

**ASBESTOS CONTAINING BUILDING MATERIALS  
SURVEY REPORT**

**BUILDING(S):**

**1601, 1701, 1702, 1789, 1801, 1802, 1881**

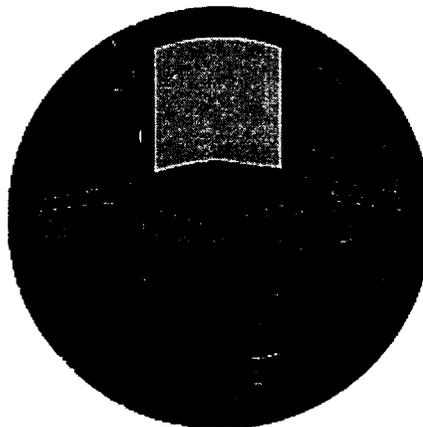
**ASBESTOS CONTAINING BUILDING MATERIALS SURVEY  
MISCELLANEOUS BUILDINGS  
PACM**

**1001, 1601, 1602, 1701, 1702, 1740, 1789, 1801, 1802, 1881, 1898, 1997, 2262, 2291, & 2299**

**FORT McCLELLAN, ALABAMA**

U.S. ARMY CONTRACT NO. DABT02-96-D-0005  
DELIVERY ORDER 0033

*Fort McClellan*



*Staying Beautiful*

*Conducted and Prepared by:*

**REISZ ENGINEERING**  
P.O. BOX 1349

HUNTSVILLE, ALABAMA 35807

**ASBESTOS CONTAINING BUILDING MATERIALS SURVEY  
MISCELLANEOUS BUILDINGS**

**PACM**

**1001, 1601, 1602, 1701, 1702, 1740, 1789, 1801, 1802, 1881, 1898, 1997, 2262, 2291, & 2299**

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DELIVERY ORDER 0033

*Prepared For:*

DIRECTORATE OF ENVIRONMENT  
FORT McCLELLAN

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APPROVED FOR TRANSMITTAL BY  
JOSEPH L. HILLERICH

*Conducted and Prepared by:*

**REISZ ENGINEERING**

December, 1998

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## **1.0 PURPOSE AND SCOPE OF SERVICES**

The purpose of this survey was to locate and identify asbestos containing building materials at miscellaneous buildings located throughout Fort McClellan, Alabama. (See Appendix B for a complete list of buildings included in this document). 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 asbestos-containing materials (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 EPA to establish rules and regulations (40CFR Part 763) addressing ACM in schools. Specifically, the EPA was directed to address the issues of: 1) identifying, 2) evaluating, and 3) controlling 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's accredited personnel.

### **3.0 PROJECT CHARACTERISTICS**

Reisz Engineering's accredited asbestos inspectors performed inspections of presumed asbestos containing material (PACM) buildings for the purpose of identifying building materials suspected to contain asbestos. Based on information provided by our observations and tests results it appears that all buildings referenced in this survey contain only non-friable materials. None of the buildings within this survey were found to have any friable ACM. Although, various renovations may have 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 three dominant flooring conditions existing in the PACM buildings are 1) ceramic tile, 2) 12x12-vinyl floor tile, and 3) cement. Other materials include wood flooring, carpet, and 9x9-vinyl floor tile.

### **4.0 SURVEY METHODOLOGY**

The buildings were visually inspected for the presence of material suspected to contain asbestos. The suspect materials were identified and bulk samples were obtained and placed into individual vials for transportation to the University of Alabama in Huntsville (UAH). 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 20 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.

### **Surfacing**

- None

### **Thermal System Insulation**

- White insulation in building 1702
- Hot water tank insulation in building 1801 and 1802

## Miscellaneous Material

- Vinyl surfaced sheet flooring
- Vinyl flooring mastics

## **7.0 ASBESTOS INSPECTION AND SAMPLING RESULTS**

A total of six bulk samples were collected and analyzed. Details of all laboratory results can be found in Appendix A. A narrative description of all "Friable Asbestos Containing Material" and "Non-Friable ACM" identified during the survey, is given below.

### FRIABLE ACM

None

### NON FRIABLE ACM

Three types of non-friable ACM's were found in various buildings: 1) 12x12 inch vinyl floor tile, 2) 9x9 inch vinyl floor tile, and 3) vinyl floor tile mastic.

- 1) Presumed asbestos containing 12x12 inch vinyl floor tile and mastic is found in the following buildings:

B1001 B1601 B1602 B1701 B1702 B1740 B1789 B1801 B1802 B1881 B1997  
B2262 B2291 B2299

Generally, the tiles were found to be in good condition.

- 2) Presumed asbestos containing 9x9-inch vinyl floor tile and mastic is found in the following buildings:

### INACCESSIBLE MATERIAL

Insulation and spray-on compounds associated with inaccessible crawl-space and tunnel areas may 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 is likely under normal conditions. However, some of the asbestos containing materials, is subject to routine maintenance activities that could involve significant disturbance. As concluded by this survey, the buildings within this report were found to contain non-friable asbestos containing materials. 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.

### 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 the PACM Buildings during 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, which 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 contractor, 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

## The University of Alabama in Huntsville

*Environmental Laboratory*  
Kenneth E. Johnson Research Center

347 Wilson Hall  
Huntsville, Alabama 35899  
Phone: (256) 890-6391  
Fax: (256) 890-6376

Re, Bulk Asbestos Analysis  
EPA 600/R-93/116

AIHA: 023601

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

Receipt Date: 07/24/98

Sample Date: 06/24/98

Microscopist: Safe-State  
#102005

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Sample/Description	Asbestos Fibers (%)			Non-Asbestos Material (%)					
	Chry	Amos	Croc	Othr	Cell	Fbgl	MW	CaSO4	Othr
B 1 702-01 /White insulation							10		90

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Chry Chrysotile,  
Amos = Amosite  
Croc = Crocidolite

Othr = Other  
Cell = Cellulose

MW = Mineral Wool  
CaSO4 = Calcium Sulfate  
Fbgl = Fiberglass

# UAH

*Environmental Laboratory*  
Kenneth E. Johnson Research Center

**The University of Alabama in Huntsville**

Huntsville, Alabama 35899  
Phone: (205) 890-6391  
Fax: (205) 890-6376

Re Bulk Asbestos Analysis  
EPA 600/R-93/116

AIHA: 023601

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

Receipt Date: 06-22-98

Sample Date: 06/18/98

Microscopist : Tom Carrington

Sample/Description	Asbestos Fibers (%)				Non-Asbestos Material (%)				
	Chry	Amos	Croc	Othr	Cell	Fbgl	MW	CaSO4	Othr
B1801-01/ H.W. Tank Insulation					15	65	15		5
B 1 801-02/ H.W. Tank Insulation					25	10	60		5
B 1801-03/ H.W. Tank Insulation					10	15	70		5

Chry = Chrysotile  
Amos = Amosite  
Croc = Crocidolite

Othr = Other  
Cell = Cellulose  
Fbgl = Fiberglass

MW = Mineral Wool  
CaSO4= Cadmium Sulfate

# UAH

Environmental Laboratory  
Kenneth E. Johnson Research Center

The University of Alabama in Huntsville

Huntsville, Alabama 35899  
Phone: (205) 890-6391  
Fax: (205) 890-6376

Re Bulk Asbestos Analysis  
EPA 600/R-93/116

Receipt Date: 06-22/98

AIHA: 023601

Sample Date: 06/18/98

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

Microscopist: Tom Carrington

Sample/Description	Asbestos Fibers (%)				Non-Asbestos Material (%)				
	Chry	Amos	Croc	Othr	Cell	Fbgl	MW	CaSO4	Othr
B 1 802-01 / H.W. Tank Insulation					2	60	18		20
B 1 802-02 / H.W. Tank Insulation					40		25		35

Chry = Chrysotile  
Amos = Amosite  
Croc = Crocidolite

Othr = Other  
Cell = Cellulose

MW = Mineral Wool  
CaSO4 = Calcium Sulfate  
Fbgl = Fiberglass

**APPENDIX B**

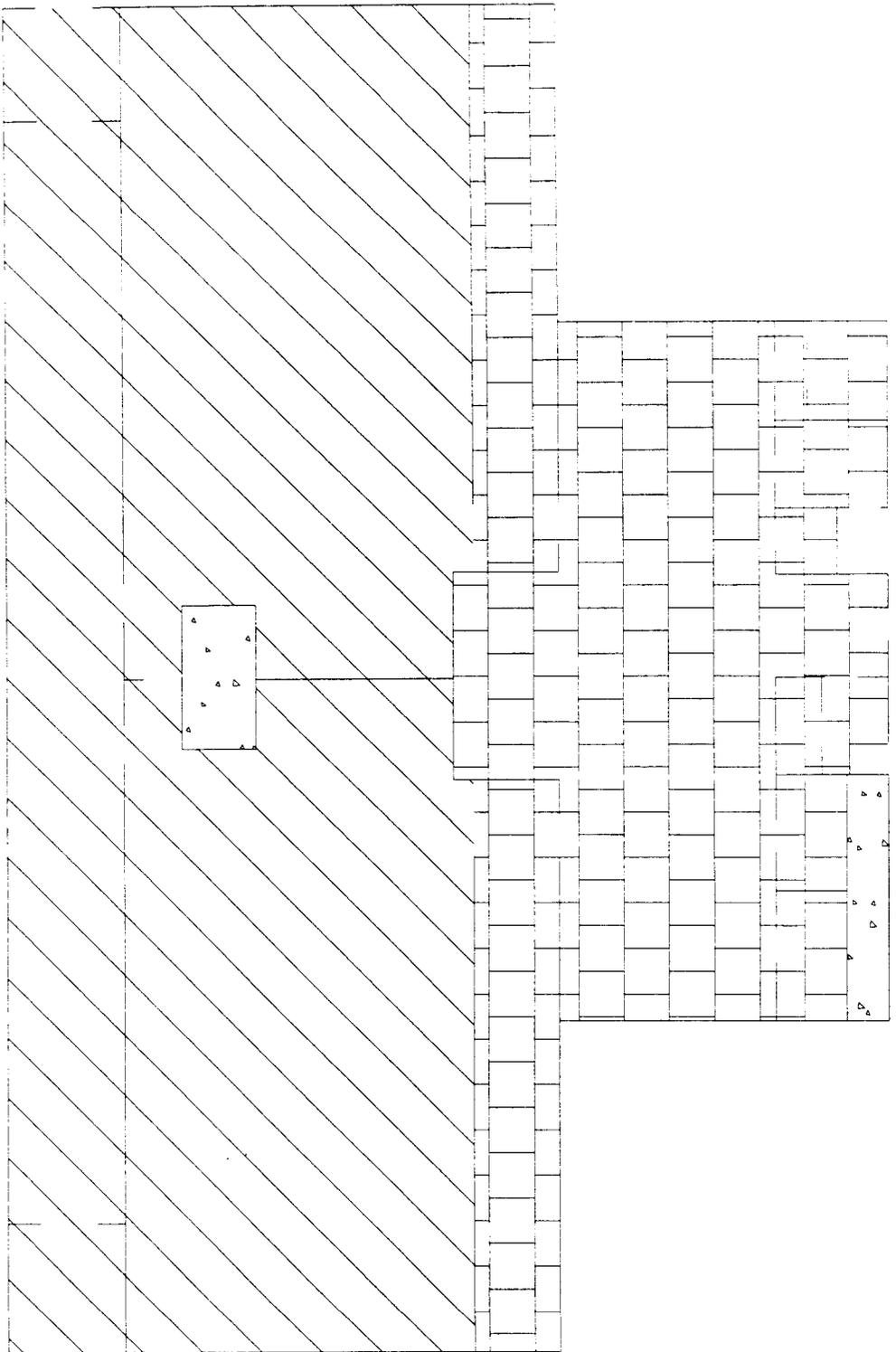
MISCELLANEOUS BUILDINGS WITH PACM

BUILDING NUMBERS

1001  
1601  
1602  
1701  
1702  
1740  
1789  
1801  
1802  
1881  
1898  
1997  
2262  
2291  
2299

