

ATTACHMENT 2

ACM SURVEY REPORTS

**ASBESTOS CONTAINING BUILDING MATERIALS
SURVEY REPORT**

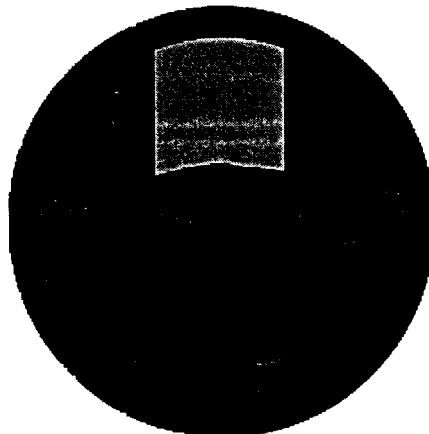
BUILDING: 51

**ASBESTOS CONTAINING BUILDING MATERIALS SURVEY
OPEN DINING FACILITY/OLD OFFICERS CLUB
BUILDING 51**

FORT McCLELLAN, ALABAMA

U.S. ARMY CONTRACT NO. DABT02-96-D-0005
DELIVERY ORDER 0005

Fort McClellan



Staying Beautiful

Conducted and Prepared by:

REISZ ENGINEERING
P.O. BOX 1349
HUNTSVILLE, ALABAMA 35807

**ASBESTOS CONTAINING BUILDING MATERIALS SURVEY
OPEN DINING FACILITY/OLD OFFICERS CLUB
BUILDING 51**

FORT McCLELLAN, ALABAMA

U.S. ARMY CONTRACT NO. DABT02-96-D-0005
DELIVERY ORDER 0005

Prepared For:

DIRECTORATE OF ENVIRONMENT
FORT McCLELLAN

APPROVED FOR TRANSMITTAL BY
JAMES R. WRIGHT

Conducted and Prepared by:

REISZ ENGINEERING

January, 1998

TABLE OF CONTENTS

1.0	PURPOSE AND SCOPE OF SERVICES.....	1
2.0	REGULATORY STANDARDS.....	2
3.0	PROJECT CHARACTERISTICS.....	3
4.0	SURVEY METHODOLOGY.....	4
5.0	LABORATORY ANALYSIS	5
6.0	SUSPECT MATERIALS.....	5
7.0	ASBESTOS INSPECTION AND SAMPLING RESULTS.....	6
	FRIABLE ACM.....	7
	NON FRIABLE ACM.....	7
	INACCESSIBLE MATERIAL.....	8
8.0	CONCLUSIONS AND RECOMMENDATIONS.....	8
9.0	ASSUMPTIONS AND LIMITATIONS.....	9

APPENDICES

APPENDIX A - REPORT OF LABORATORY ANALYSIS
APPENDIX B - SUMMARY TABLE OF ACM
APPENDIX C - SAMPLE LOCATIONS PLANS
APPENDIX D - SELECTED ACM LOCATIONS PLANS
APPENDIX E - SELECTED ACM PHOTOGRAPHS (none)

1.0 PURPOSE AND SCOPE OF SERVICES

The purpose of this survey was to locate and identify asbestos containing building materials at the Building 51 located at Fort McClellan, Alabama. Pursuant to the Contract, REISZ Engineering was required to provide the survey in accordance with AHERA (40 CFR Part 763 Subpart E) protocol. AHERA is applicable to interior building products installed prior to October 12, 1988. AHERA does not apply to the exterior of buildings and does not apply to non-building materials (e.g. cabinetry, special equipment and chalkboards). REISZ Engineering has included as part of the survey those readily accessible, suspect friable interior non-building materials (e.g. vibration dampers); but has not included certain items (e. g. interior linings of equipment and special supplies, some non-friable materials such as transite, etc.). Exterior building materials were not sampled as part of this contract unless those materials were suspected to be of friable nature and continuous with indoor materials (e.g. piping insulation). Specifically, REISZ Engineering was contracted to provide the following services:

1. Identify and collect samples of accessible suspect friable building materials within the referenced project area.
2. Perform a visual inspection to provide information on material condition, material quantities, material locations, and building use.
3. Analysis of all bulk samples for asbestos content utilizing Polarized Light Microscopy and Dispersion Staining Techniques performed in accordance with EPA Bulk Analysis Method
EPA 600/M4-82-020.
4. Make recommendations as to response actions pertaining to those materials identified as asbestos containing.

5. Compilation of a final report (contained herein) which details all sample results, identifies sample locations, and provides recommendations based upon the results.
6. Preparation of a Building specific Operations & Maintenance (O&M) Plan for buildings containing friable asbestos materials.

2.0 REGULATORY STANDARDS

The National Emissions Standards for Hazardous Air Pollutants (NESHAP) requires the Owner or Operator of a facility to determine the presence or non-presence of asbestos containing materials prior to conducting renovation or demolition activities. The NESHAP Standard for asbestos (40CFR Part 61 Sub-part M) requires the use of engineered control procedures for removal of asbestos materials that are or will become friable during renovation or demolition. The removal must occur before renovation or demolition activities impact those materials.

On October 11, 1994 an OSHA promulgated regulation (29 CFR Part 1926.1101) became effective. This Standard is related to asbestos exposure in construction, renovation and building maintenance work places. Building owners are required, pursuant to the Standard, to notify employees, tenants and prospective employers (contractors) of the presence, location and quantities of ACM in the building. Implementation of the "communication of hazards" provisions in the Standard were originally to be not later than April 10, 1995 but was extended to July 10, 1995 and is now in effect. The OSHA Standard does not apply to work performed by employees of State agencies in states without state run OSHA programs (e.g. Alabama).

In October 1986, the Asbestos Hazard Emergency Response Act (AHERA) was signed into law. Included in this act are provisions directing E.P.A. to establish rules and regulations

(40CFR Part 763) addressing asbestos-containing materials in schools. Specifically, the E.P.A. was directed to address the issues of: 1) identifying, 2) evaluating and 3) controlling asbestos containing materials (ACM) in schools. AHERA requires schools to perform building inspections and to prepare management plans for ACM control. Although the AHERA regulation does not specifically apply to this project it is generally accepted as the industry standard and was cited by Fort McClellan in the Asbestos Survey Request as the basis of survey methodology. The AHERA inspections must be conducted using specific guidelines, which include a minimum number of samples per material type. This survey was conducted in accordance with those guidelines per the Contract requirements.

On November 28, 1992 a law became effective which extended the EPA's Model Accreditation Plan to all public and commercial buildings. Currently the rule extends the accreditation requirements of persons performing asbestos work (inspectors, project designers, abatement supervisors, and workers) in public and commercial buildings, but does not extend the other aspects of AHERA. This project was conducted utilizing EPA accredited personnel.

3.0 PROJECT CHARACTERISTICS

During the month of May 1997, Reisz Engineering accredited Asbestos Inspectors performed inspections of Building 51 for the purpose of identifying building materials suspected to contain asbestos. Building 51 is an Open Dining /Officers Club facility comprised of a ground level floor and a basement containing approximately 22,500 sq. ft. of floor space. Based on information provided by Fort McClellan representatives, the building was originally constructed in 1954. Various renovations have no doubt taken place since the building was originally constructed but no building plans have been found that could be used to verify specific dates.

The majority of interior walls are constructed of either concrete block or wallboard. Ceilings for the most part are lay-in acoustical composition tile. The dominant flooring

conditions existing in the facility are 1) vinyl floor tile, 2) parquet wood, 3) brick tile, and 4) ceramic tile.

4.0 SURVEY METHODOLOGY

The building was visually inspected for the presence of material suspected to contain asbestos. Those suspect materials were identified, bulk samples were obtained and placed into individual vials for transportation to the University of Alabama in Huntsville. General areas for sample locations were selected on a random basis with a preference for exact positioning at existing damage. A number on the plans in Appendix C represents each sample location. Those numbers directly correspond with the numbers listed elsewhere in this report.

If any additional suspect materials are identified during renovation or demolition they should be analyzed for asbestos content. Materials visibly identifiable as non-asbestos (fiberglass, foam rubber, wood, etc.) were not sampled. Materials installed after October 12, 1988 (as reported by Fort McClellan staff) were not sampled.

Hazard Assessment Factors

Each time suspect ACM was sampled, it was classified as either a friable or a non-friable material. Friable material may be crumbled, pulverized, or reduced to powder by hand pressure. Friable ACM is more hazardous than non-friable ACM because friable material can release airborne asbestos fibers more easily. In assessing the fiber release potential, the current condition of all ACM identified was noted. Evidence of deterioration, physical damage, water

damage, erosion of ACM due to its' proximity to an air plenum, high vibration, or contact potential was also noted.

5.0 LABORATORY ANALYSIS METHODOLOGY

All bulk samples were analyzed at UAH by polarized light microscopy utilizing dispersion staining or Becke line techniques, in accordance with the EPA's "Interim Method for Determination of Asbestos in Bulk Insulation Samples" (EPA 600/m4-82-020). Quality control samples were taken as duplicates at a rate of 1 to 10 and were sent to a second accredited laboratory. This type of analysis requires the microscopist to take a portion of the bulk sample and treat it with oil of specific refractive index. This prepared slide is then subjected to a variety of optical tests.

Each type of asbestos displays unique characteristics when subjected to these tests. Percentages of the identified types of asbestos are determined by visual estimation. Even though this is an estimation, any material that contains greater than one percent of any type of fibrous asbestos is considered ACM and must be handled according to OSHA and EPA regulations if disturbed during maintenance, renovation, demolition or removal.

The UAH laboratory participates in the American Industrial Hygiene Association (AIHA) quality assurance program for polarized light microscopy and is accredited by the AIHA through their voluntary program.

