73, 74, 76, 77, and 78-Appendix A)**
- The structural steel supporting the balcony has caused staining on the T1-11 siding
- Erosion due to the downspout/roof drain is evident (See Photo 67-Appendix A)
- The existing perimeter joint sealant is inadequate to provide proper protection against moisture penetration
- The cedar shake on the mansard roof is deteriorated
- The T1-11 siding is warped at numerous locations (See Photo 62 and 69-Appendix A)
- The outside face of the sleeping room doors are weathered
- **Limited ventilation for the mansard roof exists and is causing the paint to peel at the soffit**

- **The sidewalk slab is cracked and has shifted in elevation (See Photos 60 and 61-Appendix A)**

Interior

- Deteriorated floor board capacity at the bath area exists in numerous sleeping rooms

Covered Walkways (See Photos 81-88 Appendix A)

- Peeling paint on the fascia board of the covered walkway between the Main Lodge and Deer Lodge exists (See Photo 83-Appendix A)
- **Steel deterioration exists at one of the tube columns between the Main Lodge and Deer Lodge** (See Photo 85-Appendix A)
- New soffit has been installed between Deer Lodge and Woodcock Lodge (See Photo 88-Appendix A)

Deer Lodge/Woodcock Lodge/Beaver Lodge (See Photos 89-110 Appendix A)

Foundations/Crawlspace

- The crawlspace was noticed to be damp (See Photos 90, 91, and 99-Appendix A)
- **Mold/algae growth in the crawlspace is suspected**
- **The foundation walls and firewall appear to be unreinforced** (See Photo 101-Appendix A)
- **The depth of the frost wall for the sidewalk and the foundations for the columns supporting the balcony are not below the frost line****
- Areas of missing vapor barrier to the bottom side of the first floor framing were noticed (See Photos 90 and 99-Appendix A)
- Missing insulation was observed in numerous locations (See Photos 90 and 99-Appendix A)

** The frost wall for the exterior slab around the perimeter of the building, in addition to the exterior column foundations, are shown on the construction documents as having a frost cover depth of 2'-6" to the bottom of footing. This dimension was unable to be verified during the site investigations, but it should be noted that geotechnical recommendations for frost depth in this area suggest a minimum cover of 3'-0" to bottom of footing. Footings that rest above the frost depth will experience cyclical exposures to freeze-thaw and can also experience frost-heave. Frost-heave can be very damaging to the structure as a result of vertical movement of the ground.

Balcony Structure

- The balcony structure is aging and showing signs of deterioration
- **The structural steel tube columns are being used as downspouts (holes have been drilled at the bases of certain columns to allow water to pass)**
- Prior repairs to the beams supporting the concrete deck are evident

- Structural steel angle below the railing has been removed during prior structural repairs (See Photo 93-Appendix A)
- **Structural steel (exterior columns, beams, angles and stairs) deterioration is prevalent** (See Photos 94 and 107-Appendix A)
- Concrete slab deterioration is prevalent. **Cracking has occurred on the topside and underside of most every slab section** (See Photos 95 and 107-Appendix A)
- Staining has occurred on the slabs from the corroding structural steel

Exterior/Roof

- **The exterior portion of the firewall that extends beyond the face of the building is showing signs of movement and deterioration** (See Photos 102 and 108-Appendix A)
- The structural steel supporting the balcony has caused staining on the T1-11 siding (See Photos 96 and 106-Appendix A)
- The existing perimeter joint sealant is inadequate to provide proper protection against moisture penetration
- The cedar shake on the mansard roof is deteriorated
- The T1-11 siding is warped at numerous locations
- The outside face of the sleeping room doors are weathered
- **Limited ventilation for the mansard roof exists and is causing the paint to peel at the soffit** (See Photo 103-Appendix A)

Interior

- A very high threshold at door to unit at Woodcock Lodge exists (See Photo 104-Appendix A)

General

- **There is an exposed PVC conduit at the rear of the Raven Lodge that presents a safety hazard** (See Photo 112-Appendix A)
- The swale in front of Wild Goose Lodge is not properly sloped for positive drainage (See Photo 113-Appendix A)
- There is a water valve extension behind the Raven Lodge that should be repaired (See Photo 111-Appendix A)

ANALYSIS

A limited structural analysis of the existing building structure was completed in order to determine if there were any structural deficiencies in the building structure. The following codes and loads were used for the analysis:

Codes

2003 International Building Code, 2003 International Existing Building Code, and all referenced codes within the 2 stated documents.

Loads

Roof DL = 10 psf
Roof LL (Snow) = 60 psf
Sleeping Room DL = 9 psf
Sleeping Room LL = 40 psf
Balcony DL = 50 psf
Balcony LL = 40 psf

Seismic Results (Raven Lodge and Wild Goose Lodge)

A Seismic Design Category B was determined for the lodges; based upon an assumed soil site class D (no geotechnical report was available). The seismic analysis was performed to determine if there would be any special requirements for reinforcing of the masonry foundation walls and firewall.

Foundation Results (Raven Lodge and Wild Goose Lodge)

The strip footing around the perimeter of the building, the interior spread footings supporting block piers, and the exterior spread footings supporting HSS columns were all within 2000 psf soil bearing stress. Based on experience in the area, this is a reasonable assumption for allowable bearing stress of the soils.

According to the analysis, the foundation walls that are retaining soil at the front of the building require a minimum of #5 rebar at 48" o.c. It is unknown whether or not this exact reinforcement exists in the foundation walls. It should be noted that rebar, although it was in an un-grouted cell, was observed during the site investigations at one location in the front wall. It also appeared that some remedial work may have been completed in the past in the Raven Lodge due to the presence of reinforced block buttresses that have been installed.

Balcony Results (Raven, Wild Goose, Deer, Woodcock, and Beaver Lodges)

The reinforced deck and structural steel columns and beams can adequately support the prescribed loads, assuming no deterioration and full cross sections of the members. **It should be noted that most of the concrete slab sections were cracked relatively close to the mid-span of the slab.**

RECOMMENDATIONS and REPAIR ESTIMATES

Raven Lodge

Foundations/Crawlspace

The front foundation wall at the Northeast side of the firewall is currently retaining an unbalanced backfill, in addition to surcharge loads from the parking area. Based on site observation, there appears to be some reinforcing in the walls but some of the cores were not fully grouted during initial construction. **It is recommended that additional buttresses be added to the front foundation wall to resist lateral loads.**

The end wall that is cracked should be monitored to determine if the movement has stabilized or if it is still active. Once that determination is made, a repair for this wall can be addressed. The repair of this element is not included in the project estimate at this time.

The existing PVC air vents are permitting water and debris to flow into the crawlspace. Modifications to these functioning air vents would permit water to flow into the existing internal perimeter drainage system while still permitting the passage of air through the crawlspaces. It is recommended to install an 8" PVC "T" onto the existing PVC, with a 4" down leg plumbed to the perforated perimeter pipe. The "T" should not be sealed off on the other end so that air may continue to flow.

A sump is required in the crawlspace to collect the standing water on top of the footing. Additionally, a sump pump will need to be installed and line work from the sump to the storm line will be required.

A vapor barrier is required in isolated locations of the crawlspace. This barrier is applied to the underside of the first floor framing and will minimize moisture damage to the framing.

Mold/algae growth is prevalent in the crawlspace. Identification testing by a qualified agency is suggested in order to establish severity of the growth and provide recommendations for possible remediation.

Balcony Structure

The balcony structure consists of an arrangement of approximately evenly spaced beams and columns supporting a reinforced concrete slab. Angles were used as pour stops along each side of the slab, and run parallel with the building. **The steel angle that is adjacent to the exterior face of the building needs to be replaced around the entire perimeter of the building. Moisture has caused this angle to delaminate and corrode and stain the T1-11 siding in numerous**

locations. During prior repairs to the structure, the angle below the railing was removed. This angle needs to be reinstalled and portions of the wood railing should be replaced.

There are isolated areas of the concrete slab that require a full depth replacement.

Cracks in the concrete slab (underside and topside) should be injected with an appropriate epoxy material to prevent further damage from freezing water.

The steps require miscellaneous repairs and painting to the structural steel.

Isolated repairs to the steel column bases are required.

The columns supporting the balcony structure have been drilled at the base and are currently being used to drain water from the roof. This is not an acceptable method of storm water management. The columns should be cleaned of any debris and sealed off. See Exterior/Roof section for roof drainage recommendations.

As an alternate, consideration should be given to replace the supported slabs.

Exterior/Roof

Small roof repairs are required at the corner tabs. Roof inspection by an experienced roofing contractor would reveal minor required repairs to failed adhesive in several areas.

Dow 123 is required over the coping joints. This color matched extruded silicone will seal the overlapping coping joints while permitting a full range of movement.

Ventilation improvements through the plywood ceiling are required for the mansard roof. Once the proper ventilation is in place, the plywood ceiling soffit should be painted.

The sealants around the perimeter of the building are deteriorated and need to be replaced. In particular, the cant sealants at the walkway slab to T1-11 siding interface need to be professionally removed and replaced around the perimeter of each floor of the building.

The non-structural portion of the firewall that extends beyond the face of the building should be demolished. Rather than supplementing the foundations of the piers, replacing the deteriorated masonry units, flashings and then reinforcing the piers, it may be more cost effective to eliminate these elements. An expansion joint between the building halves would be required for

the roofing and flashing materials, while continuation of the shake style roof overhang would seamlessly meld these visual and functional elements. Termination of the wooden soffits would be undertaken using fire retardant materials, while matching short railing infills between the tube columns on the second level will safe-off the balcony.

Interior

Deteriorated floor boards in the bath area need to be removed and replaced.

First floor insulation that is missing in the crawlspace needs to be replaced.

Wild Goose Lodge

Foundations/Crawlspace

A vapor barrier is required in isolated locations of the crawlspace. This barrier is applied to the underside of the first floor framing and will minimize moisture damage to the framing. **It is recommended that additional buttresses be added to the front foundation wall to resist lateral loads.**

Mold/algae growth is prevalent in the crawlspace. Identification testing by a qualified agency is suggested in order to establish severity of the growth and provide recommendations for remediation.

It is recommended that an L4x4x5/16 with 3/4" dia Hilti anchors at 24" o.c. be used to anchor the pilasters to the foundation wall.

Balcony Structure

The balcony structure consists of an arrangement of approximately evenly spaced beams and columns supporting a reinforced concrete slab. Angles were used as pour stops along each side of the slab, and run parallel with the building. **The steel angle that is adjacent to the exterior face of the building needs to be replaced around the entire perimeter of the building. Moisture has caused this angle to delaminate and corrode and stain the T1-11 siding in numerous locations. During prior repairs to the structure, the angle below the railing was removed. This angle needs to be reinstalled and the wood railing should be replaced.**

There are isolated areas of the concrete slab that require a full depth replacement.

Cracks in the concrete slab (underside and topside) should be injected with an appropriate material to prevent further damage from freezing water.

The steps require miscellaneous repairs and painting to the structural steel.

Isolated repairs to the steel column bases are required.

The columns supporting the balcony structure have been drilled at the base and are currently being used to drain water from the roof. This is not an acceptable method of storm water management. The columns should be cleaned of any debris and sealed off. See Exterior/Roof section for roof drainage recommendations.

One of the HSS 4x6 beams supporting the concrete slab is severely corroded and needs to be repaired.

As an alternate, it should be considered to replace the supported slabs.

Exterior/Roof

Small roof repairs are required at the corner tabs. Roof inspection by an experienced roofing contractor would reveal minor required repairs to filed adhesive in several areas.

Dow 123 is required over the coping joints. This color matched extruded silicone will seal the overlapping coping joints while permitting a full range of movement.

Ventilation improvements through the plywood ceiling are required for the mansard roof. Once the proper ventilation is in place, the plywood ceiling soffit should be painted.

The sealants around the perimeter of the building are deteriorated and need replaced. In particular, the cant sealants at the walkway slab to T1-11 siding interface need to be professionally removed and replaced around the perimeter of each floor of the building.

The wall mounted exterior light fixtures are corroded and need replaced.

The non-structural portion of the firewall that extends beyond the face of the building should be demolished. Rather than supplementing the foundations of the piers, replacing the deteriorated masonry units, flashings and then reinforcing the piers, it may be more cost effective to eliminate these elements. An expansion joint between the building halves would be required for the roofing and flashing materials, while continuation of the shake style roof overhang would seamlessly meld these visual and functional elements. Termination of the wooden soffits would be undertaken using fire retardant materials, while matching short railing in fills between the tube columns on the second level will safe-off the balcony.

Exterior/Roof

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General

The existing roof drains and ice melt system should be abandoned at all 5 lodges. New drains should be installed and discharged away from the buildings. Any areas where roof water is ponding should be sloped toward the new drains.

The exterior steel, T1-11 siding, soffit, fascia, exterior doors, and steps require painting at all 5 lodges. Any warped or out-of-plumb siding should be replaced.

New cedar shake at the Raven and Wild Goose Lodges is required for the mansard roof at isolated locations.

There is a water valve extension that needs corrected behind the Raven Lodge.

The wall mounted exterior light fixtures that are corroded should be replaced at all 5 lodges.

The exposed PVC conduit at the rear of the Raven Lodge needs proper ground cover. The utility in this conduit is unknown but is suspected to be electric.

The swale at the front of the Wild Goose Lodge needs to be reworked in order to provide positive drainage away from the building. A new rip rap lined ditch to and beyond the culvert and repairs to the headwall are required also.

Repair Estimates

The Preliminary Opinion of Probable Construction Costs is located in Appendix B. The Structural Repair items total \$585,773 and Maintenance Items comprise an additional \$144,630.

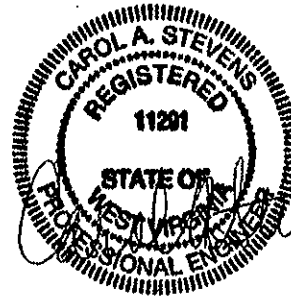
It is possible that additional concerns would be discovered during further investigative testing and/or construction activities, and we would recommend that such concerns be brought to the attentions of a registered professional engineer for resolution. These recommendations should be reviewed prior to preparation of construction documents for repair activities.

Report Prepared by:

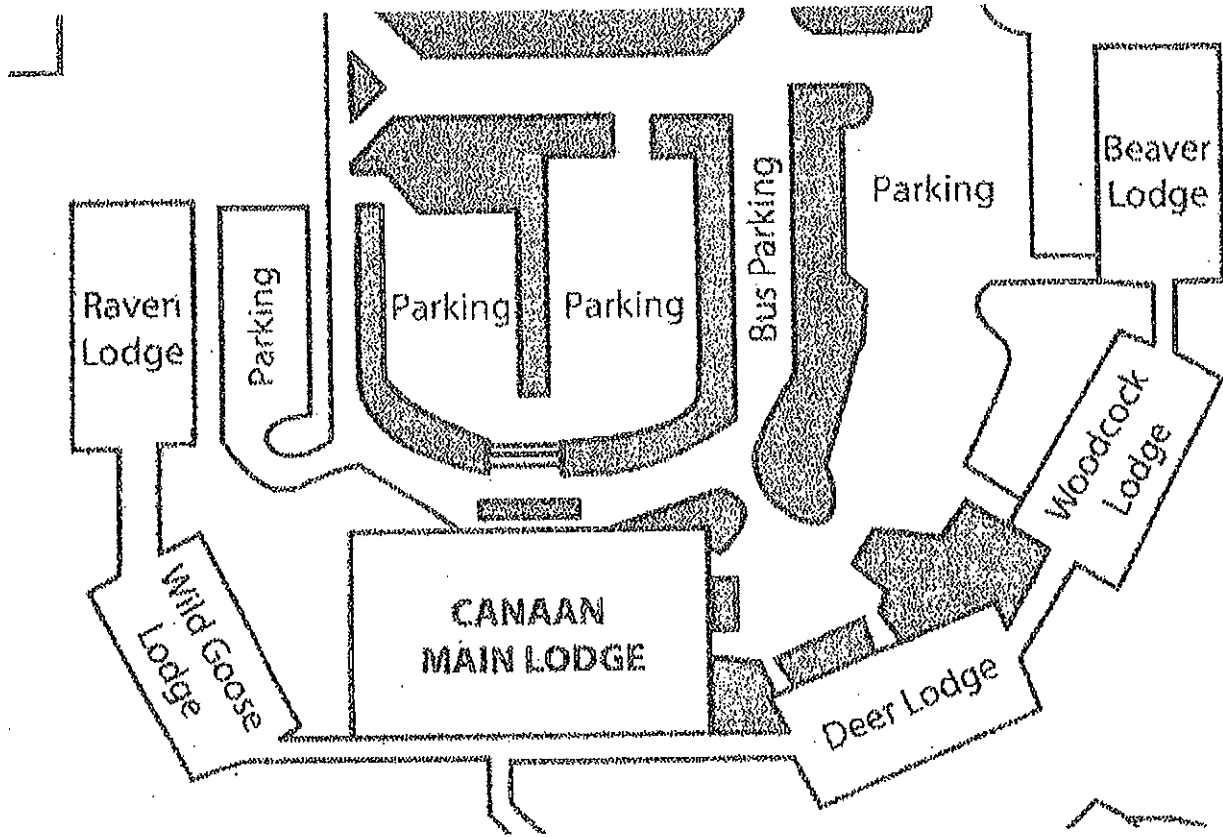
Carol A. Stevens

Carol A. Stevens, PE, SECB
CAS Structural Engineering, Inc.

January 2010



APPENDIX A PHOTOGRAPHS



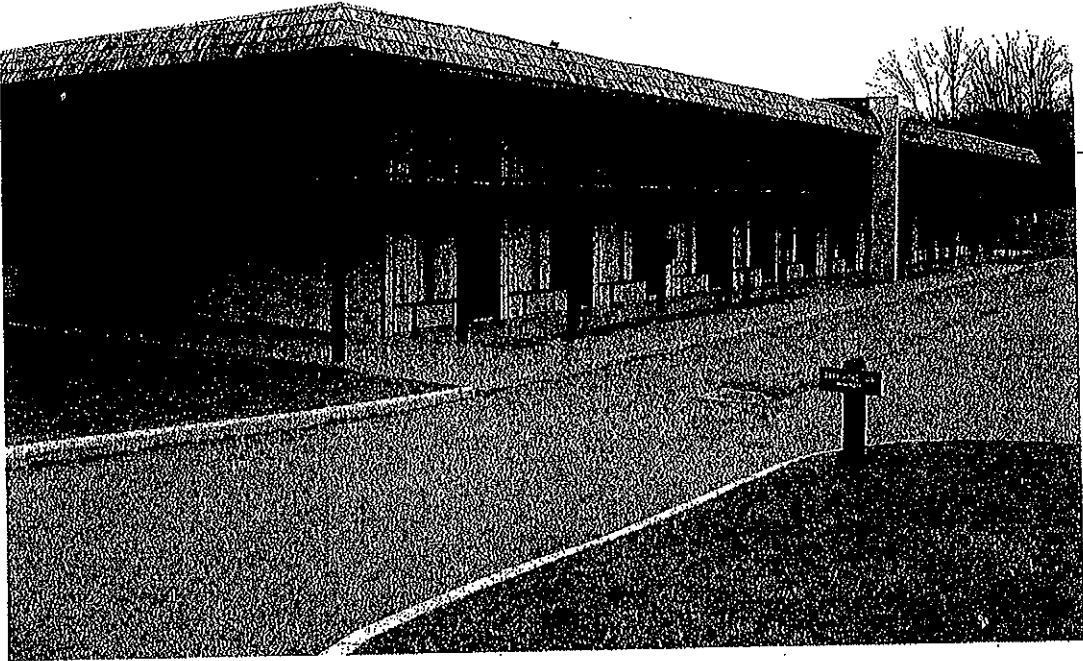


Photo 1. Overall View of Raven Lodge

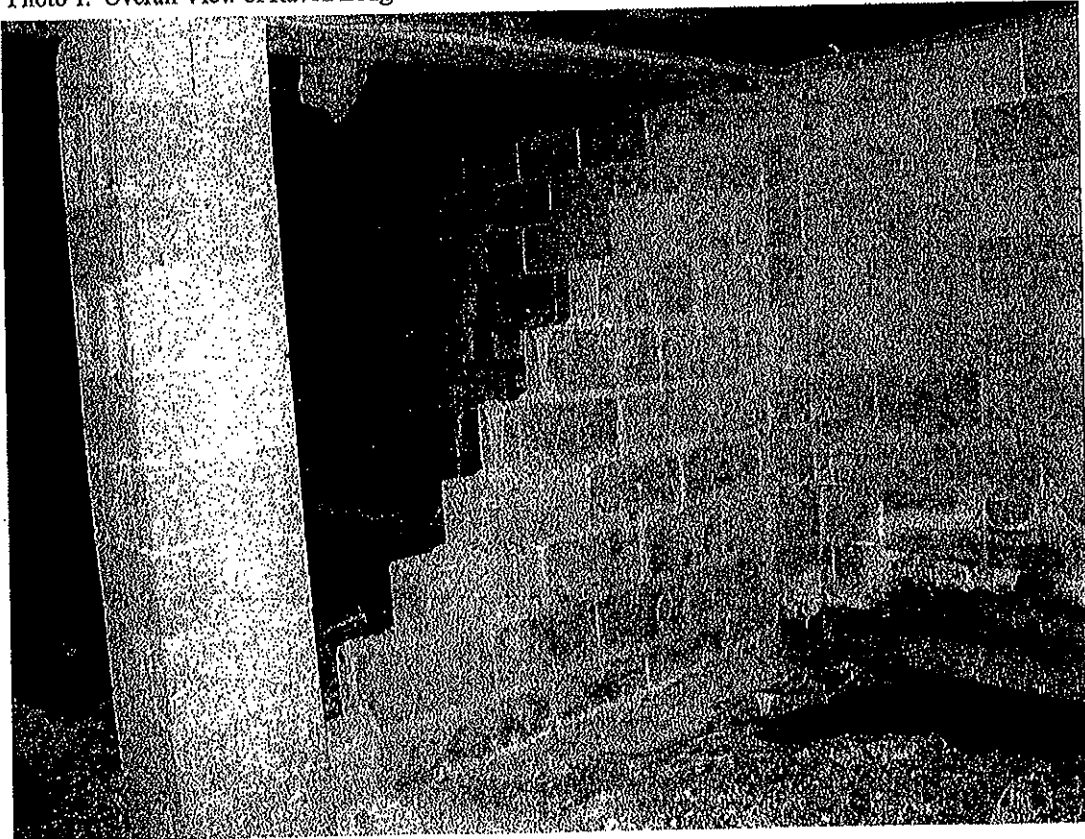


Photo 2. View of Crawl Space Under Raven Lodge with Added Buttress Walls

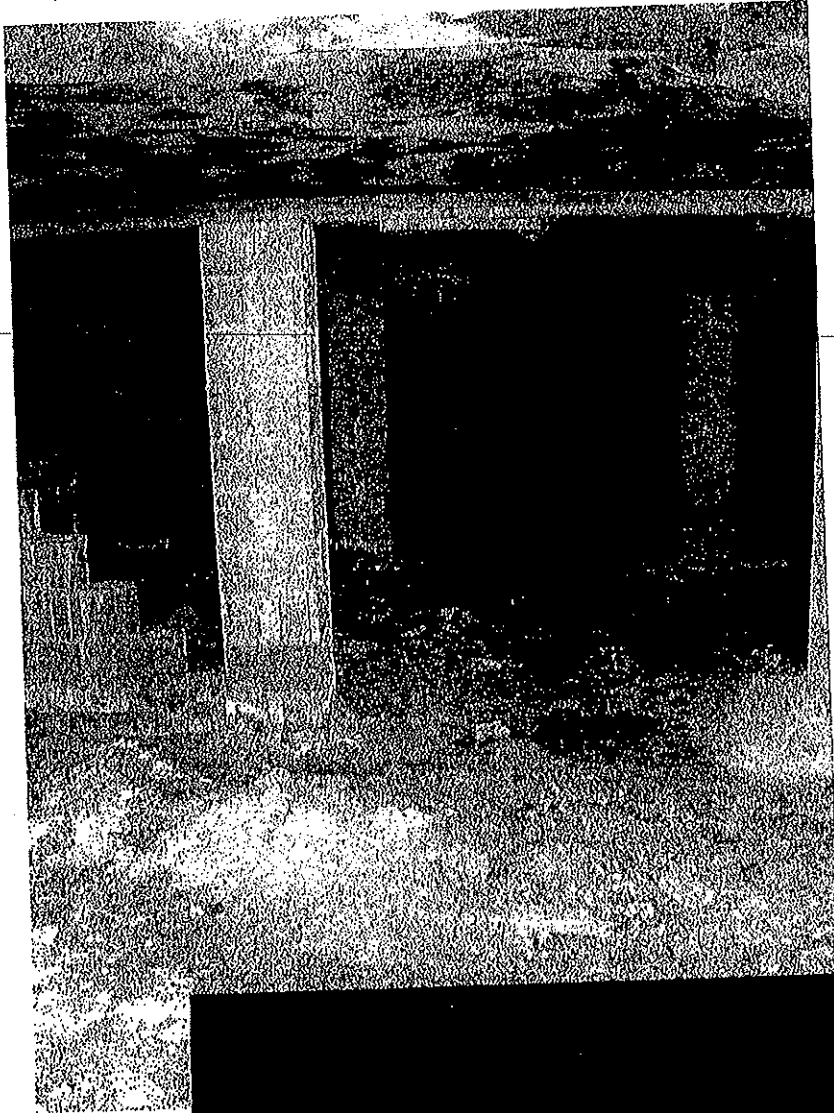


Photo 3. View of Crawl Space of Raven Lodge Showing Masonry Piers and Buttresses

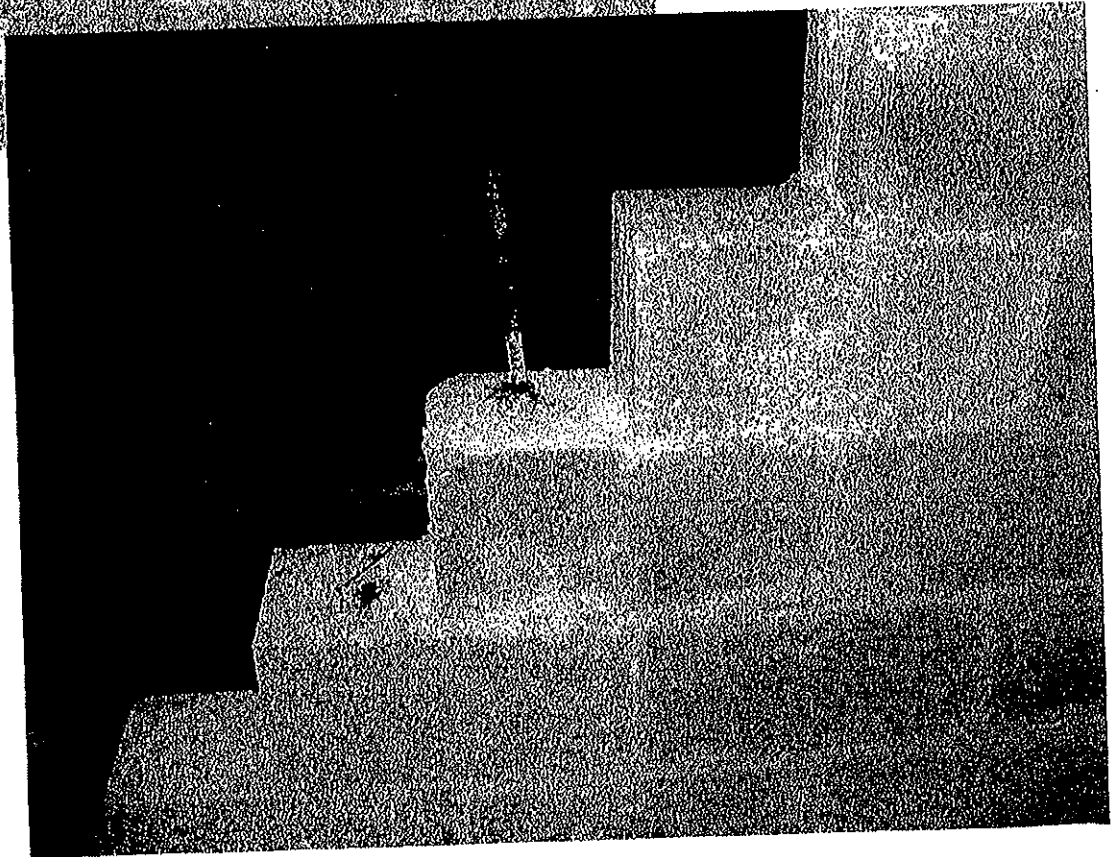


Photo 4. Reinforced Masonry Buttress



Photo 5. Standing Water Around Interior of Foundation Wall of Raven Lodge

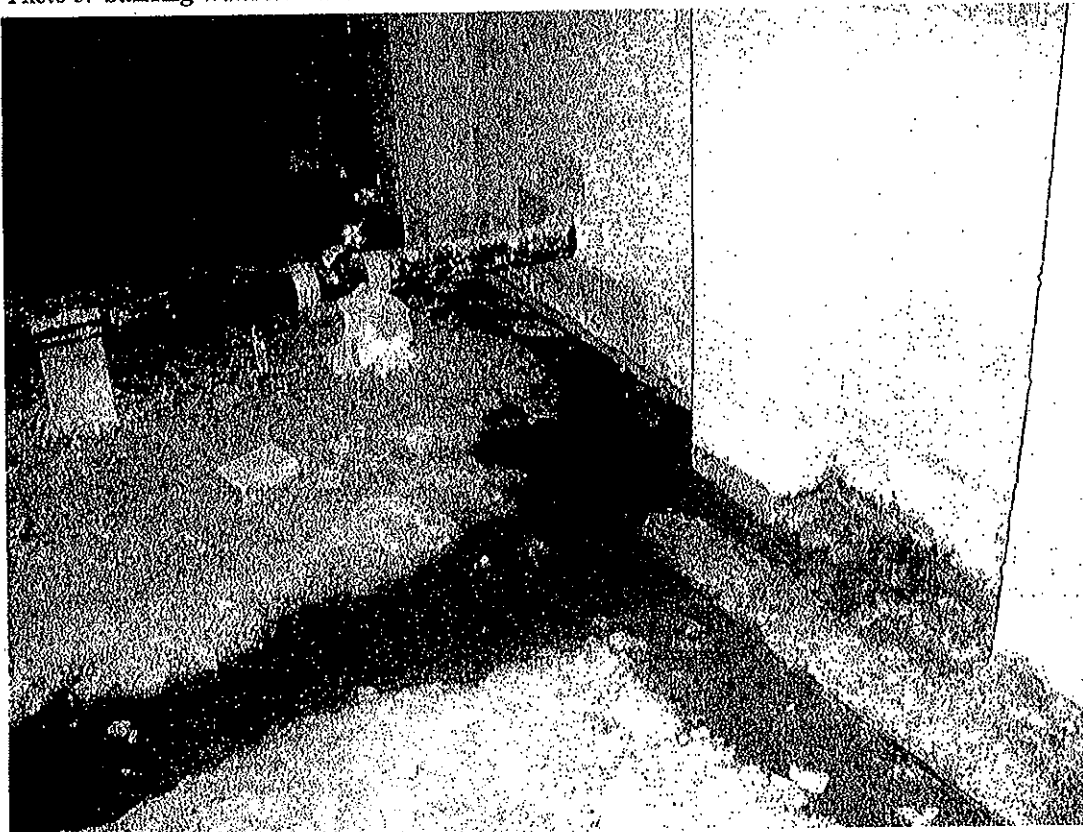
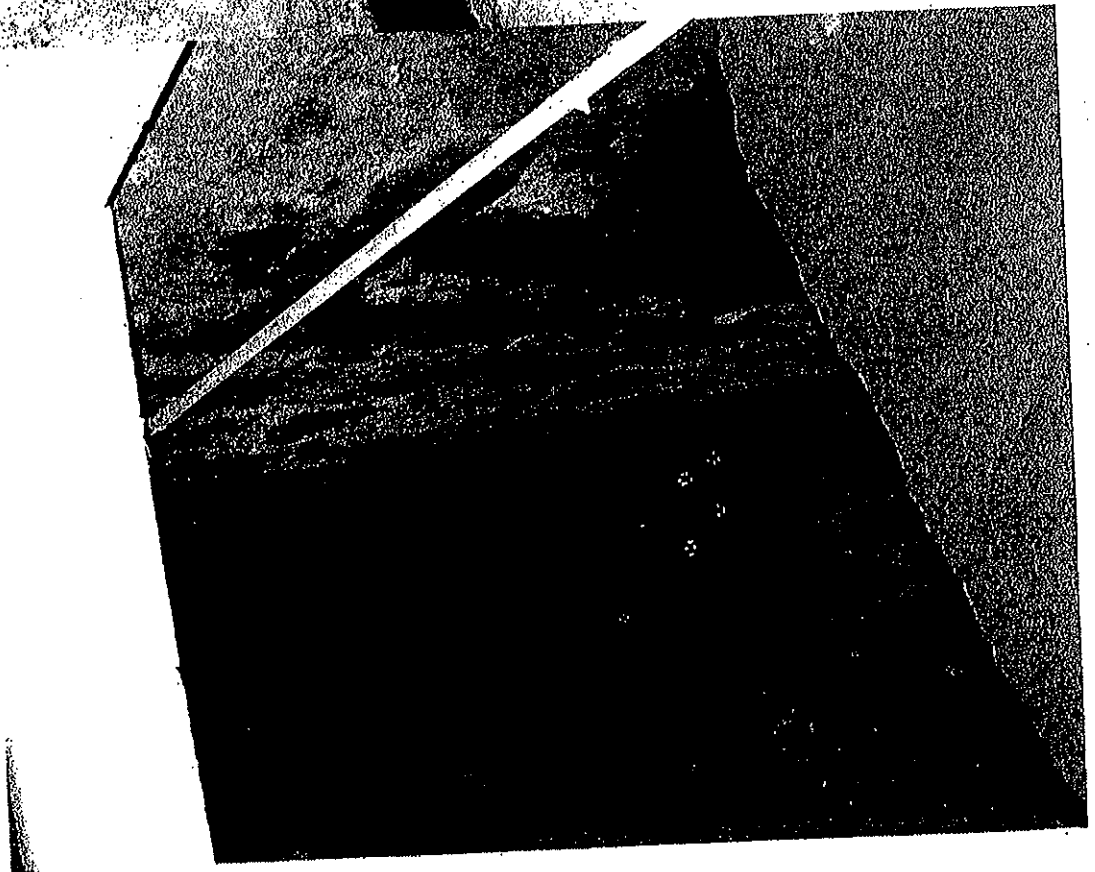