**APPENDIX C**

**SELECTED ACM LOCATIONS PLANS**



Cement floors



12 x 12 Floor Tile



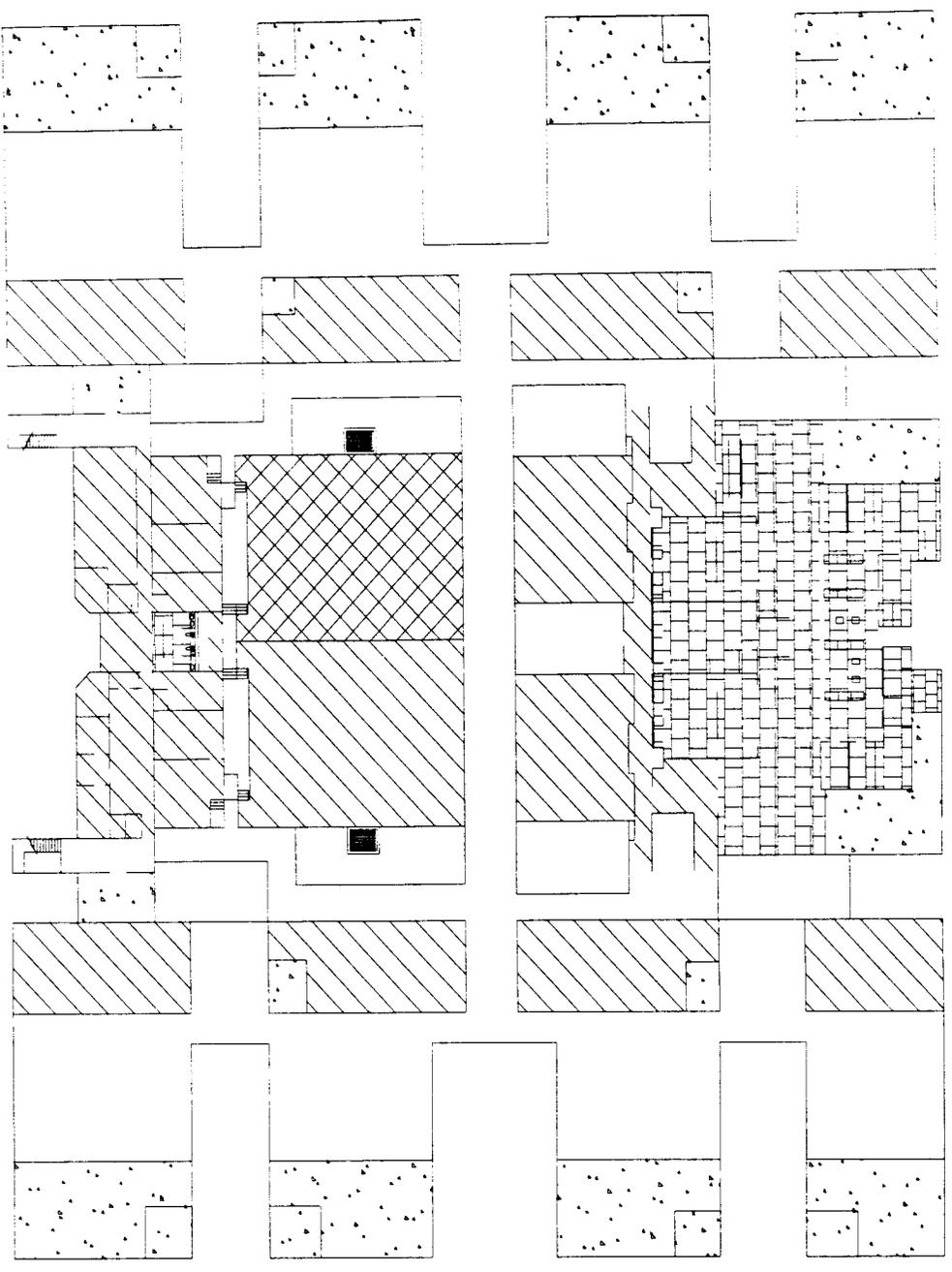
Ceramic Floor Tile

BUILDING 1001

FIG. 1 LAYOUT

ASBESTOS SURVEY  
DAB102 96-D-0005  
FM833

**REISZ ENGINEERING**



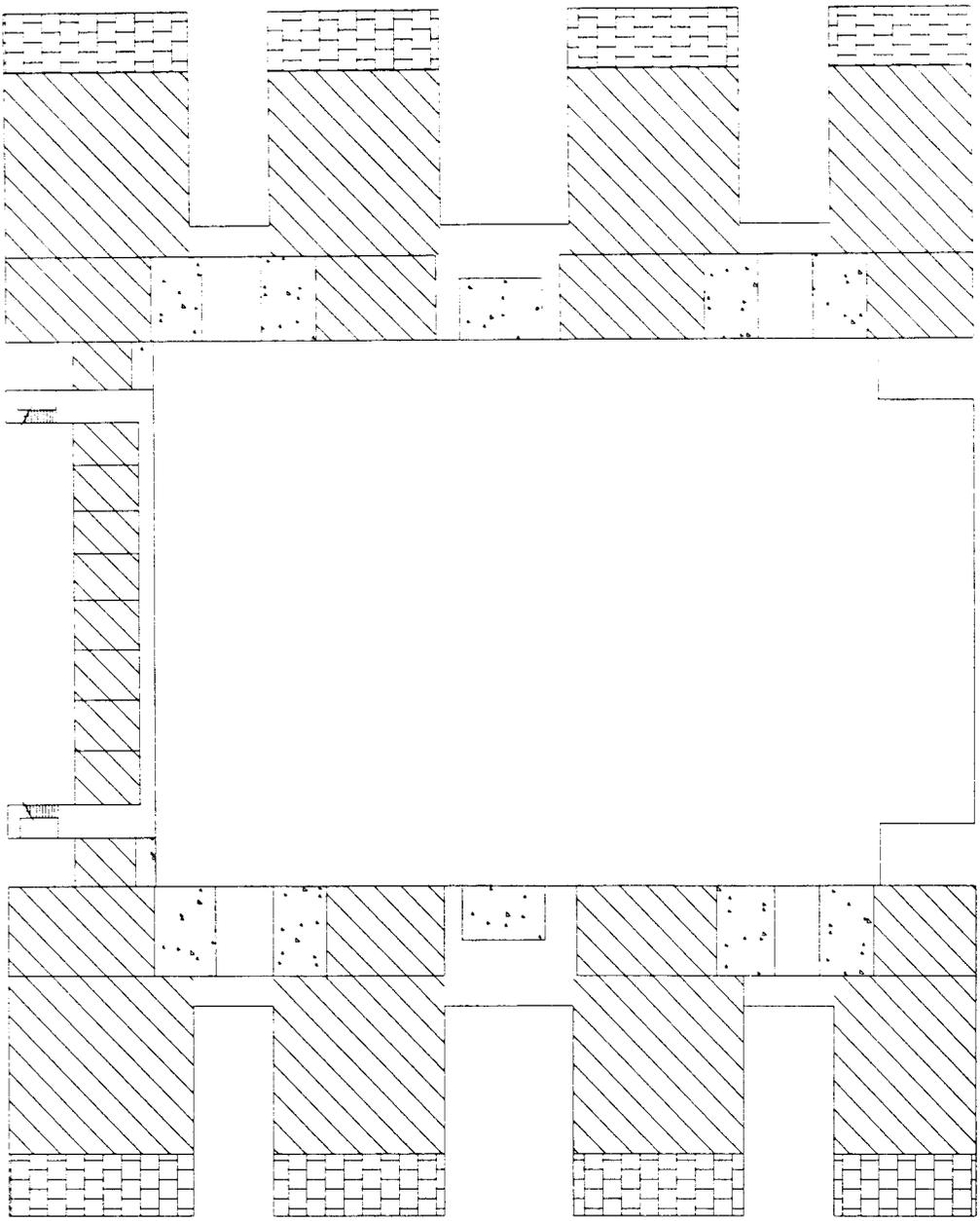
-  12 x 12 Floor Tile
-  Ceramic Floor Tile
-  Cement Floors
-  Carpet Flooring

BUILDING:  
1601, 1602

FIRST FLOOR

ASBESTOS SURVEY  
DAB102-96-D-0005  
FM833

**REISZ ENGINEERING**



 12 x 12 Floor Tile

 Ceramic Floor Tile

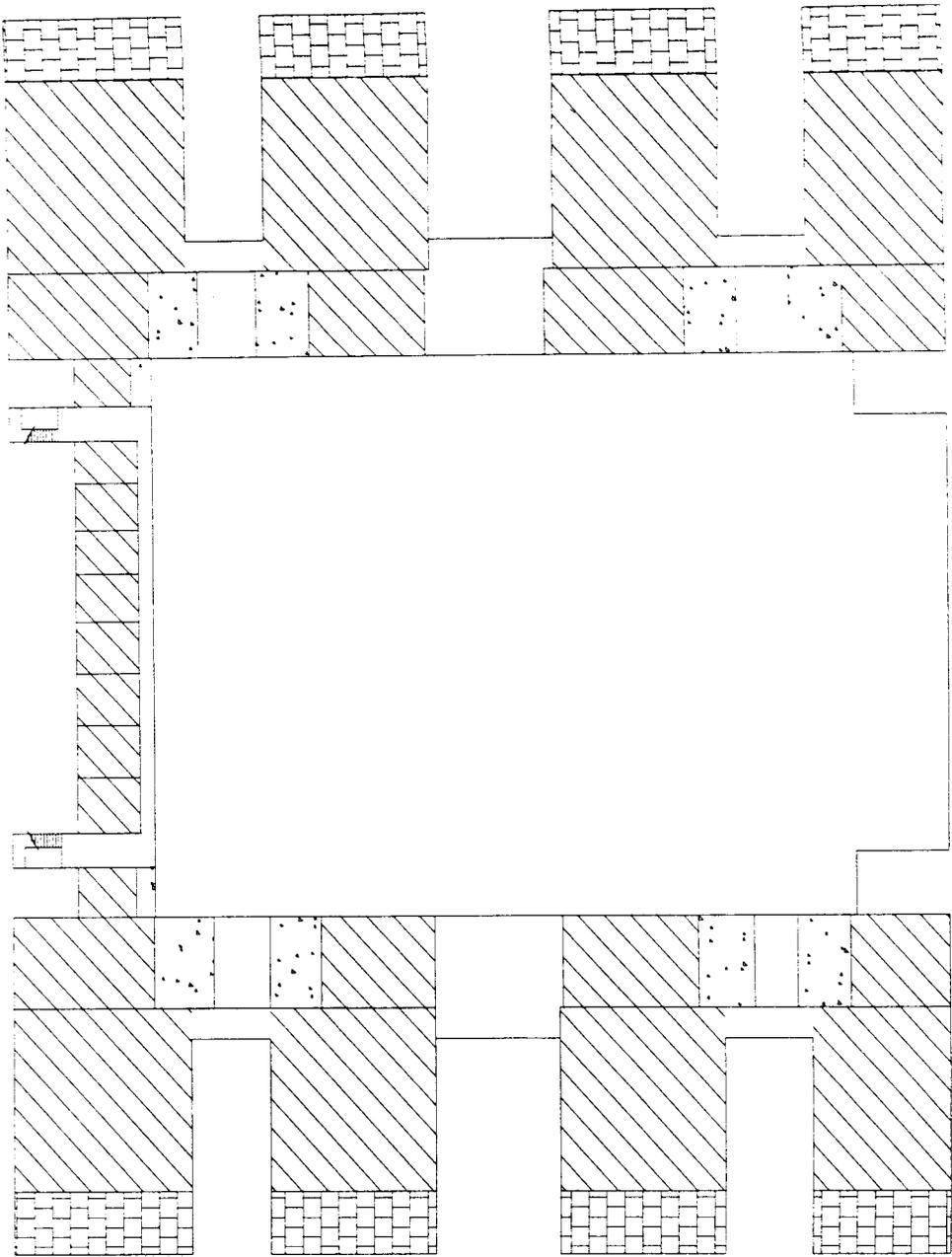
 Cement Floors

BUILDING  
1601, 1602

SECOND FLOOR

ASBESTOS SURVEY  
DARTON 96-D-0005  
FM833

**REISZ ENGINEERING**



12 x 12 Floor Tile



Ceramic Floor Tile



Cement Floors

BUILDING:  
1601, 1602

THIRD FLOOR

ASBESTOS SURVEY  
DAB102-96-D-0005  
FM833

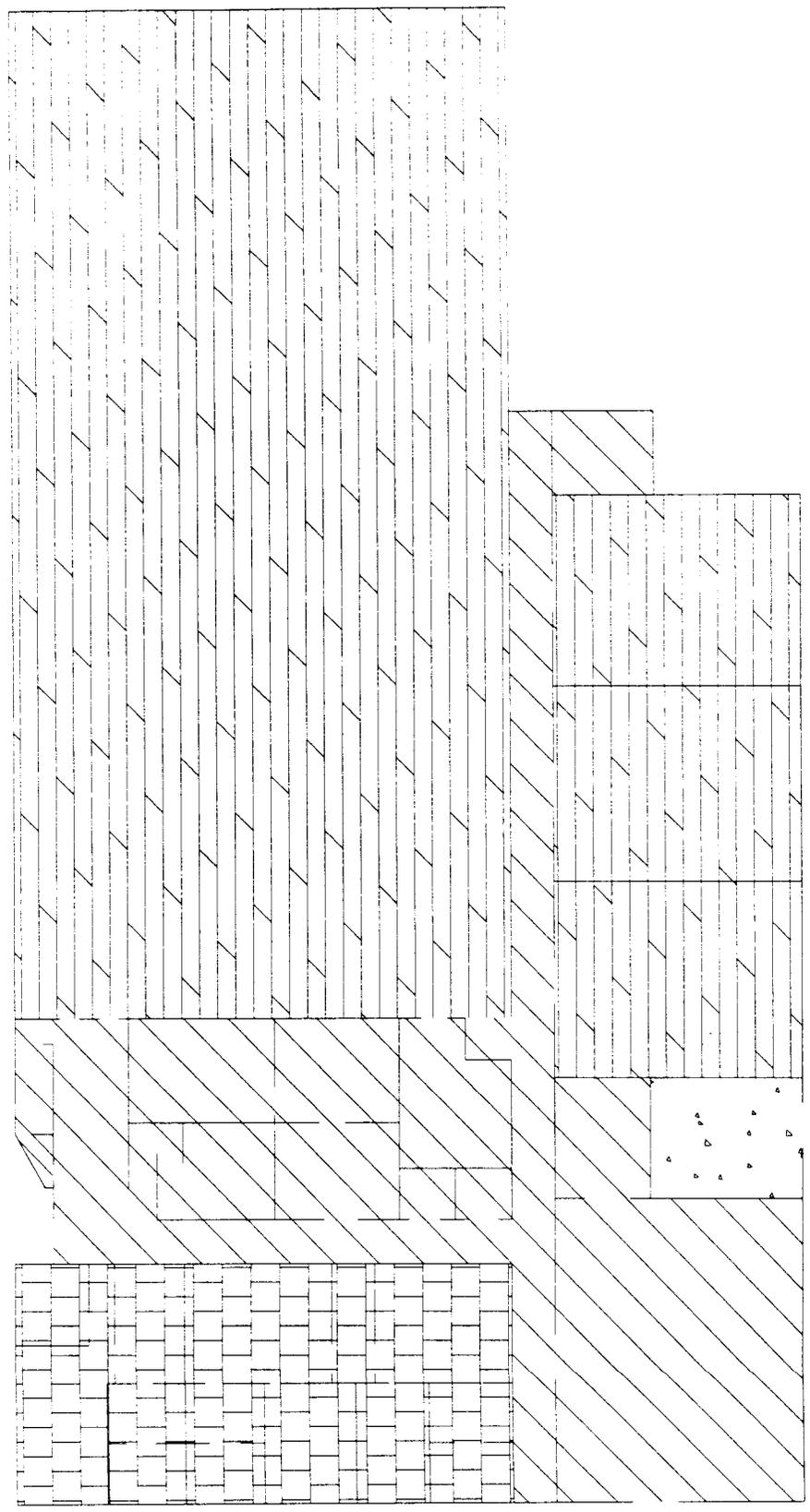
**REISZ ENGINEERING**

BUILDING  
1/01, 1/02

FIG. 1 AY1111

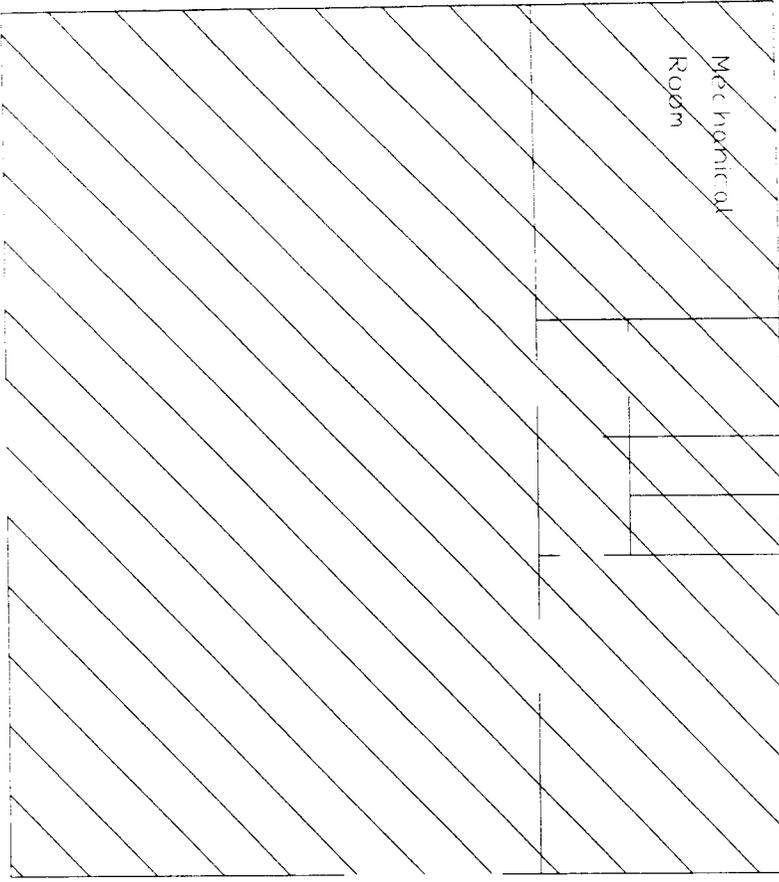
ASBESTOS SURVEY  
DABTOP-96-D-0005  
FM833