6.0 SUSPECT MATERIALS

The following is a general list of building materials that were suspected to contain asbestos. A complete and more detailed description of these substances can be found in Appendix B.

Surfacing

- None

Thermal System Insulation

- Boiler insulation

Miscellaneous Material

- Vinyl floor tiles 12x12
- Vinyl flooring mastics
- Parquet wood floor mastic

7.0 ASBESTOS INSPECTION AND SAMPLING RESULTS

A total of 3 bulk sample was collected and analyzed. Details of all laboratory results can be found in Appendix A. A listing of all **suspect** materials, their corresponding sample numbers, general location, and asbestos content are indicated in Appendix B. A narrative description of all "Friable Asbestos Containing Material" and "Non-Friable ACM" identified during the survey, is given below.

FRIABLE ACM

A friable asbestos containing insulation was found to be present on the boiler located in the basement of Building 51

NON FRIABLE ACM

No friable asbestos containing materials were found to be present in Building 51 by laboratory testing. However, 12x12 in. floor tile found in the basement of the building that was not sampled and is **assumed** to be ACM.

- 1) 12x12 in. asbestos containing vinyl floor tile is found covering the floor in approximately half of the basement in Building 51.
- 2) A black asbestos containing mastic is found under the existing vinyl floor tile.

INACCESSIBLE MATERIAL,

Insulation and spray-on compounds associated with inaccessible crawl space and tunnel areas should be assumed as “like” materials corresponding to materials sampled within the building.

8.0 CONCLUSIONS AND RECOMMENDATIONS

None of the materials identified within this report are damaged to the extent that significant asbestos fiber release may be likely under normal conditions and some of the asbestos containing materials, are subject to routine maintenance activities that could involve significant

disturbance. Reisz Engineering has written a Building Operations & Maintenance Plan for Building 51 and we suggest that recommendations included in this plan be followed.

9.0 ASSUMPTIONS AND LIMITATIONS

The results, findings, conclusions and recommendations expressed in this report are based only on conditions that were observed during the inspections of Building 51 during May 1997. Reisz Engineering and this report make no representation or assumptions as to past conditions or future occurrences.

Our inspection was generally non-destructive in nature. Any conditions or material that were not visible on the surface were not inspected and may differ from those observed. It was not within the scope of this investigation to remove surface materials to investigate portions of the structure or materials that lay beneath the surface. Our selection of sample locations and frequency is based upon our observations and the assumption that all materials in the same area are homogeneous.

This report is designed to aid the building owner, architect, construction manager, general contractors, and potential asbestos abatement contractors in locating ACM. Under no circumstances is this report to be utilized as a bidding document or as a project specification document.

APPENDIX A

REPORT OF LABORATORY ANALYSIS FOR ASBESTOS

APPENDIX B

ASBESTOS CONTAINING MATERIALS

**SUMMARY TABLE
ASBESTOS CONTAINING MATERIALS
OPEN DINING FACILITY/OLD OFFICERS CLUB
BUILDING 51
FORT McCLELLAN, ALABAMA**

SAMPLE #(S)	Description of Materials	General Location of Material	Quantity (approx.)
B51-03	Boiler Insulation	Basement Boiler Rm.	100 sq. ft.