Photo 6. More Standing Water Around Interior of Foundation Wall of Raven Lodge

Photo 7. Standing Water
Around Perimeter of Interior of
Raven Lodge Crawl Space



Photo 8. Mold on Vapor Bar-
rier



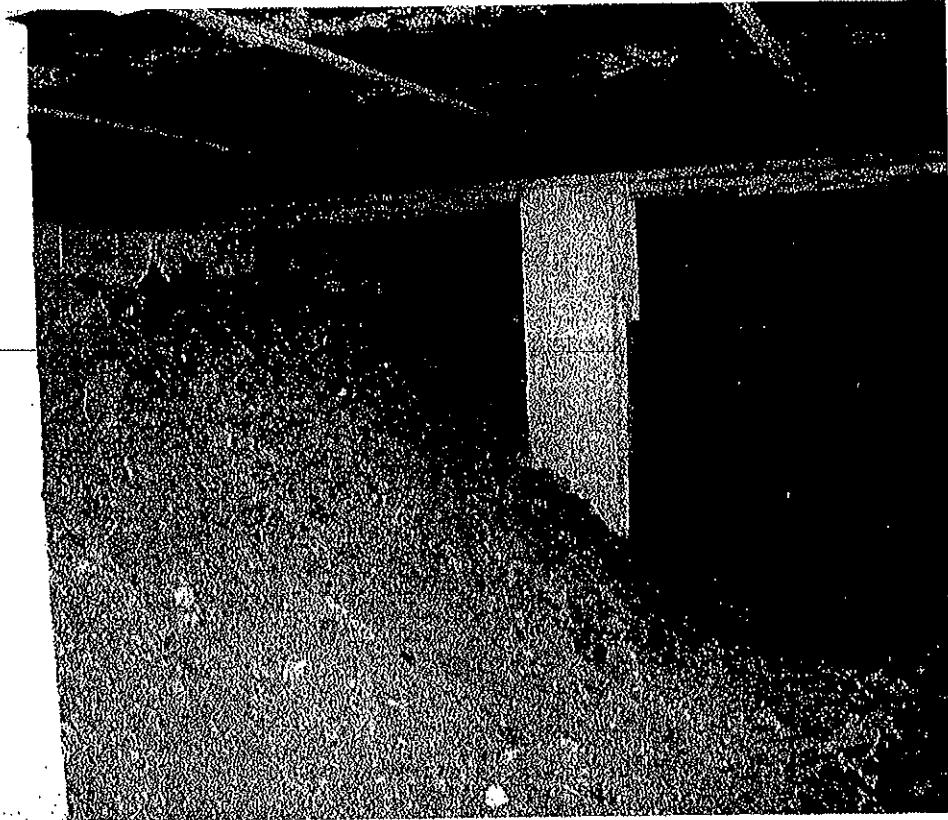


Photo 9. Soil Placed Against Inside Face of Raven Lodge Crawl Space

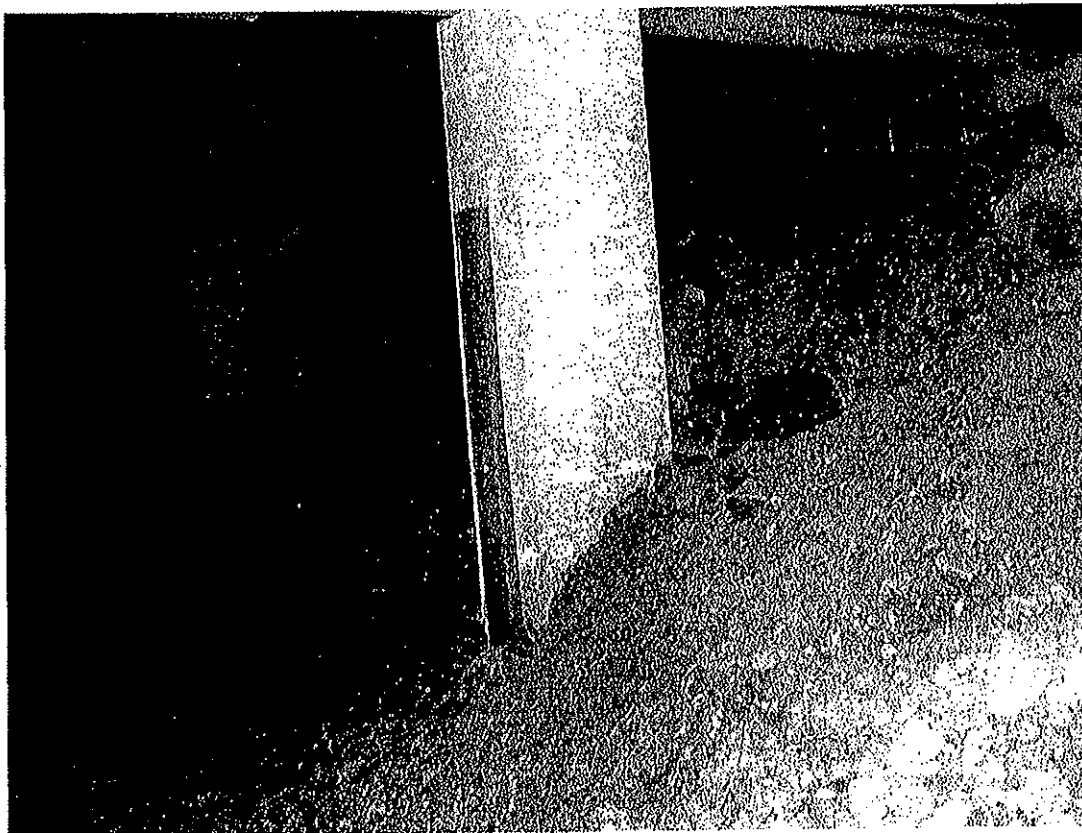


Photo 10. Another View of Soil Placed Against Inside Face of Raven Lodge Crawl Space



Photo 11. Crawl Space Vent
Does Not Extend in Past Interior
Face of Exterior Block Wall—
Water Comes in and Fills Block
Wall Cores

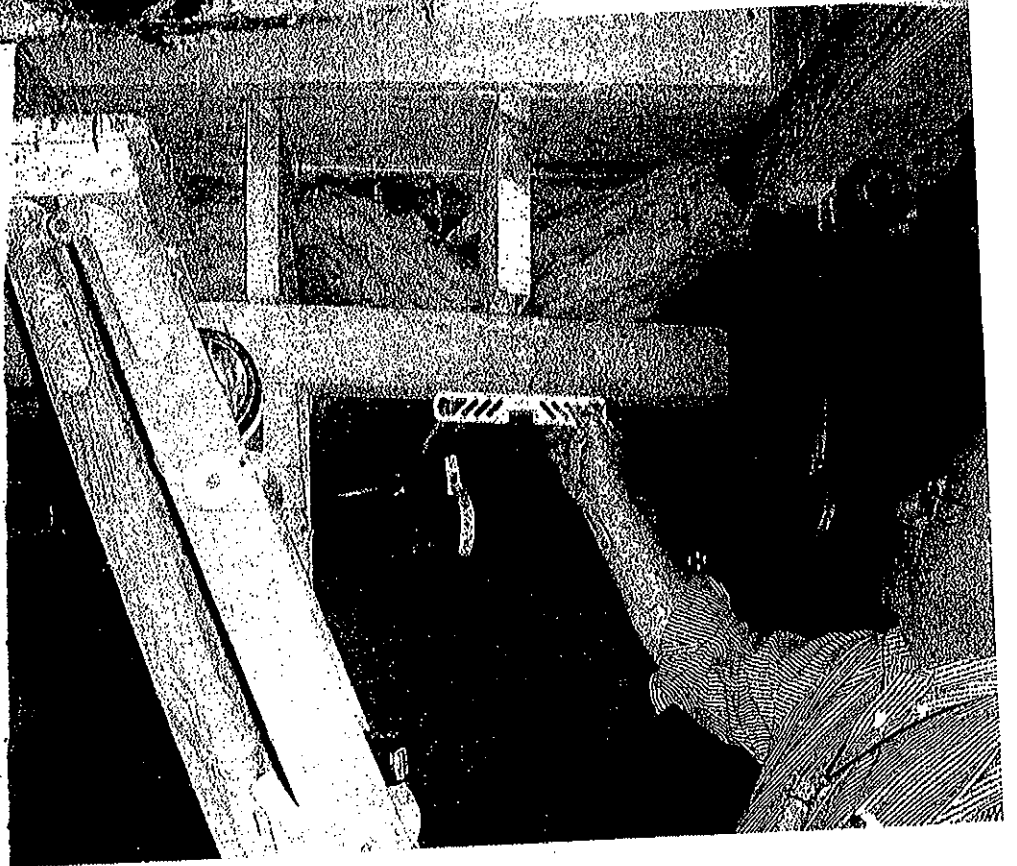


Photo 12. Framing at Crawl
Space Access Hole—Note That
Framing is Not Level

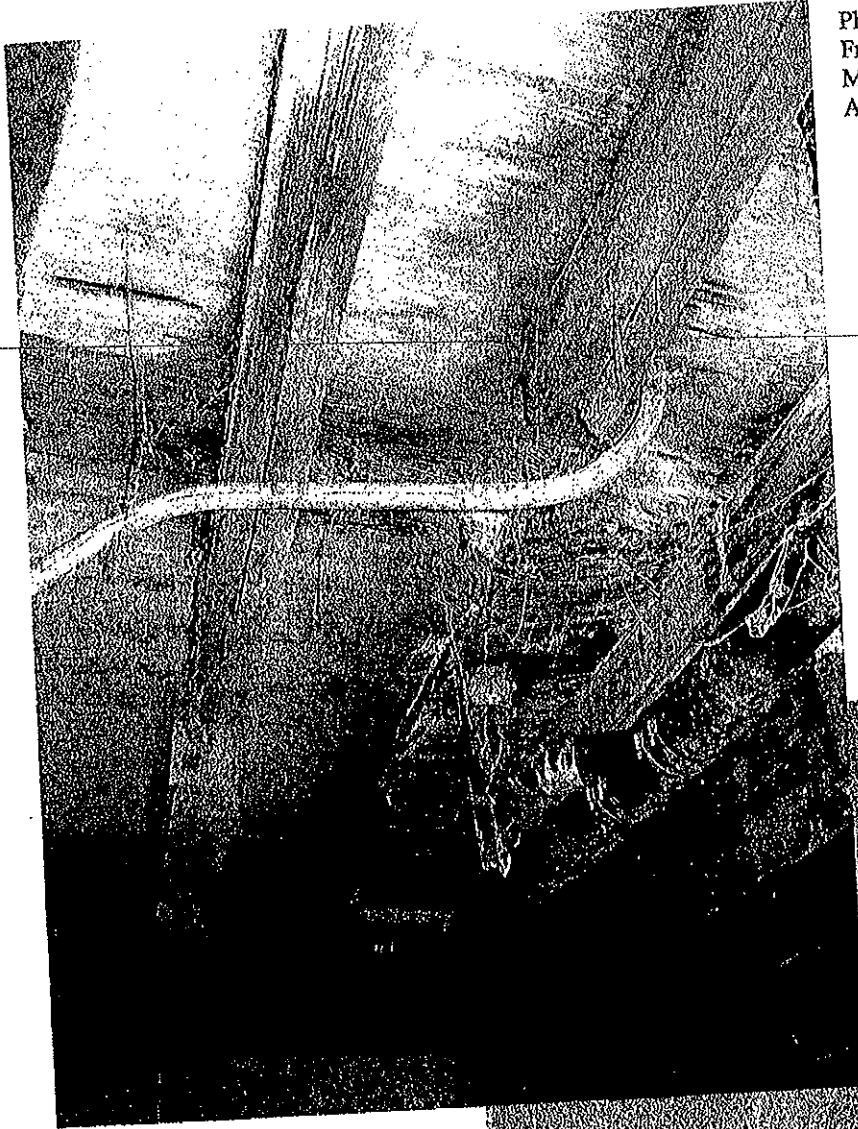


Photo 13. Condition of Floor Framing in Raven Lodge under Mechanical Room or Vending Area



Photo 14. Cracked Exterior Block Wall on End of Raven Lodge

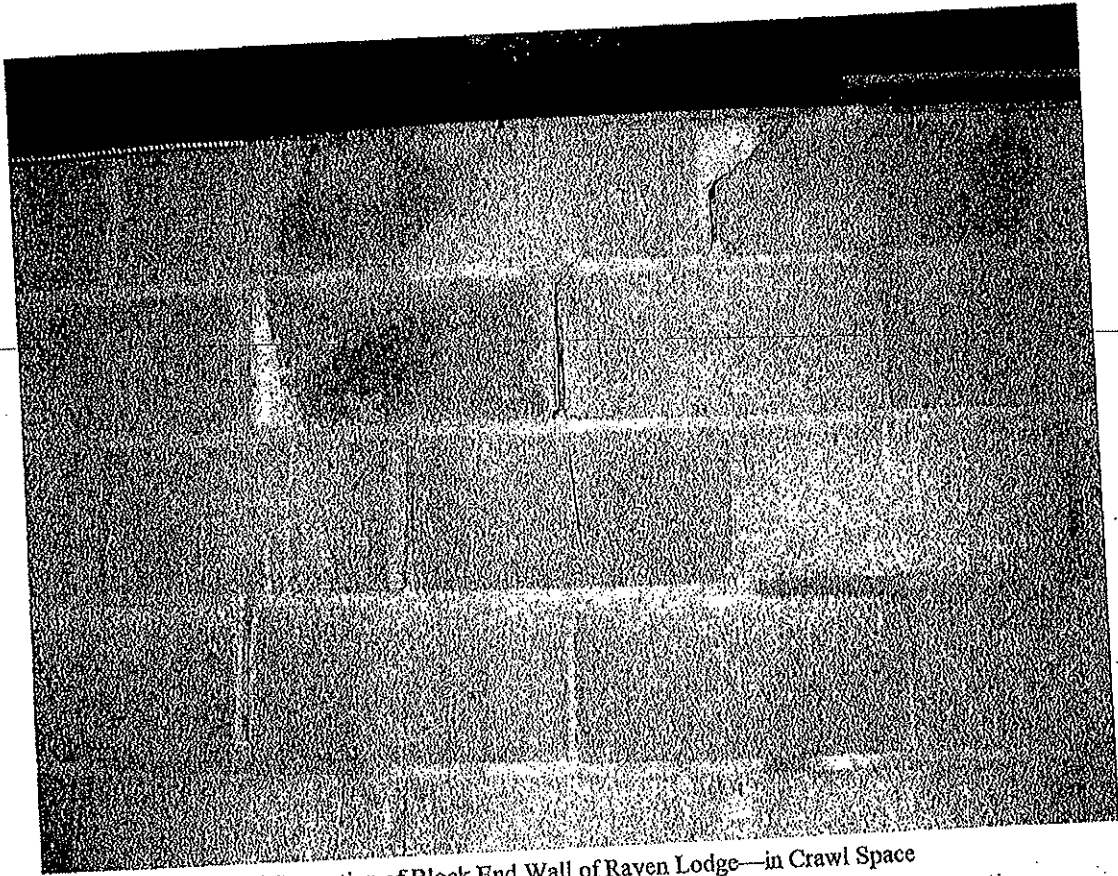


Photo 15. Horizontal Separation of Block End Wall of Raven Lodge—in Crawl Space

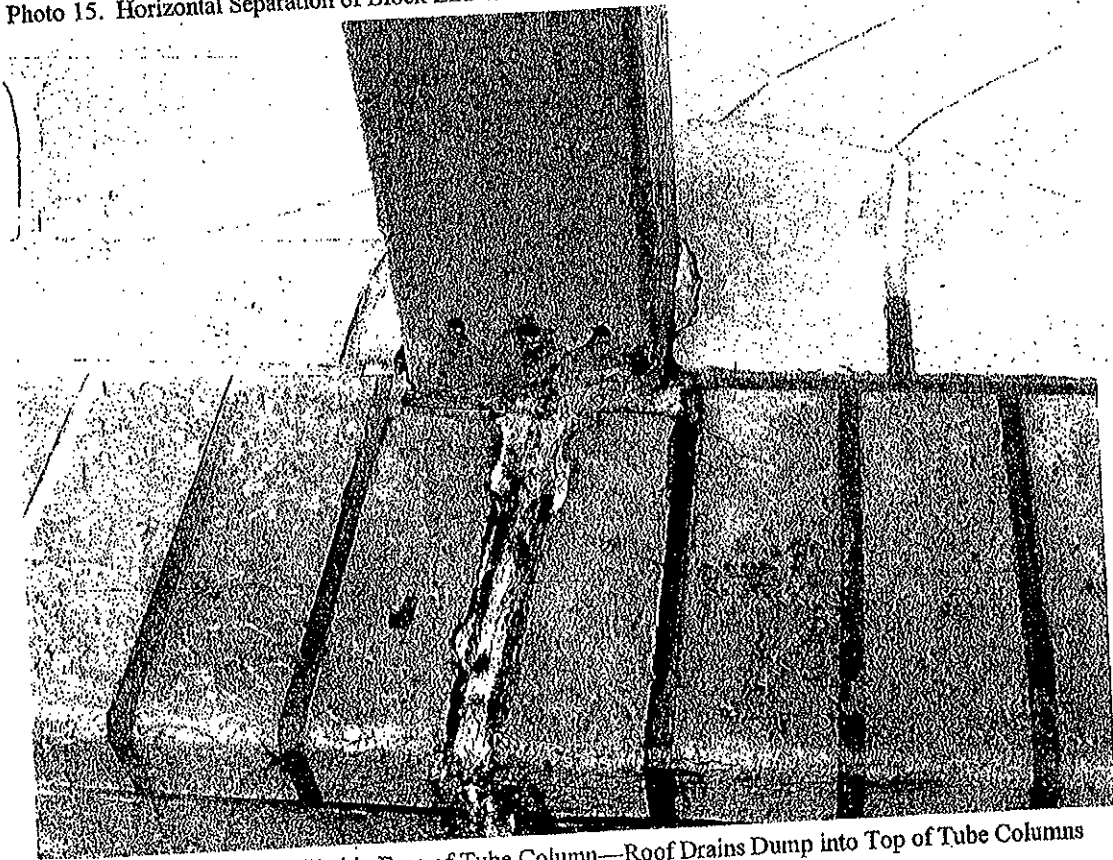


Photo 16. New Holes Drilled in Face of Tube Column—Roof Drains Dump into Top of Tube Columns

Photo 17. Rusted Steel Tube Column Supports Second Floor Balcony and Roof Overhang

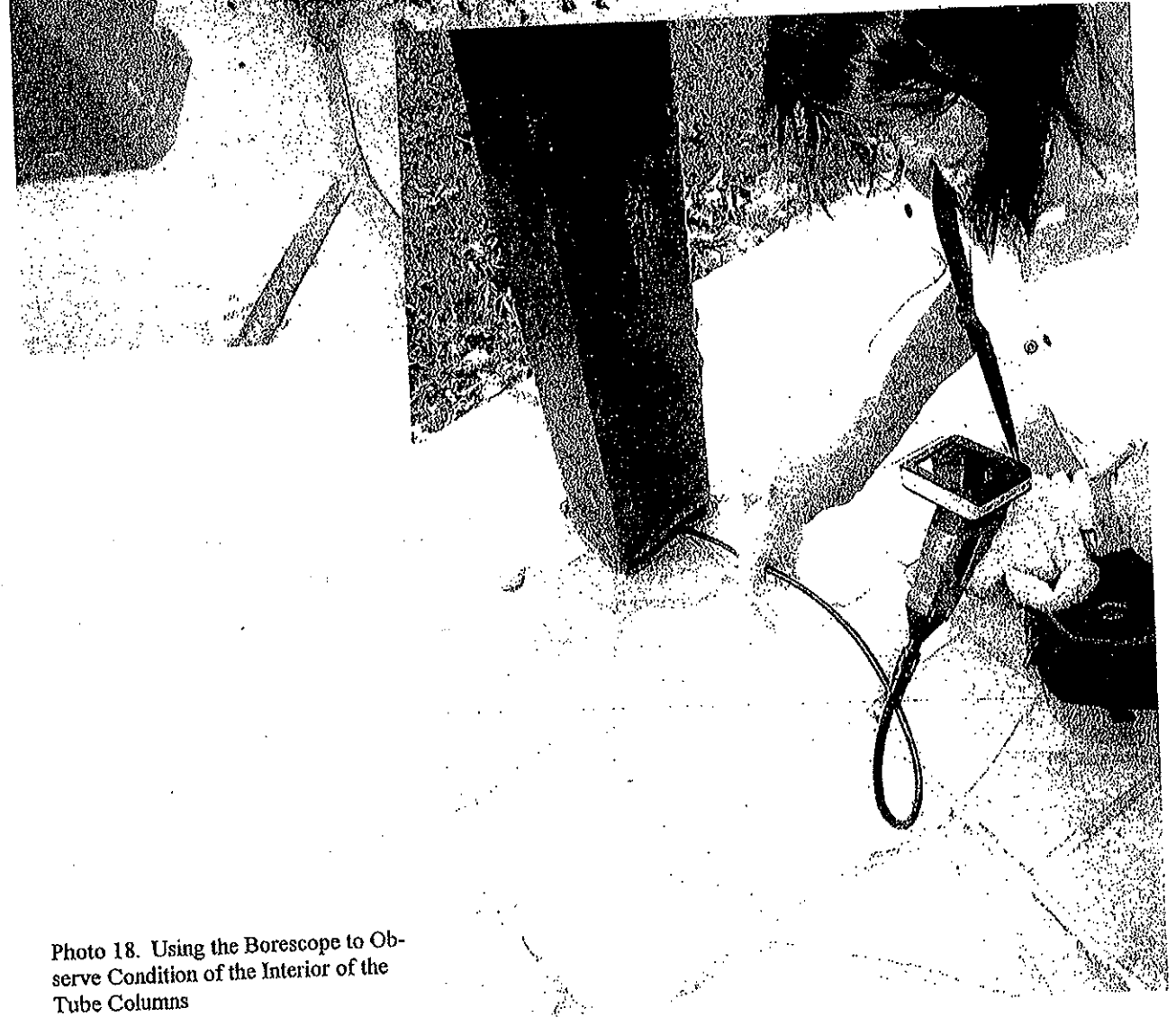


Photo 18. Using the Borescope to Observe Condition of the Interior of the Tube Columns

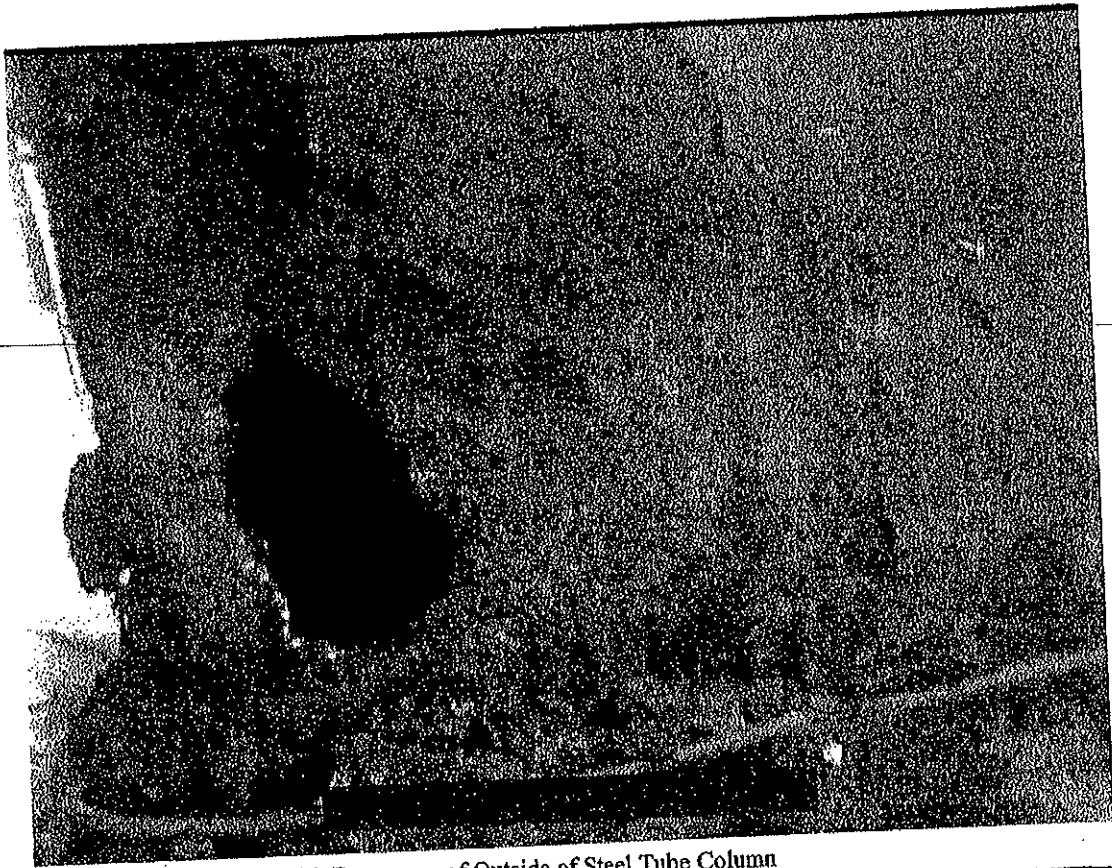


Photo 19. Photo Taken with Borescope of Outside of Steel Tube Column

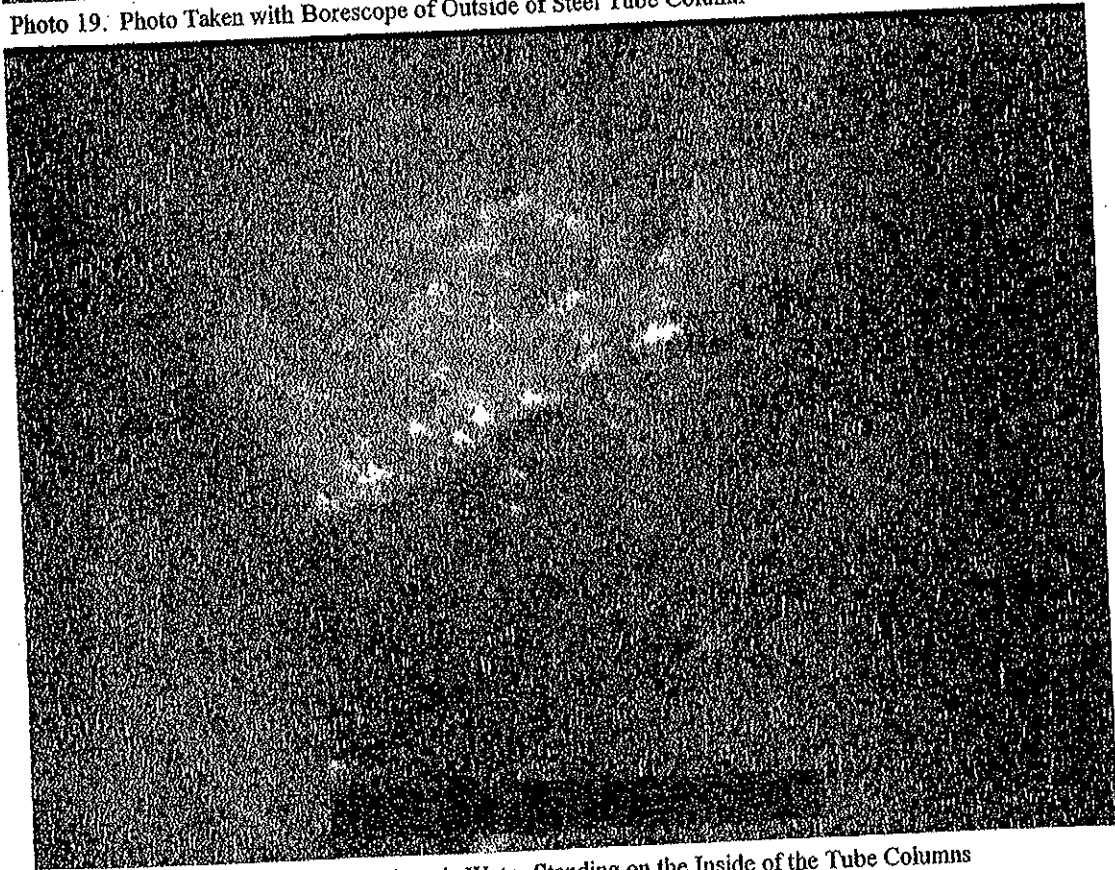


Photo 20. Borescope Shows that there is Water Standing on the Inside of the Tube Columns