**REISZ ENGINEERING**



Wood Floors  
Mechanical Room  
(Cement floor)

12 x 12 Floor Tile  
Ceramic Floor Tile



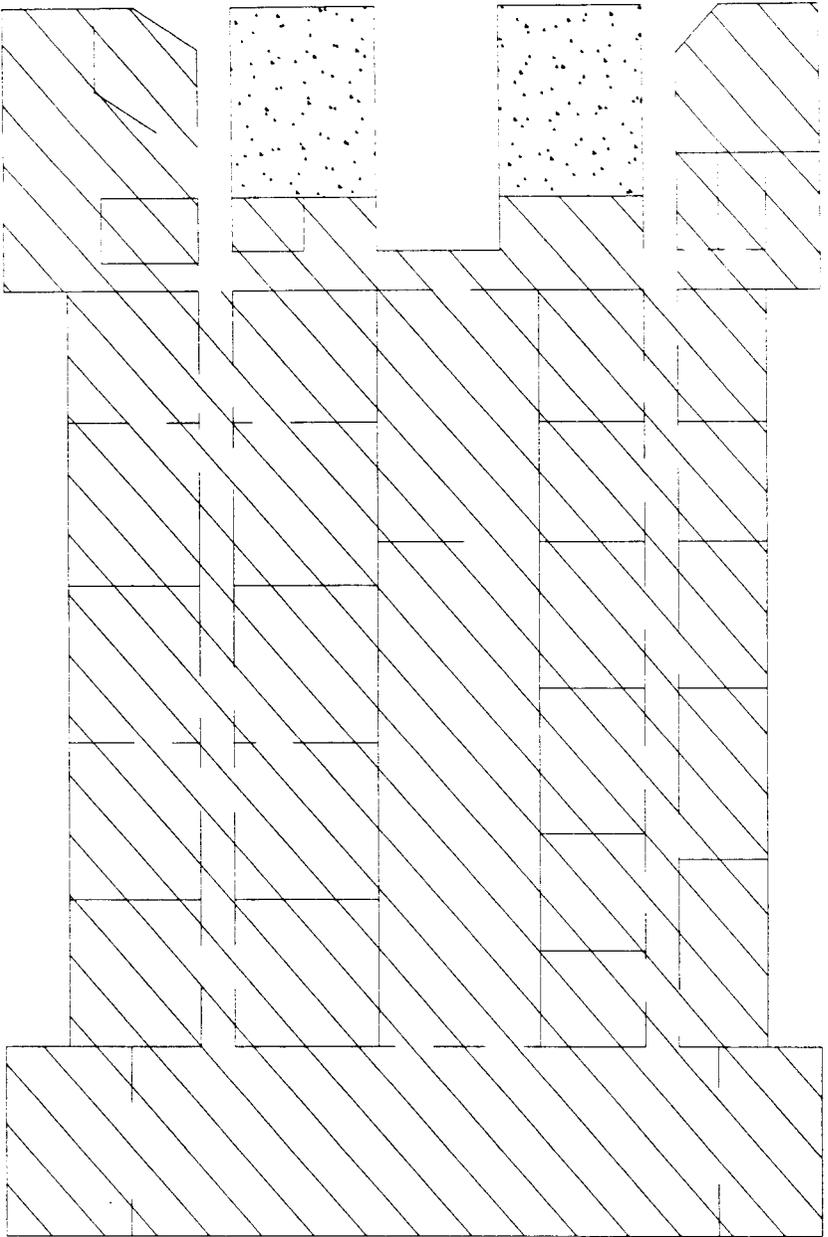
-  9 x 9 Floor Tile
-  12 x 12 Floor Tile

BUILDING: 1740

FIG. 1 LAYOUT

ASBESTOS SURVEY  
DAB102-96-D 0005  
FM833

**REISZ ENGINEERING**



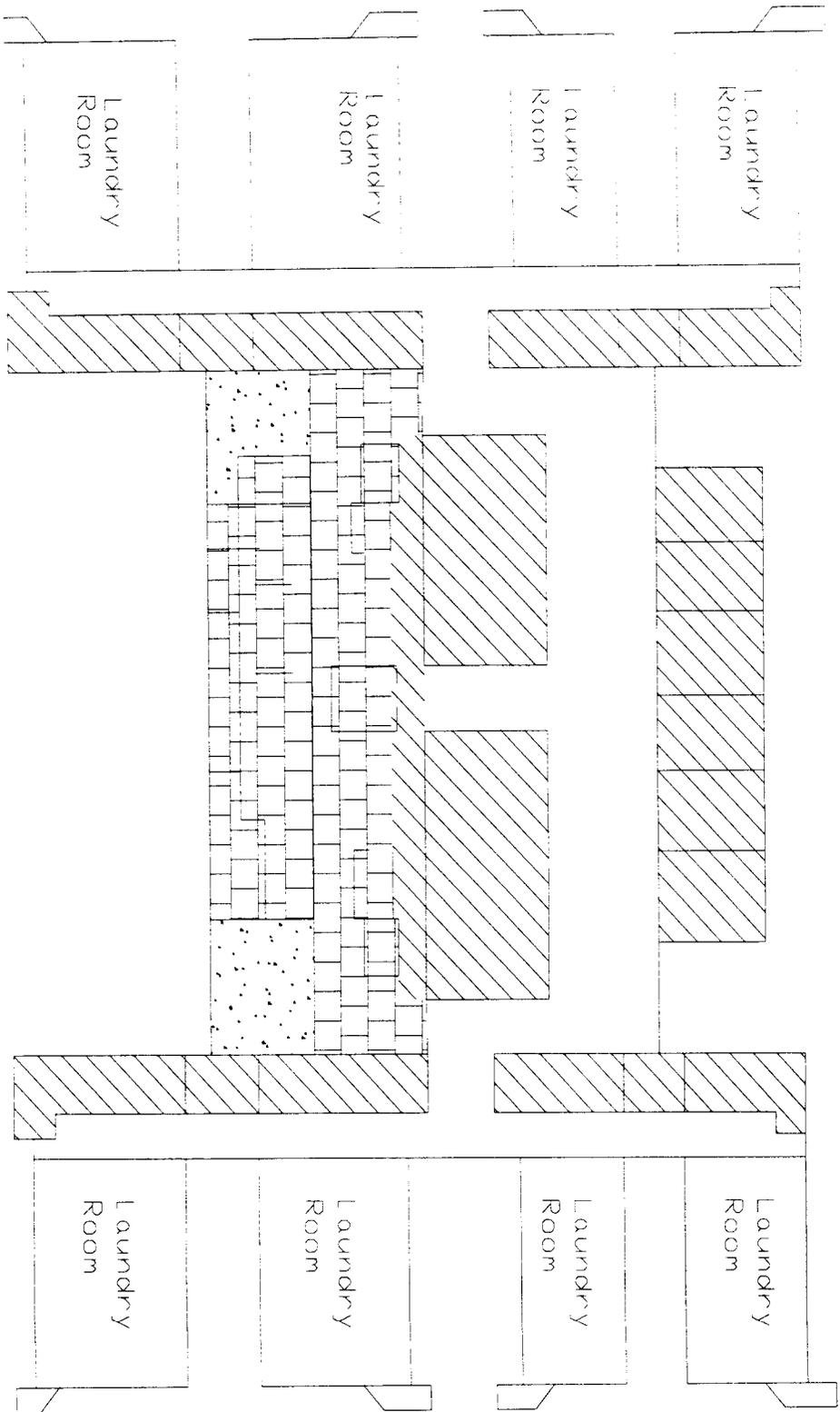
 12 x 12 Floor tile  
 Mechanical Room (Cement floors)

BUILDING 1/89

FIG. 1 LAYOUT

ASBESTOS SURVEY  
 DAB102-96-D-0005  
 FM833

**REISZ ENGINEERING**



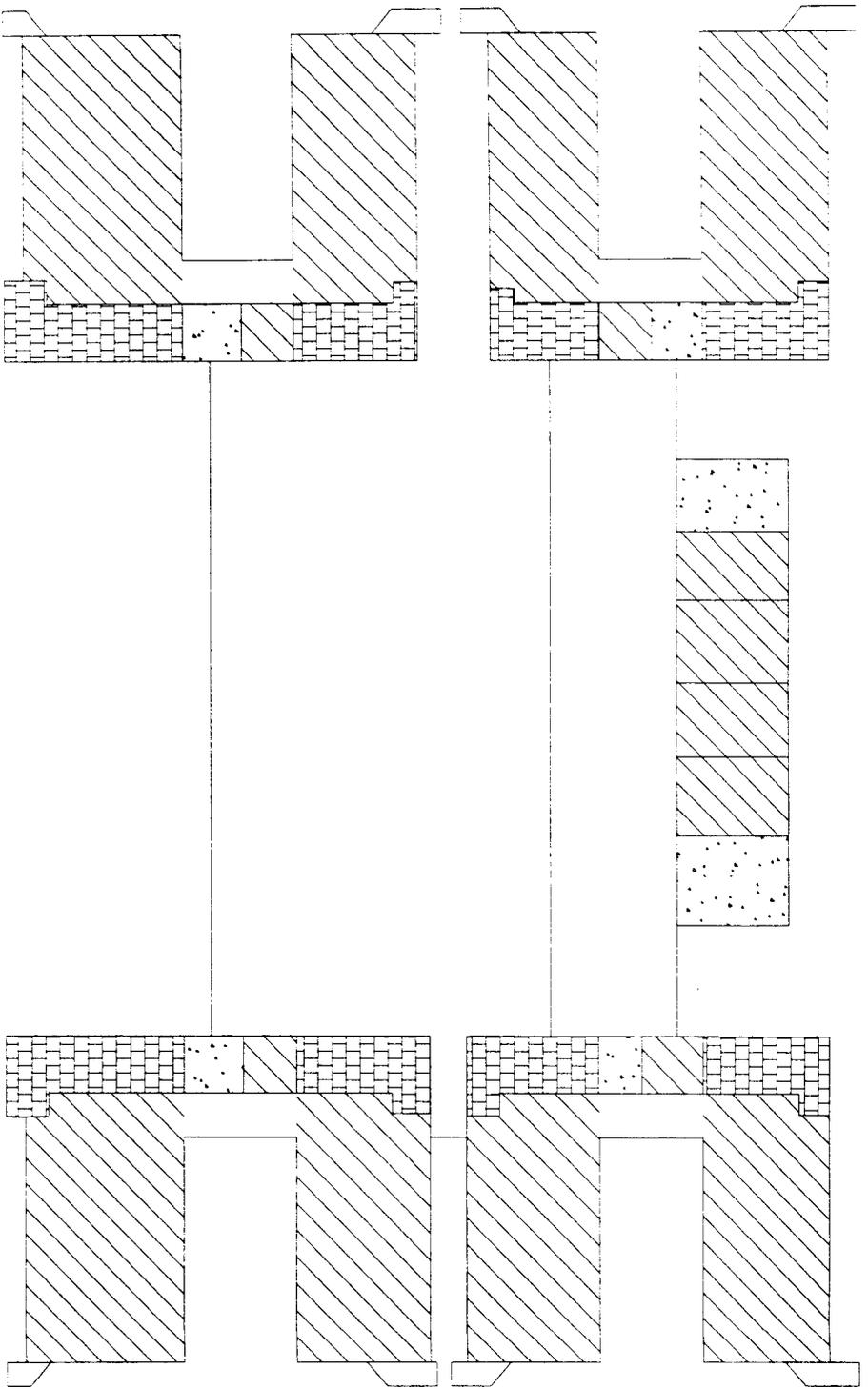
- ▨ 12 x 12 Floor Tile
- ▨ Ceramic Floor Tile
- ▨ Mechanical Room (Cement floor)