APPENDIX C

SAMPLE LOCATIONS PLANS

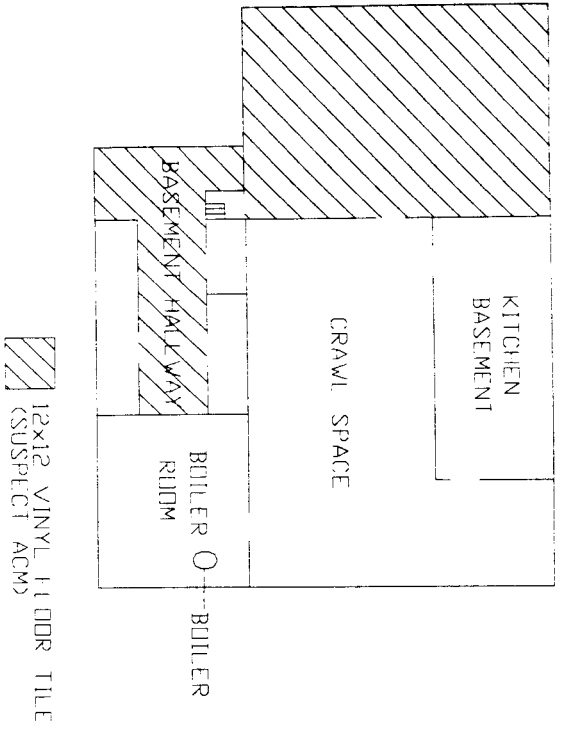


FIG. 1

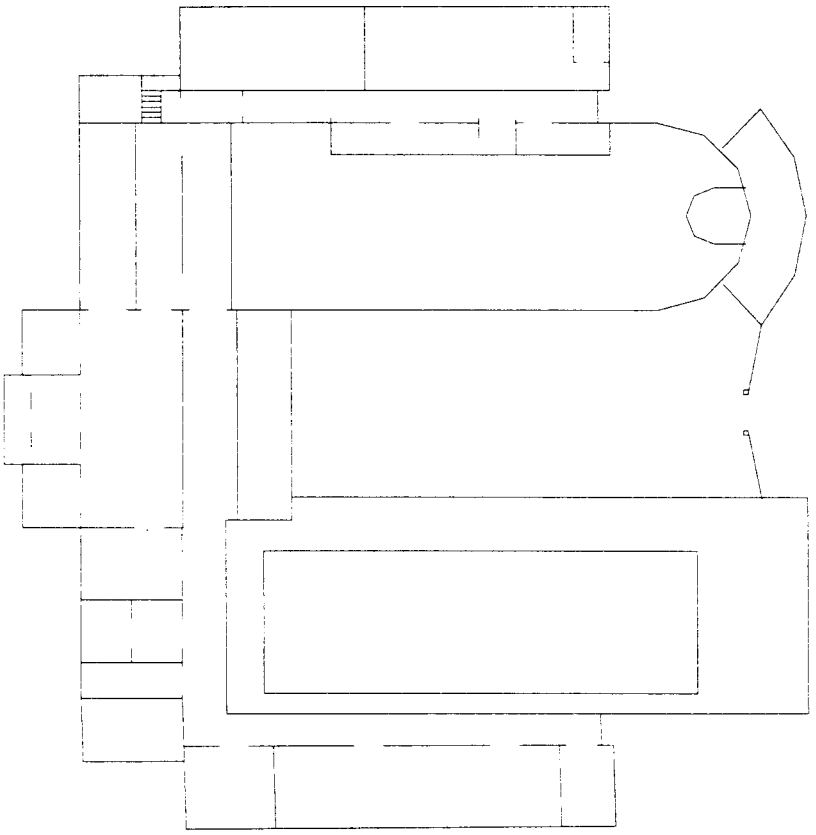


FIG. 2

BUILDING: 51

FIG. 1 BASEMENT PLAN
FIG. 2 FIRST FLOOR

ASBESTOS SURVEY
DAB102-96 D-0005
FM/05

REISZ ENGINEERING

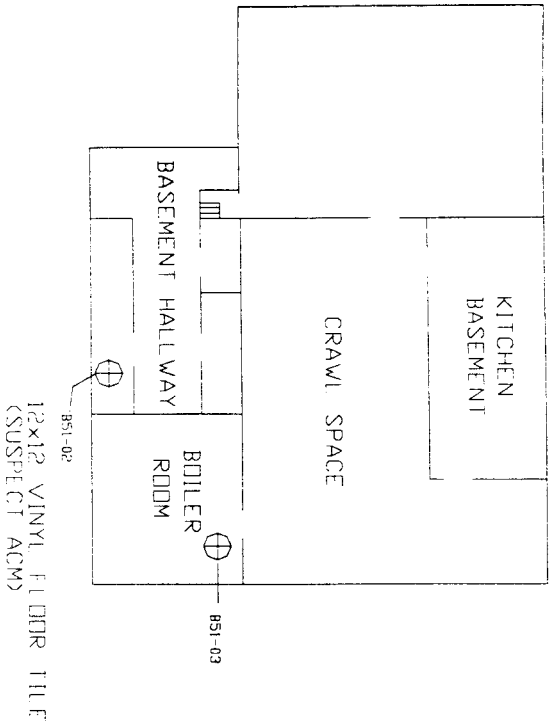


FIG. 1

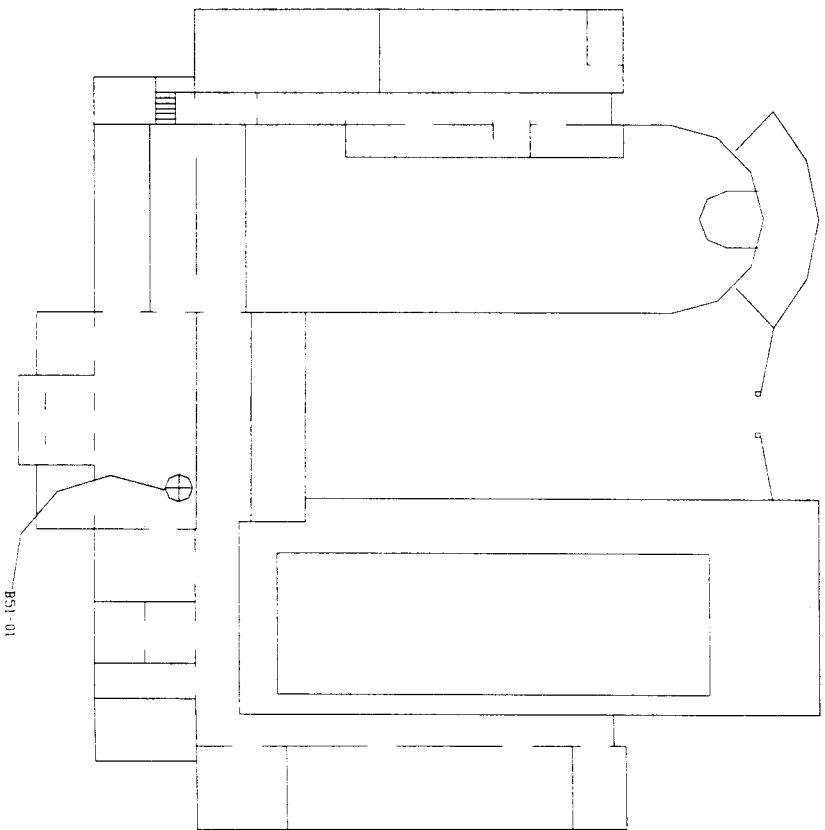


FIG. 2

BUILDING: 51

FIG. 1 BASEMENT PLAN

FIG. 2 FIRST FLOOR

ASBESTOS SURVEY
DAB102-96-D-0005
FM705

REISZ ENGINEERING

APPENDIX D

SELECTED ACM LOCATION PLANS

APPENDIX E

SELECTED ACM PHOTOGRAPHS

**ASBESTOS CONTAINING BUILDING MATERIALS
SURVEY REPORT**

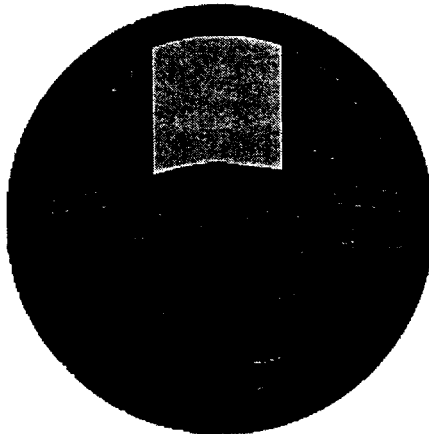
BUILDING: 61

**ASBESTOS CONTAINING BUILDING MATERIALS SURVEY
COMMAND HEADQUARTERS
BUILDING 61**

FORT McCLELLAN, ALABAMA

U.S. ARMY CONTRACT NO. DABT02-96-D-0005
DELIVERY ORDER 0005

Fort McClellan



Staying Beautiful

Conducted and Prepared by:

REISZ ENGINEERING
P.O. BOX 1349

HUNTSVILLE, ALABAMA 35807
ASBESTOS CONTAINING BUILDING MATERIALS SURVEY
COMMAND HEADQUARTERS
BUILDING 61

FORT McCLELLAN, ALABAMA

U.S. ARMY CONTRACT NO. DABT02-96-D-0005
DELIVERY ORDER 0005

Prepared For:

DIRECTORATE OF ENVIRONMENT
FORT McCLELLAN

APPROVED FOR TRANSMITTAL BY
JAMES R. WRIGHT

Conducted and Prepared by:

REISZ ENGINEERING

April, 1998

TABLE OF CONTENTS

1.0	PURPOSE AND SCOPE OF SERVICES.....	1
2.0	REGULATORY STANDARDS.....	2
3.0	PROJECT CHARACTERISTICS.....	3
4.0	SURVEY METHODOLOGY.....	4
5.0	LABORATORY ANALYSIS	5
6.0	SUSPECT MATERIALS.....	5
7.0	ASBESTOS INSPECTION AND SAMPLING RESULTS.....	6
	FRIABLE ACM.....	7
	NON FRIABLE ACM.....	7
	INACCESSIBLE MATERIAL.....	8
8.0	CONCLUSIONS AND RECOMMENDATIONS.....	8
9.0	ASSUMPTIONS AND LIMITATIONS.....	9

APPENDICES

- APPENDIX A - REPORT OF LABORATORY ANALYSIS
- APPENDIX B - SUMMARY TABLE OF ACM
- APPENDIX C - SAMPLE LOCATIONS PLANS
- APPENDIX D - SELECTED ACM LOCATIONS PLANS
- APPENDIX E - SELECTED ACM PHOTOGRAPHS

1.0 PURPOSE AND SCOPE OF SERVICES

The purpose of this survey was to locate and identify asbestos containing building materials at Building 61, Command Headquarters, located at Fort McClellan, Alabama. Pursuant to the Contract, REISZ Engineering was required to provide the survey in accordance with AHERA (40 CFR Part 763 Subpart E) protocol. AHERA is applicable to interior building products installed prior to October 12, 1988. AHERA does not apply to the exterior of buildings and does not apply to non-building materials (e.g. cabinetry, special equipment and chalkboards). REISZ Engineering has included as part of the survey those readily accessible, suspect friable interior non-building materials (e.g. vibration dampers); but has not included certain items (e. g. interior linings of equipment and special supplies, some non-friable materials such as transite, etc.). Exterior building materials were not sampled as part of this contract unless those materials were suspected to be of friable nature and continuous with indoor materials (e.g. piping insulation). Specifically, REISZ Engineering was contracted to provide the following services:

1. Identify and collect samples of accessible suspect friable building materials within the referenced project area.
2. Perform a visual inspection to provide information on material condition, material quantities, material locations, and building use.
3. Analysis of all bulk samples for asbestos content utilizing Polarized Light Microscopy and Dispersion Staining Techniques performed in accordance with EPA Bulk Analysis Method
EPA 600/M4-82-020.
4. Make recommendations as to response actions pertaining to those materials identified as asbestos containing.

5. Compilation of a final report (contained herein) which details all sample results, identifies sample locations, and provides recommendations based upon the results.
6. Preparation of a Building specific Operations & Maintenance (O&M) Plan for buildings containing friable asbestos materials.

2.0 REGULATORY STANDARDS

The National Emissions Standards for Hazardous Air Pollutants (NESHAP) requires the Owner or Operator of a facility to determine the presence or non-presence of asbestos containing materials prior to conducting renovation or demolition activities. The NESHAP Standard for asbestos (40CFR Part 61 Sub-part M) requires the use of engineered control procedures for removal of asbestos materials that are or will become friable during renovation or demolition. The removal must occur before renovation or demolition activities impact those materials.

On October 11, 1994 an OSHA promulgated regulation (29 CFR Part 1926.1101) became effective. This Standard is related to asbestos exposure in construction, renovation and building maintenance work places. Building owners are required, pursuant to the Standard, to notify employees, tenants and prospective employers (contractors) of the presence, location and quantities of ACM in the building. Implementation of the "communication of hazards" provisions in the Standard were originally to be not later than April 10, 1995 but was extended to July 10, 1995 and is now in effect. The OSHA Standard does not apply to work performed by employees of State agencies in states without state run OSHA programs (e.g. Alabama).

In October 1986, the Asbestos Hazard Emergency Response Act (AHERA) was signed into law. Included in this act are provisions directing E.P.A. to establish rules and regulations

(40CFR Part 763) addressing asbestos-containing materials in schools. Specifically, the E.P.A. was directed to address the issues of: 1) identifying, 2) evaluating, and 3) controlling asbestos containing materials (ACM) in schools. AHERA requires schools to perform building inspections and to prepare management plans for ACM control. Although the AHERA regulation does not specifically apply to this project it is generally accepted as the industry standard and was cited by Fort McClellan in the Asbestos Survey Request as the basis of survey methodology. The AHERA inspections must be conducted using specific guidelines that include a minimum number of samples per material type. This survey was conducted in accordance with those guidelines per the Contract requirements.

On November 28, 1992 a law became effective which extended the EPA's Model Accreditation Plan to all public and commercial buildings. Currently the rule extends the accreditation requirements of persons performing asbestos work (inspectors, project designers, abatement supervisors, and workers) in public and commercial buildings, but does not extend the other aspects of AHERA. This project was conducted utilizing EPA accredited personnel.

3.0 PROJECT CHARACTERISTICS

During the month of October 1997, Reisz Engineering accredited Asbestos Inspectors performed inspections of Building 61 for the purpose of identifying building materials suspected to contain asbestos. Building 61 serves as Command Headquarters and is comprised of two floors containing approximately 8,862 sq. ft. of floor space. Based on information provided by Fort McClellan representatives the building was originally constructed in 1936. Various renovations have no doubt taken place since the building was originally constructed but no building plans have been found which can be used to verify specific dates and activities.

The exterior and structure of the building is composed of concrete/stucco. The majority of the interior walls are constructed of concrete and gypsum board partitions. Ceilings for the most part are lay-in acoustical composition tile systems. The two dominant flooring conditions existing in the facility are 1) carpet, and 2) vinyl floor tile. Also, carpet has been installed over vinyl tiles in many locations. The building was found to contain a crawlspace area where the building's piping is located.

4.0 SURVEY METHODOLOGY

The building was visually inspected for the presence of material suspected to contain asbestos. Those suspect materials were identified, bulk samples were obtained and placed into individual vials for transportation to the University of Alabama in Huntsville. General areas for sample locations were selected on a random basis with a preference for exact positioning at existing damage. Each sample location is represented by a number on the plans in Appendix C. Those numbers directly correspond with the numbers listed elsewhere in this report.

If any additional suspect materials are identified during renovation or demolition they should be analyzed for asbestos content. Materials visibly identifiable as non-asbestos (fiberglass, foam rubber, wood, etc.) were not sampled. Materials installed after October 12, 1988 (as reported by Fort McClellan staff) were not sampled.

Hazard Assessment Factors

Each time suspect ACM was sampled, it was classified as either a friable or a non-friable material. Friable material may be crumbled, pulverized, or reduced to powder by hand pressure. Friable ACM is more hazardous than non-friable ACM because friable material can release airborne asbestos fibers more easily. In assessing the fiber release potential, the current

condition of all ACM identified was noted. Evidence of deterioration, physical damage, water damage, erosion of ACM due to its' proximity to an air plenum, high vibration, or contact potential was also noted.