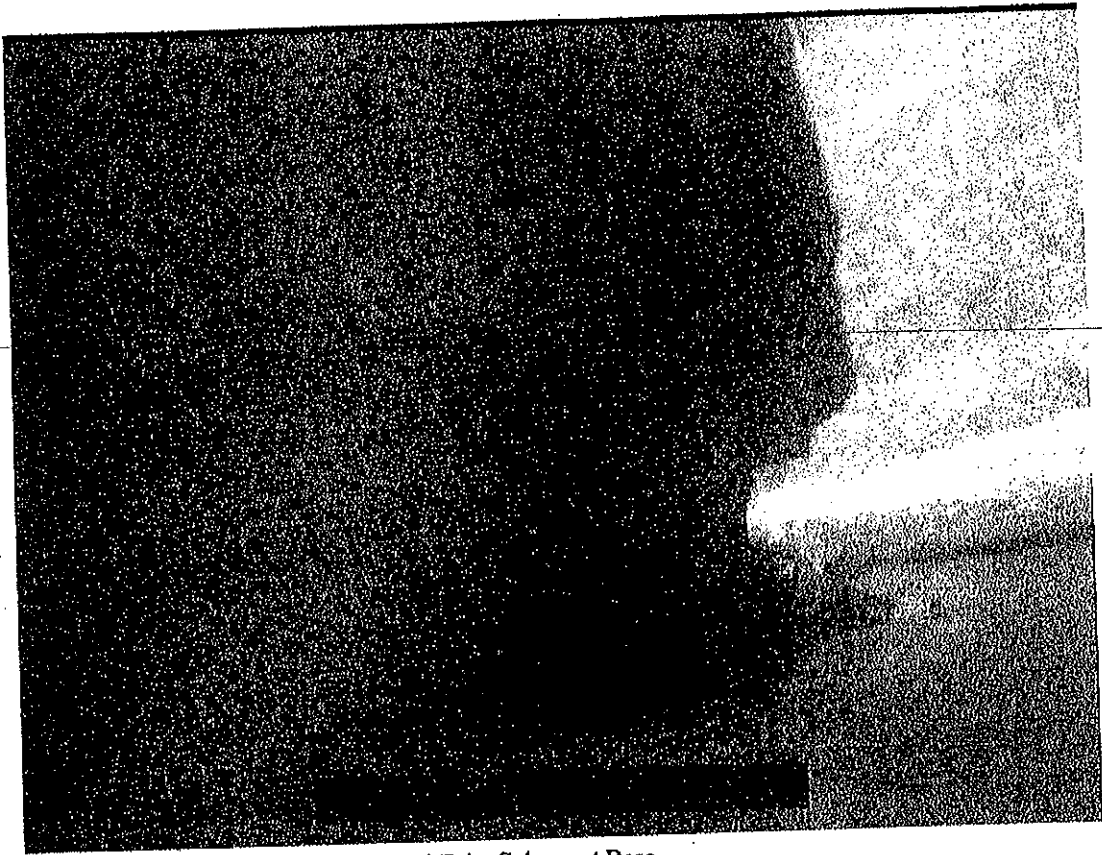


Photo 21. Photo of Large Hole in Steel Tube Column at Base

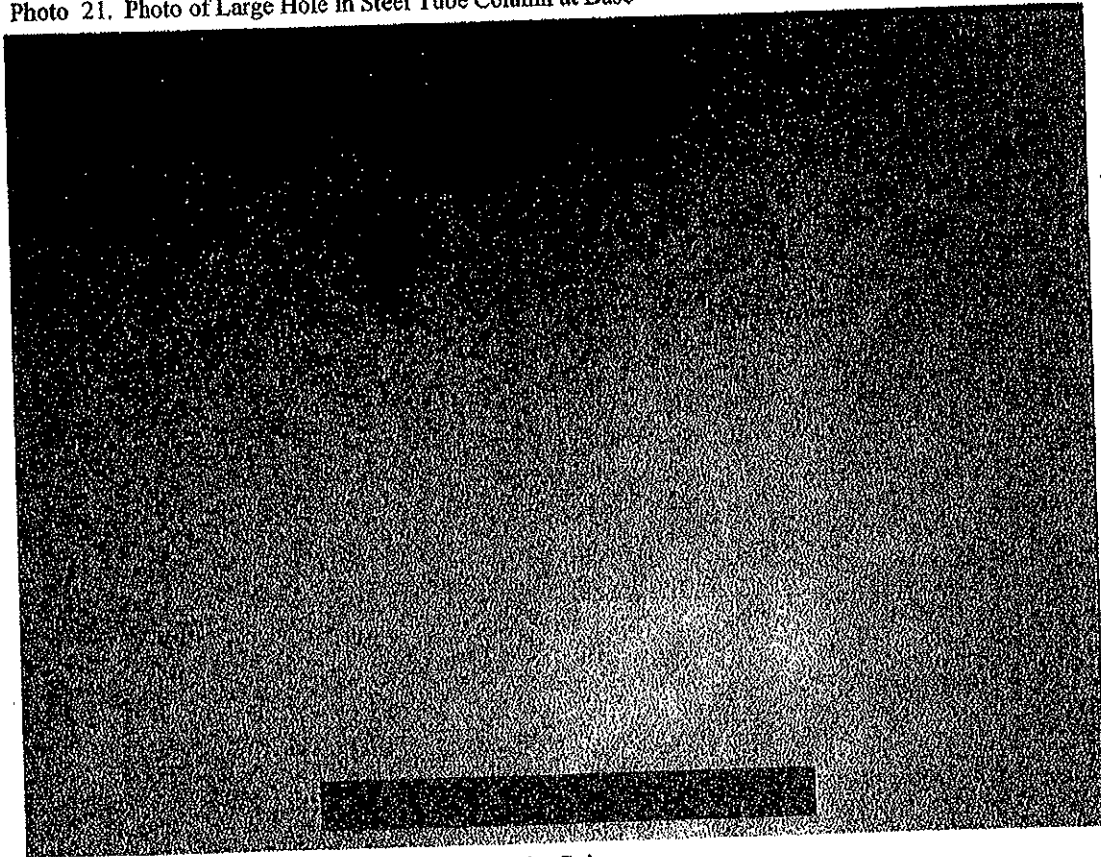


Photo 22. Borescope Photo of Inside of Steel Tube Column



Photo 23. View of Balcony Structural Steel Tube Framing and Concrete Slab



Photo 24. Edge Angle Along Face of Concrete Slab has been Removed and Wood Board Added

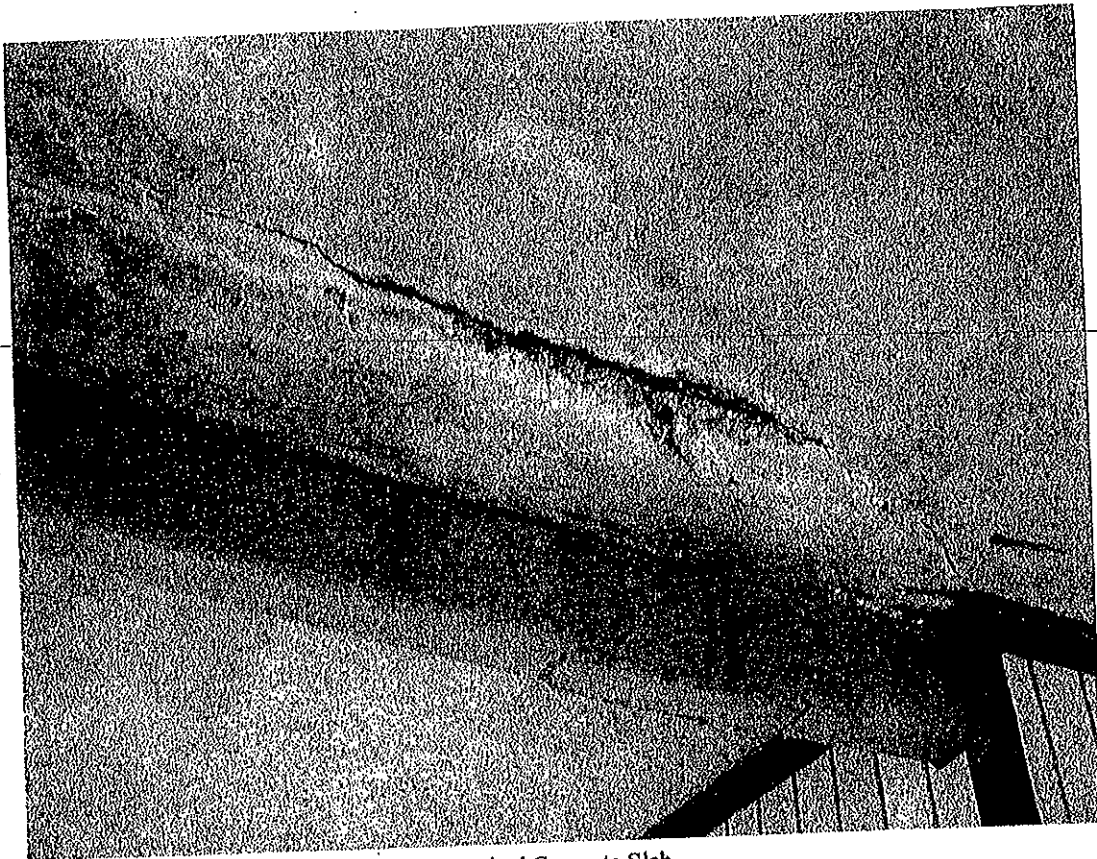


Photo 25. Rusted Reinforcing Steel and Cracked Concrete Slab

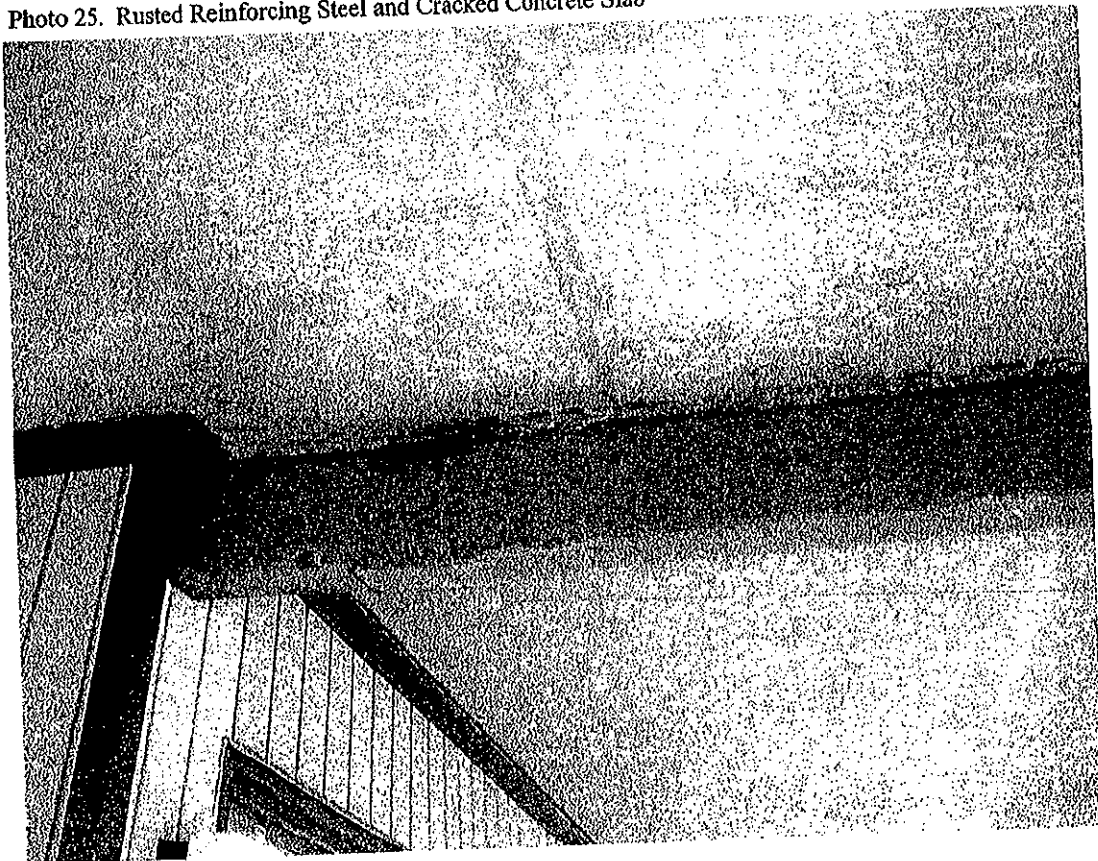


Photo 26. Previously Repaired Steel Tube Beam

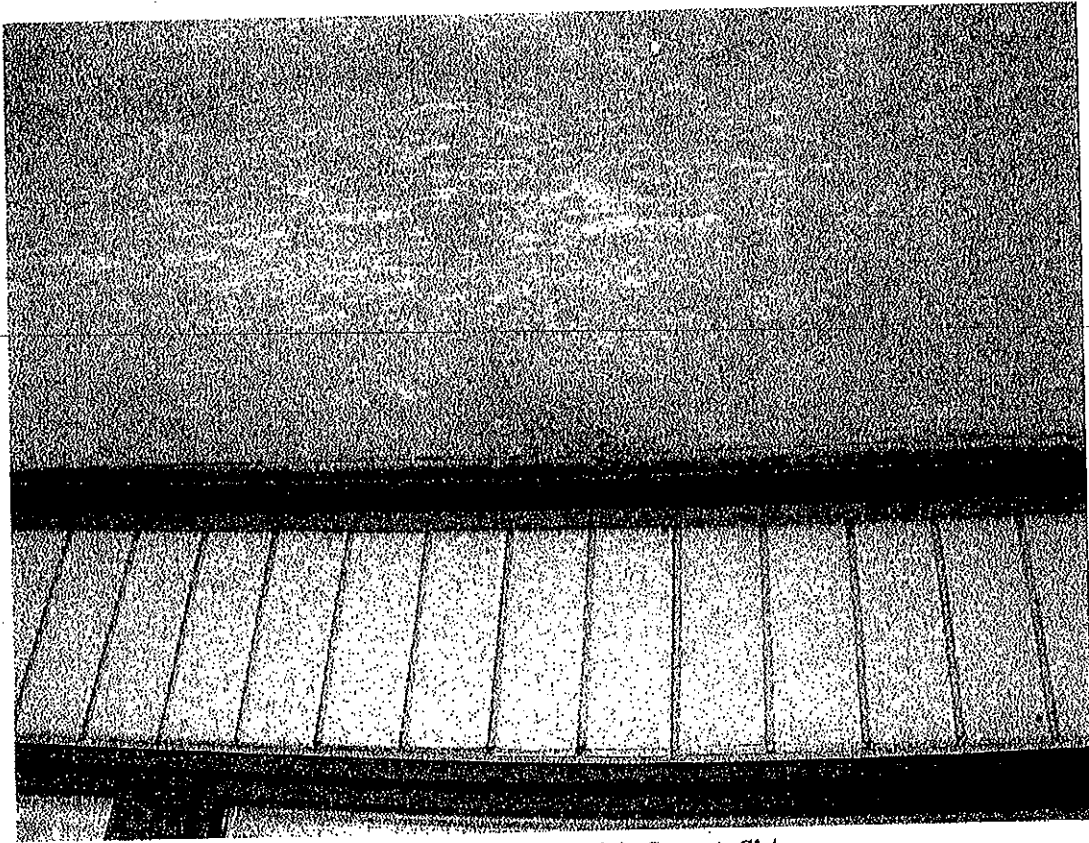


Photo 27. Steel Edge Angle at Face of Building and Crack in Concrete Slab

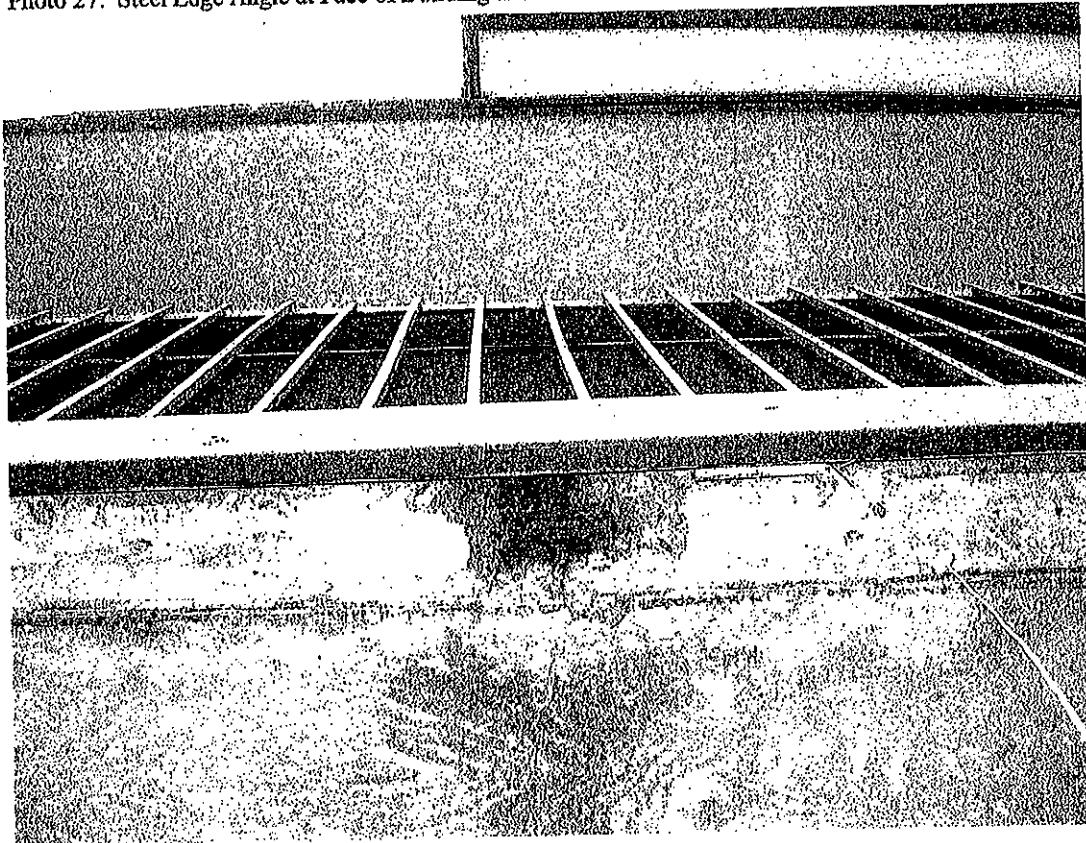


Photo 28. Rusted Connection Anchor Where Edge Angle was Removed

Photo 29. Stairs Show Significant Rusting

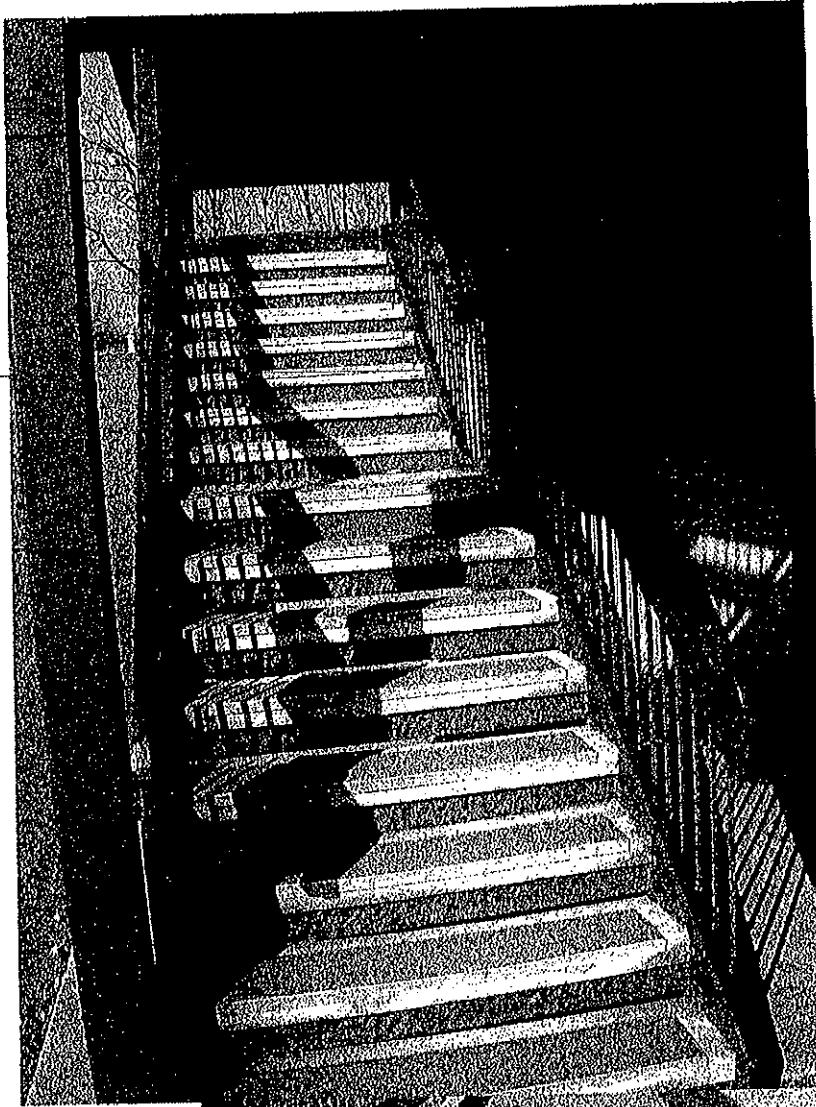


Photo 30. Condition of Steel Framing at Stairs—Some Additional Support Has Been Added to Some of the Stairs

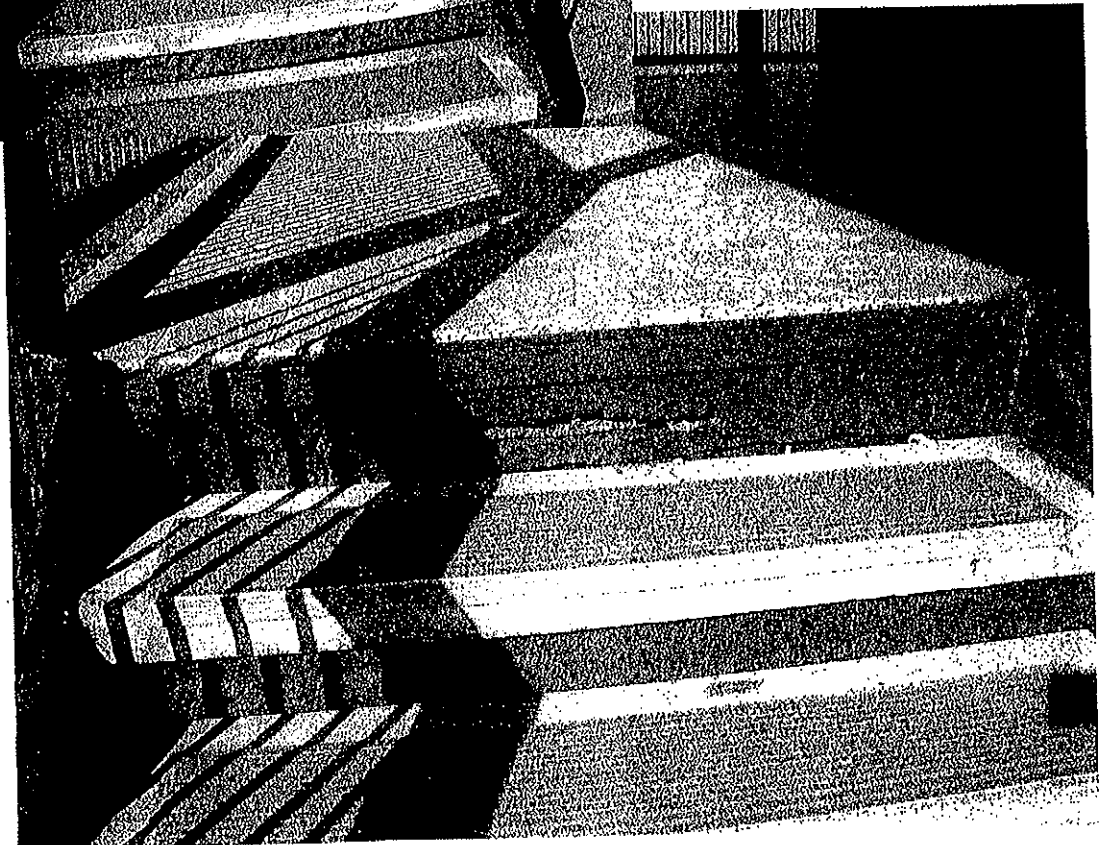


Photo 31. Concrete Block Pier is an Extension of the Firewall Separating the Units in Each Building