BUILDING 1801

FIRST FLOOR

ASBESTOS SURVEY  
 DAB102-96-D-0005  
 FM833

**REISZ ENGINEERING**



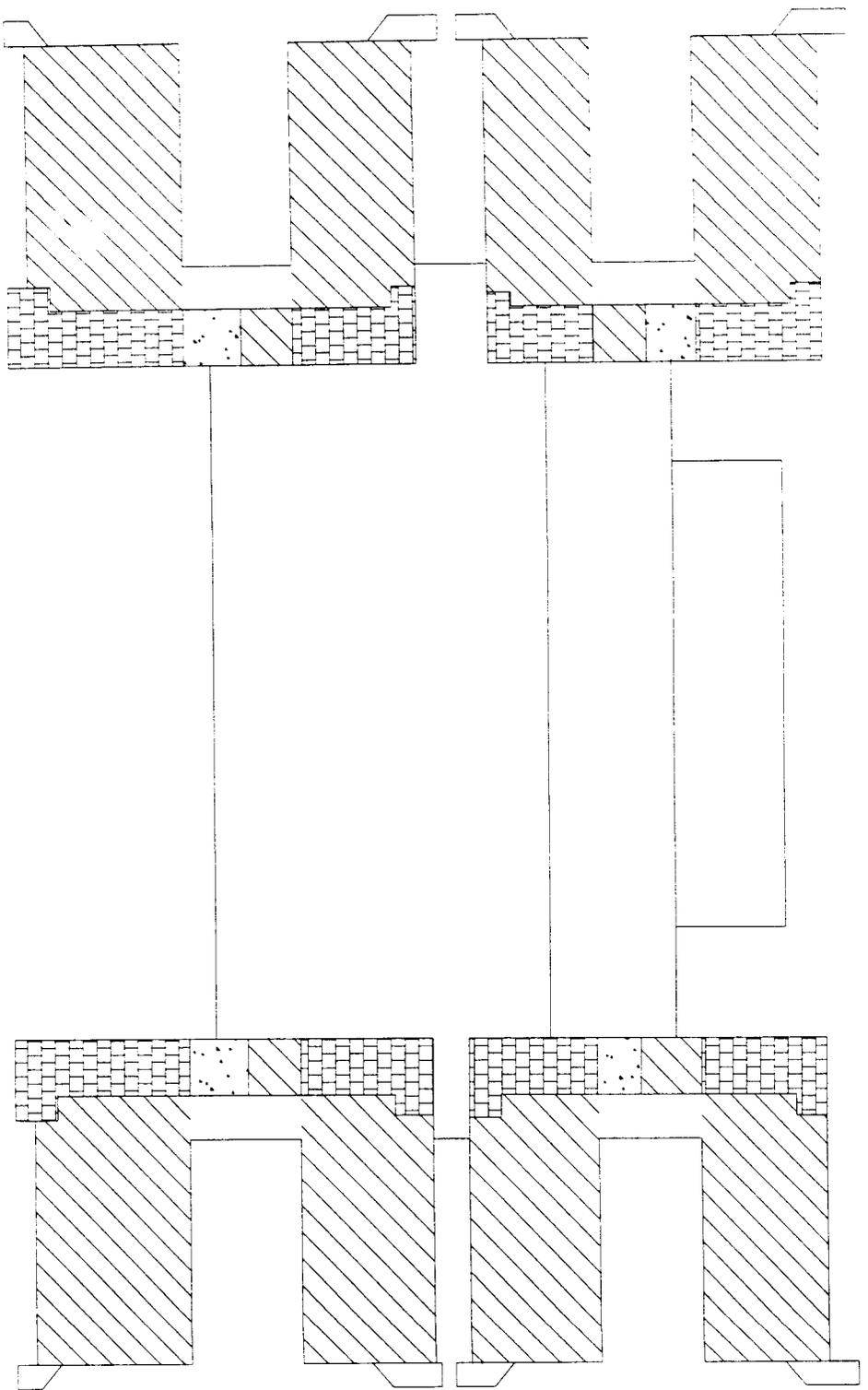
-  12 x 12 Floor Tile
-  Ceramic Floor Tile
-  Mechanical Room (cement floor)

BUI BINH 1801

SECOND FLOOR

ASBESTOS SURVEY  
 DAB102-96-D-0005  
 FM8333

**REISZ ENGINEERING**



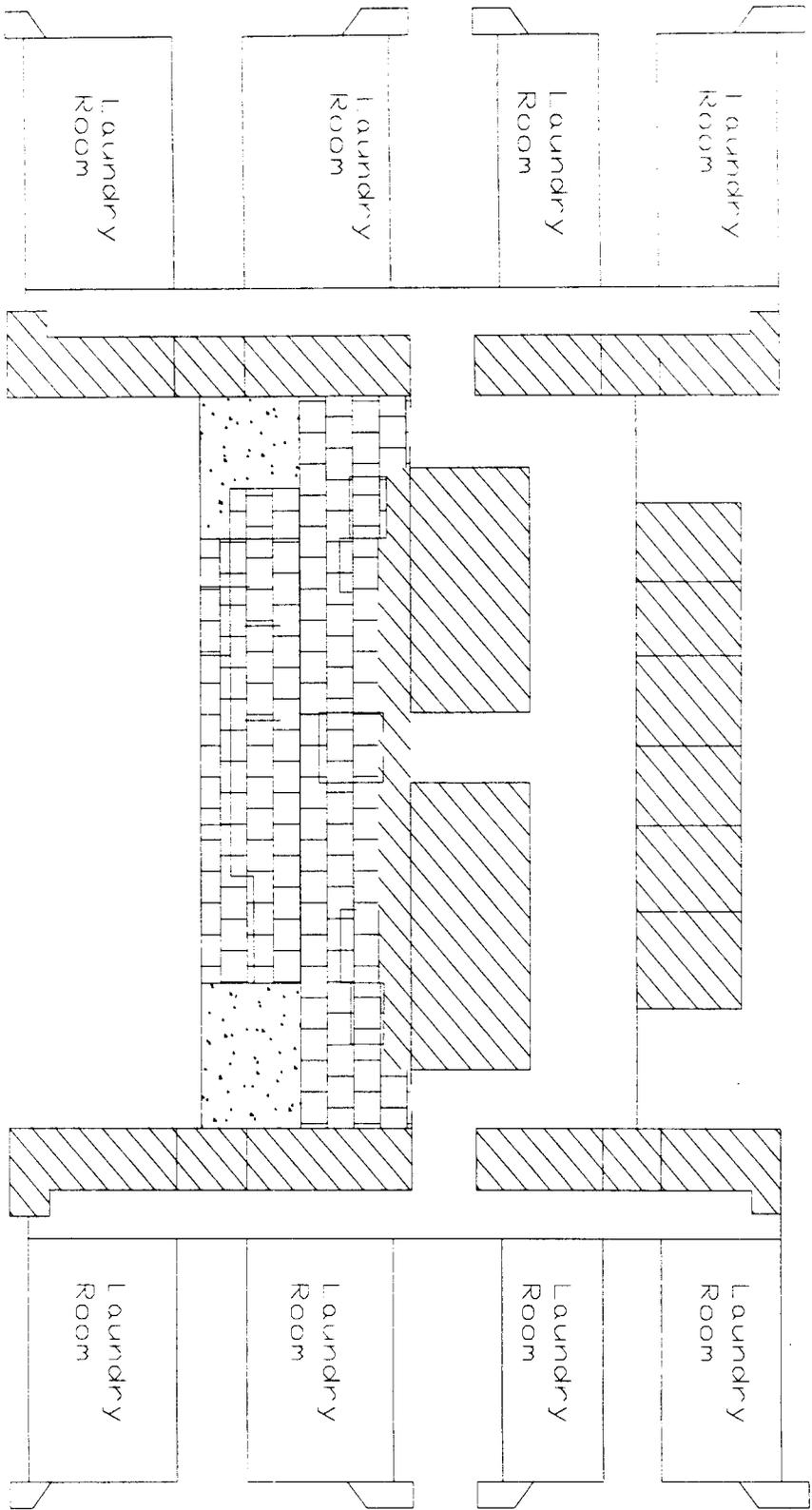
-  12 x 12 Floor Tile
-  Ceramic Floor Tile
-  Mechanical Room (Cement Floor)

BUILDING 1801

THIRD FLOOR

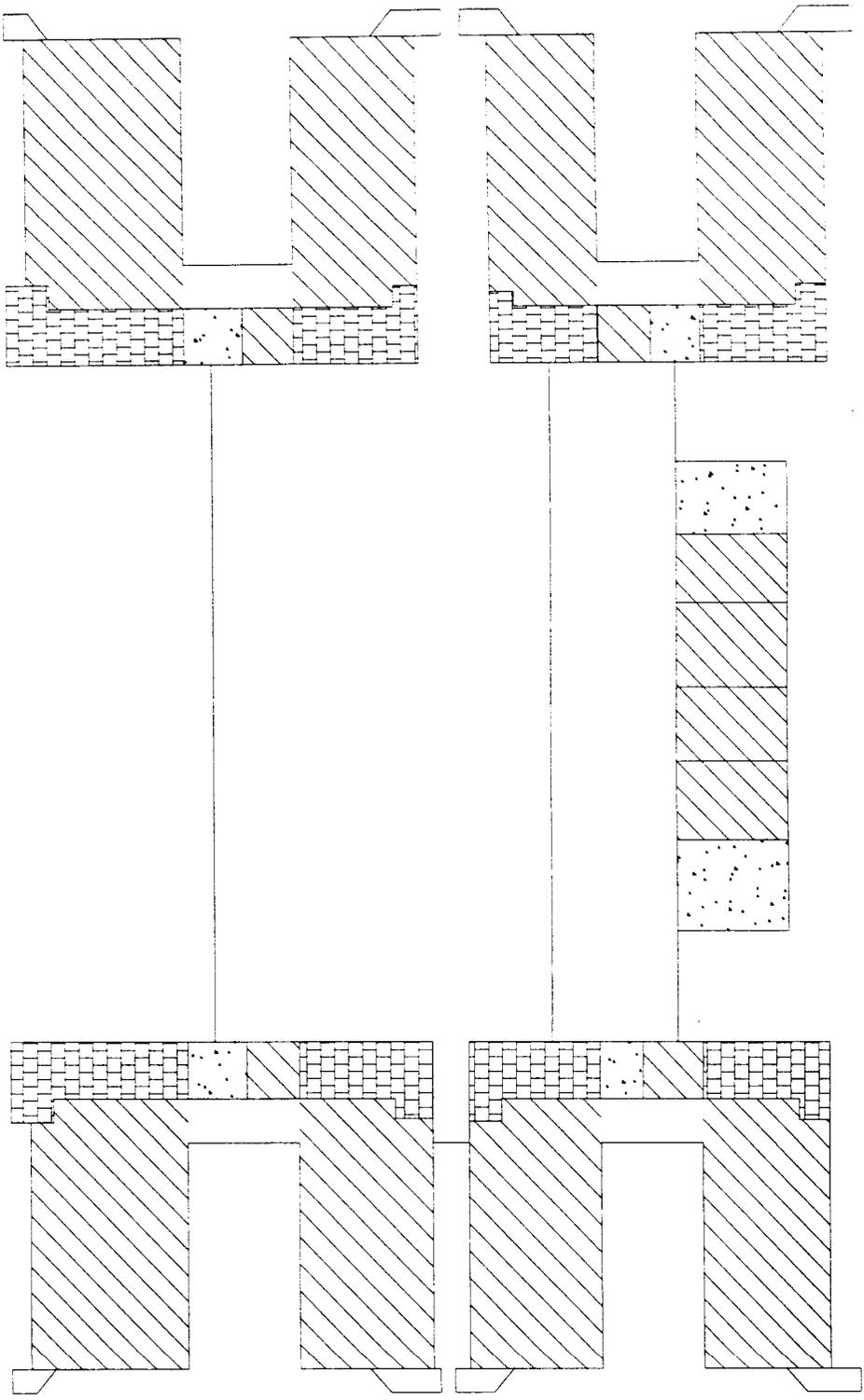
ASBESTOS SURVEY  
DAB102-96-D-0005  
FM833

**REISZ ENGINEERING**



-  12 x 12 Floor Tile
-  Ceramic Floor Tile
-  Mechanical Room (Cement floor)

BUILDING: 1802	FIRST FLOOR	ASBESTOS SURVEY DAB102-96-D-0005 FM833	<b>REISZ ENGINEERING</b>
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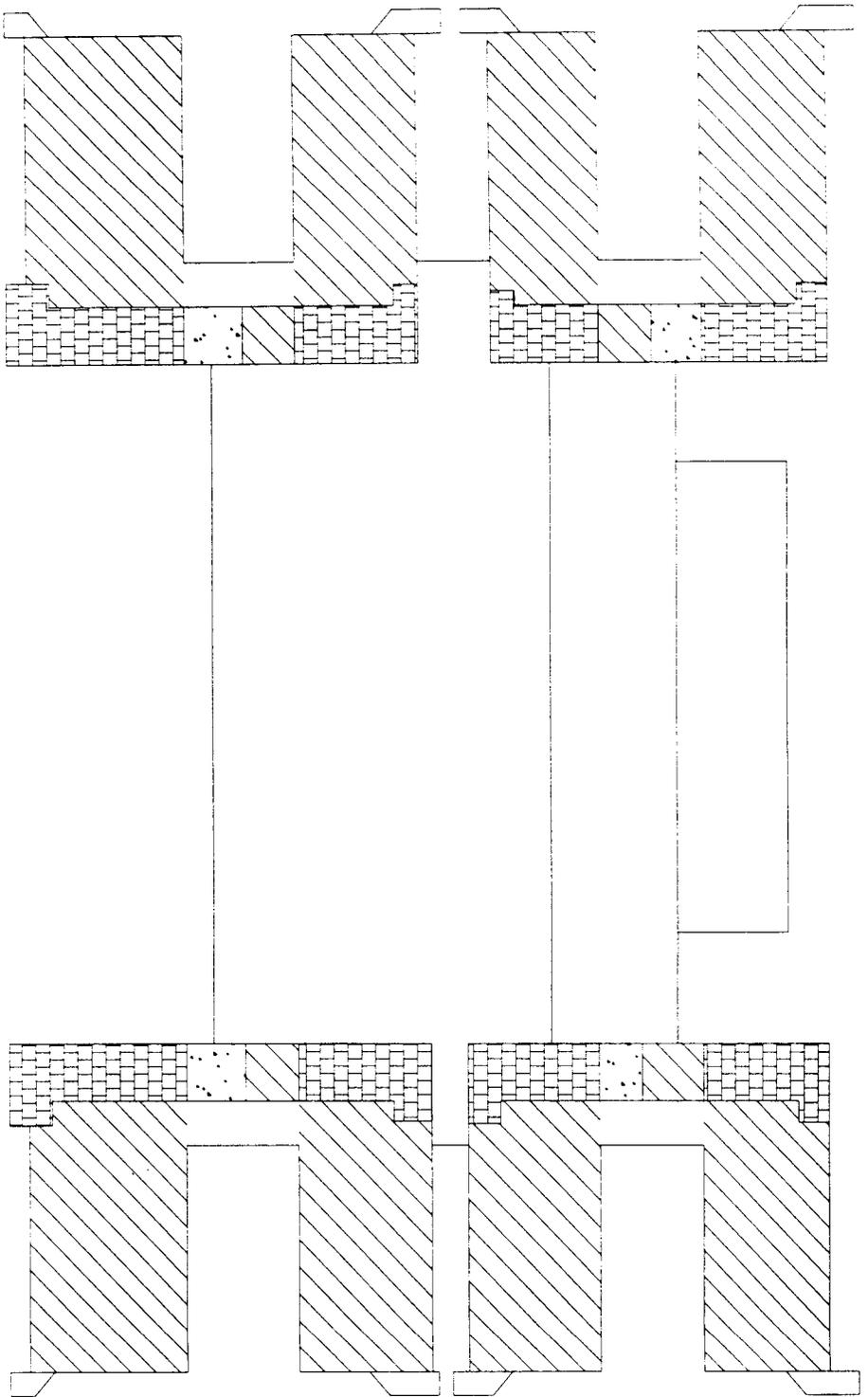
-  12 x 12 Floor Tile
-  Ceramic Floor Tile
-  Mechanical Room (Cement Floor)