5.0 LABORATORY ANALYSIS METHODOLOGY

All bulk samples were analyzed at UAH by polarized light microscopy utilizing dispersion staining or Becke line techniques, in accordance with the EPA's "Interim Method for Determination of Asbestos in Bulk Insulation Samples" (EPA 600/m4-82-020). Quality control samples were taken as duplicates at a rate of 1 to 10 and were sent to a second accredited laboratory. This type of analysis requires the microscopist to take a portion of the bulk sample and treat it with an oil of specific refractive index. This prepared slide is then subjected to a variety of optical tests.

Each type of asbestos displays unique characteristics when subjected to these tests. Percentages of the identified types of asbestos are determined by visual estimation. Even though this is an estimation, any material that contains greater than one percent of any type of fibrous asbestos is considered ACM and must be handled according to OSHA and EPA regulations if disturbed during maintenance, renovation, demolition or removal.

The UAH laboratory participates in the American Industrial Hygiene Association (AIHA) quality assurance program for polarized light microscopy and is accredited by the AIHA through their voluntary program.

6.0 SUSPECT MATERIALS

The following is a general list of building materials that were suspected to contain asbestos. A complete and more detailed description of these substances can be found in Appendix B.

Surfacing

- None

Thermal System Insulation

- Brown paper-like pipe insulation (straight-runs)
- Cementitious hand-formed pipe fitting insulation

Miscellaneous Material

- Vinyl floor tile, 9X9 inch
- Vinyl flooring mastics

7.0 ASBESTOS INSPECTION AND SAMPLING RESULTS

A total of 10 bulk samples were collected and analyzed. Details of all laboratory results can be found in Appendix A. A listing of all suspect materials, their corresponding sample numbers, general location, and approximate quantity are indicated in Appendix B. A narrative description of all "Friable Asbestos Containing Material" and "Non-Friable ACM" identified during the survey, is given below.

FRIABLE ACM

Laboratory analysis determined asbestos is present in two types of friable materials: 1) cementitious hand-formed pipe fitting insulation, and 2) a brown paper-like insulation on some piping straight-runs located in the crawlspace.

- 1) A friable hand-formed, asbestos containing insulation compound is applied to the fittings of pipes located in the crawlspace of the building. This material was originally wrapped with a brown paper-like insulation but in many cases the wrapping has deteriorated. The material was found to be in generally Good to Fair condition.
- 2) A brown, paper-like, asbestos containing friable insulation compound is found on the straight runs of some pipes located in the crawlspace. The insulation is found to be in generally Good to Fair condition.

NON FRIABLE ACM

Two types of non-friable ACM's were identified by laboratory testing as follows: 1) vinyl floor tile, 9x9, and 2) mastics associated with vinyl floor tile.

- 1) Asbestos containing vinyl floor tiles in 9x9 inch size are present in various locations scattered throughout the majority of the building with a large amount covered by carpet. Generally, the tiles were found to be in Good condition.
- 2) Black, asbestos containing mastics are present below various vinyl floor tiles throughout the building.

INACCESSIBLE MATERIAL,

Insulation and spray-on compounds associated with inaccessible crawlspace and tunnel areas should be assumed as "like" materials corresponding to materials sampled within the building.

8.0 CONCLUSIONS AND RECOMMENDATIONS

None of the materials identified within this report are damaged to the extent that significant asbestos fiber release may be likely under normal conditions. However, some of the asbestos containing materials are subject to routine maintenance activities that could involve significant disturbance. Those materials include the pipe fitting and straight-run insulation located in the crawlspace. Based upon the aforementioned conditions, abatement of asbestos containing materials in the crawl-space area should be considered. Proper management of the material in-place may be acceptable assuming the proper precautions are taken to eliminate exposure of personnel to any airborne asbestos. Reisz Engineering has written a Building Operations & Maintenance Plan for Building 61 and we suggest that recommendations included in this plan be followed.

9.0 ASSUMPTIONS AND LIMITATIONS

The results, findings, conclusions and recommendations expressed in this report are based only on conditions that were observed during the inspections of Building 61 during October, 1997. Reisz Engineering and this report make no representation or assumptions as to past conditions or future occurrences.

Our inspection was generally non-destructive in nature. Any conditions or materials that were not visible on the surface were not inspected and may differ from those observed. It was not within the scope of this investigation to remove surface materials to investigate portions of the structure or materials that lay beneath the surface. Our selection of sample locations and frequency is based upon our observations and the assumption that all materials in the same area are homogeneous.

This report is designed to aid the building owner, architect, construction manager, general contractors, and potential asbestos abatement contractors in locating ACM. Under no circumstances is this report to be utilized as a bidding document or as a project specification document.

APPENDIX A

REPORT OF LABORATORY ANALYSIS FOR ASBESTOS

UAH

Environmental Laboratory The University of Alabama in Huntsville Huntsville, Alabama 35899
Kenneth E. Johnson Research Phone: (205) 890-6391
Center Fax: (205) 890-6376

Re : Bulk Asbestos
Analysis EPA
600/R-93/116
AIHA: 023601

Receipt Date: 11/06/97

Sample Date : 10/17/97

Microscopist: Tom Carrington

Client: Reisz Engineering
Building 32 Suite, A2
3322 Memorial Parkway South
Huntsville, AL 35801

Sample/Description	Asbestos Fibers (%)			Non-Asbestos Material (%)		
	Chry	Amos	Croc Othr	Cell	Fbgl	MW CaSO4 Othr
B61-01/ Brown paper insul.		5		85		10
B61-02/ Brown paper insul		10		85		5
1-03/ Brown paper insul		8		85		7
B61-04/ Brown paper insul.		12		78		10
B61-05/ Elbow putty insul.		30				25
B61-06/ Brown paper insul.		60		30		10
B61-07/ Brown paper insul.		10		85		5
B61-08/ Elbow putty insul.		60				40
B61-09/ Brown paper insul.		7		85		8
B61-10/ Elbow putty insul.		40		40		20

ry = Chrysotile
Amos = Amosite
Croc = Crocidolite

Othr = Other
Cell = Cellulose

MW = Mineral Wool
Ca S04 = Calcium Sulfate
Fbgl = Fiberglass

APPENDIX B

ASBESTOS CONTAINING MATERIALS

SUMMARY TABLE
ASBESTOS CONTAINING MATERIALS
Command Headquarters
BUILDING 61
FORT McCLELLAN, ALABAMA

SAMPLE #(S)	Description of Materials	General Location of Material	Quantity (approx.)
B61-01,02,03, 04,06,07,09	White/Gray Cementitious Pipe Fittings (mud)	Crawlspace	20 Fittings
B61-05,08,10	Brown Paper-like Pipe Insulation (straight-runs)	Crawlspace	400 Linear feet

APPENDIX C

SAMPLE LOCATIONS PLANS

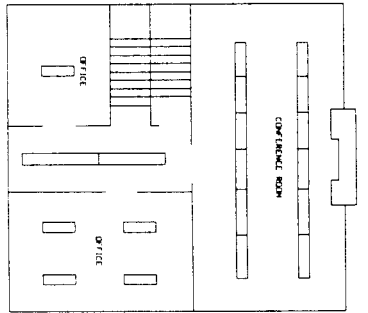


FIG. 1

SECOND FLOOR

SCALE: 1"=20'

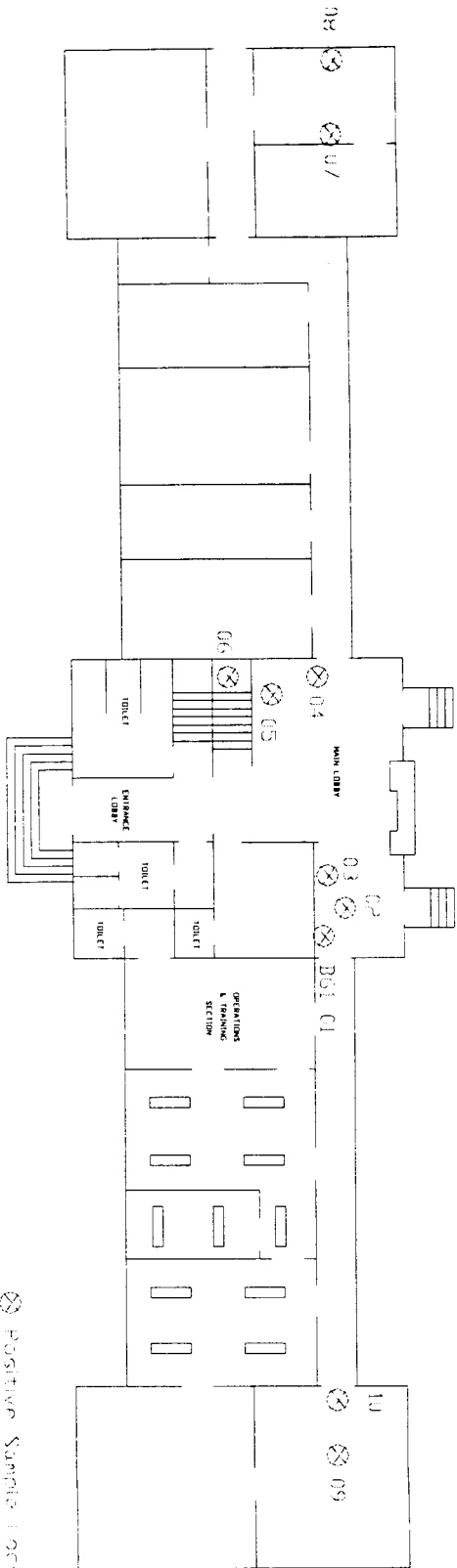


FIG. 2

FIRST FLOOR

SCALE: 1"=20'