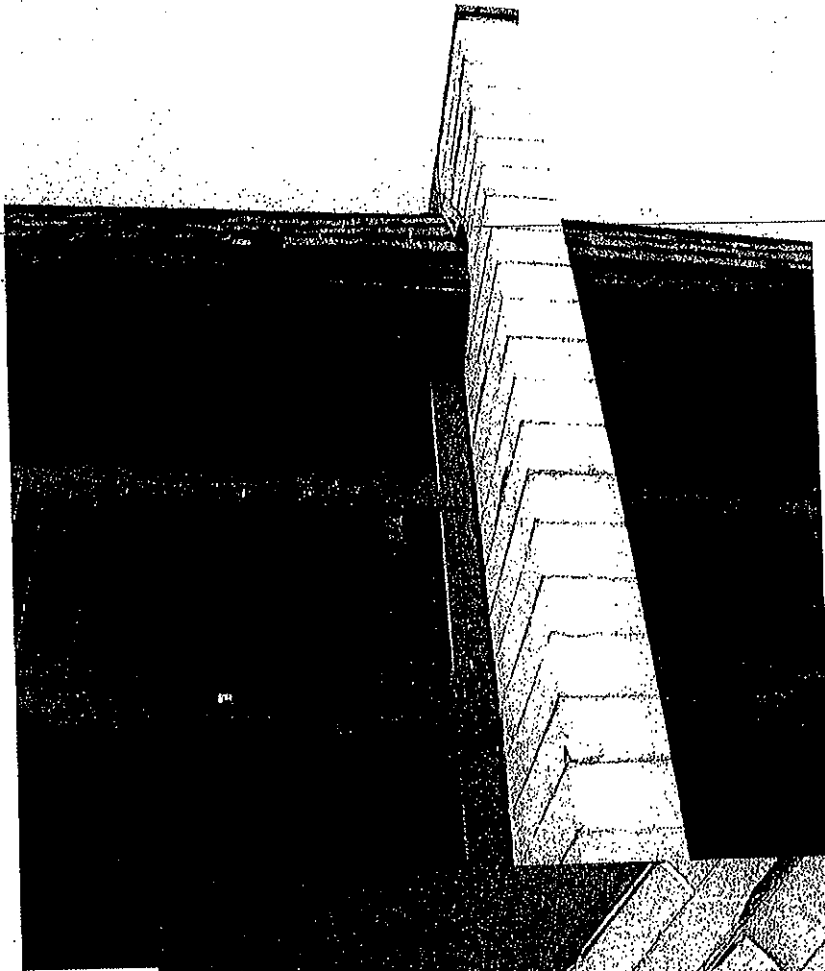


Photo 32. Condition of Block Pier and Roof Flashing



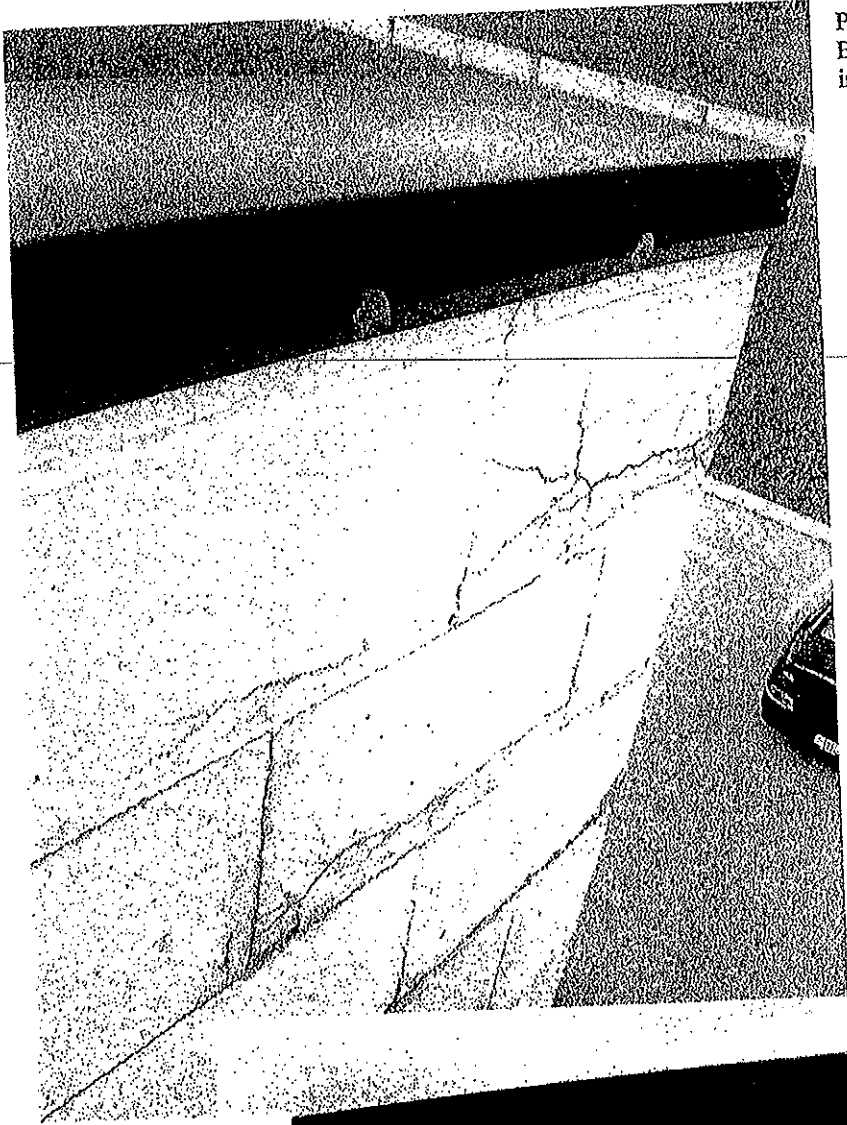


Photo 33. View of Top of Block Firewall Showing Cracking



Photo 34. Mortar Joint and Block Cracking at Roof Level



Photo 35. Water Ponding at Corner of Roof

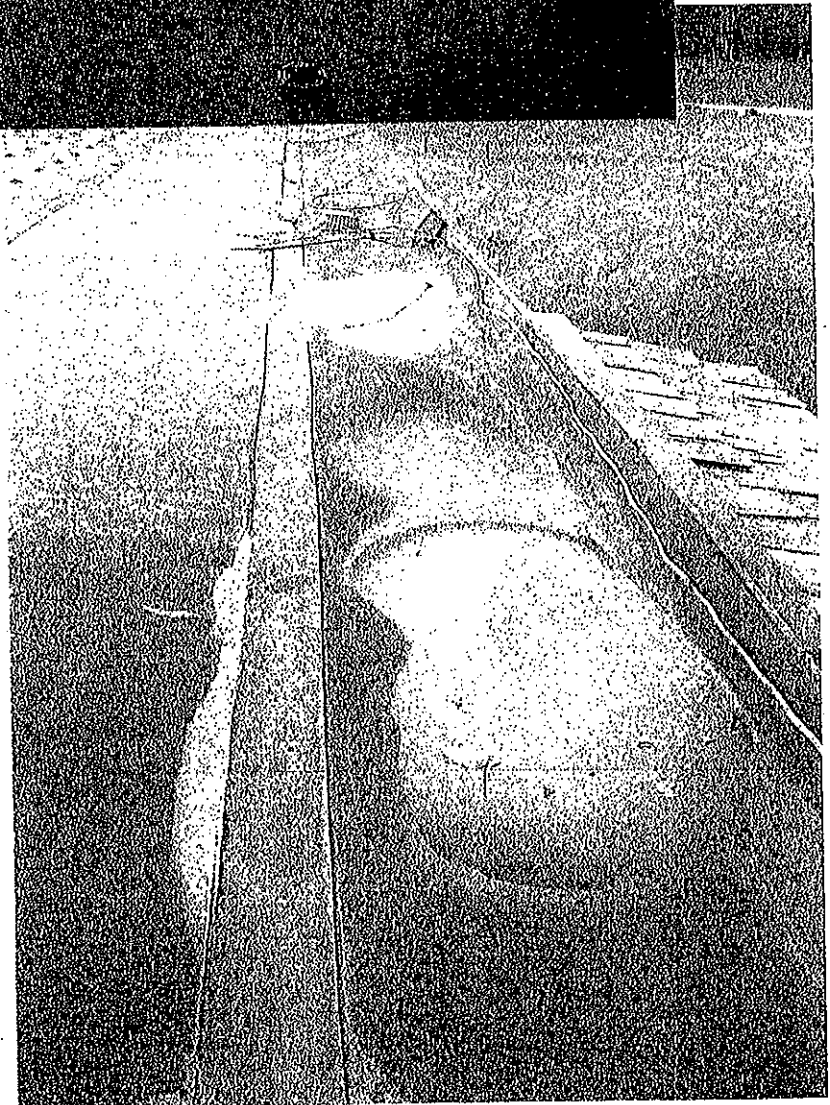


Photo 36. Areas of Ponded Water on Roof



Photo 37. Leaves Blocking Roof Drain

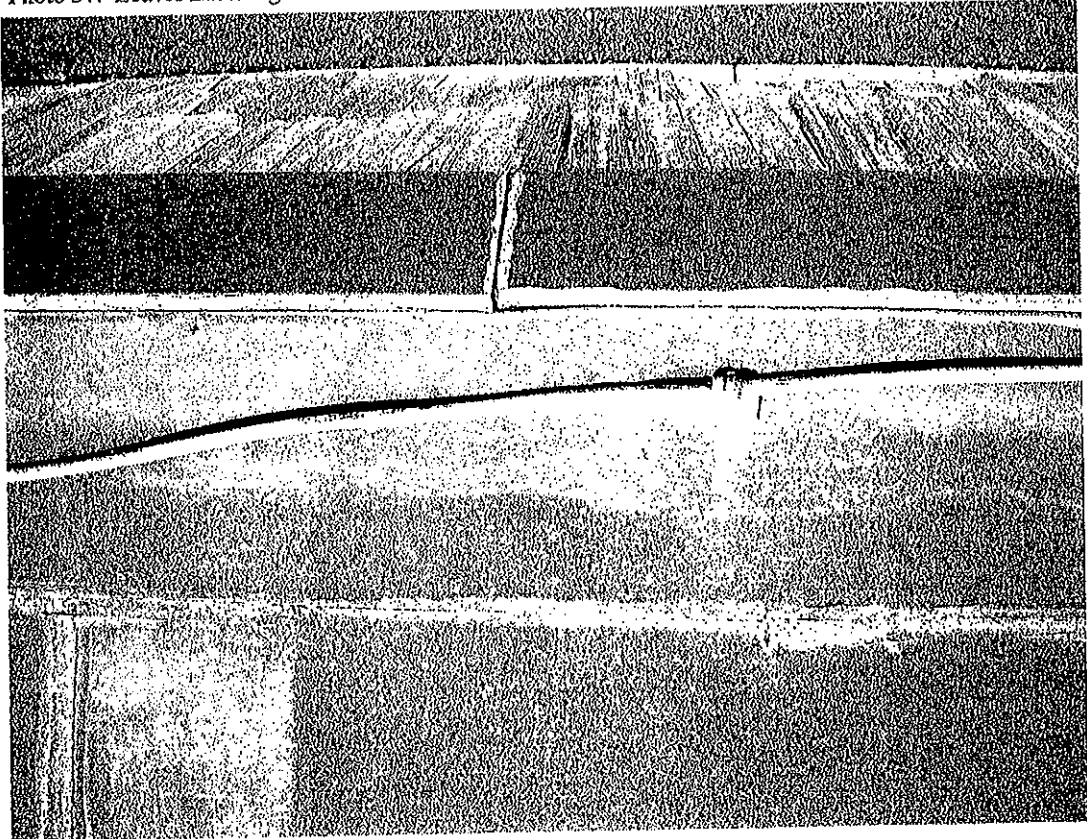


Photo 38. Condition of Flashing at Mansard Roof



Photo 39. Open Joints in Cap Flashing Over Block Firewall on Raven Lodge



Photo 40. Previous Patches on Roof of Raven Lodge Appear to Be Loose

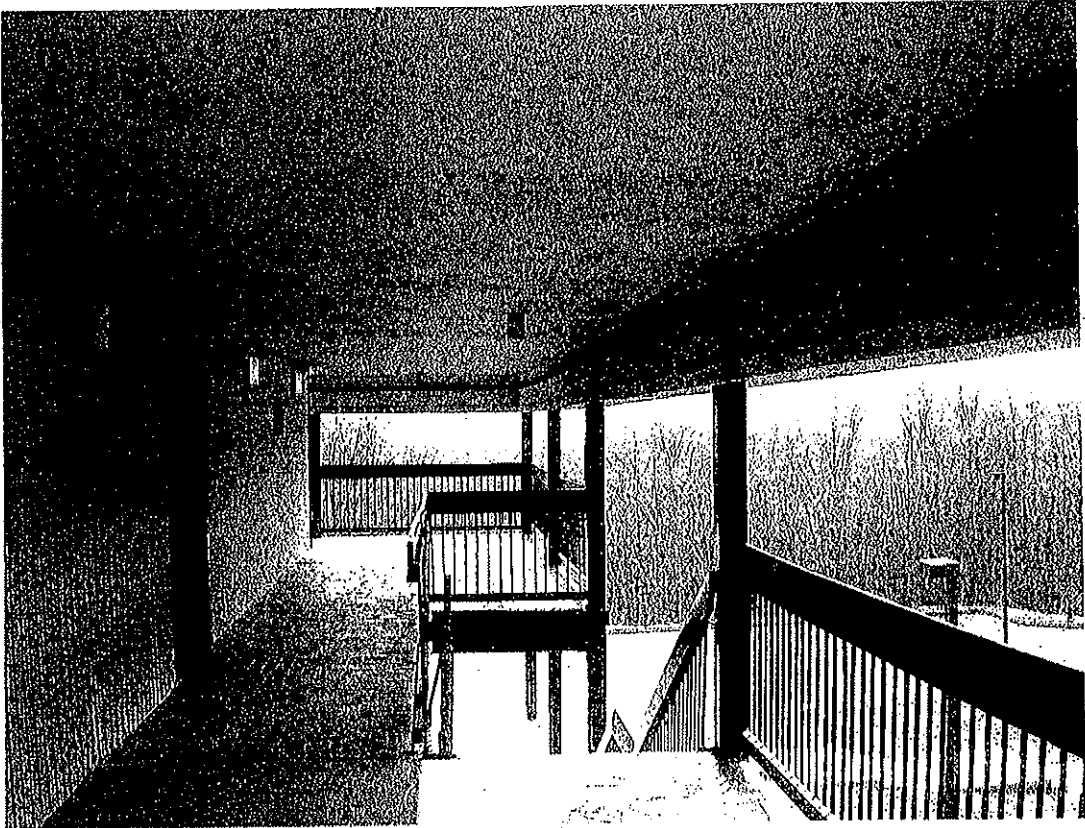


Photo 41. Paint Peeling from Soffit of Roof over Balcony

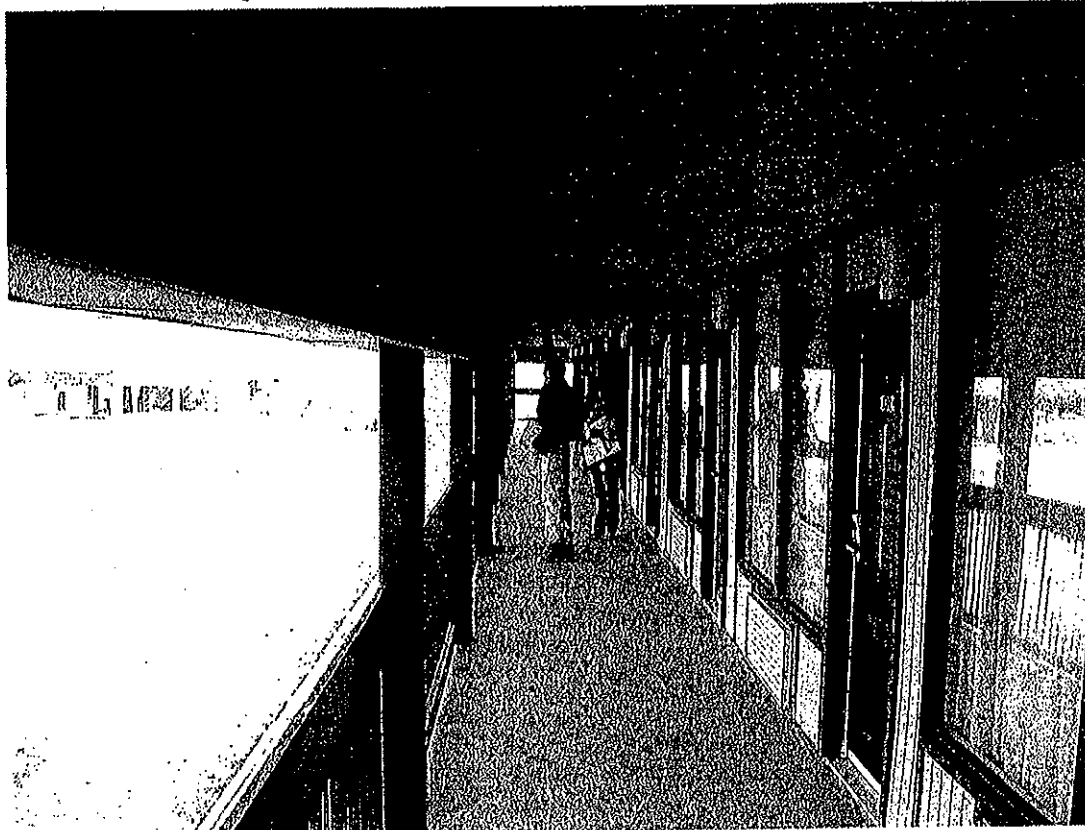


Photo 42. More Peeling Paint on Soffit

Photo 43. Soffit Venting is Provided via a Strip Screen along the Length of the Mansard Roof—Note Movement of Boxed Section



Photo 44. Boxed Section was Removed to Reveal Steel Angle Lintels Supporting Firewall Block Above

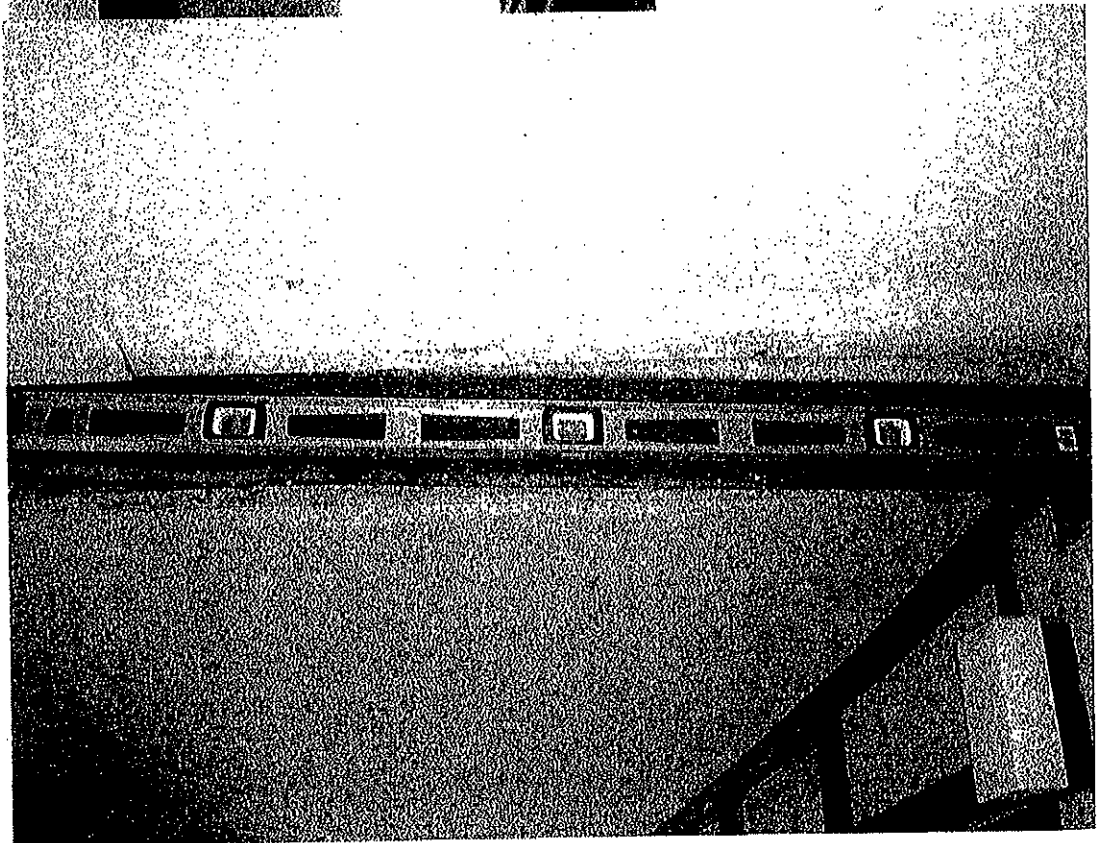




Photo 45. Overall View of Wild Goose Lodge



Photo 46. View of Crawl Space of Wild Goose Lodge

Photo 47. Supplemental Tube
Column Bracing Installed Below
Additional Water Heaters

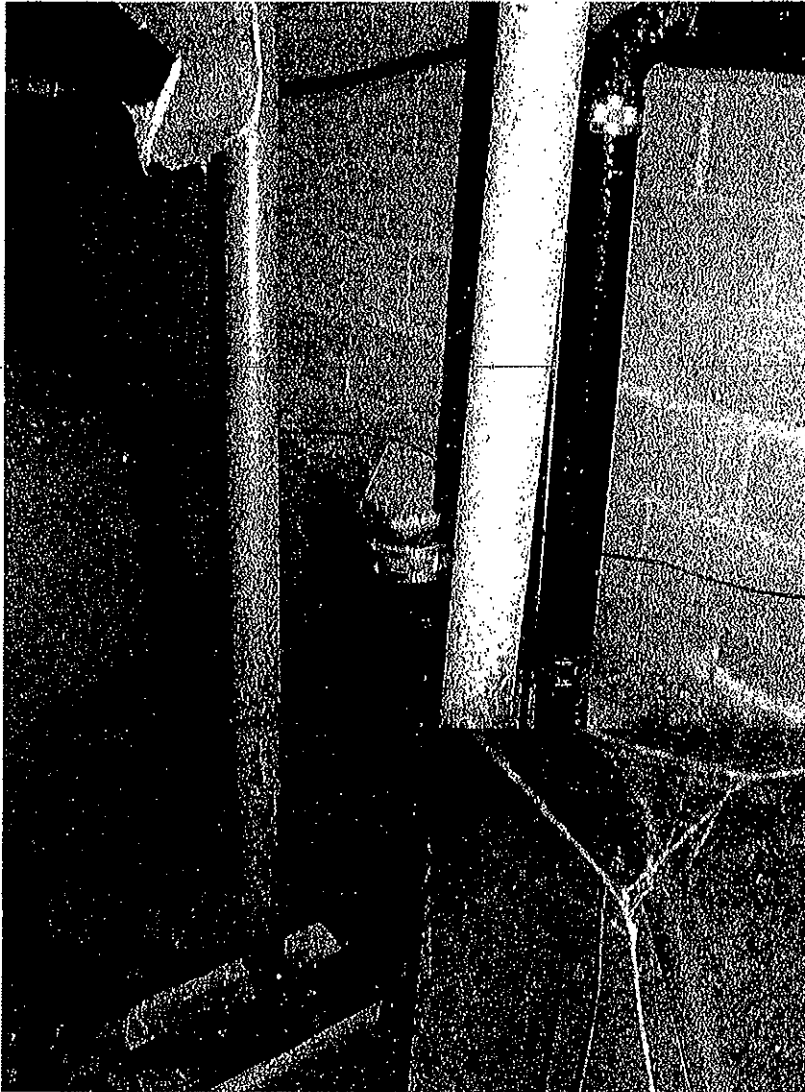


Photo 48. One Tube Column has Shifted
and is Currently NOT Supporting any
Load

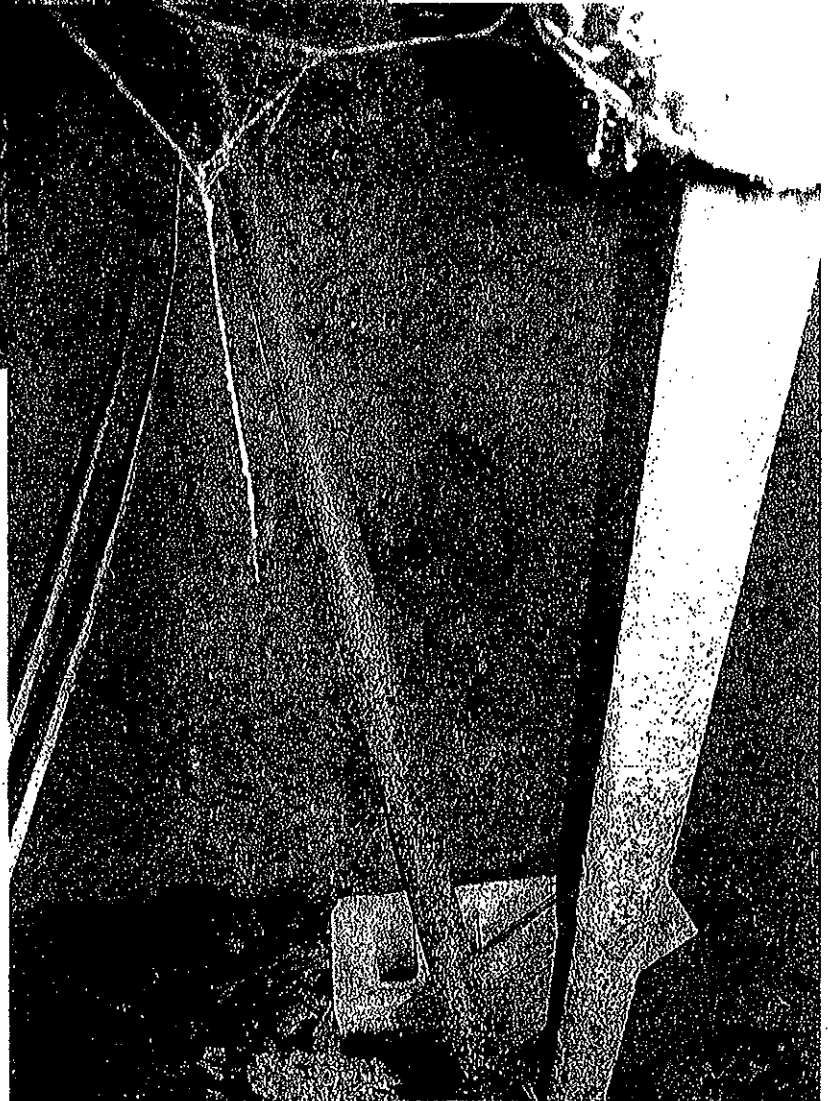




Photo 49. Additional Support Placed Directly Below Telephone Equipment Room

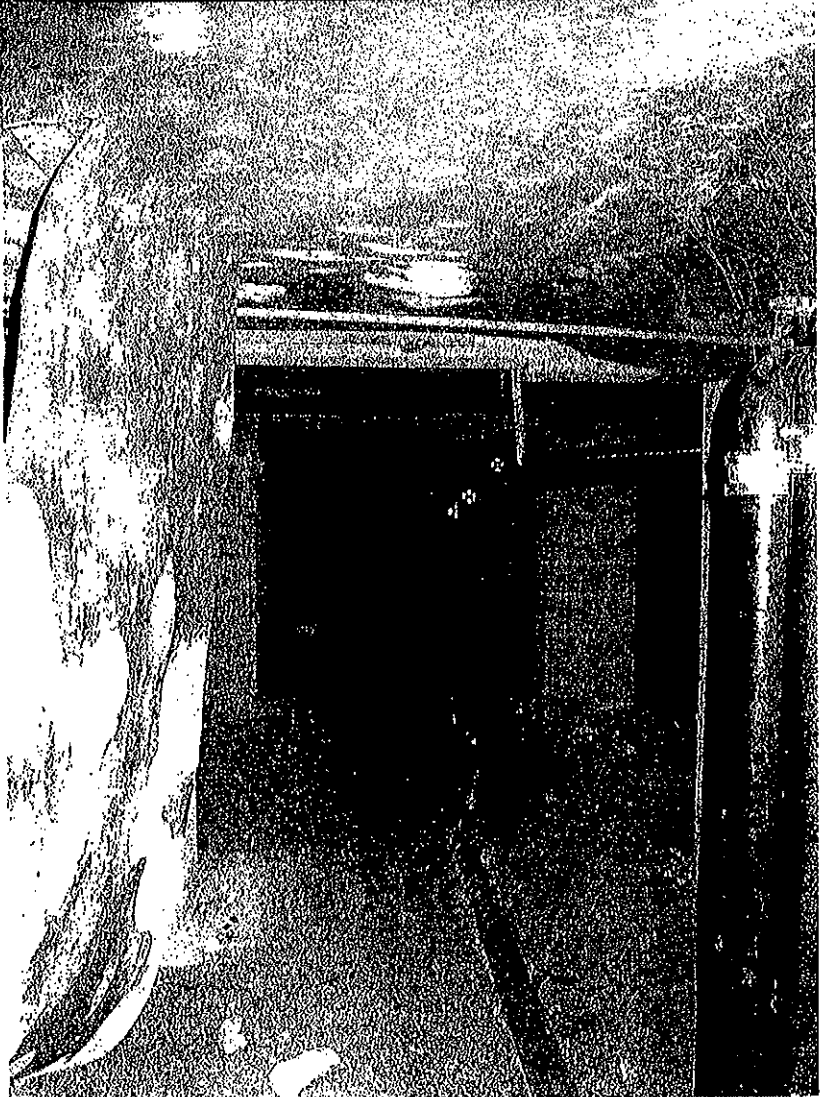


Photo 50. Another View of Crawl Space in Wild Goose Lodge

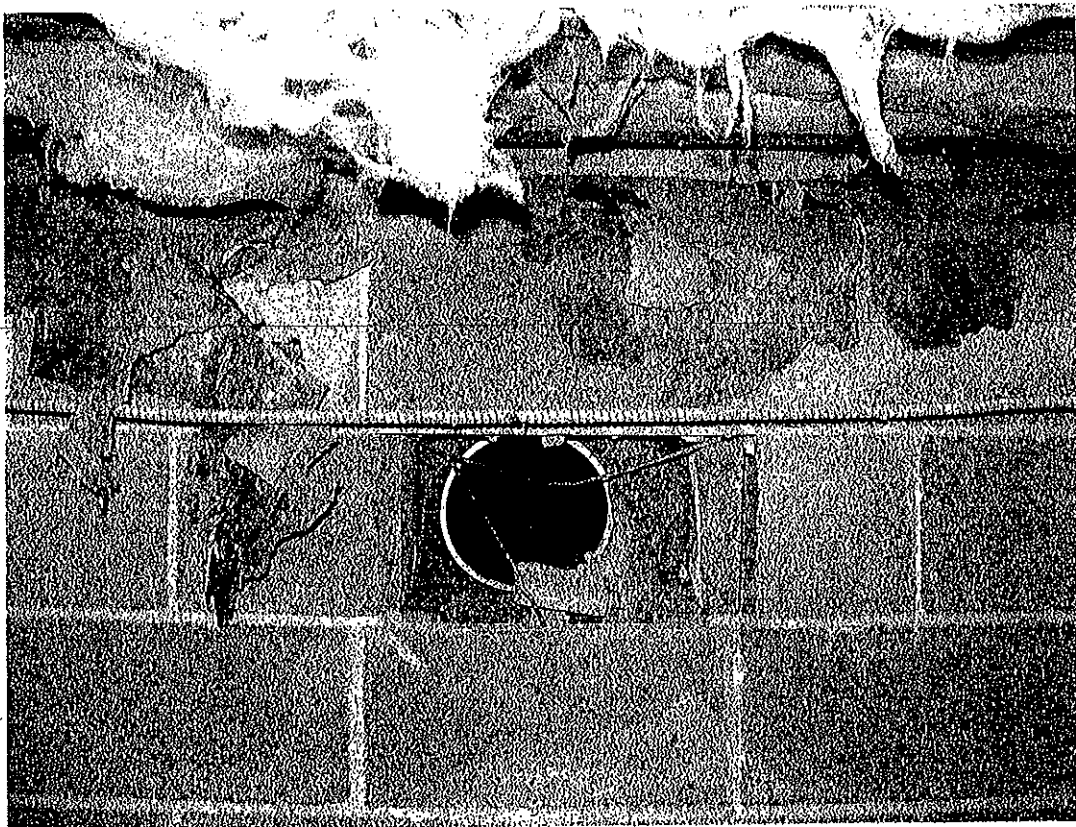


Photo 51. Foundation Vent Pipe through Exterior Wall of Wild Goose Lodge

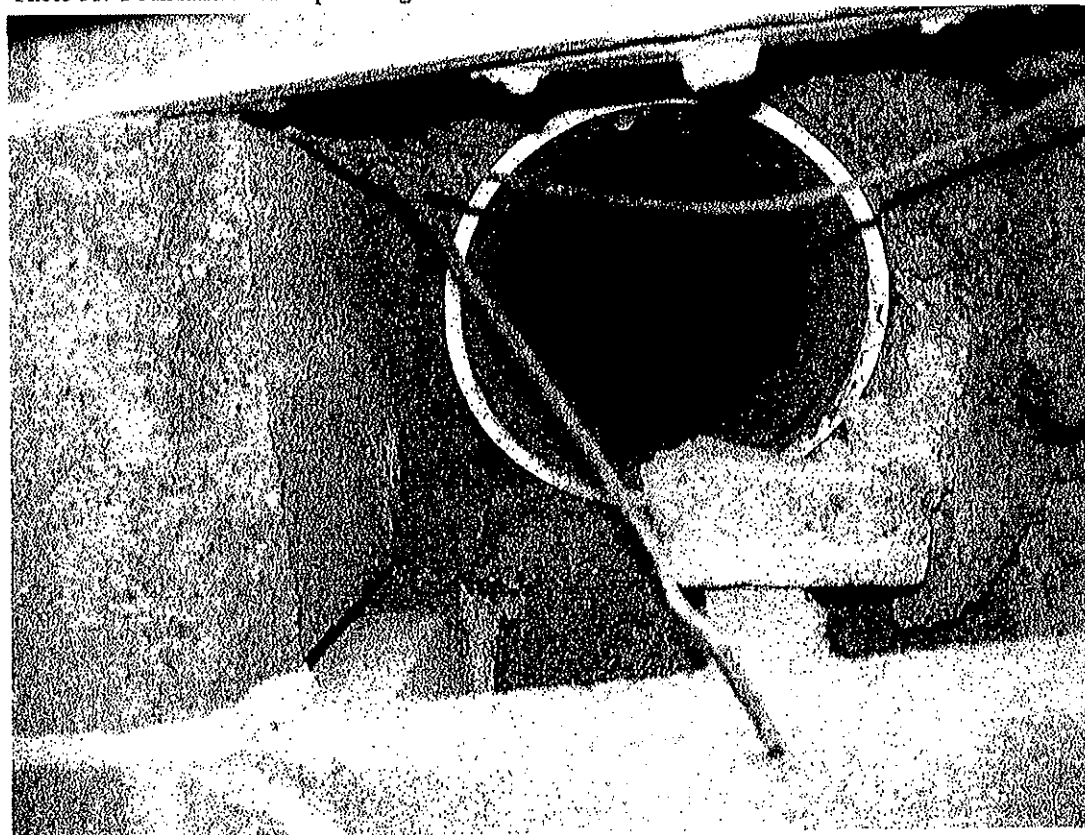


Photo 52. Close-up View of Vent Pipe Showing it Barely Extending in through the Exterior Face of the Foundation Wall