BUILDING 1802

SECOND FLOOR

ASBESTOS SURVEY  
DAB102-96 D 0005  
FM833

**REISZ ENGINEERING**



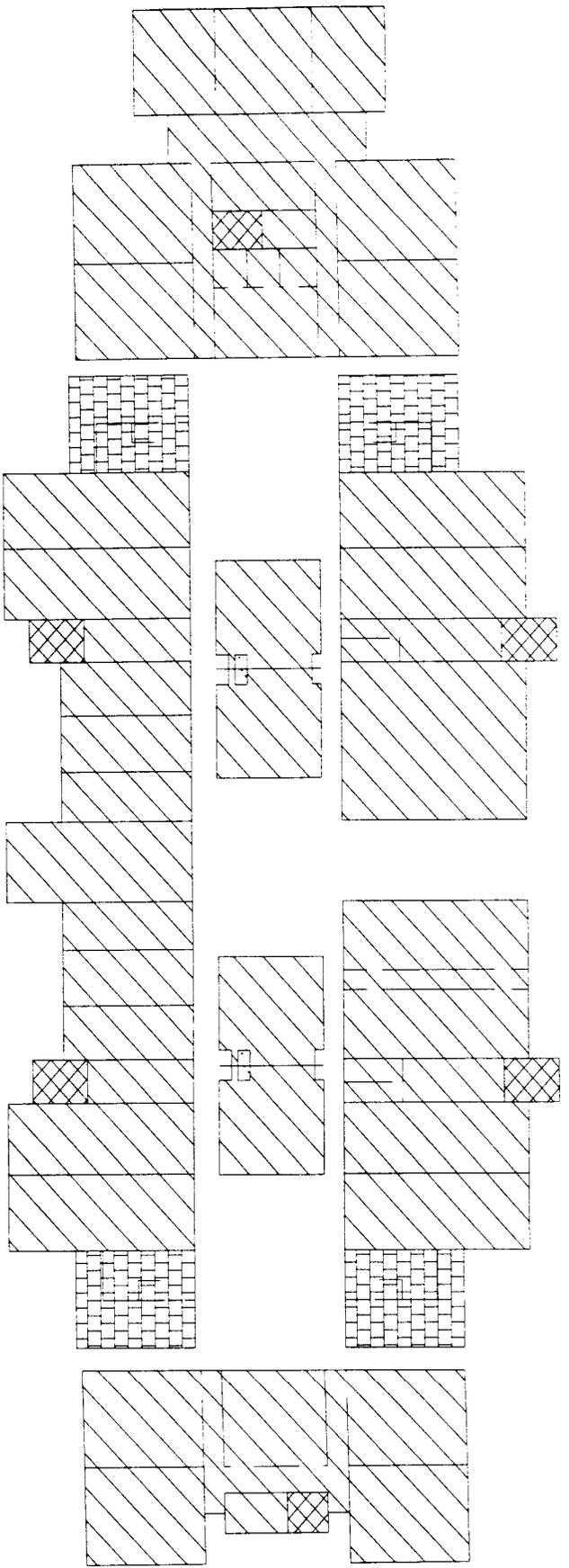
-  12 x 12 Floor Tile
-  Ceramic Floor Tile
-  Mechanical Room (Cement floor)

BUILDING 1802

THIRD FLOOR

ASBESTOS SURVEY  
DAB102-96-D-0005  
FM833

**REISZ ENGINEERING**



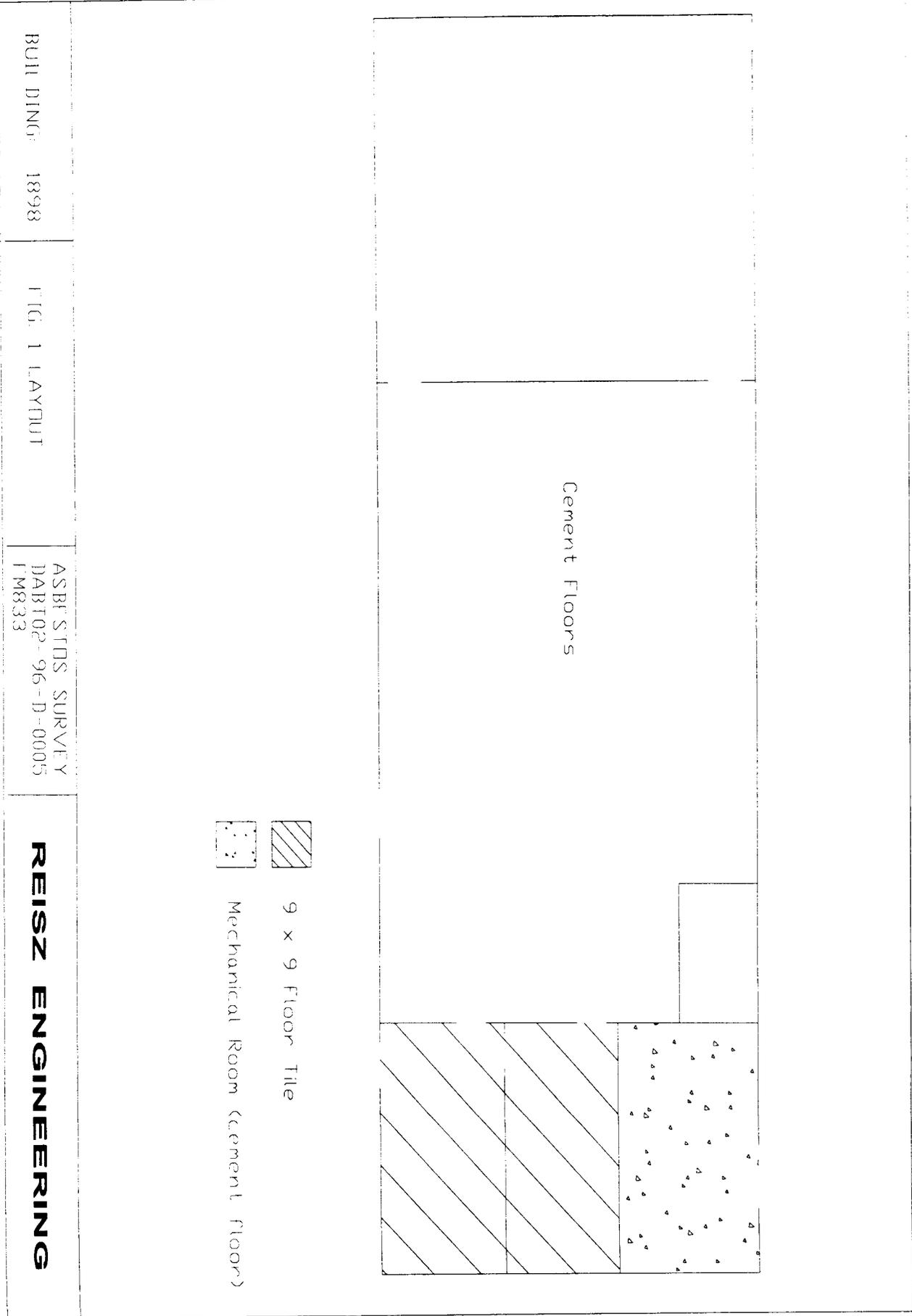
-  12 x 12 Floor Tile
-  Second Floor Mechanical Room
-  Ceramic Floor Tile
-  Mechanical Room (Cement floor)

BUILDING 1881

FIG. 1 LAYOUT

ASBESTOS SURVEY  
 DAB102-96-D-0005  
 FM833

**REISZ ENGINEERING**

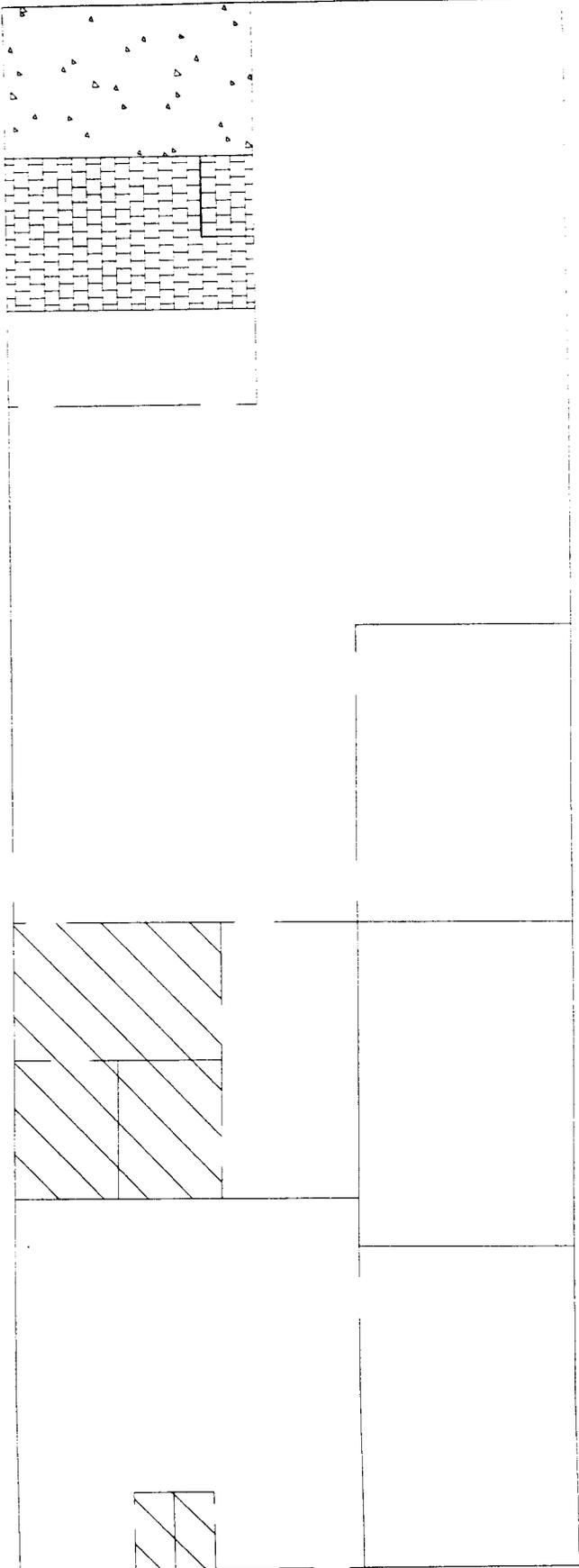


BUILDING 1898

FIG. 1 LAYOUT

ASBTS SURVEY  
 DAB102-96-D-0005  
 FM833

**REISZ ENGINEERING**



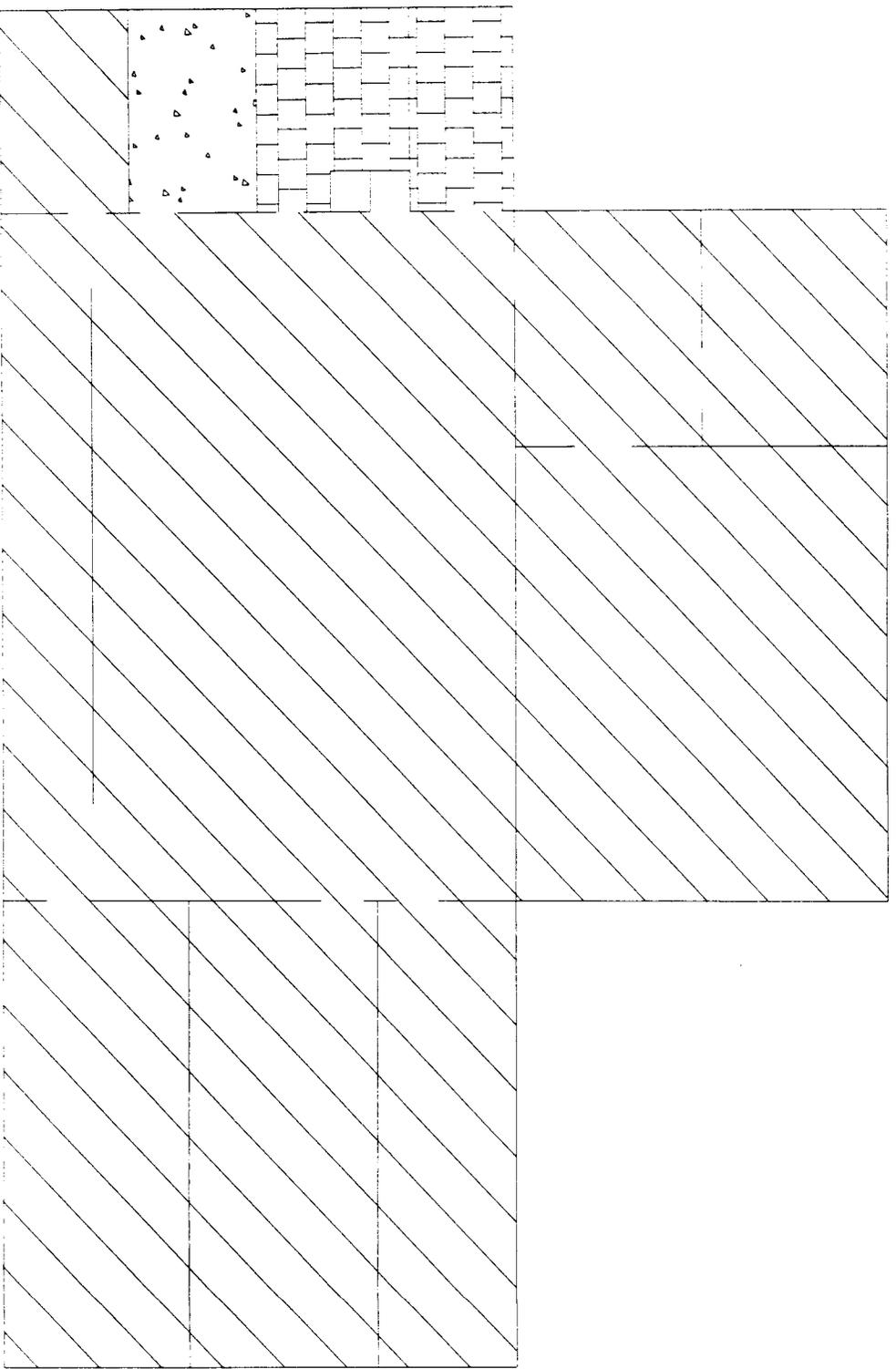
-  12 x 12 Floor Tile
-  Ceramic Floor Tile
-  Mechanical Room (Cement floor)