⊗ Positive Sample Locations

⊙ Negative Sample Locations

BUILDING: 61	FIG. 1 FIRST FLOOR FIG. 2 SECOND FLOOR	ASBESTOS SURVEY DAB102-96 D 0005 FM705	REISZ ENGINEERING
--------------	---	--	--------------------------

APPENDIX D

SELECTED ACM LOCATION PLANS

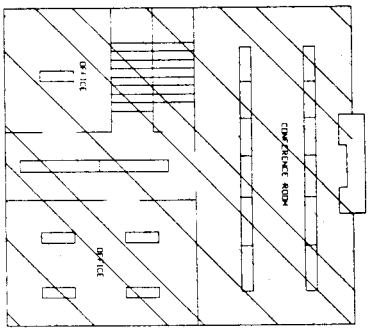


FIG. 1

SECOND FLOOR

SCALE: 1"=20'

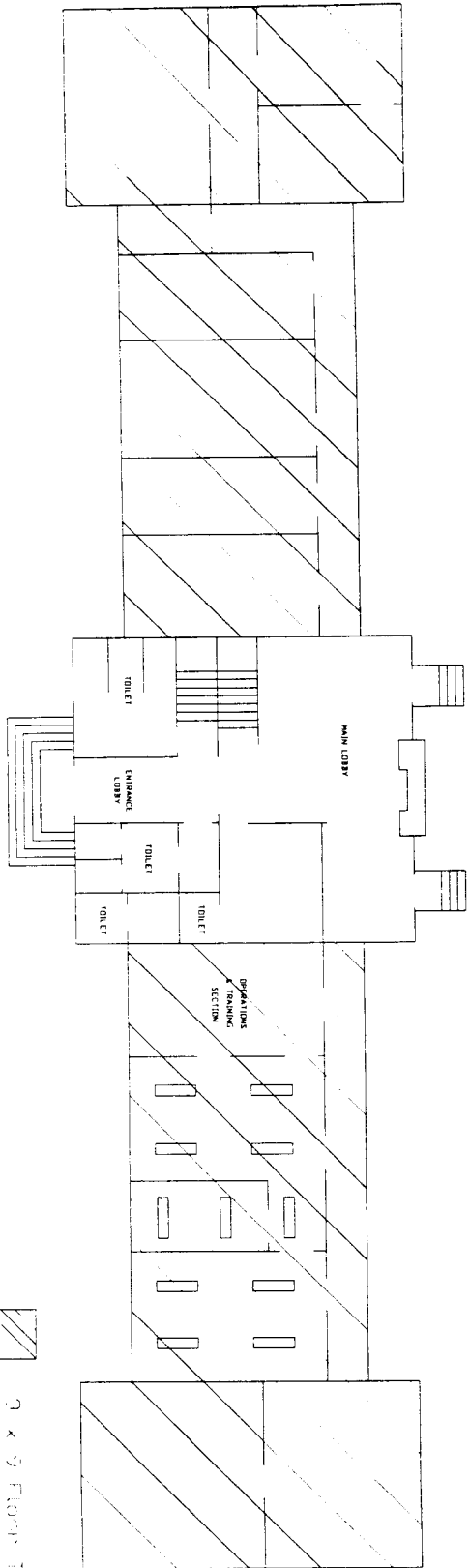


FIG. 2

FIRST FLOOR

SCALE: 1"=20'

BUILDING: 61

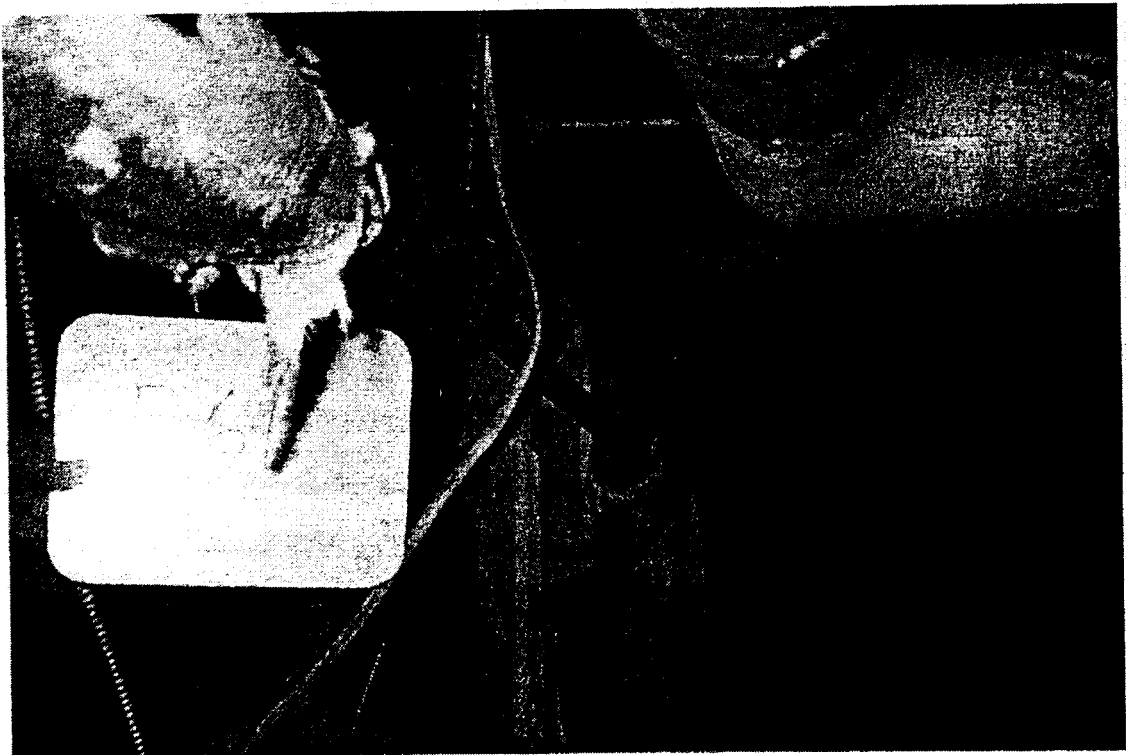
FIG. 1 FIRST FLOOR
FIG. 2 SECOND FLOOR

ASBESTOS SURVEY
DAB102-96-D-0005
FM705

REISZ ENGINEERING

APPENDIX E

SELECTED ACM PHOTOGRAPHS



TYPICAL PIPING IN CRAWLSPACE OF BUILDING 61.

**ASBESTOS CONTAINING BUILDING MATERIALS
SURVEY REPORT**

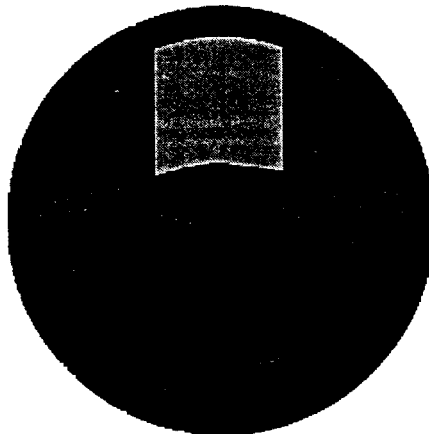
BUILDING: 63

**ASBESTOS CONTAINING BUILDING MATERIALS SURVEY
SAFETY/LEGAL BUILDING
BUILDING 63**

FORT McCLELLAN, ALABAMA

U.S. ARMY CONTRACT NO. DABT02-96-D-0005
DELIVERY ORDER 0005

Fort McClellan



Staying Beautiful

Conducted and Prepared by:

REISZ ENGINEERING
P.O. BOX 1349
HUNTSVILLE, ALABAMA 35807

**ASBESTOS CONTAINING BUILDING MATERIALS SURVEY
SAFETY/LEGAL BUILDING
BUILDING 63**

FORT McCLELLAN, ALABAMA

U.S. ARMY CONTRACT NO. DABT02-96-D-0005
DELIVERY ORDER 0005

Prepared For:

DIRECTORATE OF ENVIRONMENT
FORT McCLELLAN

APPROVED FOR TRANSMITTAL BY
JAMES R. WRIGHT

Conducted and Prepared by:

REISZ ENGINEERING

January, 1998

TABLE OF CONTENTS

1.0	PURPOSE AND SCOPE OF SERVICES.....	1
2.0	REGULATORY STANDARDS.....	2
3.0	PROJECT CHARACTERISTICS.....	3
4.0	SURVEY METHODOLOGY.....	4
5.0	LABORATORY ANALYSIS	5
6.0	SUSPECT MATERIALS.....	5
7.0	ASBESTOS INSPECTION AND SAMPLING RESULTS.....	6
	FRIABLE ACM.....	7
	NON FRIABLE ACM.....	7
	INACCESSIBLE MATERIAL.....	8
8.0	CONCLUSIONS AND RECOMMENDATIONS.....	8
9.0	ASSUMPTIONS AND LIMITATIONS.....	9

APPENDICES

APPENDIX A - REPORT OF LABORATORY ANALYSIS
APPENDIX B - SUMMARY TABLE OF ACM
APPENDIX C - SAMPLE LOCATIONS PLANS
APPENDIX D - SELECTED ACM LOCATIONS PLANS
APPENDIX E - SELECTED ACM PHOTOGRAPHS (none)

1.0 PURPOSE AND SCOPE OF SERVICES

The purpose of this survey was to locate and identify asbestos containing building materials at the Building 63, Safety/Legal, located at Fort McClellan, Alabama. Pursuant to the Contract, REISZ Engineering was required to provide the survey in accordance with AHERA (40 CFR Part 763 Subpart E) protocol. AHERA is applicable to interior building products installed prior to October 12, 1988. AHERA does not apply to the exterior of buildings and does not apply to non-building materials (e.g. cabinetry, special equipment and chalkboards). REISZ Engineering has included as part of the survey those readily accessible, suspect friable interior non-building materials (e.g. vibration dampers); but has not included certain items (e. g. interior linings of equipment and special supplies, some non-friable materials such as transite, etc.). Exterior building materials were not sampled as part of this contract unless those materials were suspected to be of friable nature and continuous with indoor materials (e.g. piping insulation). Specifically, REISZ Engineering was contracted to provide the following services:

1. Identify and collect samples of accessible suspect friable building materials within the referenced project area.
2. Perform a visual inspection to provide information on material condition, material quantities, material locations, and building use.
3. Analysis of all bulk samples for asbestos content utilizing Polarized Light Microscopy and Dispersion Staining Techniques performed in accordance with EPA Bulk Analysis Method
EPA 600/M4-82-020.
4. Make recommendations as to response actions pertaining to those materials identified as asbestos containing.