Photo 53. Possible Mold or Algae Found in Crawl Space Below Wild Goose Lodge

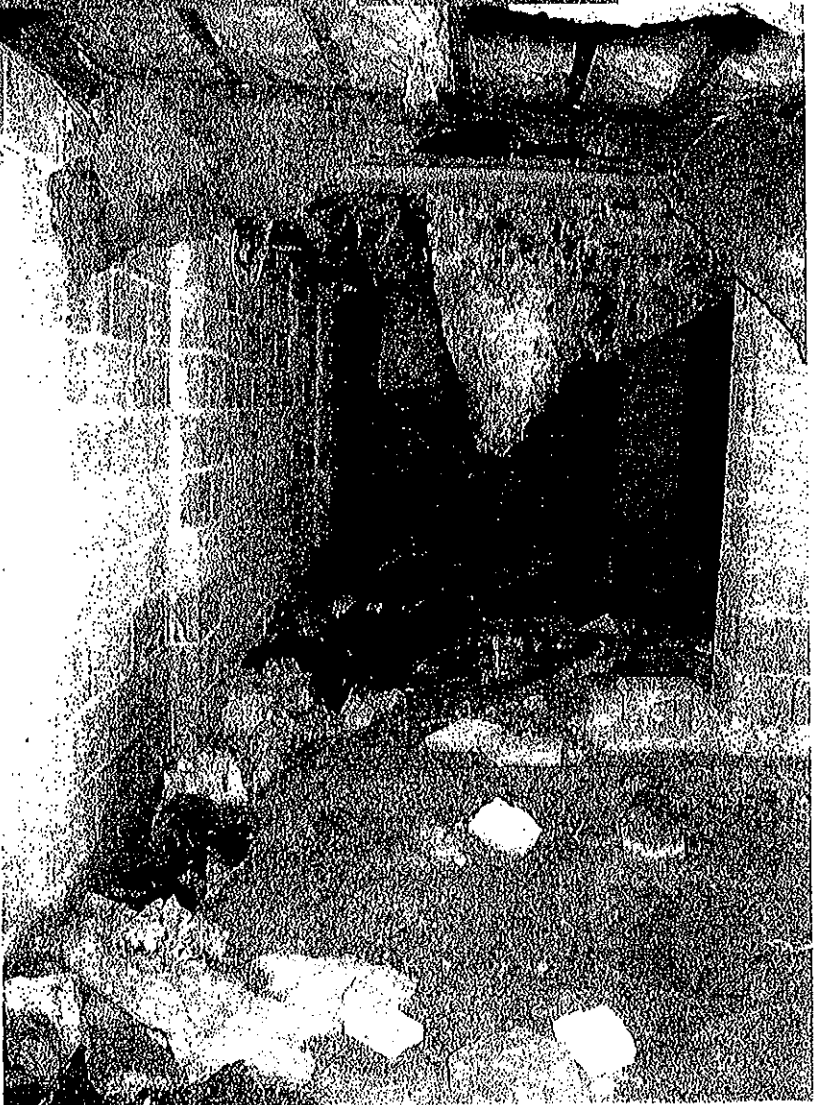


Photo 54. Condition of Insulation and Vapor Barrier Below Floor Framing as Seen from Within the Crawl Space of Wild Goose Lodge



Photo 55. Possible Moisture Degradation of Wood Sill Plate

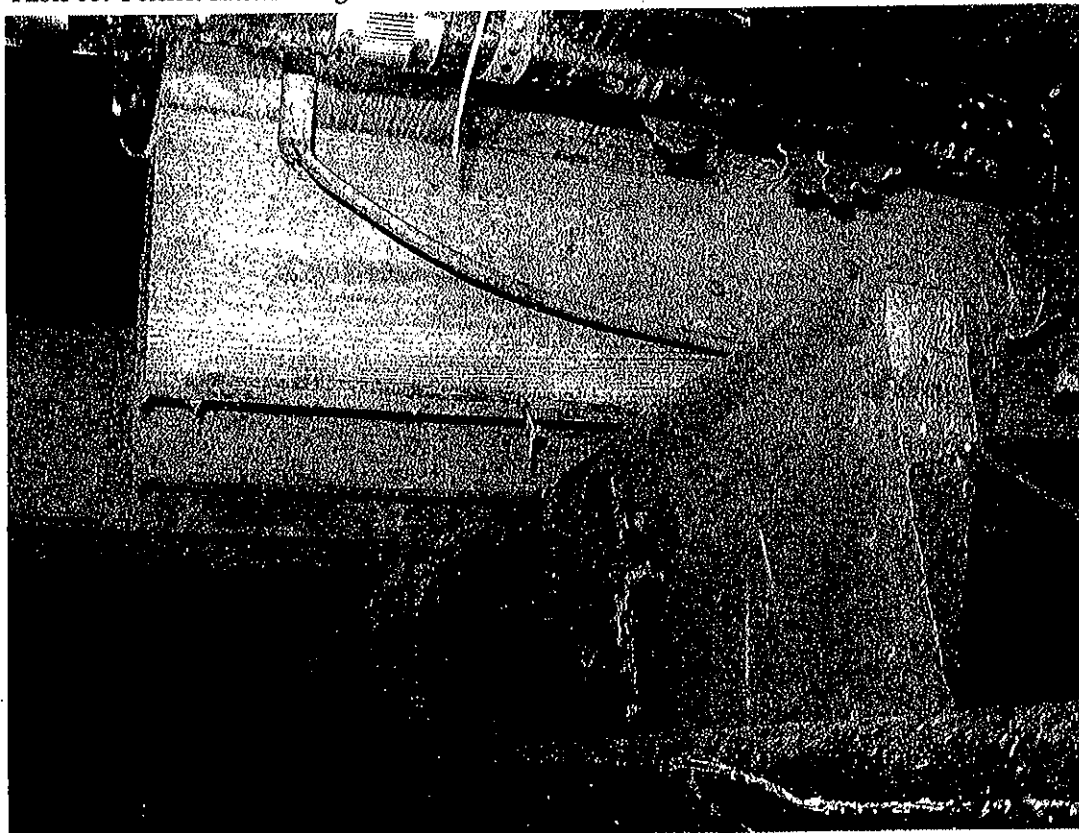


Photo 56. Modified Floor Framing for Crawl Space Access in Wild Goose Lodge

Photo 57. Suspect First Floor Sheathing



Photo 58. Block Pilaster Supporting Framing Between Units is Pulling Away from Foundation Wall

Photo 59. Another Pilaster Shows Evidence of Cracking at Exterior Foundation Wall