BUILDING 1997

FIG. 1 LAYOUT

ASBESTOS SURVEY  
 DAB102-96-D-0005  
 FM833

**REISZ ENGINEERING**



 12 x 12 Floor Tile

 Cement Floor

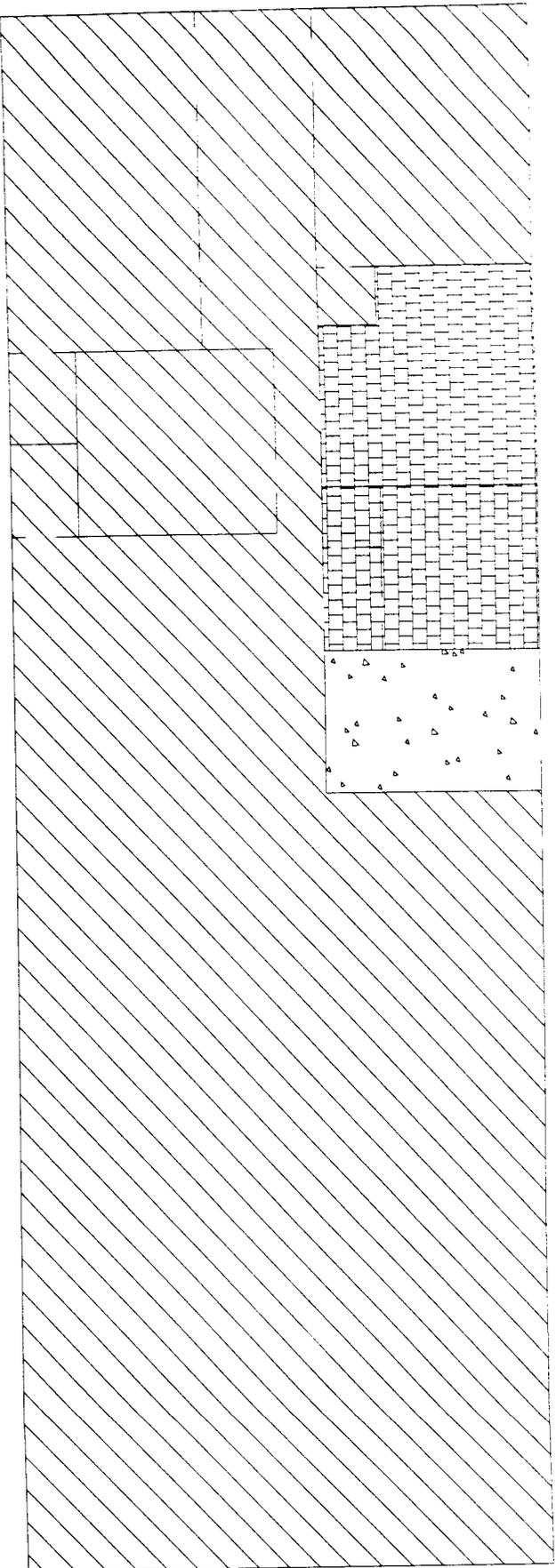
 Ceramic Tile Floor

BUILDING 2262

FLOOR LAYOUT

ASBESTOS SURVEY  
DARTON 96-D 0005  
FM833

**REISZ ENGINEERING**



-  Mechanical Room (Cement floor)
-  12 x 12 Floor Tile
-  Ceramic Floor Tile

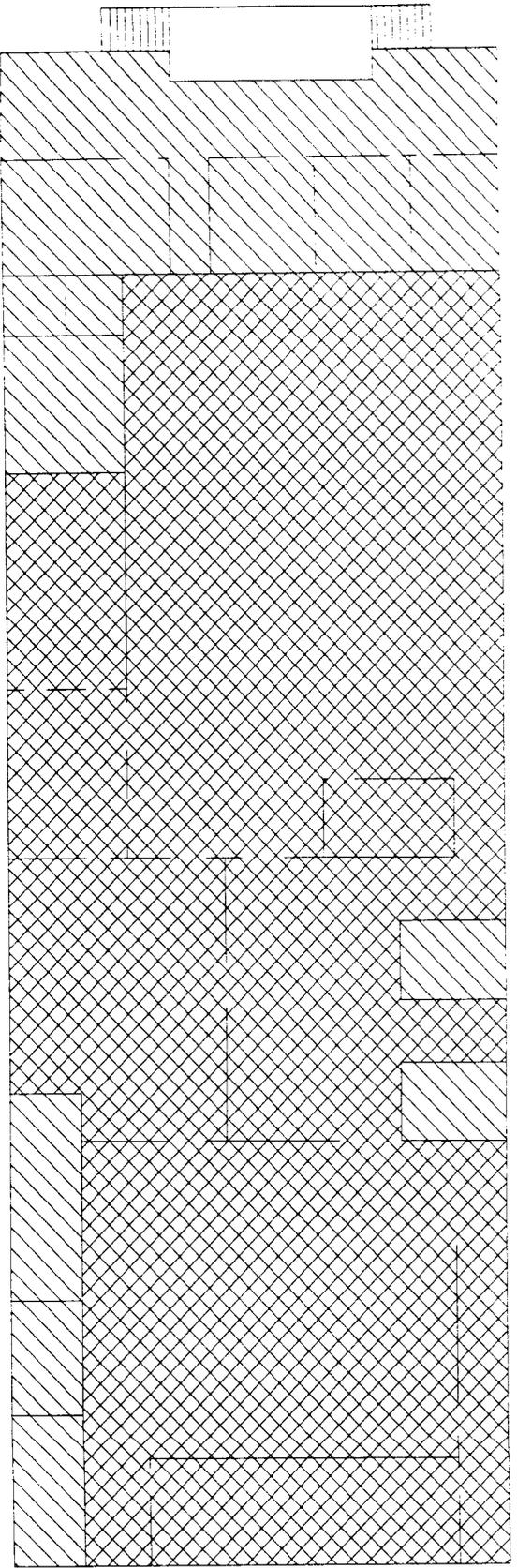
BUILDING

2291

FLOOR PLAN

ASBESTOS SURVEY  
 DAB102-96-D-0005  
 FM833

**REISZ ENGINEERING**



▨ 12 x 12 Floor Tile

▩ Carpet Flooring (Over 12x12 Tile (assumed))