5. Compilation of a final report (contained herein) which details all sample results, identifies sample locations, and provides recommendations based upon the results.
6. Preparation of a Building specific Operations & Maintenance (O&M) Plan for buildings containing friable asbestos materials.

2.0 REGULATORY STANDARDS

The National Emissions Standards for Hazardous Air Pollutants (NESHAP) requires the Owner or Operator of a facility to determine the presence or non-presence of asbestos containing materials prior to conducting renovation or demolition activities. The NESHAP Standard for asbestos (40CFR Part 61 Sub-part M) requires the use of engineered control procedures for removal of asbestos materials that are or will become friable during renovation or demolition. The removal must occur before renovation or demolition activities impact those materials.

On October 11, 1994 an OSHA promulgated regulation (29 CFR Part 1926.1101) became effective. This Standard is related to asbestos exposure in construction, renovation and building maintenance work places. Building owners are required, pursuant to the Standard, to notify employees, tenants and prospective employers (contractors) of the presence, location and quantities of ACM in the building. Implementation of the "communication of hazards" provisions in the Standard were originally to be not later than April 10, 1995 but was extended to July 10, 1995 and is now in effect. The OSHA Standard does not apply to work performed by employees of State agencies in states without state run OSHA programs (e.g. Alabama).

In October 1986, the Asbestos Hazard Emergency Response Act (AHERA) was signed into law. Included in this act are provisions directing E.P.A. to establish rules and regulations

(40CFR Part 763) addressing asbestos-containing materials in schools. Specifically, the E.P.A. was directed to address the issues of: 1) identifying, 2) evaluating and 3) controlling asbestos containing materials (ACM) in schools. AHERA requires schools to perform building inspections and to prepare management plans for ACM control. Although the AHERA regulation does not specifically apply to this project it is generally accepted as the industry standard and was cited by Fort McClellan in the Asbestos Survey Request as the basis of survey methodology. The AHERA inspections must be conducted using specific guidelines, which include a minimum number of samples per material type. This survey was conducted in accordance with those guidelines per the Contract requirements.

On November 28, 1992 a law became effective which extended the EPA's Model Accreditation Plan to all public and commercial buildings. Currently the rule extends the accreditation requirements of persons performing asbestos work (inspectors, project designers, abatement supervisors, and workers) in public and commercial buildings, but does not extend the other aspects of AHERA. This project was conducted utilizing EPA accredited personnel.

3.0 PROJECT CHARACTERISTICS

During the month of May 1997, Reisz Engineering accredited Asbestos Inspectors performed inspections of Building 63 for the purpose of identifying building materials suspected to contain asbestos. Building 63 is a Safety/Legal facility, which is comprised of a two floors and a basement containing approximately 19,000 sq. ft. of floor space. Based on information provided by Fort McClellan representatives, the building was originally constructed in 1924. Various renovations have no doubt taken place since the building was originally constructed but no building plans have been found which can be used to verify specific dates. All friable asbestos containing materials were apparently abated from Building 63 in 1987.

The majority of interior walls are constructed of either concrete block or wallboard. Ceilings for the most part are lay in acoustical composition tile. A preexisting 9x9 in. acoustical ceiling tile is found in some areas glued to the deck above the currently drop ceiling in much of the building. The two dominant flooring conditions existing in the facility are 1) vinyl floor tile, and 2) linoleum.

4.0 SURVEY METHODOLOGY

The building was visually inspected for the presence of material suspected to contain asbestos. Those suspect materials were identified, bulk samples were obtained and placed into individual vials for transportation to the University of Alabama in Huntsville. General areas for sample locations were selected on a random basis with a preference for exact positioning at existing damage. A number on the plans in Appendix C represents each sample location. Those numbers directly correspond with the numbers listed elsewhere in this report.

If any additional suspect materials are identified during renovation or demolition they should be analyzed for asbestos content. Materials visibly identifiable as non-asbestos (fiberglass, foam rubber, wood, etc.) were not sampled. Materials installed after October 12, 1988 (as reported by Fort McClellan staff) were not sampled.

Hazard Assessment Factors

Each time suspect ACM was sampled, it was classified as either a friable or a non-friable material. Friable material may be crumbled, pulverized, or reduced to powder by hand pressure. Friable ACM is more hazardous than non-friable ACM because friable material can release airborne asbestos fibers more easily. In assessing the fiber release potential, the current condition of all ACM identified was noted. Evidence of deterioration, physical damage, water

damage, erosion of ACM due to its' proximity to an air plenum, high vibration, or contact potential was also noted.

5.0 LABORATORY ANALYSIS METHODOLOGY

All bulk samples were analyzed at UAH by polarized light microscopy utilizing dispersion staining or Becke line techniques, in accordance with the EPA's "Interim Method for Determination of Asbestos in Bulk Insulation Samples" (EPA 600/m4-82-020). Quality control samples were taken as duplicates at a rate of 1 to 10 and were sent to a second accredited laboratory. This type of analysis requires the microscopist to take a portion of the bulk sample and treat it with oil of specific refractive index. This prepared slide is then subjected to a variety of optical tests.

Each type of asbestos displays unique characteristics when subjected to these tests. Percentages of the identified types of asbestos are determined by visual estimation. Even though this is an estimation, any material that contains greater than one percent of any type of fibrous asbestos is considered ACM and must be handled according to OSHA and EPA regulations if disturbed during maintenance, renovation, demolition or removal.

The UAH laboratory participates in the American Industrial Hygiene Association (AIHA) quality assurance program for polarized light microscopy and is accredited by the AIHA through their voluntary program.

6.0 SUSPECT MATERIALS

The following is a general list of building materials that were suspected to contain asbestos. A complete and more detailed description of these substances can be found in Appendix B.

Surfacing

- None

Thermal System Insulation

- Hot water tank insulation
- HVAC insulation tape

Miscellaneous Material

- Vinyl floor tiles 12x12
- Vinyl flooring mastics
- 9x9 in. ceiling tile & mastic

7.0 ASBESTOS INSPECTION AND SAMPLING RESULTS

A total of 4 bulk samples were collected and analyzed. Details of all laboratory results can be found in Appendix A. A listing of all **suspect** materials, their corresponding sample numbers, general location, and asbestos content are indicated in Appendix B. A narrative description of all "Friable Asbestos Containing Material" and "Non-Friable ACM" identified during the survey, is given below.

FRIABLE ACM

No friable asbestos containing materials were found to be present in Building 63.

NON FRIABLE ACM

No friable asbestos containing materials were found to be present in Building 63 by laboratory testing. However, 12x12 in floor tile found throughout the majority of the building was not sampled and is **assumed** to be ACM.

- 1) 12x12 in. asbestos containing vinyl floor tile is found throughout the majority of Building 63.
- 2) A black asbestos containing mastic is found under the existing vinyl floor tile.

INACCESSIBLE MATERIAL,

Insulation and spray-on compounds associated with inaccessible crawl space and tunnel areas should be assumed as “like” materials corresponding to materials sampled within the building.

8.0 CONCLUSIONS AND RECOMMENDATIONS

None of the materials identified within this report are damaged to the extent that significant asbestos fiber release may be likely under normal conditions and some of the asbestos containing materials, are subject to routine maintenance activities that could involve significant disturbance. Reisz Engineering has written a Building Operations & Maintenance Plan for Building 63 and we suggest that recommendations included in this plan be followed.

9.0 ASSUMPTIONS AND LIMITATIONS

The results, findings, conclusions and recommendations expressed in this report are based only on conditions which were observed during the inspections of Building 63 during May 1997. Reisz Engineering and this report make no representation or assumptions as to past conditions or future occurrences.

Our inspection was generally non-destructive in nature. Any conditions or material that were not visible on the surface were not inspected and may differ from those observed. It was not within the scope of this investigation to remove surface materials to investigate portions of the structure or materials that lay beneath the surface. Our selection of sample locations and frequency is based upon our observations and the assumption that all materials in the same area are homogeneous.

This report is designed to aid the building owner, architect, construction manager, general contractors, and potential asbestos abatement contractors in locating ACM. Under no circumstances is this report to be utilized as a bidding document or as a project specification document.