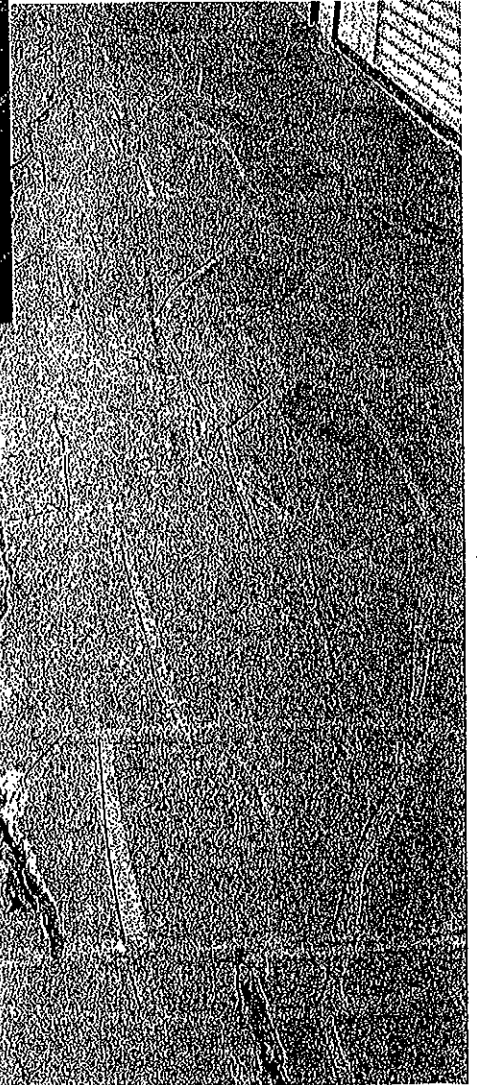


Photo 60. Cracked Sidewalk Slab at Wild Goose Lodge

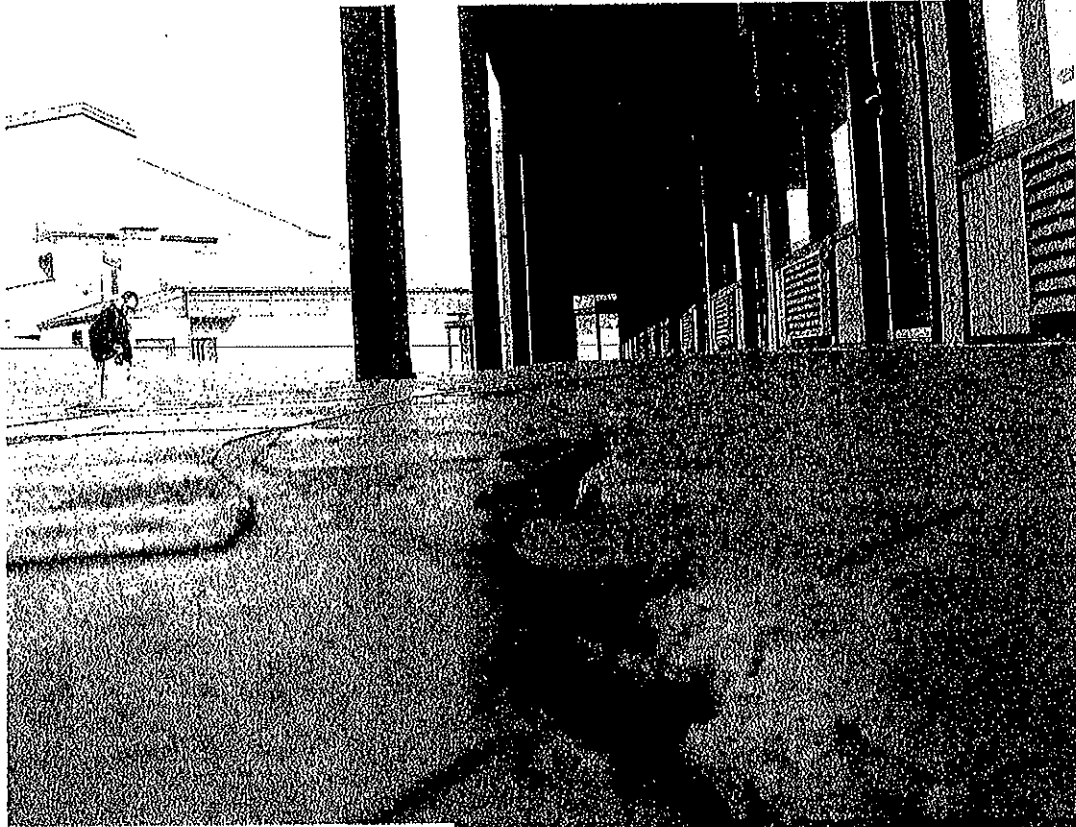


Photo 61. Photo Shows Vertical Misalignment of Slab Sections

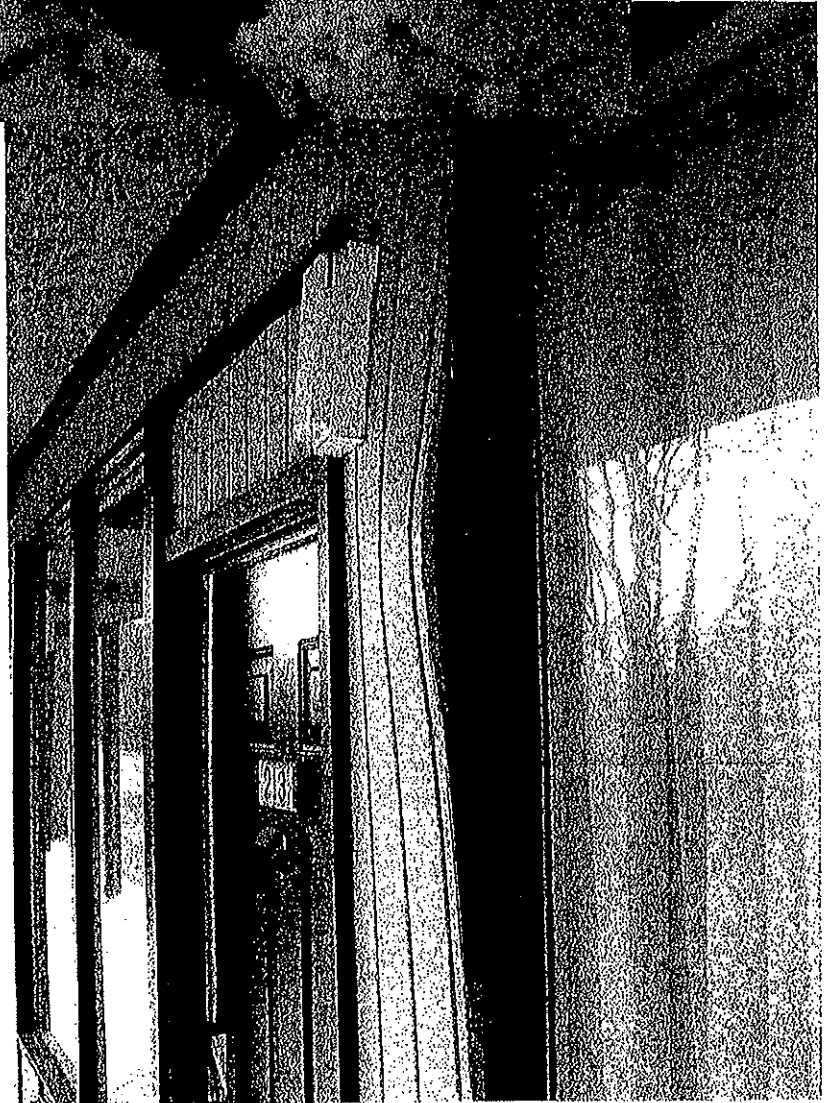


Photo 62. Bowed T1-11 Siding Between Door and Window of Wild Goose Lodge Unit



Photo 63. Deteriorated Steel Angle at Face of Building Units

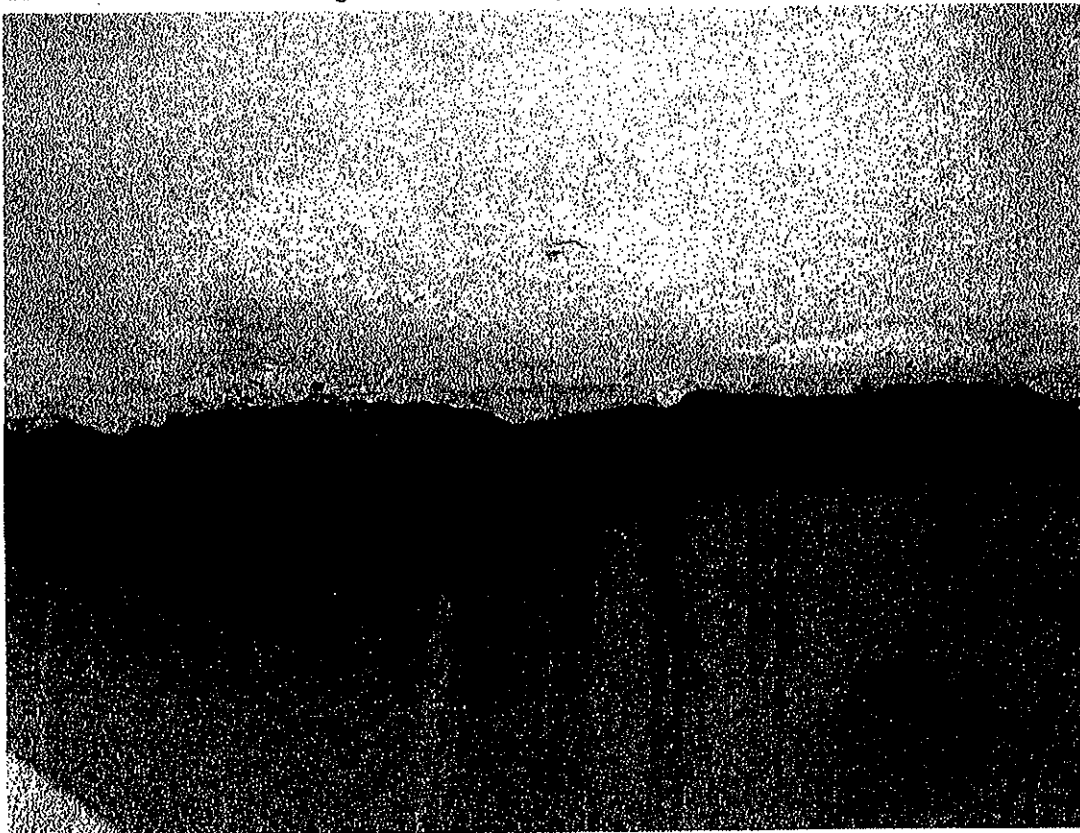


Photo 64. Exposed Reinforcing Steel and Missing Concrete



Photo 65. Hole Drilled in Tube Column/Downspout at Wild Goose Lodge



Photo 66. Deteriorated Steel Tube Column at Wild Goose Lodge

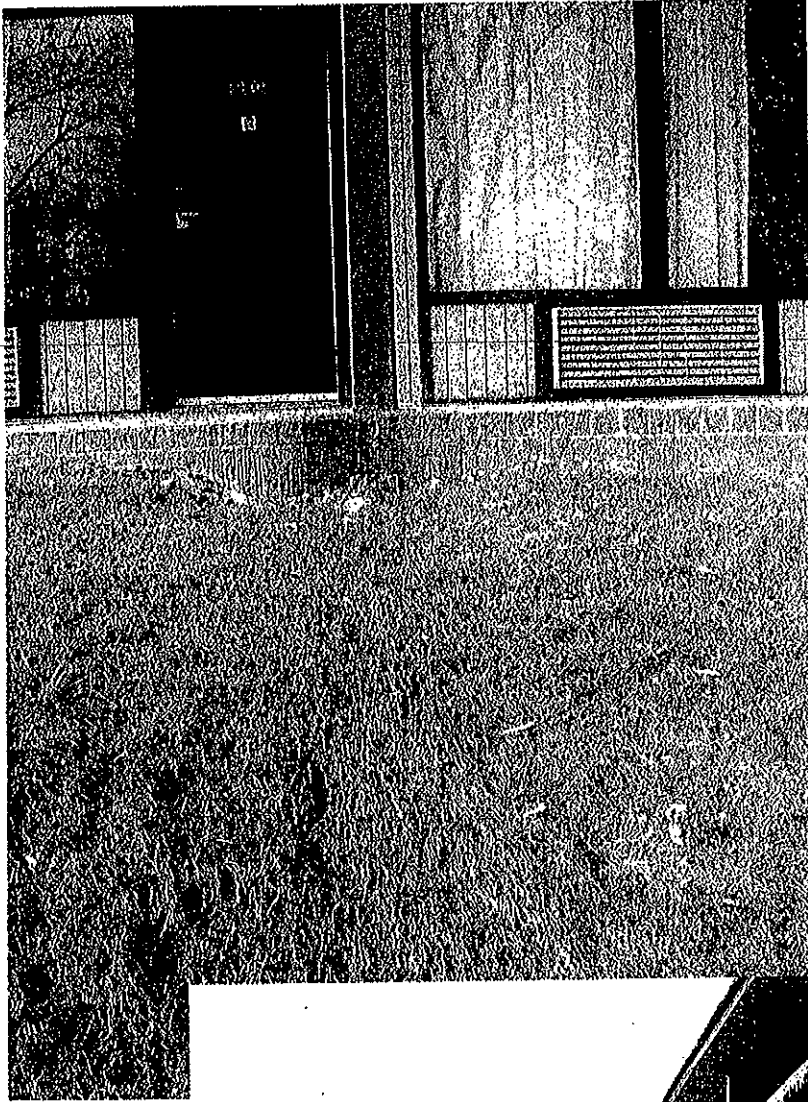


Photo 67. Erosion Due to Downspout/Roof Drain

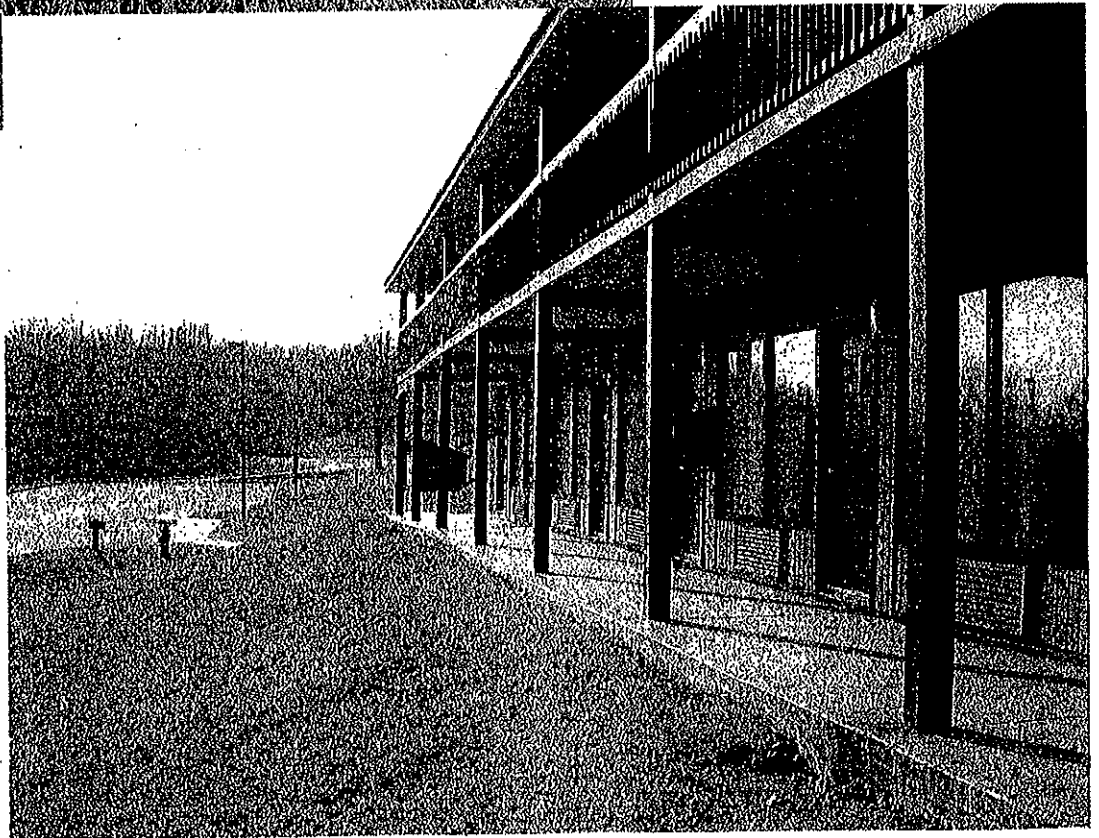


Photo 68. View of Rear of Wild Goose Lodge



Photo 69. Deflection and Out of Plane Movement of Siding Above Window

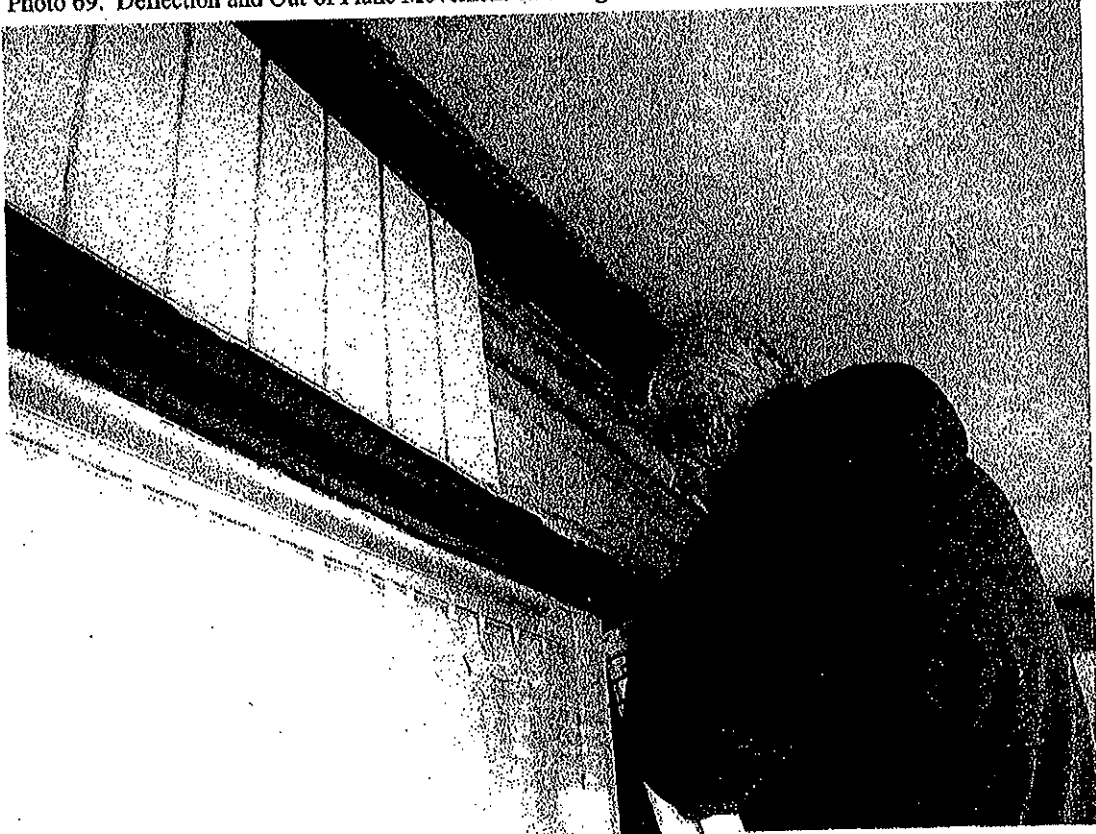


Photo 70. Siding Removal Shows Framing and Moisture Barrier



Photo 71. Close-up view of Framing, Flashing and Moisture Barrier Above Window



Photo 72. Deteriorated Section of Wood Railing at Balcony

Photo 73. Block Pier at Fire-
wall Showing Open Mortar
Joints

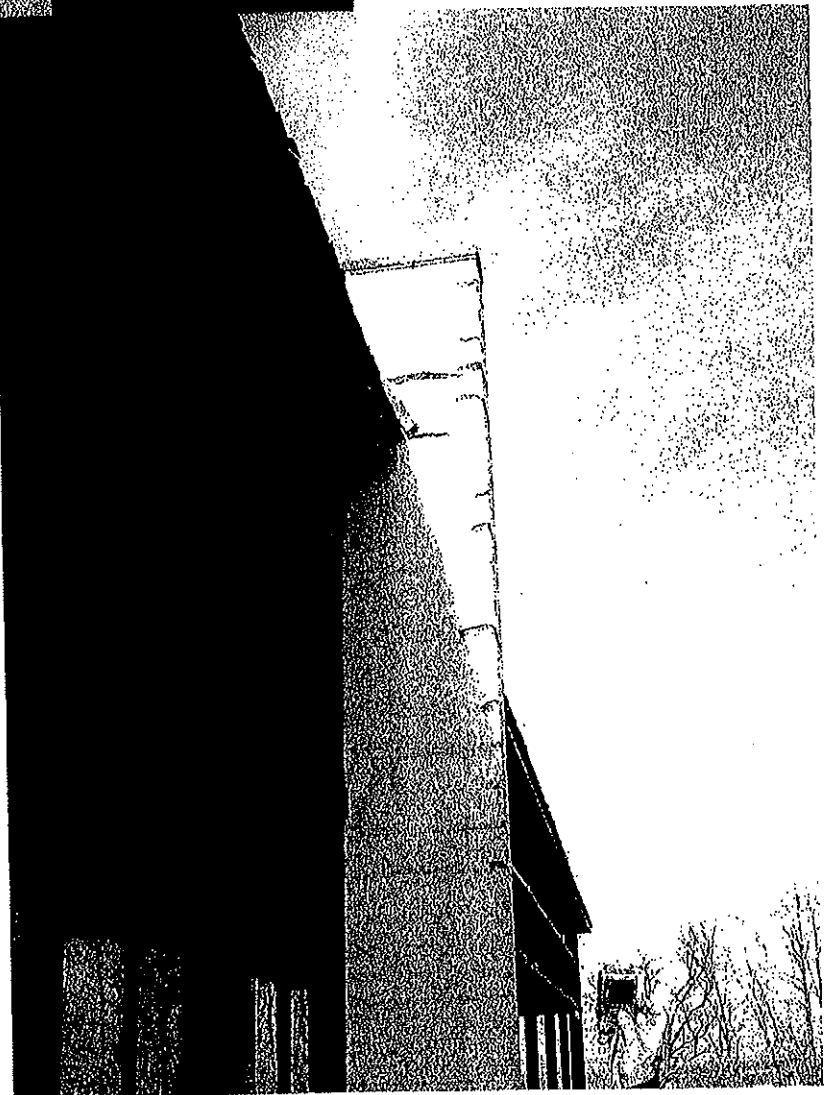
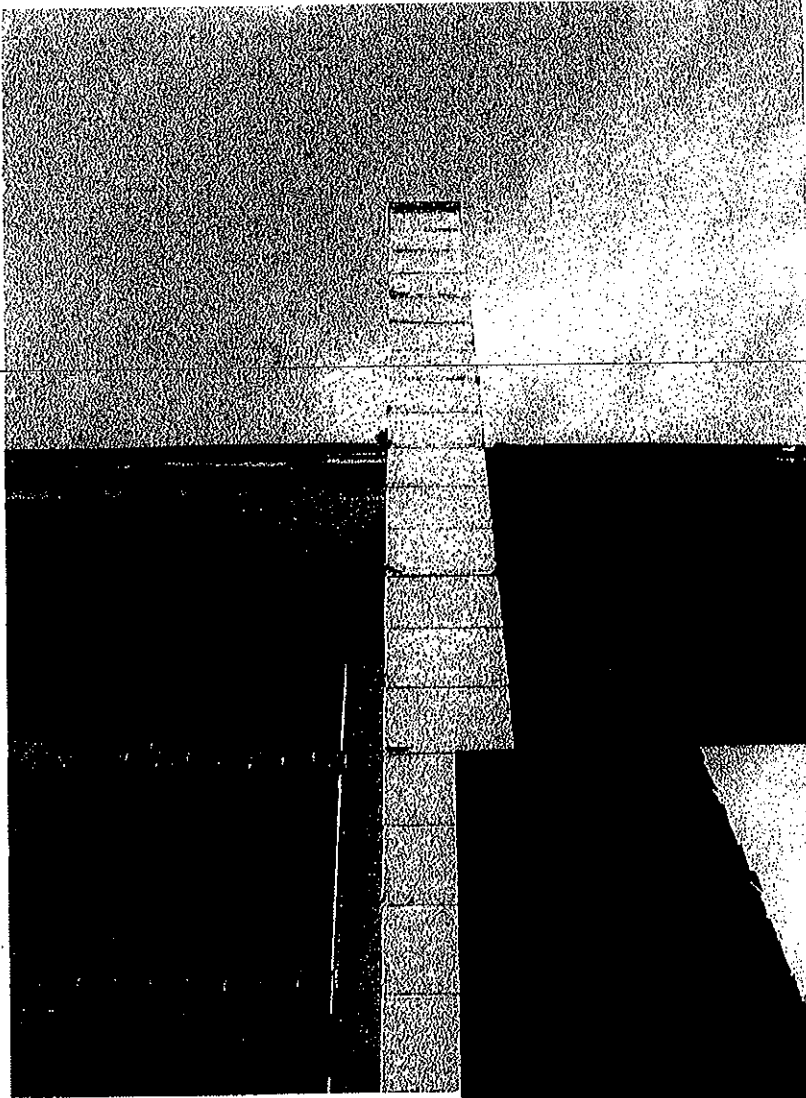


Photo 74. Block is Deteriorated in Many
Places

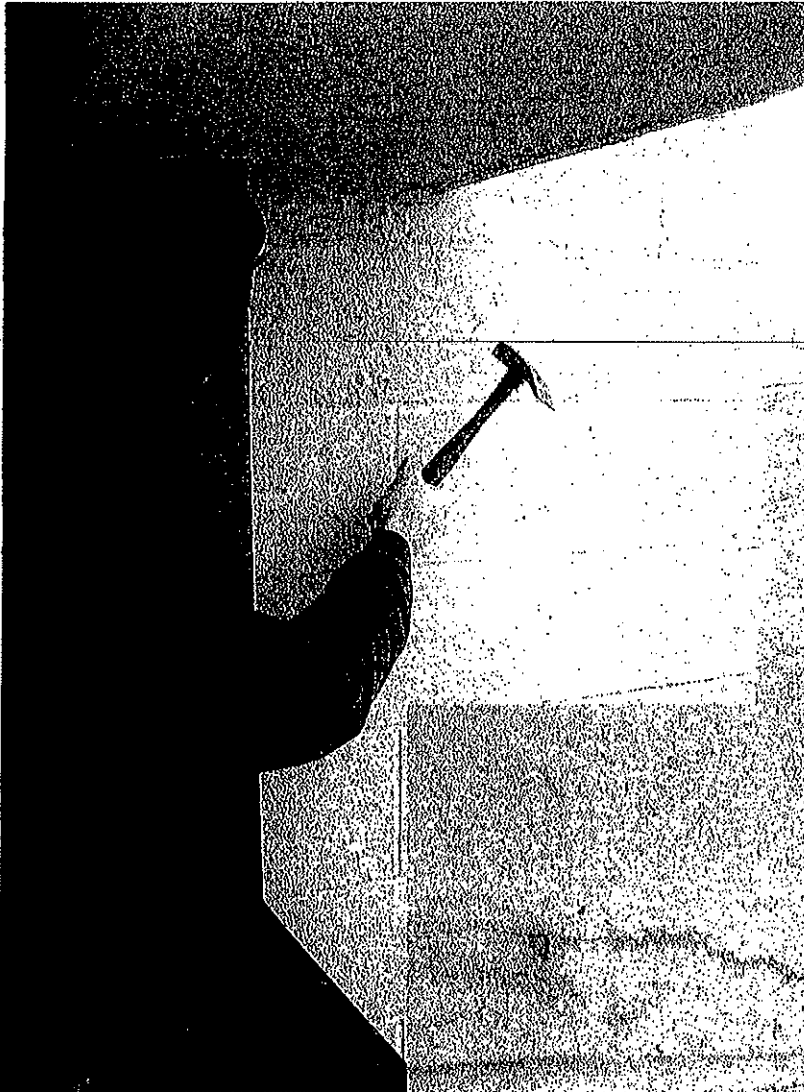


Photo 75. Block was Sounded to Determine if Reinforcing was Installed During Construction



Photo 76. Close-up View of Cracked and Fractured Block at Pier

Photo 77. Another View of the Deteriorated Block Pier

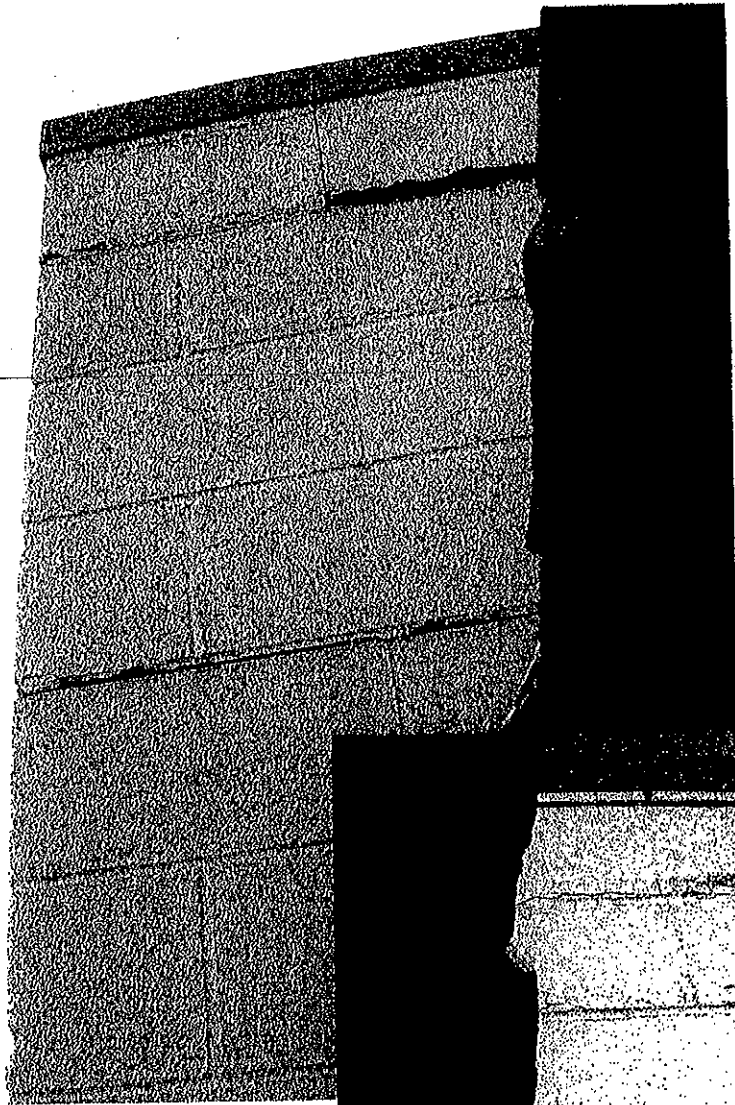
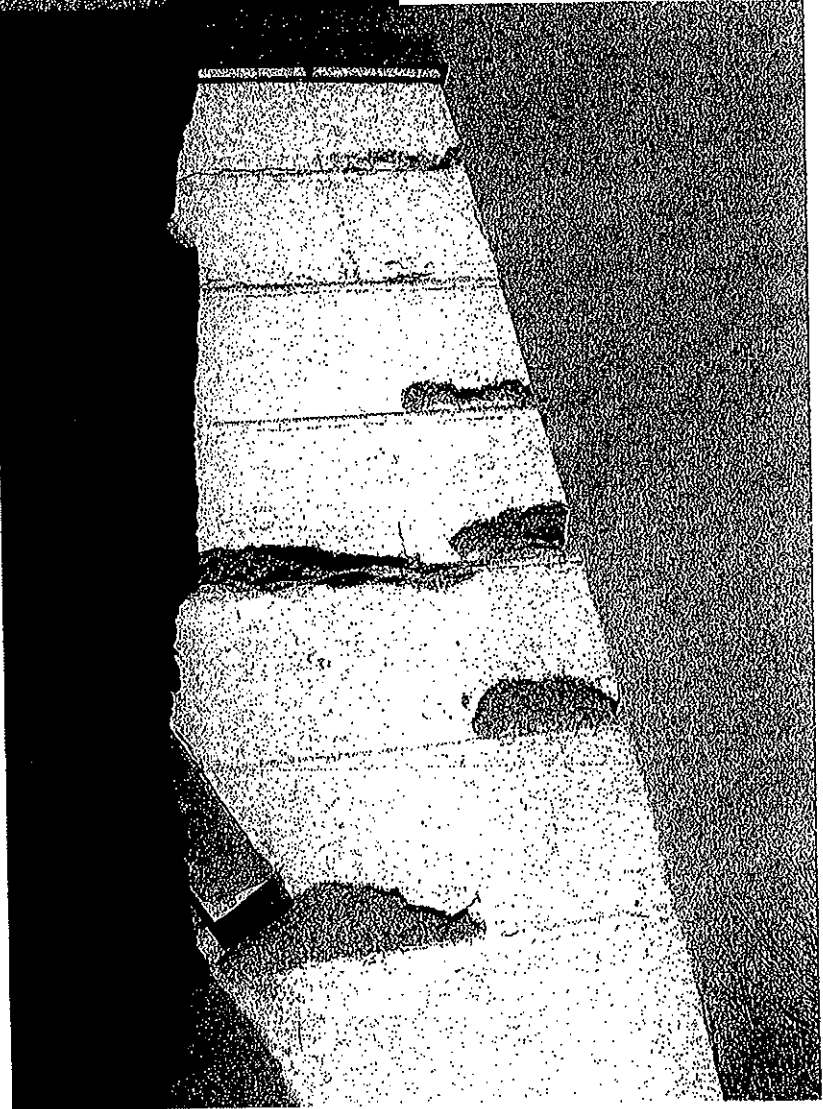


Photo 78. Another View of Deteriorated Block Pier



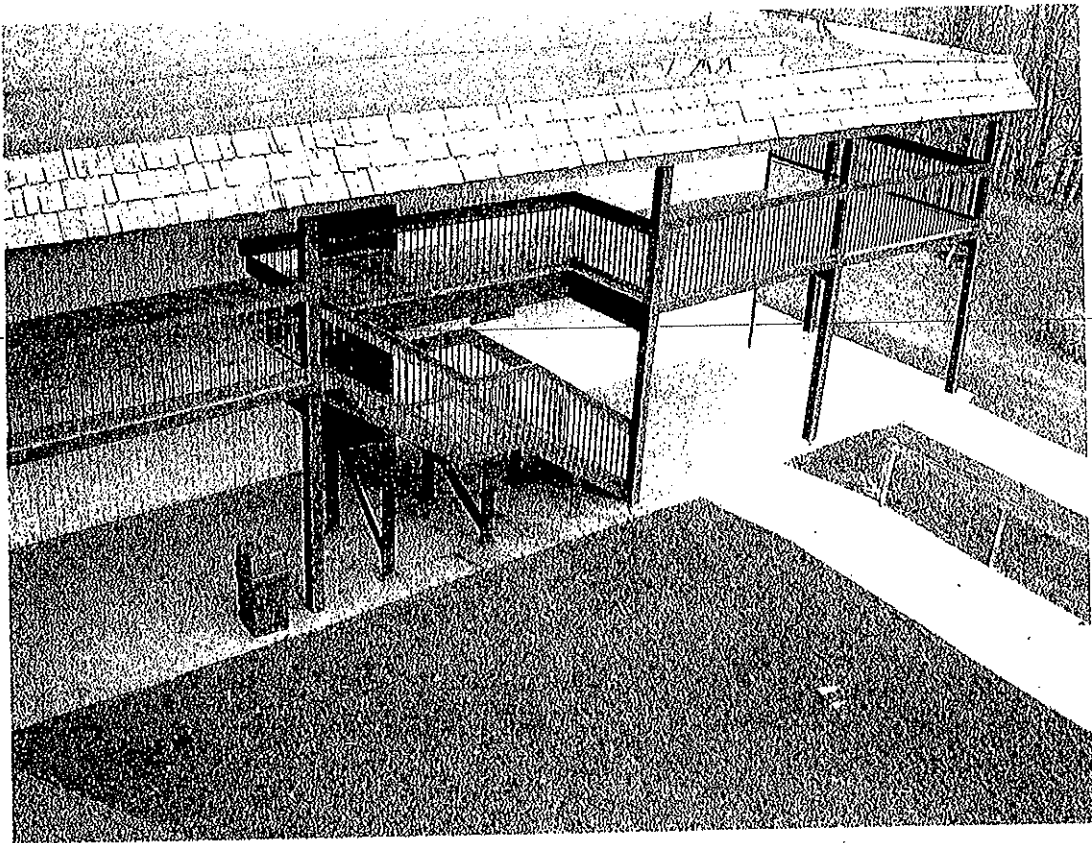


Photo 79. View of Stairs and Balcony of Wild Goose Lodge

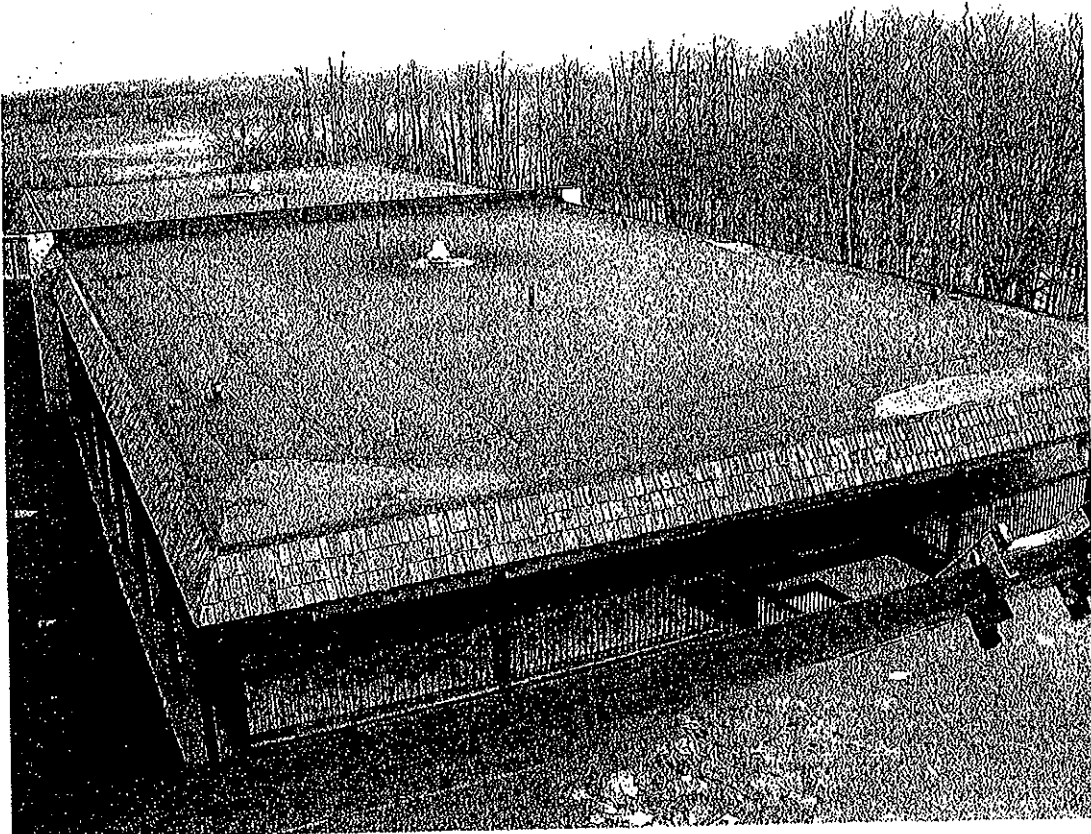


Photo 80. View of Roof of Wild Goose Lodge

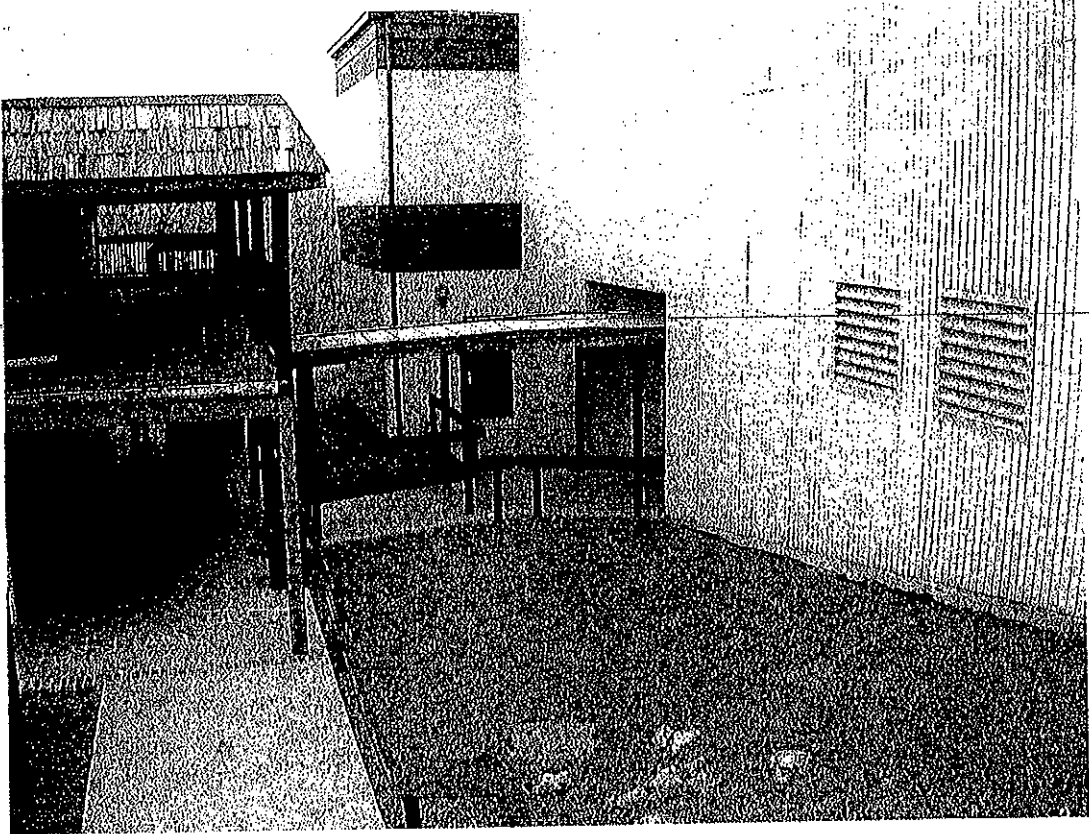


Photo 81. Covered Walkway Between Deer Lodge and the Main Lodge

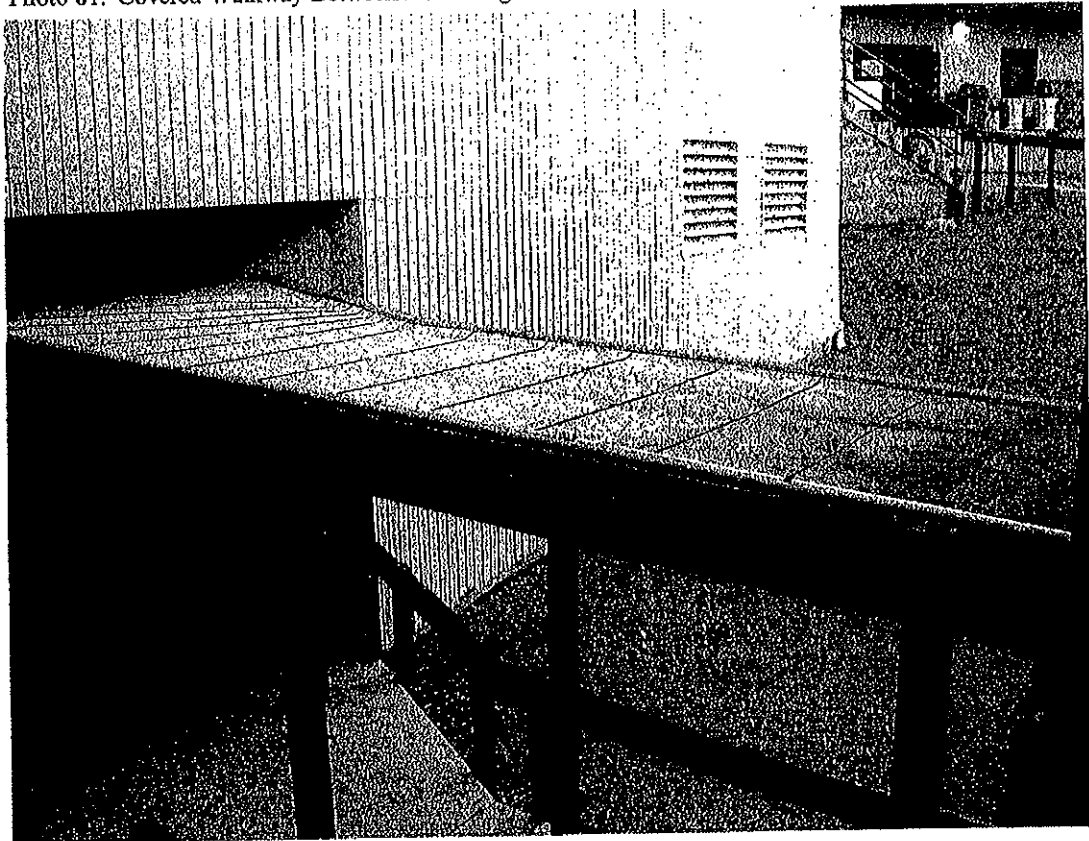


Photo 82. View of the Roof of the Covered Walkway

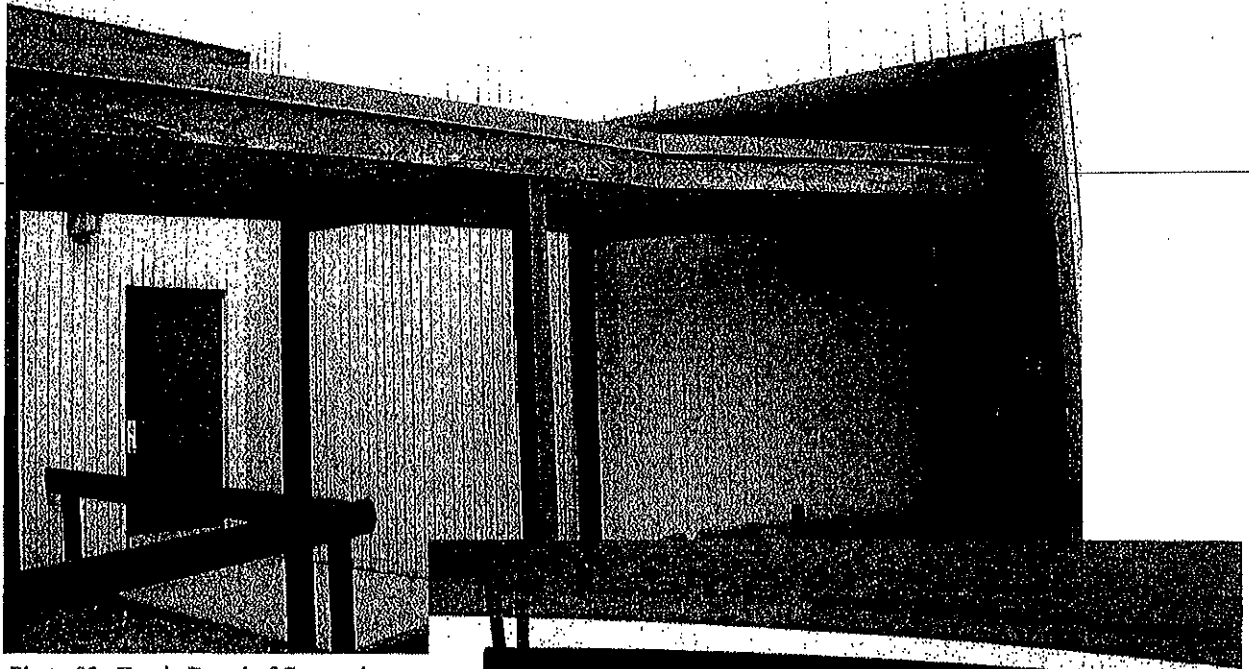


Photo 83. Fascia Board of Covered Walkway Show Peeling Paint

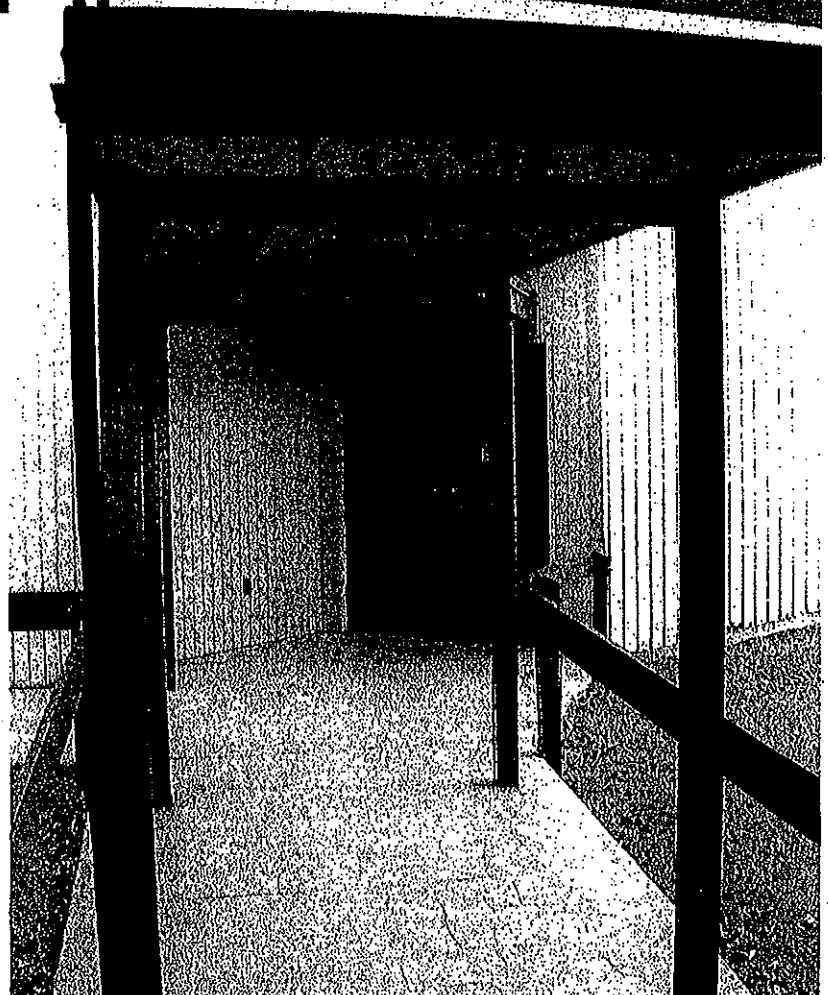


Photo 84. Covered Walkway Consists of Structural Steel Tube Columns and Beams in Addition to Wood Framing