BUILDING: 2299

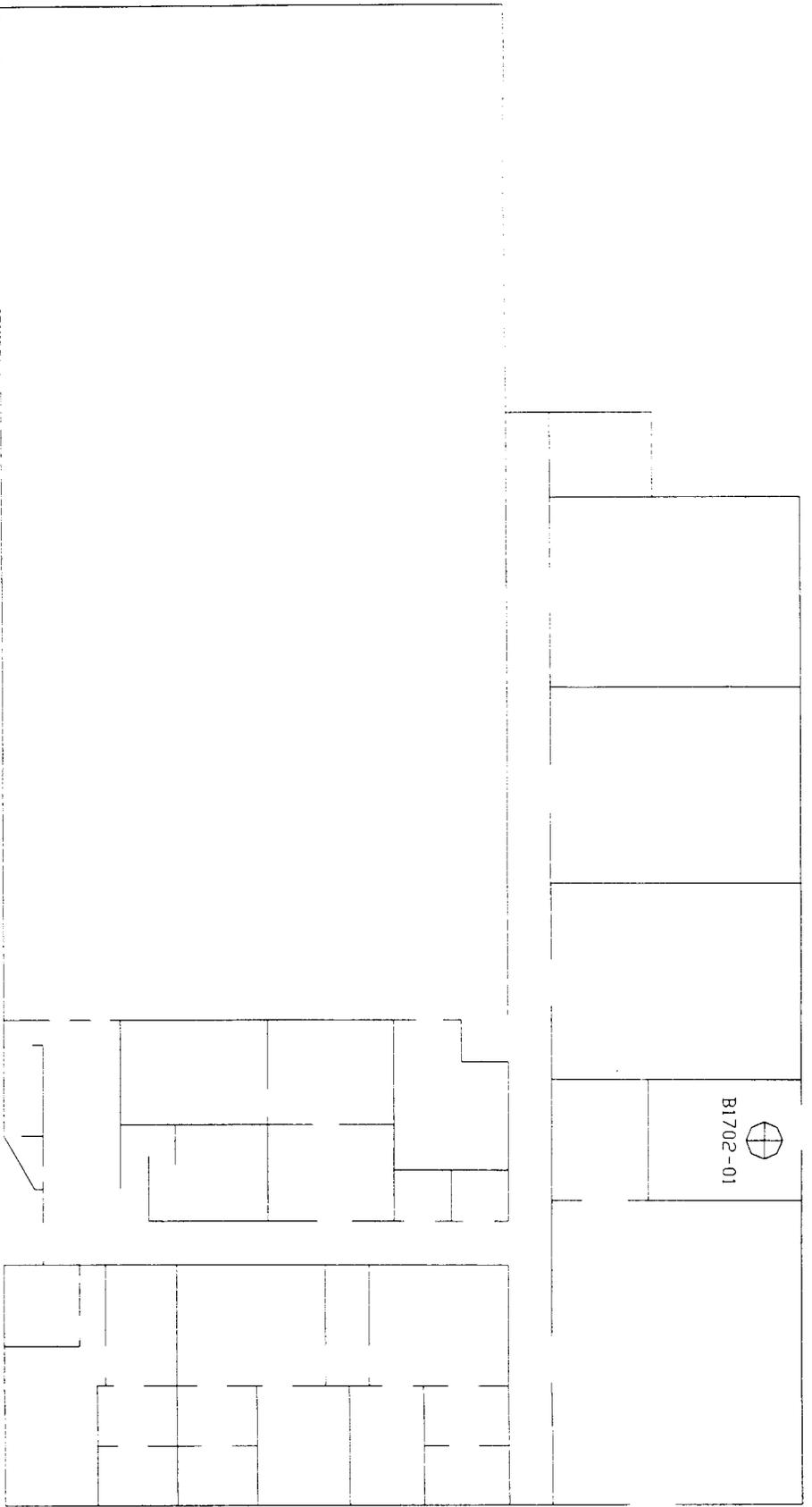
FIG. 1 LAYOUT

ASBESTOS SURVEY  
DAB102-96-D-0005  
FM8333

**REISZ ENGINEERING**

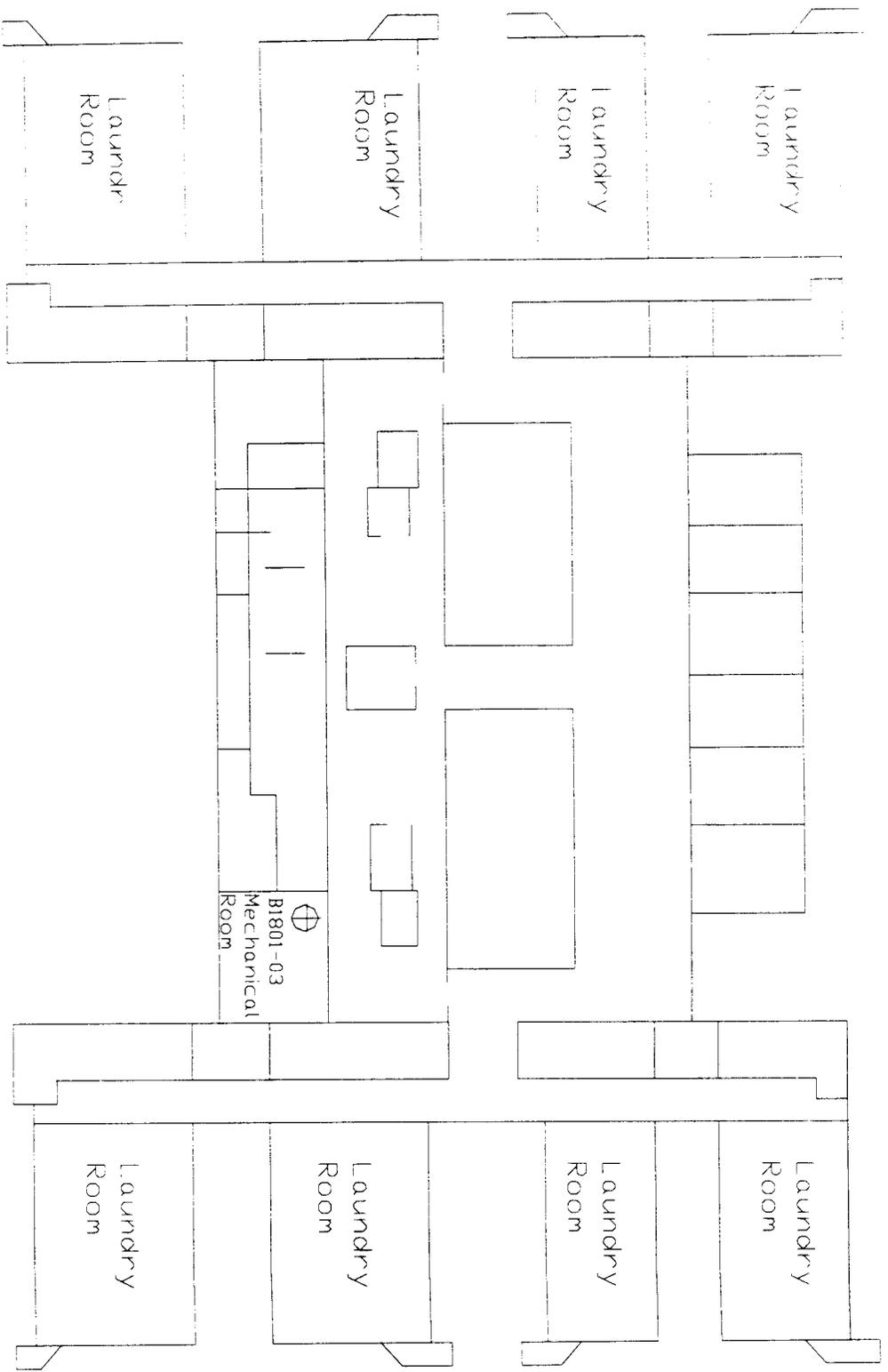
**APPENDIX D**

**SAMPLE LOCATION PLANS**



- ⊕ Positive Sample Locations
- ⊖ Negative Sample Locations

BUILDING: 1702	FIG. 1 LAYOUT	ASBESTOS SURVEY DAB102-96-D-0005 FM833	<b>REISZ ENGINEERING</b>
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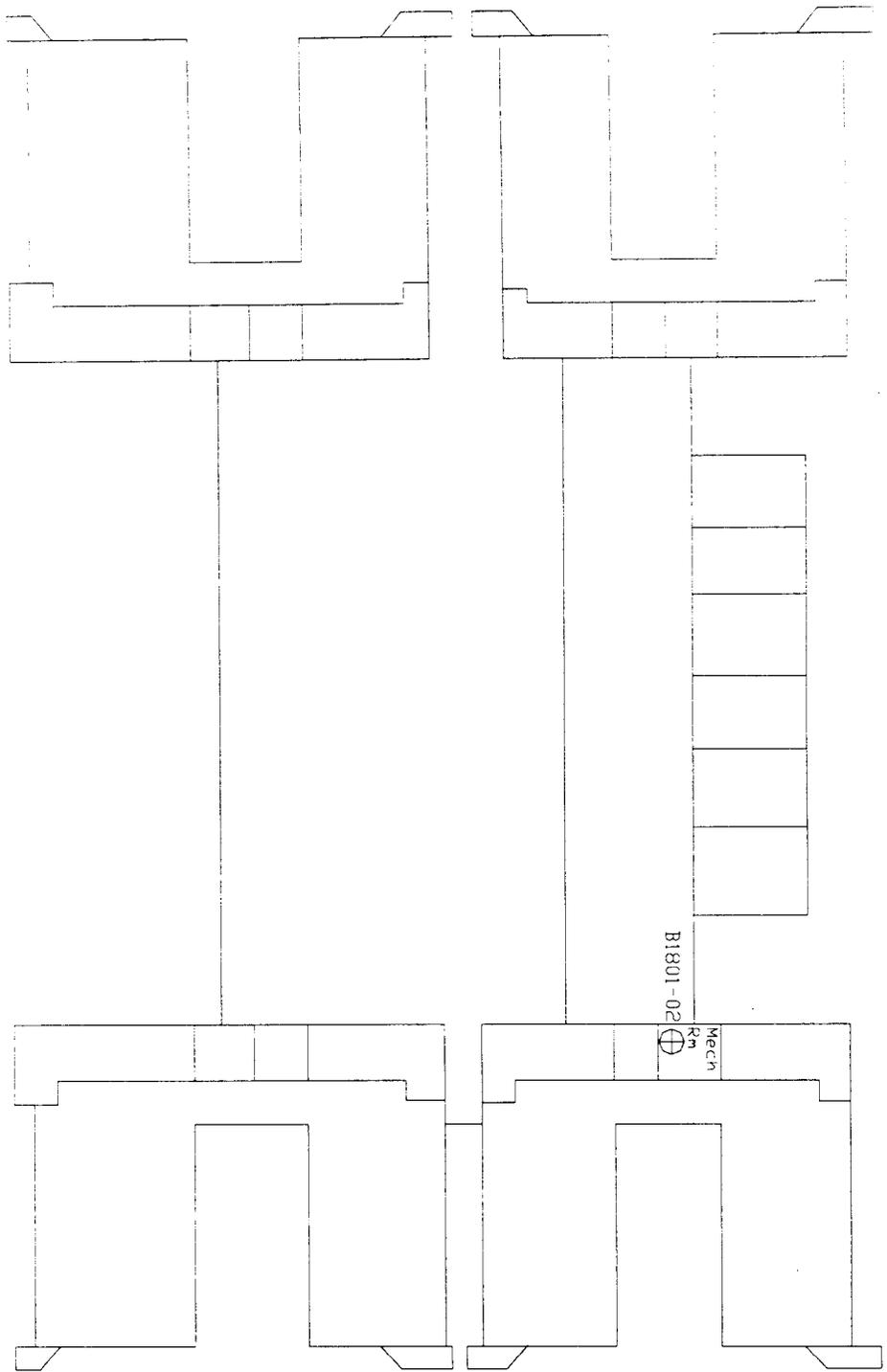
- ⊕ Positive Sample Locations
- ⊖ Negative Sample Locations

BUILDING 1801

FIRST FLOOR

ASBESTOS SURVEY  
DABTOP-96-D-0005  
FM833

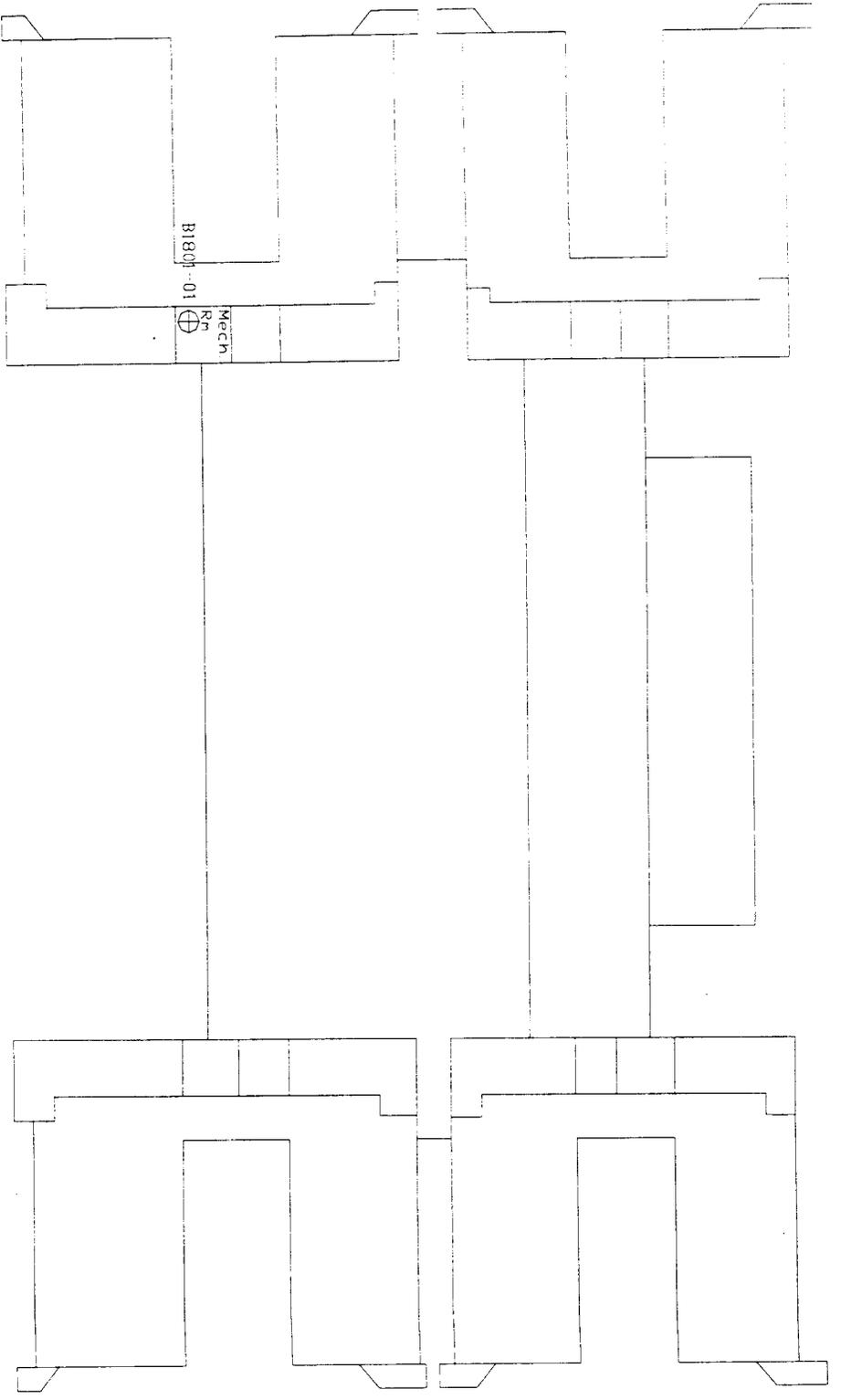
**REISZ ENGINEERING**



- ⊕ Positive Sample Locations
- ⊖ Negative Sample Locations

BUILDING	1801	SECT/IND	FLOOR	ASBESTOS SURVEY
				DAB102-96 D-0005
				FM833

**REISZ ENGINEERING**



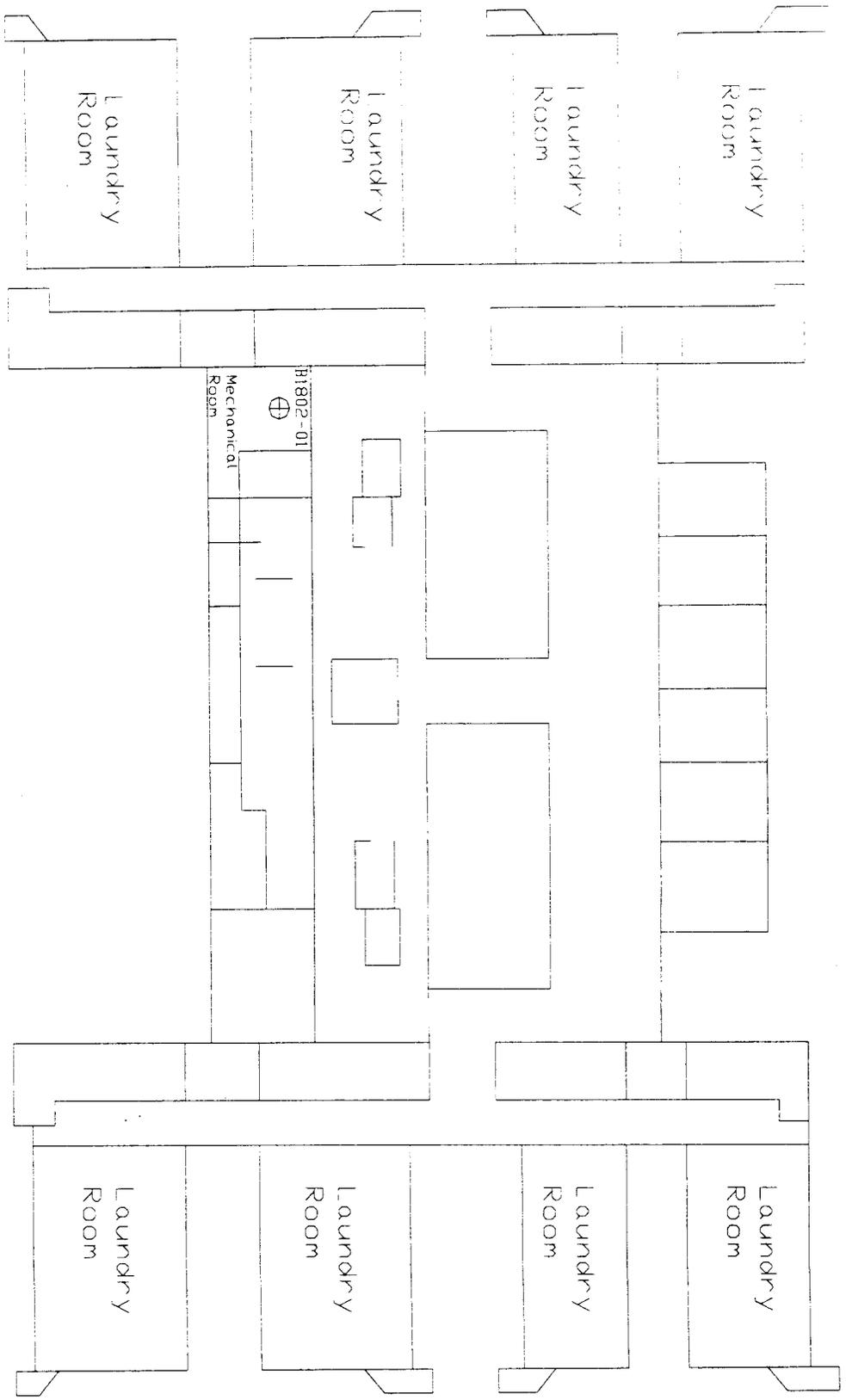
- ⊕ Positive Sample Locations
- ⊖ Negative Sample Locations