APPENDIX A

REPORT OF LABORATORY ANALYSIS FOR ASBESTOS

APPENDIX B

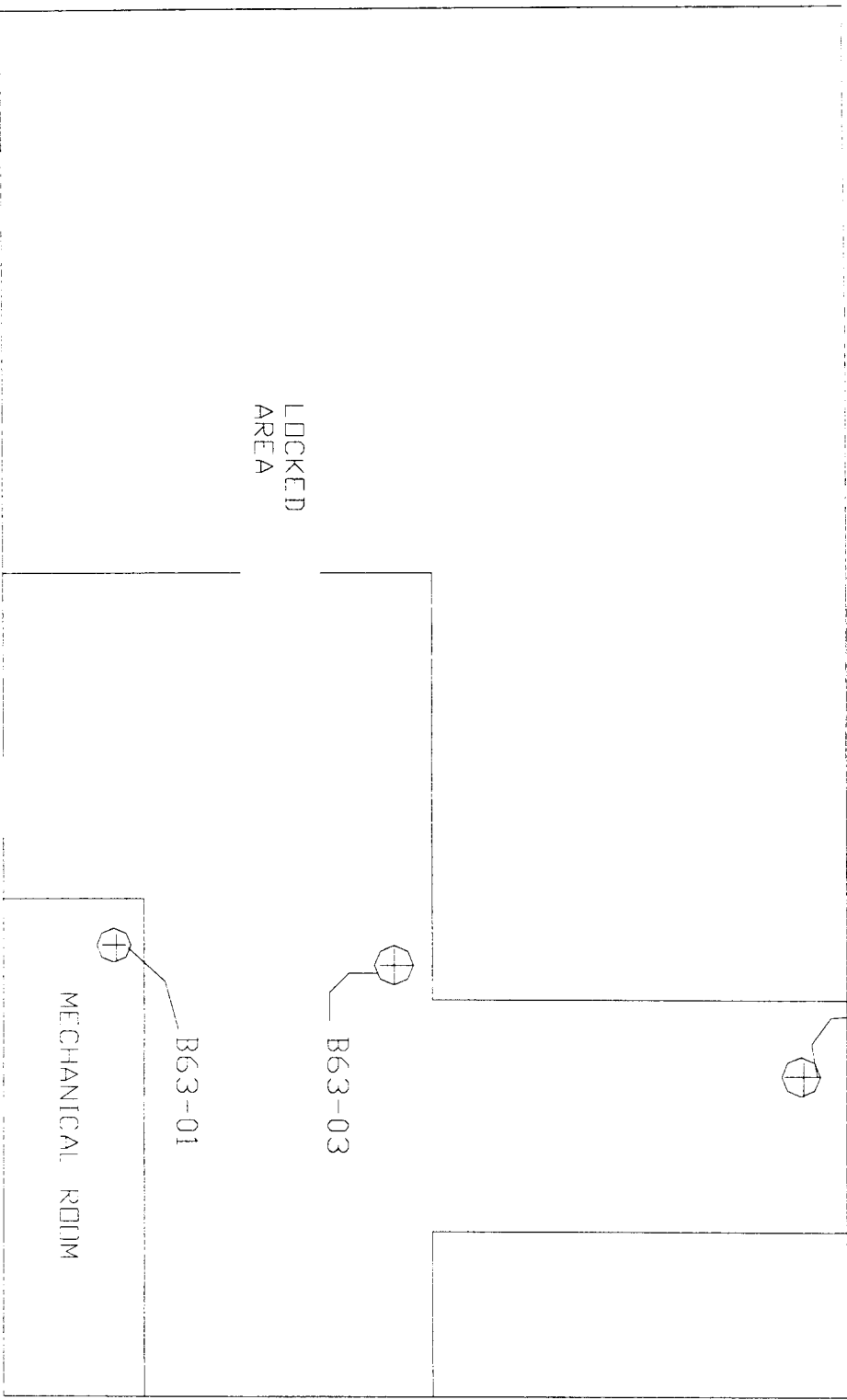
ASBESTOS CONTAINING MATERIALS

**SUMMARY TABLE
ASBESTOS CONTAINING MATERIALS
SAFETY/LEGAL BUILDING
BUILDING 63
FORT McCLELLAN, ALABAMA**

No friable asbestos found.