Photo 85. One Steel Tube Column is Rusted to the Point that There is a Hole in the Side

Photo 86. View of the Covered Walkway Between the Main Lodge and Wild Goose Lodge

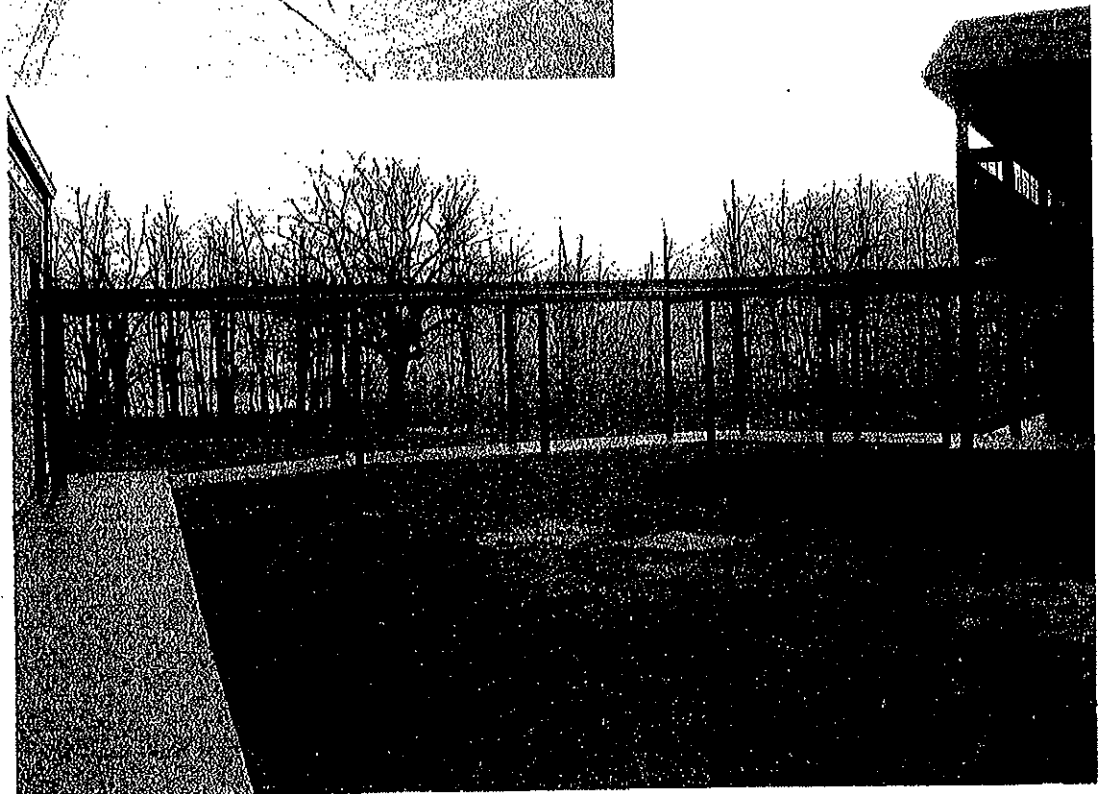




Photo 87. Another View of the Covered Walkway

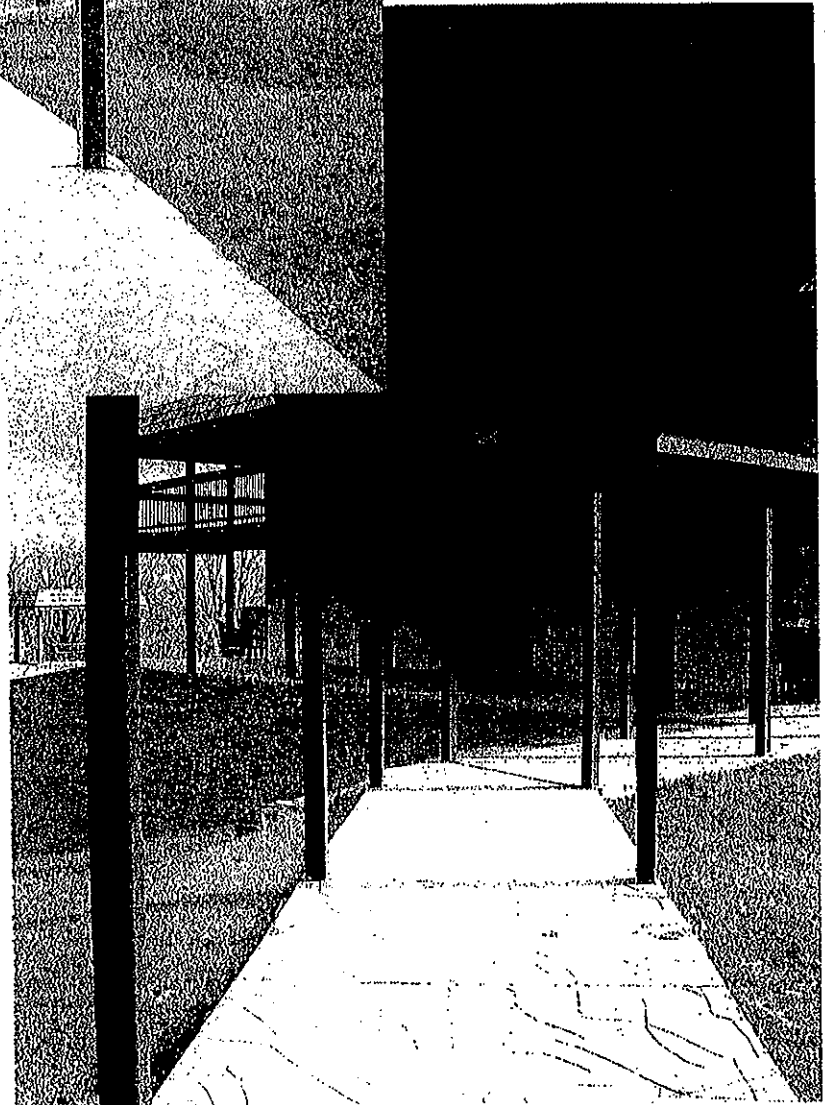


Photo 88. New Soffit has been Installed at the Covered Walkway Between Deer Lodge and Woodcock Lodge

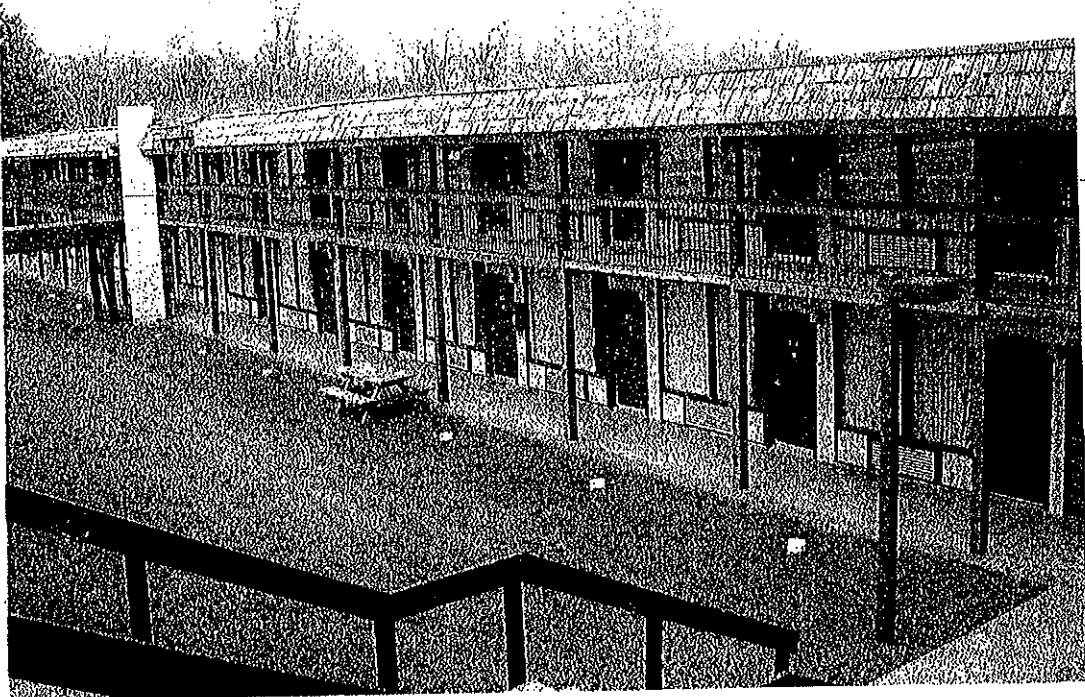


Photo 89. Overall View of Deer Lodge



Photo 90. View of Crawl Space in Deer Lodge

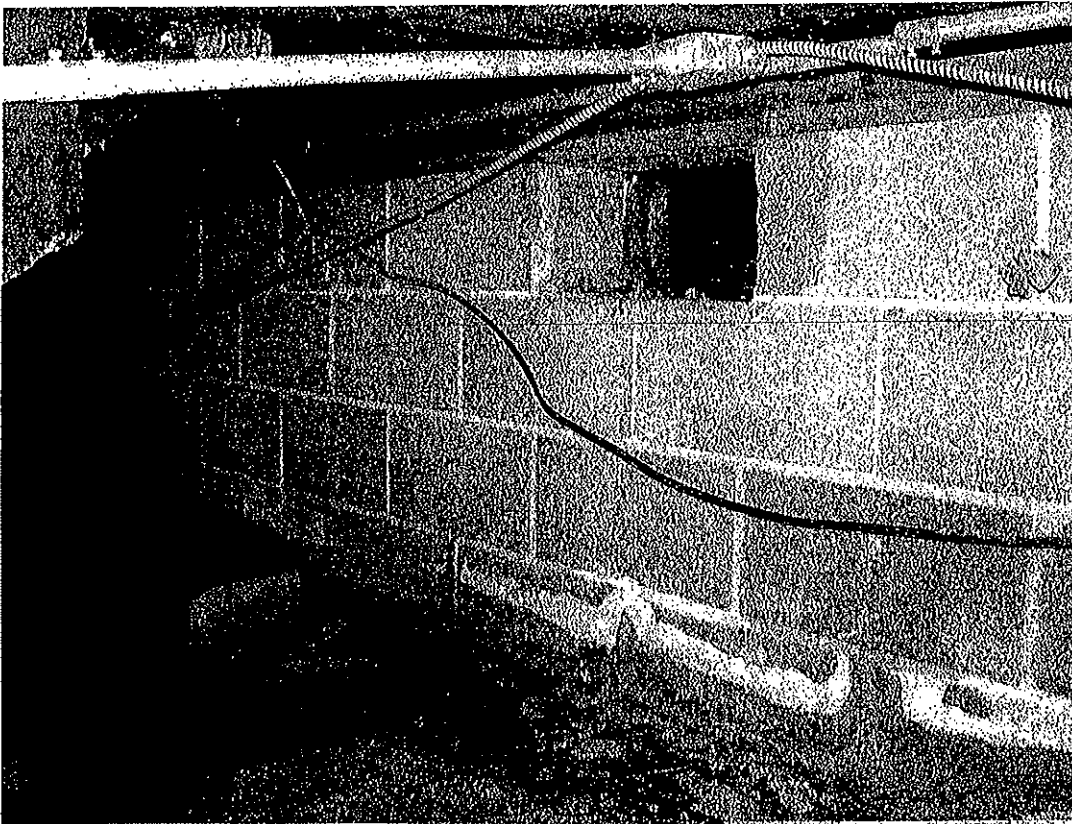


Photo 91. Another View of Crawl Space in Deer Lodge



Photo 92. Crawl Space Access in Deer Lodge



Photo 93. Edge Angle Removed and Wood Band Board Added at Face of Balcony—Note Rust Staining



Photo 94. Extreme Delamination of Steel Angle and Rust Staining at Face of Unit at Deer Lodge

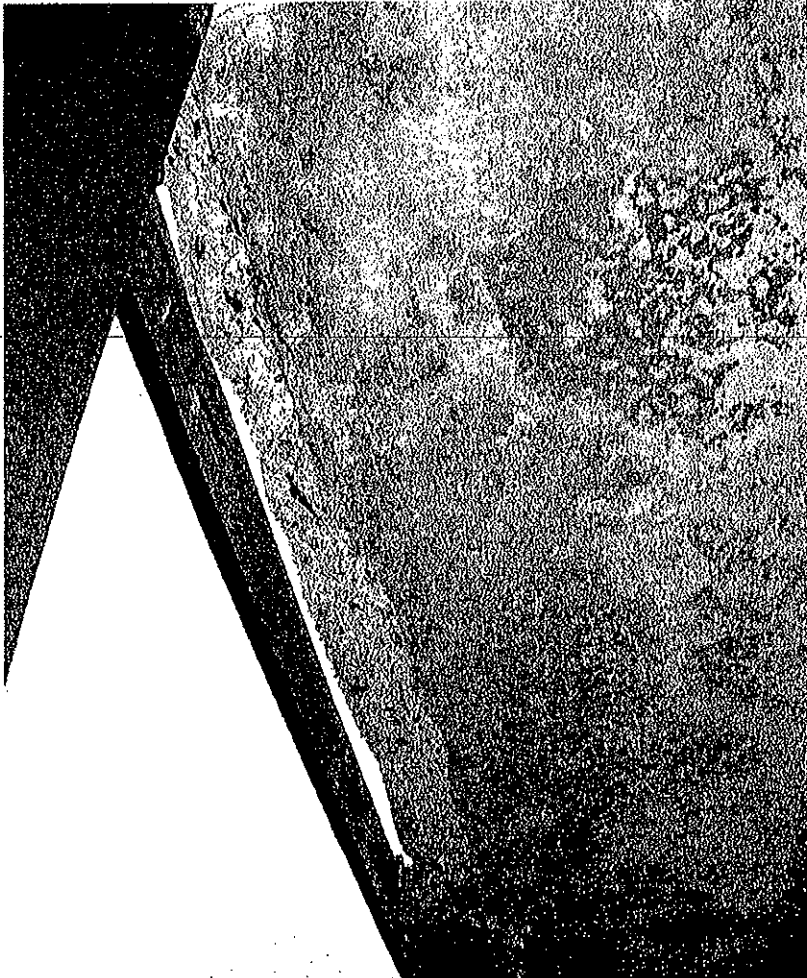


Photo 95. Deteriorated Concrete Balcony Slab at Deer Lodge



Photo 96. Another View of Extreme Rust Staining at Face of Unit at Deer Lodge

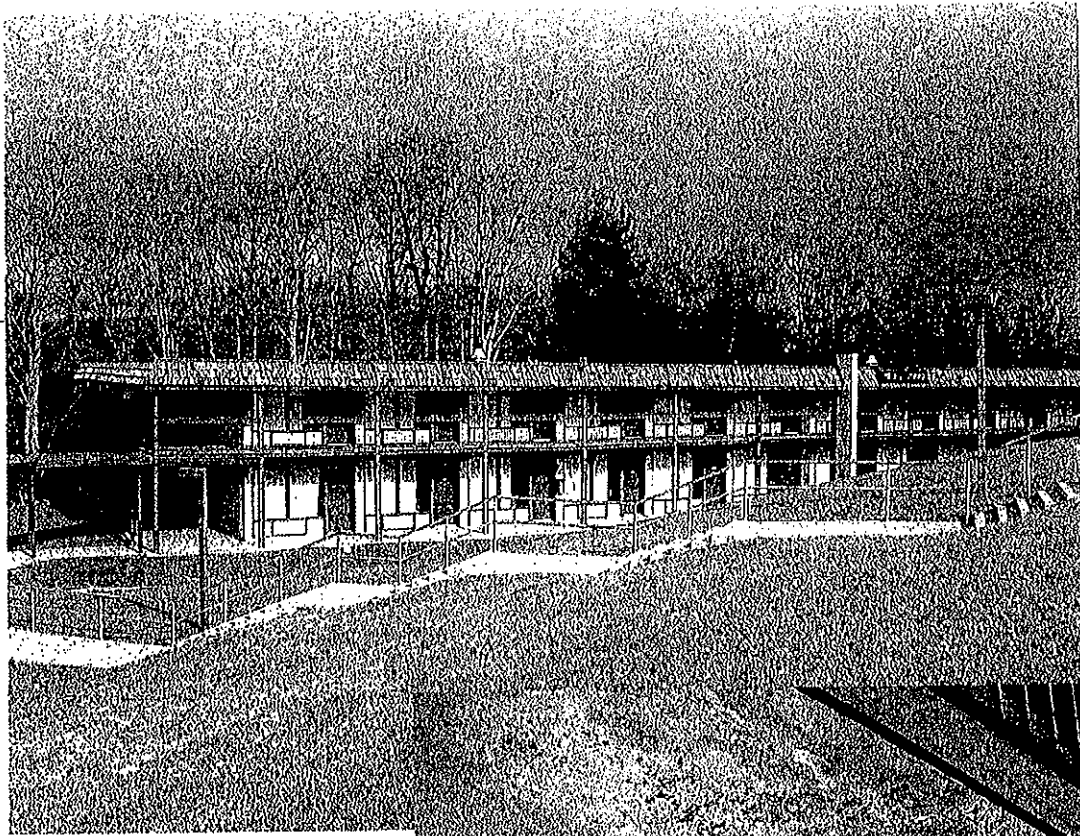


Photo 97. Overall View of Woodcock Lodge

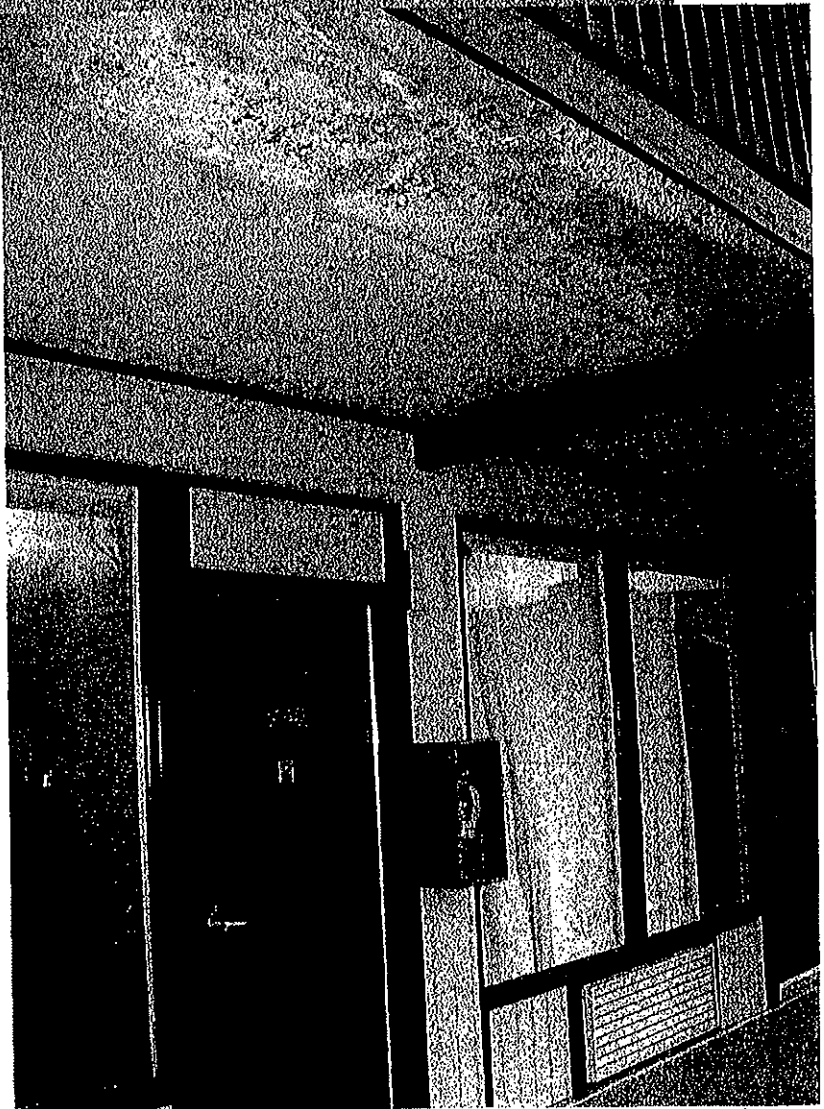


Photo 98. View of Exterior of Lower Level and Balcony of Woodcock Lodge

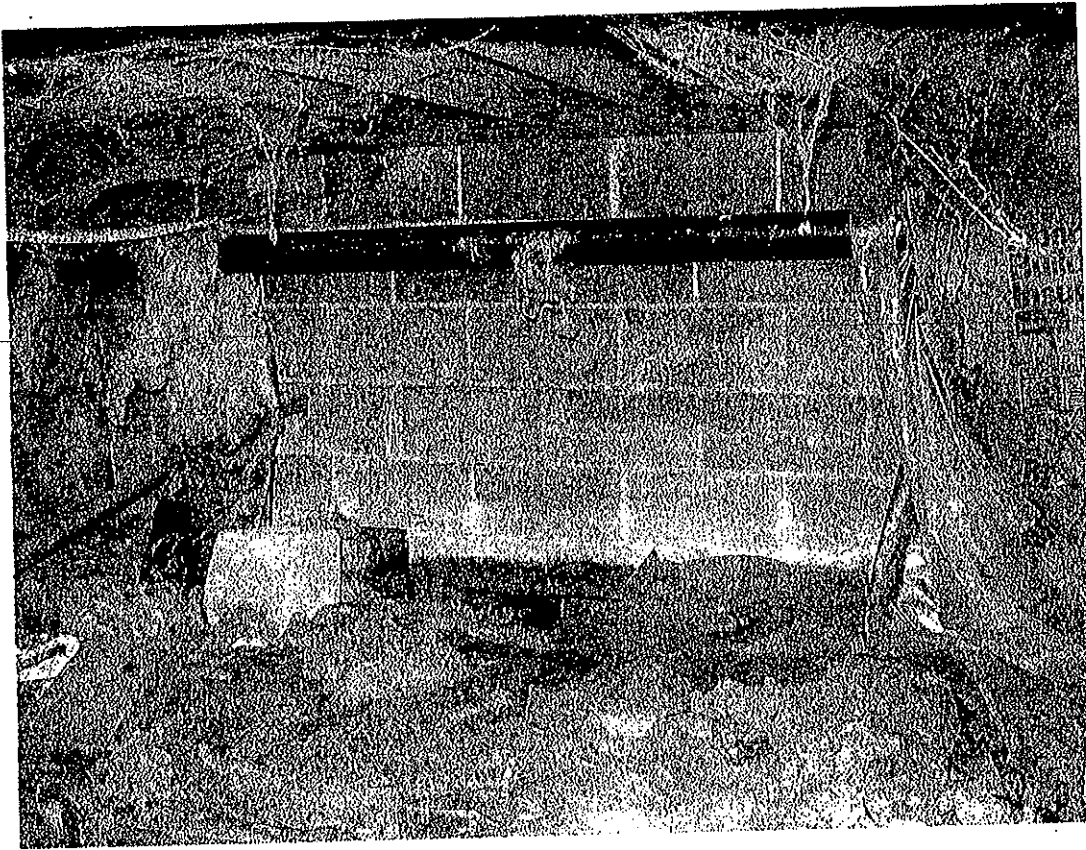


Photo 99. Crawl Space of Woodcock Lodge



Photo 100. Another View of Crawl Space of Woodcock Lodge

Photo 101. Holes in Block Cores of Firewall DO NOT Show Reinforcing Present in Wall

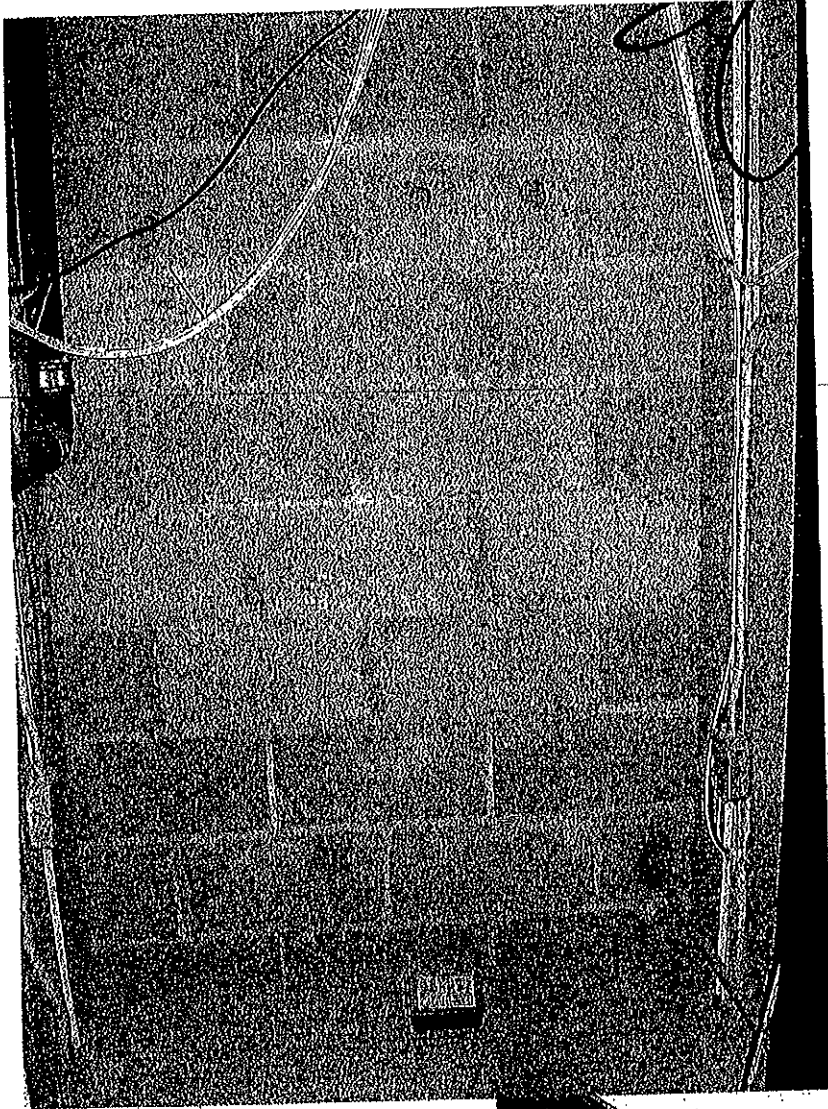
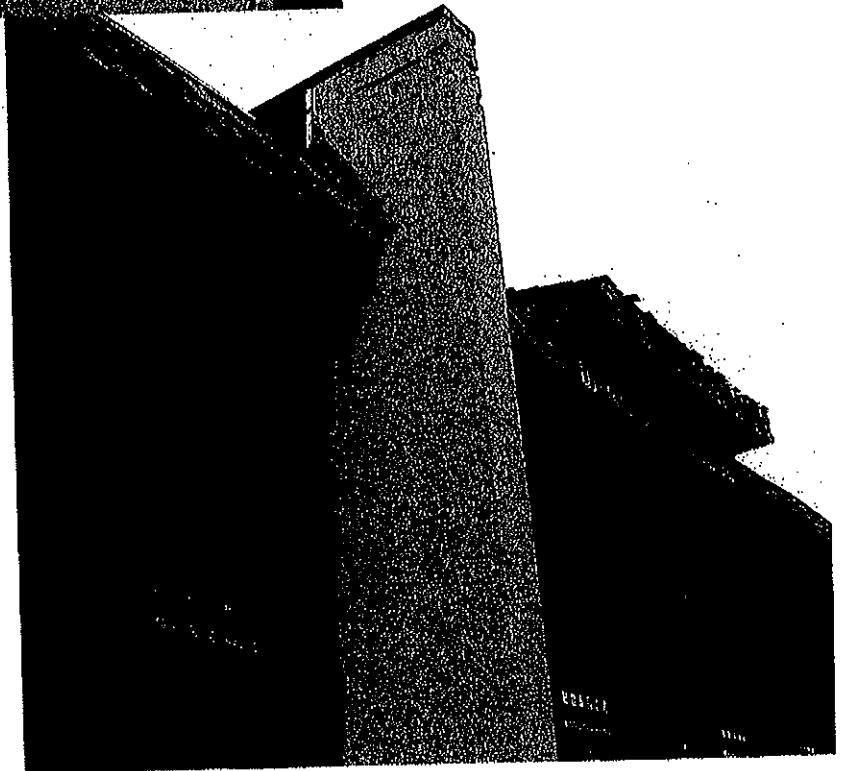