APPENDIX C

SAMPLE LOCATIONS PLANS





LOCKED
AREA

B63-04

B63-03

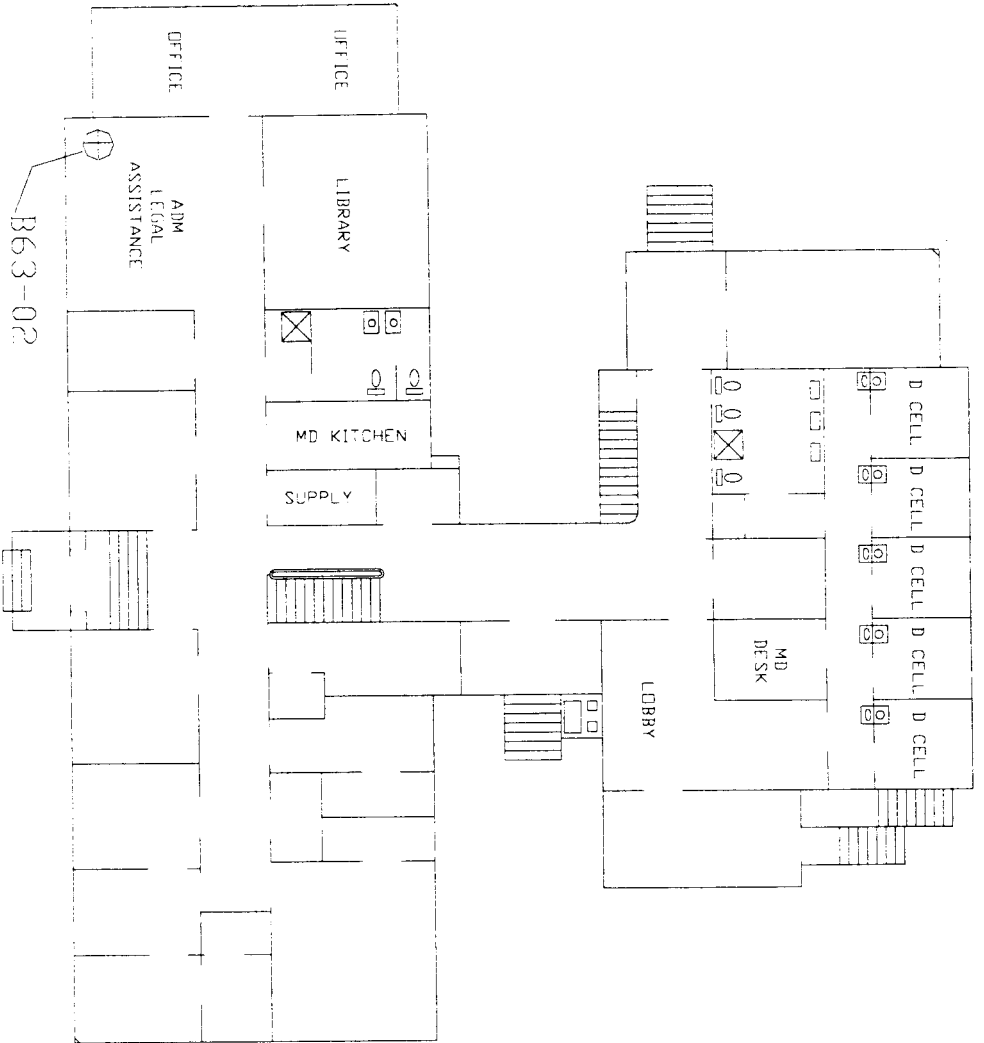
B63-01

MECHANICAL ROOM

-  NEGATIVE SAMPLE LOCATION
-  POSITIVE SAMPLE LOCATION

BUILDING: 63 | FLOOR: 3 BASEMENT | ASBESTOS SURVEY
DAB T02-96-D-0005
FM/05

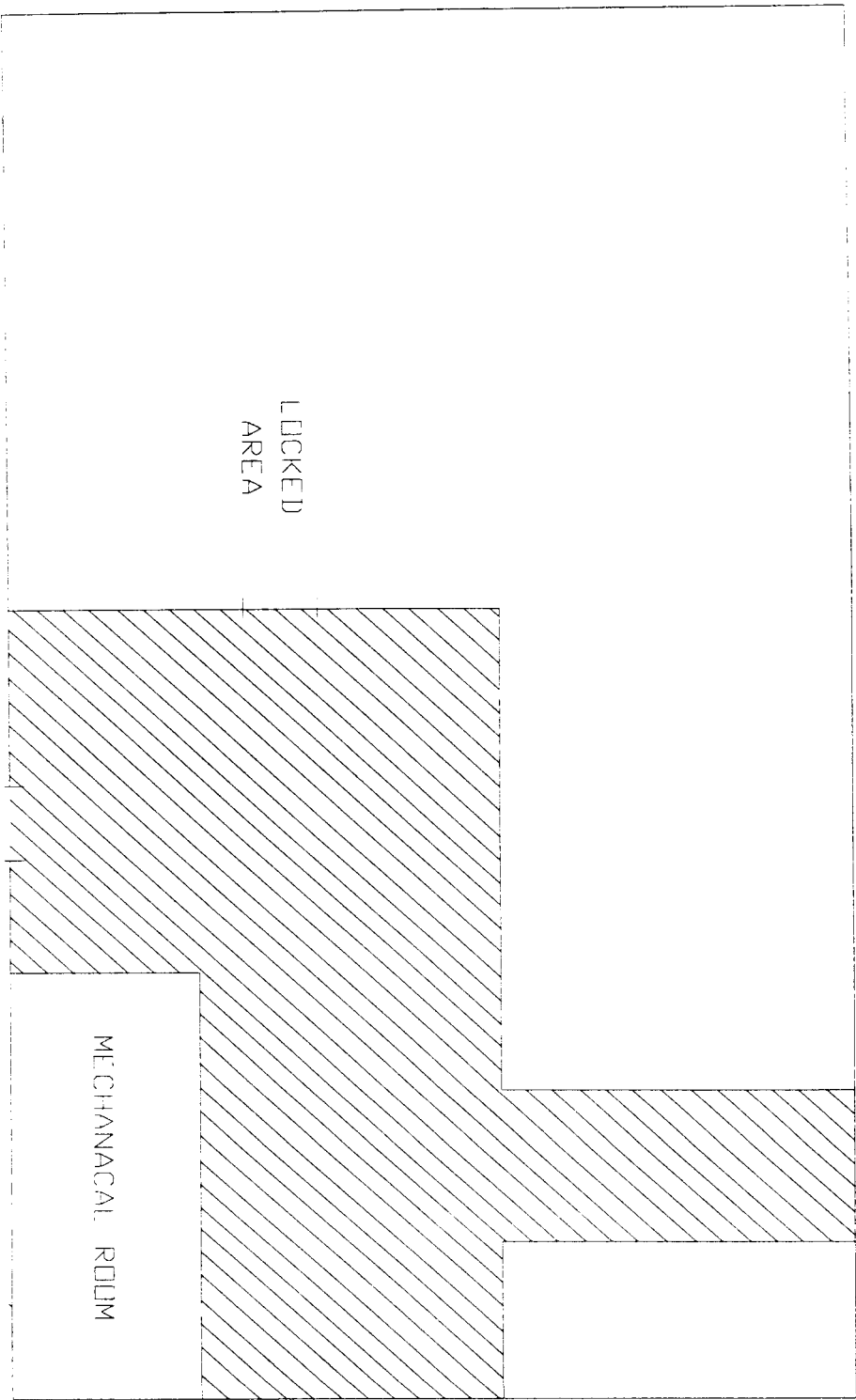
REISZ ENGINEERING



⊖ NEGATIVE SAMPLE LOCATION
⊕ POSITIVE SAMPLE LOCATION



APPENDIX D

SELECTED ACM LOCATION PLANS



LOCKED
AREA

MECHANICAL ROOM

-  MIXED 9x9 & 12x12 VINYLE FLOOR TILE
-  12x12 VINYL FLOOR TILE

BUILDING: 633

FLOOR: 3 BASILINI

ASBESTOS SURVEY
DAB102-96-D-0005
FM705

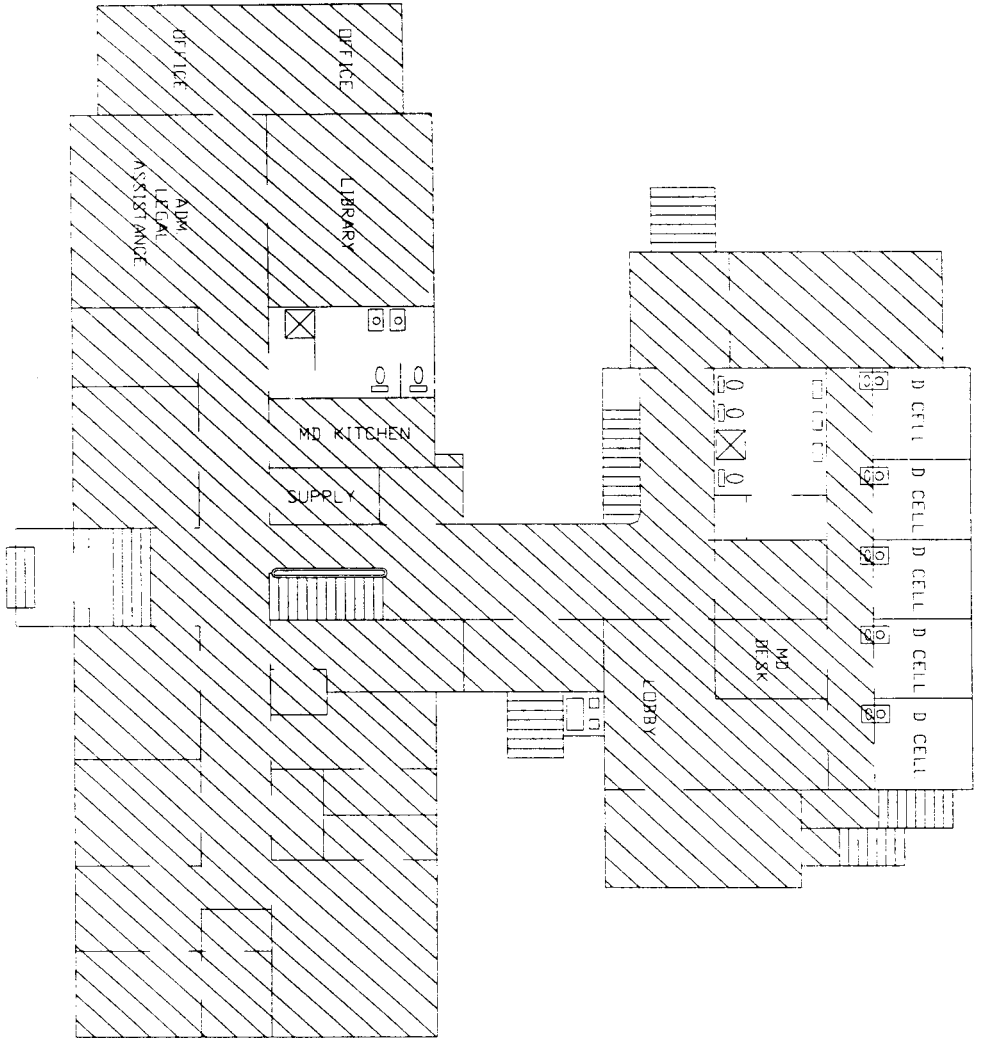
REISZ ENGINEERING



BUILDING: 63

FIG. 2 FIRST FLOOR

ASBESTOS SURVEY
DARTMOUTH 96-D-0005
FM705

REISZ ENGINEERING



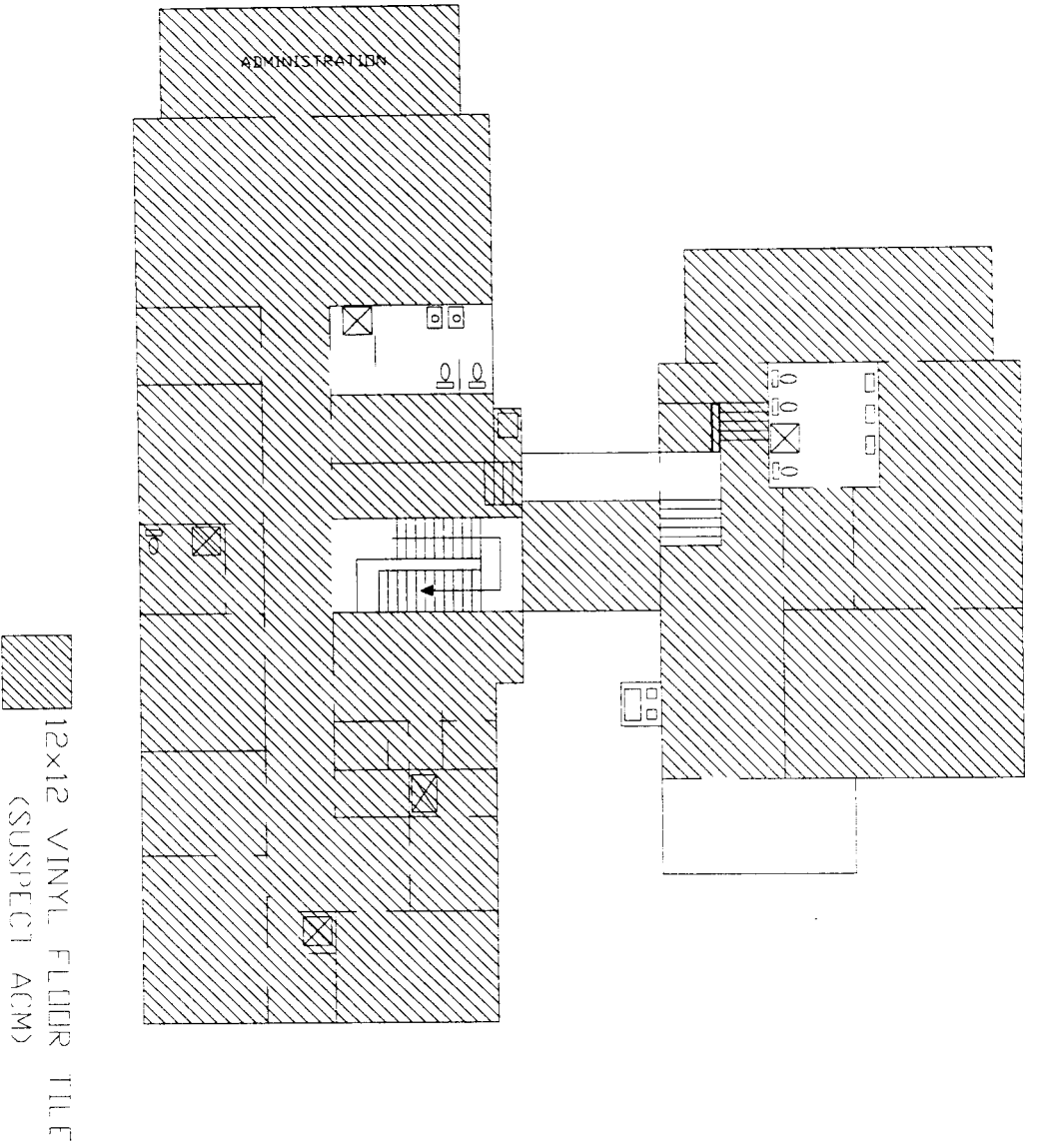
-  MIXED 9x9 & 12x12 VINYL FLOOR TILE
-  12x12 VINYL FLOOR TILE

BUILDING: 63

FIG. 2 SECOND FLOOR

ASBESTOS SURVEY
DAB102-96-D-0005
FM/05

REISZ ENGINEERING



APPENDIX E

SELECTED ACM PHOTOGRAPHS