Photo 102. View of Block Firewall Pier at Woodcock Lodge



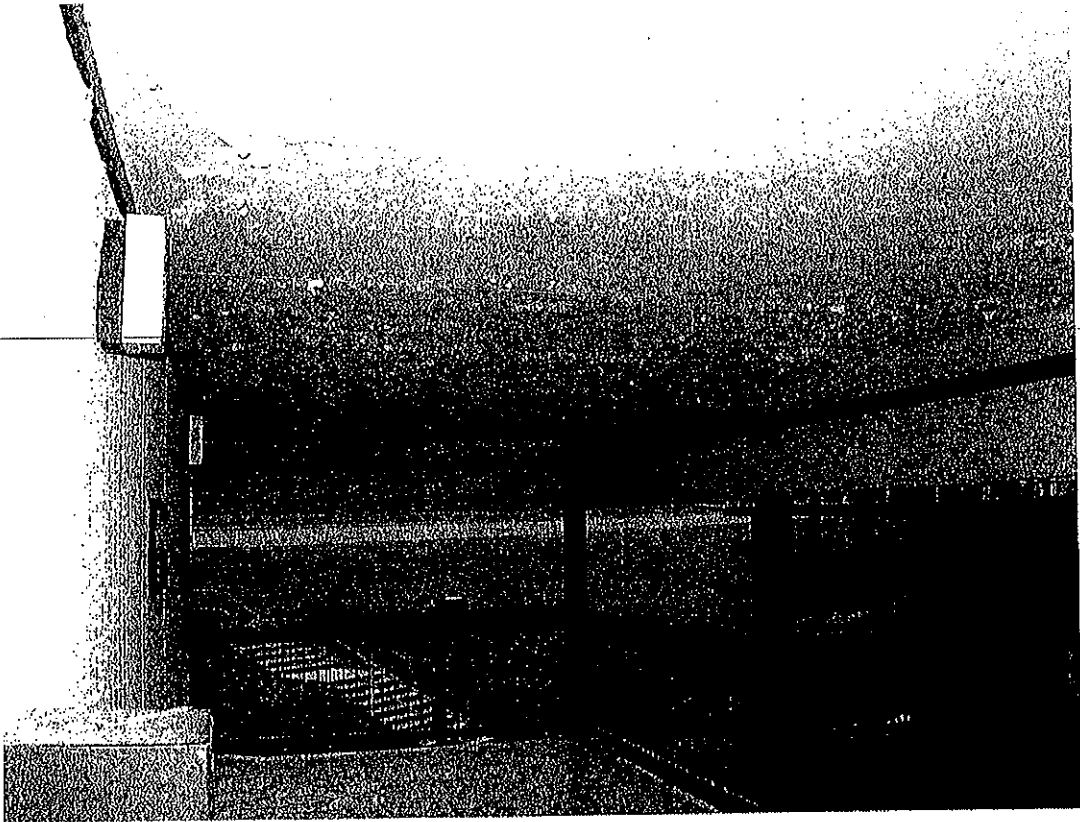


Photo 103. Peeling Paint at Soffit at Woodcock Lodge



Photo 104. Very High Threshold at Door to Unit at Woodcock Lodge

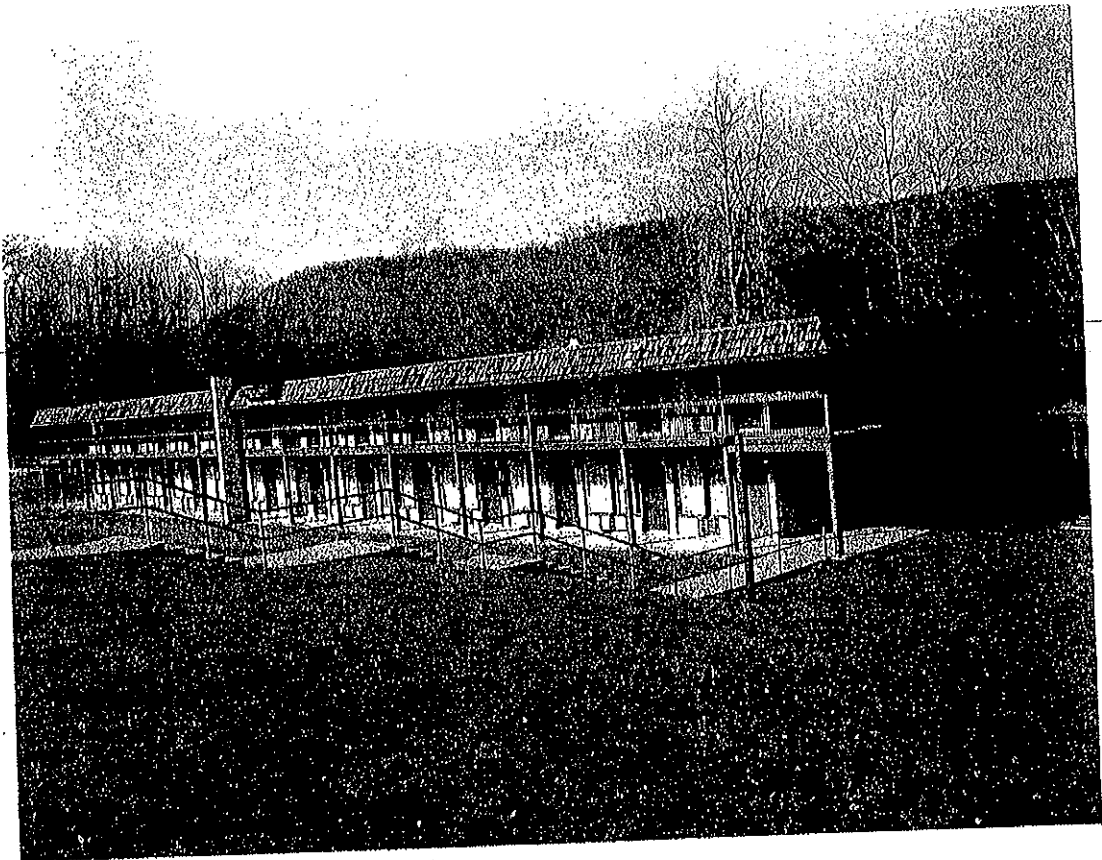


Photo 105. Overall View of Beaver Lodge

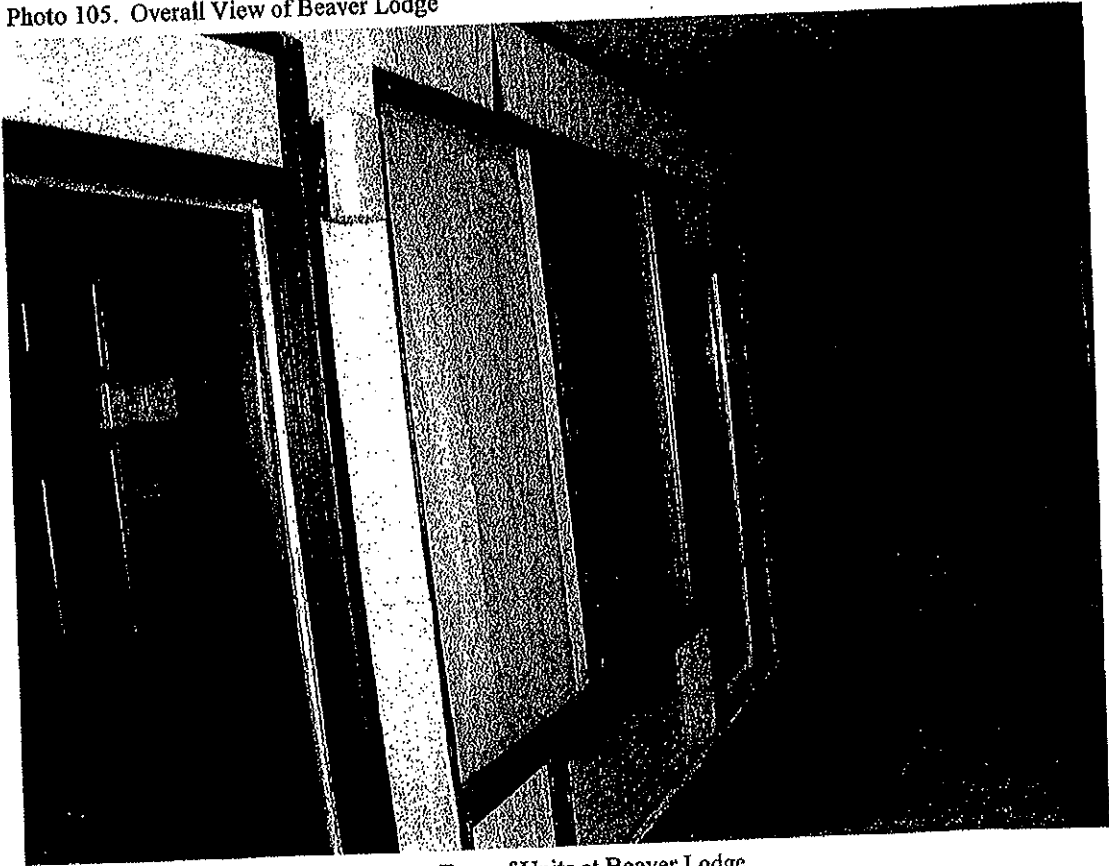


Photo 106. Extreme Rustling Present at Face of Units at Beaver Lodge



Photo 107. Rusted Structural Steel Supporting Balcony at Beaver Lodge

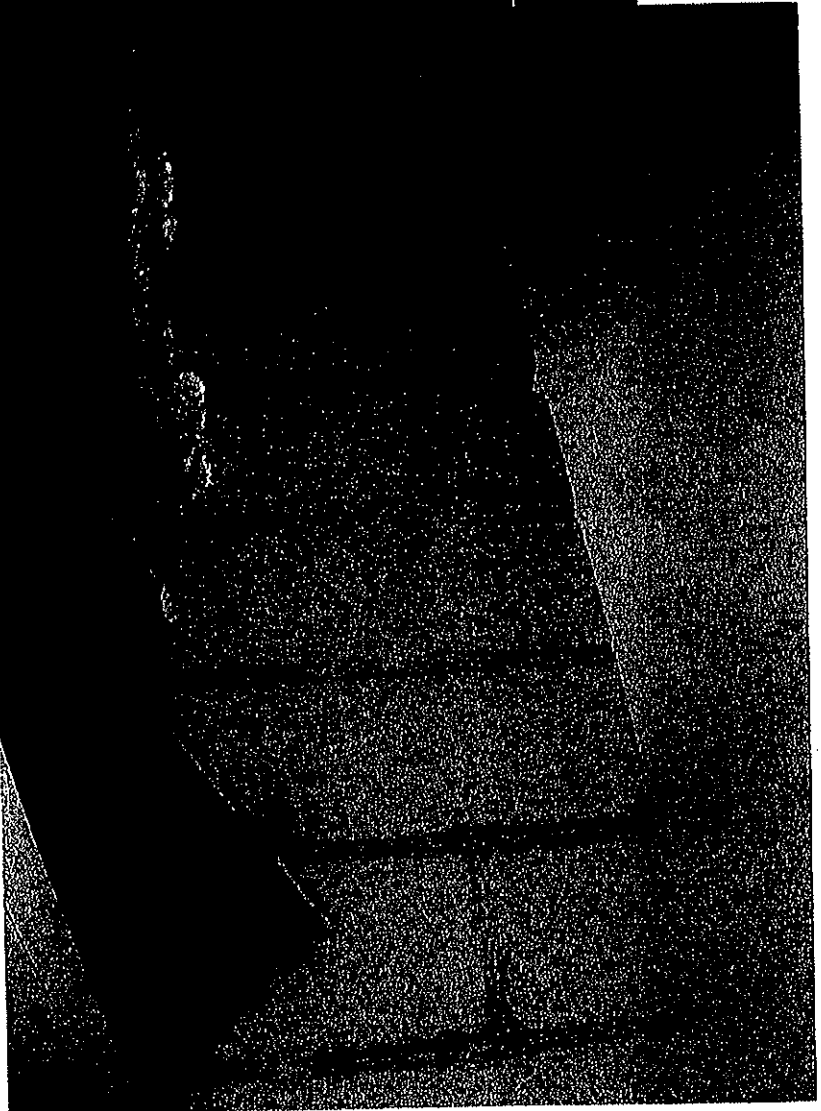


Photo 108. Deteriorated Block Firewall Pier at Beaver Lodge

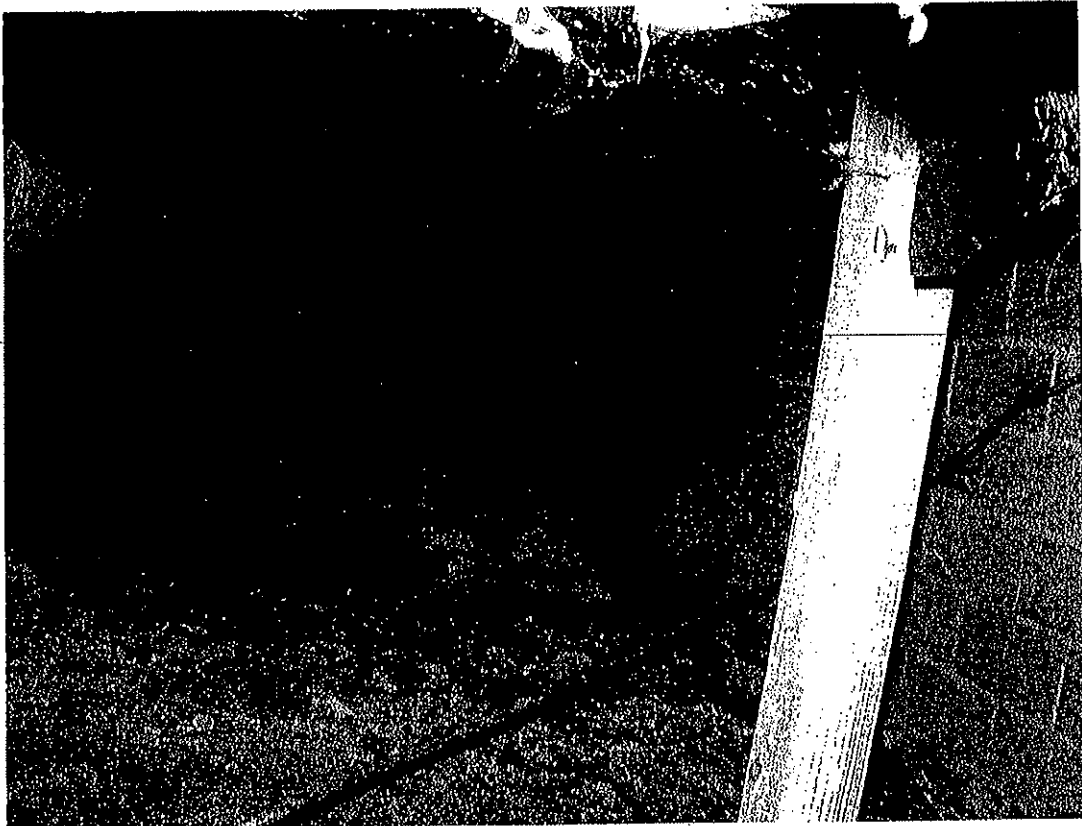


Photo 109. View of Crawl Space of Beaver Lodge

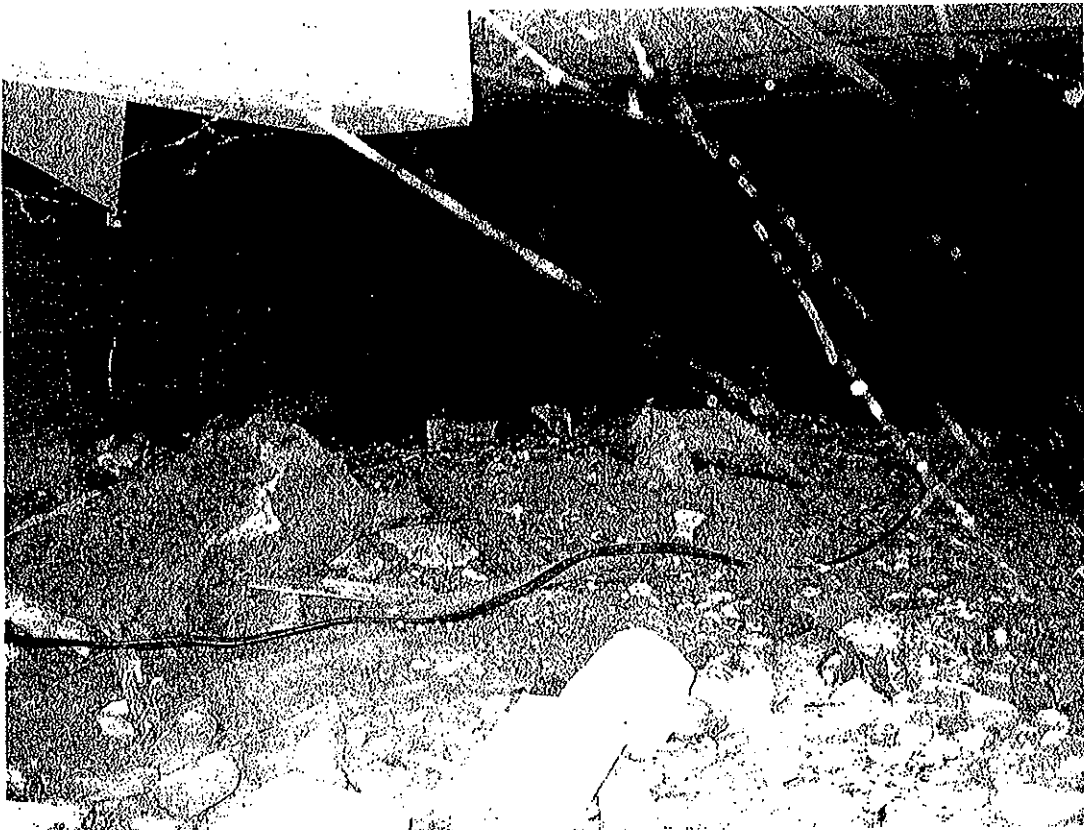


Photo 110. Another View of Crawl Space of Beaver Lodge

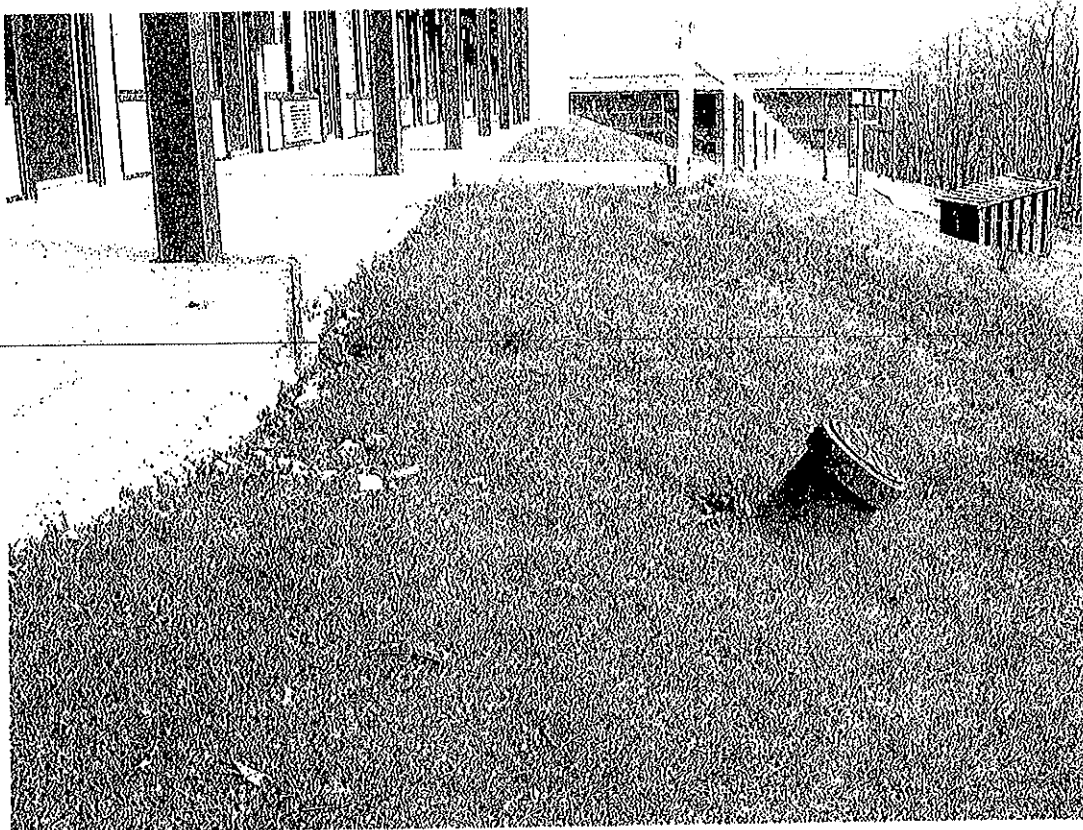


Photo 111. Water Valve Extension has Rotated



Photo 112. Exposed Gray PVC Conduit

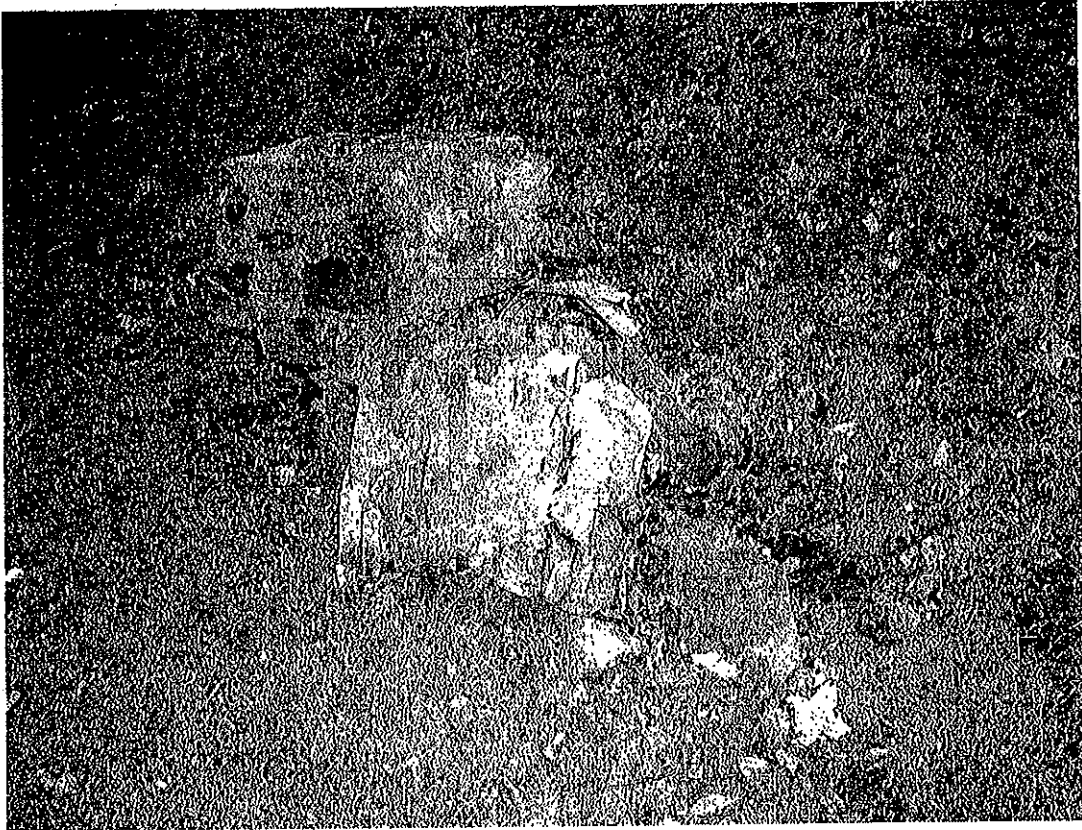
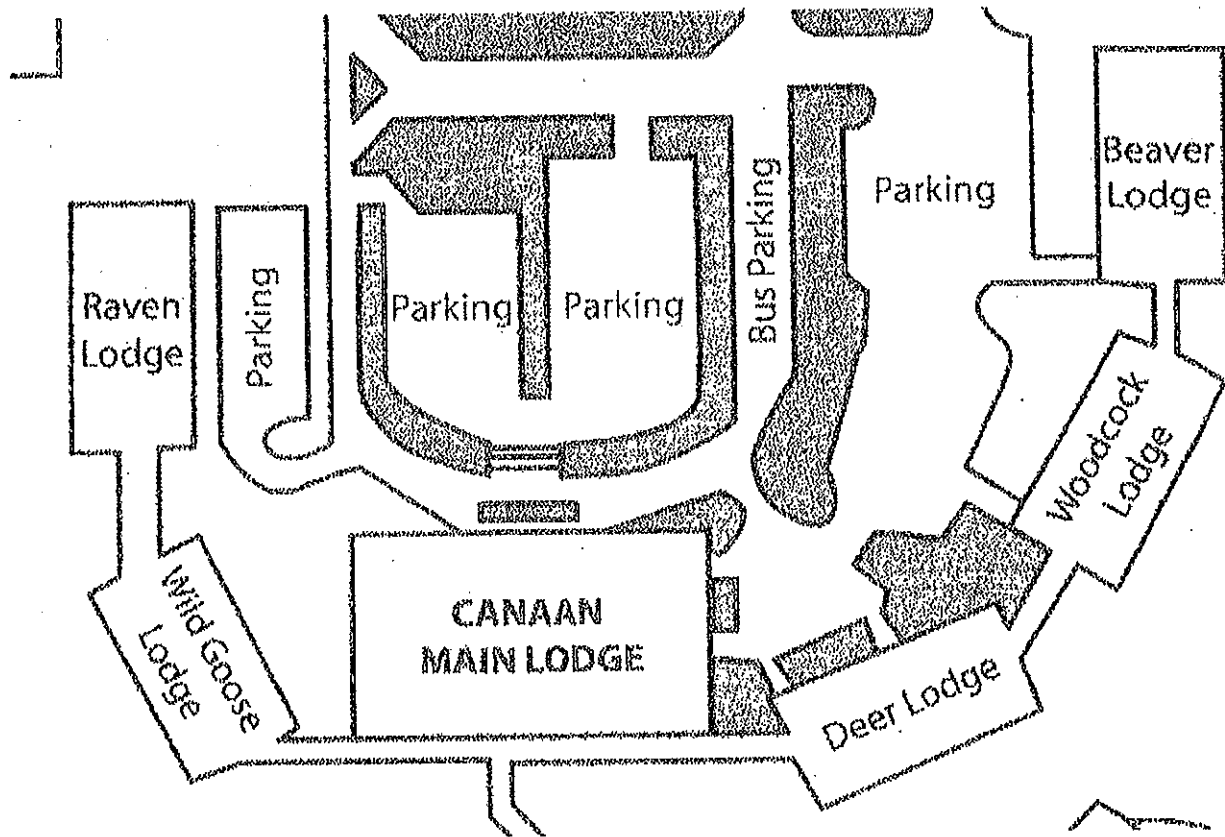


Photo 113. Damaged Headwall at Drainage Pipe

APPENDIX B

ORDER OF MAGNITUDE COST ESTIMATES



Canaan Valley Resort
-Structural Repair Recommendations-
Order of Magnitude Costs

Item	Quantity	Unit	Extension	Notes	Raven	Wild Goose
1. Additional CMU buttressing of foundation walls	31 EA	\$2,750	\$85,250	Hand excavation & footings required	X	X
2. Steel angle plaster reinforcement	6 EA	\$750	\$4,500	Install L4x4 x5/16 vertically		X
3. Deteriorated floor board capacity at bath area, remove and replace flooring	4 EA	\$3,000	\$12,000	60 SF/EA @\$50 SF Tub, toilet resetting required	X	X
4. Moisture elimination, perimeter drainage to sumps	500 LF	\$25	\$12,500	Use basement waterproofer	X	
5. New sump pumps	2 EA	\$700	\$1,400	Use basement waterproofer	X	
6. Crawl space vapor barrier replacement	170 SQ	\$25	\$4,250	Remove existing, replace with 6 mil poly	X	X
7. Delete piers, design/install Fire Retardant ends, provide railing, infill and modify roofing/coping	4 EA	\$10,250	\$41,000		X	X
8. Extend 8" PVC with 8" x 8" x 4" T to plumbed interior waterproofing/drainage system	26 EA	\$110	\$2,860	Use flex pipe for down leg to perimeter drainage	X	
9. Replace missing insulation	2,550 SF	\$3.00	\$7,650	Based upon 15% factor	X	X
10. Mold/algae identification & testing in crawl space	2 LS	\$2,500	\$5,000		X	X
11. Isolated full depth supported slab repairs	464 SF	\$65	\$30,160		X	X
12. Supported slab cracks-Underside	1800 LF	\$20	\$36,000	Inject 18 LF/room x 50 rooms	X	X
13. Supported slab cracks-Topside	900 LF	\$6.50	\$5,850	Rout/seal inject 9 LF/room x 50 rooms	X	X
14. Abandon/modify roof to column drains positively to storm lines or rip-rap	16 EA	\$1,750	\$28,000	External downspouts	X	X
15. Steps: Repair steel, support, prep for paint	4 EA	\$3,500	\$14,000		X	X
16. Replace perimeter sealants	1904 LF	\$6.50	\$12,376		X	X
17. Roof water ponding	8 EA	\$1,650	\$13,200	Supplemental drains/downspouts	X	X

January 12, 2010

Canaan Valley Resort
-Structural Repair Recommendations-
Order of Magnitude Costs

Item	Quantity	Unit	Extension	Notes	Raven	Wild Goose
18. Orthopedic steel column and Concrete repairs	6 EA	\$2,750	\$16,500		X	X
19. Small roof repair at corner tabs	2 EA	\$250	\$500	Maintenance item	X	X
20. Clean out column storm drain lines	16 EA	\$100	\$1,600	Work with #13 above	X	X
21. Dow 123 over coping butt joints	12 EA	\$25	\$300		X	X
22. Lower angle replacement; shore slab, replace inside steel angle	436 LF	\$60	\$26,160			X
23. Install outside steel angle	1012 LF	\$36.50	\$36,938		X	X
24. Wood railing replacement	144 LF	\$25	\$3,600		X	X
25. Repair bulging 4" x6" beam	2 EA	\$600	\$1,200			X
26. Walkway-Orthopedic steel and concrete repair	1 EA	\$2,500	\$2,500		-	-
27. Walkway-Painting of fascia and columns	2 LS	\$650	\$1,300		-	-
28. Add Alternate - Replacement of supported slabs	6668 SF	\$12.50	\$83,350	Accounts for isolated FD & steel repairs	X	X
Total Recommended Repairs			\$488,144			
General Conditions & Contingencies			\$ 97,629			
Total Preliminary Estimated Costs			\$585,773			

January 12, 2010

**Canaan Valley Resort
-Maintenance Items-
Order of Magnitude Costs**

Item	Quantity	Unit	Extension	Notes	Raven	Wild Goose
1. Abandon roof drain ice melt system.	16 EA	\$150	\$2,400	Permanent Lock Out-Tag Out. Remove copper lines, cap junction boxes	X	X
2. New (faux) shake on mansard roof	32 SQ	\$300	\$9,600	Includes #30 felt underlayment	X	X
3. Paint steel, T1-11 siding, soffit, fascia, ext. doors, steps. Replace warped and out of plumb siding.	2 LS	\$46,825	\$93,650		X	X
4. Correct water valve extension	1 EA	\$500	\$500		X	
5. Replace corroded wall mounted exterior light fixtures	120 EA	\$75	\$9,000		X	X
6. Exposed gray PVC conduit	1 EA	\$500	\$500	Add fill or cover	X	
7. Rework swale for positive drainage. New rip rap lined trench to and beyond culvert, repair headwall.	150 LF	\$32.50	\$4,875			X
Total Recommended Repairs			\$120,525.00			
General Conditions & Contingencies		20%	\$ 24,105.00			
Total Preliminary Estimated Costs			\$144,630.00			

January 12, 2010