BUIH DINQ 1801

THIRD FLOOR

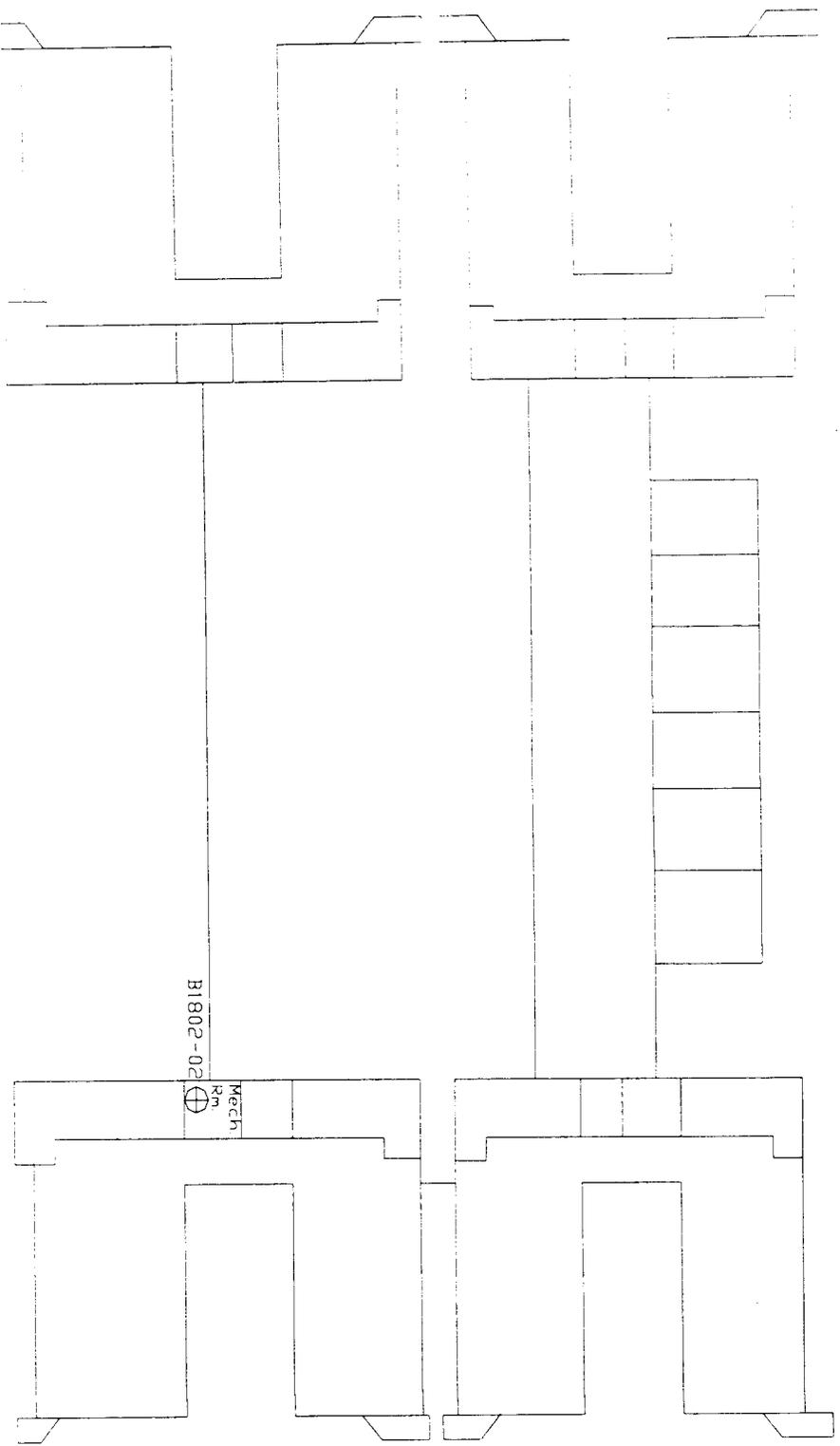
ASBI SIDS SURVEY  
 DAB102-96 D-0005  
 1M833

**REISZ ENGINEERING**



- ⊕ Positive Sample Locations
- ⊖ Negative Sample Locations

BUILDING: 1802	FIRST FLOOR	ASBESTOS SURVEY DAB102 96-D-0005 1M833	<b>REISZ ENGINEERING</b>
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- ⊕ Positive Sample Locations
- ⊖ Negative Sample Locations

BUILDING 1802

SECOND FLOOR

ASBESTOS SURVEY  
 DAB102 96-D-0005  
 1M833

**REISZ ENGINEERING**

**APPENDIX E**

**SUMMARY TABLE OF PACM AND COST ESTIMATES**

Building Number	PACM Material	Approx. Quantity	Estimated Abatement Cost*
B1001	12x12 vinyl floor tile and mastic	7,900 ft <sup>2</sup>	\$18,170
		<b>Total</b>	<b>\$18,170</b>
B1601	12x12 vinyl floor tile and mastic	120,000 ft <sup>2</sup>	\$276,000
		<b>Total</b>	<b>\$276,000</b>
B1602	12x12 vinyl floor tile and mastic	120,000 ft <sup>2</sup>	\$276,000
		<b>Total</b>	<b>\$276,000</b>
B1701	12x12 vinyl floor tile and mastic	5,350 ft <sup>2</sup>	\$12,305
		<b>Total</b>	<b>\$12,305</b>
B1702	12x12 vinyl floor tile and mastic	5,350 ft <sup>2</sup>	\$12,305
		<b>Total</b>	<b>\$12,305</b>
B1740	9x9 vinyl floor tile and mastic	1,680 ft <sup>2</sup>	\$3864
	12x12 vinyl floor tile and mastic	4,200 ft <sup>2</sup>	\$9660
		<b>Total</b>	<b>\$13,524</b>
B1789	12x12 vinyl floor tile and mastic	7,000 ft <sup>2</sup>	\$16,100
		<b>Total</b>	<b>\$16,100</b>
B1801	12x12 vinyl floor tile and mastic	135,000 ft <sup>2</sup>	\$310,500
		<b>Total</b>	<b>\$310,500</b>
B1802	12x12 vinyl floor tile and mastic	135,000 ft <sup>2</sup>	\$310,500
		<b>Total</b>	<b>\$310,500</b>
B1881	12x12 vinyl floor tile and mastic	80,000 ft <sup>2</sup>	\$184,000
		<b>Total</b>	<b>\$184,000</b>
B1898	9x9 vinyl floor tile and mastic	288 ft <sup>2</sup>	\$770
		<b>Total</b>	<b>\$770</b>
B1997	12x12 vinyl floor tile and mastic	920 ft <sup>2</sup>	\$2116
		<b>Total</b>	<b>\$2116</b>
B2262	12x12 vinyl floor tile and mastic	3,500 ft <sup>2</sup>	\$8,050
		<b>Total</b>	<b>\$8,050</b>
B2291	12x12 vinyl floor tile and mastic	6,800 ft <sup>2</sup>	\$15,640

		<b>Total</b>	<b>\$15,640</b>
--	--	--------------	-----------------

Building Number	PACM Material	Quantity	Estimated Abatement Cost*
B2299	12x12 vinyl floor tile and mastic	23,700 ft <sup>2</sup>	\$54,510
		<b>Total</b>	<b>\$54,510</b>
		<b>Grand Total</b>	<b>\$1,510,490</b>

\*Includes all air monitoring and design fees

**ASBESTOS CONTAINING BUILDING MATERIALS  
SURVEY REPORT**

**BUILDING(S):**

**4, 5, 12, 13, 24, 30A, 87, 3313B, 3314, 3323B, 3401,  
3503A, 3507B, 3524C, 3534C, 3537A, 3619B, 3622B,  
3643B, 3644A, 3700C, 3738A, and 3742B**

**ASBESTOS CONTAINING BUILDING MATERIALS SURVEY  
MISCELLANEOUS HOUSING UNITS**

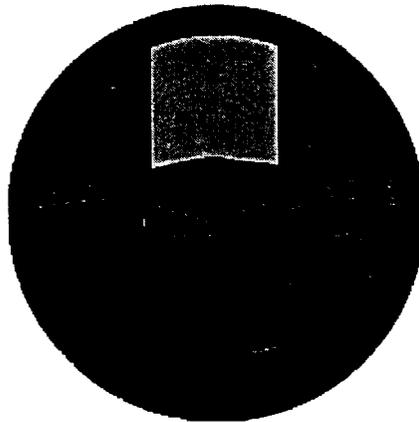
24, 30A, 87, 3313B, 3314, 3323B, 3401, 3503A, 3507B, 3524C, 3534C, 3537A, 3619B, 3622B,  
3643B, 3644A, 3700C, 3738A, 3742B, Buckner Circle #4, Buckner Circle #5,  
Buckner Circle #12, Buckner Circle #13

CONTAINING NON-FRIABLE PACM

**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  
MISCELLANEOUS HOUSING UNITS**

24, 30A, 87, 3313B, 3314, 3323B, 3401, 3503A, 3507B, 3524C, 3534C, 3537A, 3619B, 3622B,  
3643B, 3644A, 3700C, 3738A, 3742B, Buckner Circle #4, Buckner Circle #5,  
Buckner Circle #12, Buckner Circle #13

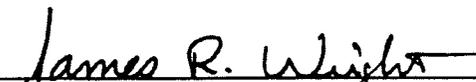
CONTAINING NON-FRIABLE PACM

**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**

**June, 1998**

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## APPENDICES

- APPENDIX A - SUMMARY TABLE OF ACM AND COST ESTIMATES
- APPENDIX B - LIST OF BUILDINGS
- APPENDIX C - ACM ANALYSIS REPORT

## **1.0 PURPOSE AND SCOPE OF SERVICES**

The purpose of this survey was to locate and identify asbestos containing building materials at multiple housing buildings/units located at Fort McClellan, Alabama. (See Appendix B for a complete list of buildings included in this document). 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

Reisz Engineering accredited Asbestos Inspectors performed inspections of these buildings for the purpose of identifying building materials suspected to contain asbestos. Some of the buildings referenced in this survey contain only non-friable ACM. Others contain friable, while some have no PACM. Refer to Appendix B for types and quantities of materials in individual buildings. These buildings serve as office, barracks and storage for the Alabama National Guard.

### 4.0 SURVEY METHODOLOGY

The buildings were 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 in various buildings. A complete and more detailed description of these materials can be found in Appendix B.

### Surfacing

- None

### Thermal System Insulation

- None

### Miscellaneous Material

- 12x12 vinyl floor tile in various buildings

- 9x9 vinyl floor tile in various buildings
- Vinyl flooring mastics
- Transite
- Black mastic coating on sinks

## 7.0 ASBESTOS INSPECTION AND SAMPLING RESULTS

Details of all laboratory results can be found in Appendix C. 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

None

### NON FRIABLE ACM

Four types of non-friable presumed ACM were found in the buildings. 1) transite, 2) 9x9 floor tile, 3) 12x12 floor tile, and 4) mastics associated vinyl floor tile.

- 1) Presumed asbestos containing transite exhaust pipe is found in the following buildings:  
3313B 3314 3323B 3619B 3622B 3643B 3644B 3644A 3738A 3742B
- 2) Presumed asbestos containing 9x9 inch floor tile and mastic is found in the following buildings:

Buckner Circle #4,#5,#13

- 3) Presumed asbestos containing 12x12 inch floor tile and mastic is found in the following buildings:

Buckner Circle #12 & 13    B24    30A    B87    3503A    3507B    3524C    3534C  
3537A    3700C

#### INACCESSIBLE MATERIAL,

Insulation and spray-on compounds associated with inaccessible crawl-space and tunnel areas may 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. The asbestos containing materials may be subject to routine maintenance activities that could involve significant disturbance. 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 these buildings.

#### 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 these buildings during 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 may lie 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**

**SUMMARY TABLE OF ACM AND COST ESTIMATES**

<b>Building Number</b>	<b>PACM Material</b>	<b>Quantity</b>	<b>Estimated abatement cost*</b>
Buckner Circle #4 & #5	9x9 floor tile and mastic	320 sq. ft.	\$800
Buckner Circle #12	12x12 floor tile and mastic	200 sq. ft.	\$600
Buckner Circle #13	12x12 floor tile and mastic	220 sq. ft.	\$660
	9x9 floor tile and mastic	100 sq. ft.	\$250
<b>B24</b>	12x12 floor tile and mastic	1200 sq. ft.	\$2,740
<b>30A</b>	12x12 floor tile and mastic	2,500 sq. ft.	\$5,750
<b>B87</b>	12x12 floor tile and mastic	2,000	\$4,600
<b>3313B,3314,3323B 3619B,3622B,3643B, 3644B,3644A,3738A 3742B</b>	Transite exhaust pipe	25 linear ft. per unit	\$400 per unit
		<b>TOTAL</b>	\$4,000
<b>3503A,3507B,3524C 3534C,3537A,3700C</b>	12x12 floor tile and mastic	1,000 sq. ft. per unit	\$2,250 per unit
		<b>TOTAL</b>	\$13,500

\*Includes all air monitoring and design fees

**APPENDIX B**

LIST OF BUILDINGS

BUILDING NUMBER

Buckner Circle #4  
Buckner Circle #5  
Buckner Circle #12  
Buckner Circle #13  
B24  
30A  
B87  
3313B  
3314  
3323B  
3401  
3503A  
3507B  
3524C  
3534C  
3537A  
3619B  
3622B  
3643B  
3644A  
3700C  
3738A  
3742B

**APPENDIX C**

**ASBESTOS ANALYSIS RESULTS**

# 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: 07/07/97

Sample Date : 06/30/97

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
B3619b-01/ Black undercoating On sink							15		85

ry = Chrysotile  
Amos = Amosite  
Croc = Crocidolite

Othr = Other  
Cell = Cellulose

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

**ASBESTOS CONTAINING BUILDING MATERIALS  
SURVEY REPORT**

**BUILDING(S): 142, 1929, 2091, 2102 2109, 3160 and 3174**

**ASBESTOS CONTAINING BUILDING MATERIALS SURVEY  
MISCELLANEOUS  
BUILDINGS**

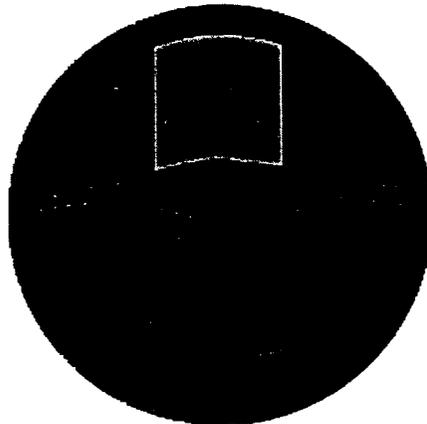
142, 256, 267, 337, 1929, 1966, 2051, 2091, 2098, 2102, 2109, 3160, 3174, 3213

CONTAINING NON-FRIABLE ACM  
(TESTED)

**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  
MISCELLANEOUS  
BUILDINGS**

142, 256, 267, 337, 1929, 1966, 2051, 2091, 2098, 2102, 2109, 3160, 3174, 3213

CONTAINING NON-FRIABLE ACM  
(TESTED)

**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**

June, 1998

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### APPENDICES

APPENDIX A - REPORT OF LABORATORY ANALYSIS  
APPENDIX B - SUMMARY OF ACM AND COST ESTIMATES  
APPENDIX C - LIST OF BUILDINGS  
APPENDIX D - ACM SAMPLE LOCATIONS PLANS  
APPENDIX E - SELECTED ACM LOCATION PLANS

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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.

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### 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 in various buildings. A complete and more detailed description of these materials can be found in Appendix B.

### Surfacing

- None

### Thermal System Insulation

- Pipe fitting insulation

### Miscellaneous Material

- 12x12 vinyl floor tile in various buildings
- 9x9 vinyl floor tile in various buildings

- Vinyl flooring mastics
- Transite

## 7.0 ASBESTOS INSPECTION AND SAMPLING RESULTS

A narrative description of all ACM identified by laboratory analysis during the survey is given below.

### FRIABLE ACM

None

### NON FRIABLE ACM

Four types of non-friable presumed ACM were found in the buildings. 1) transite, 2) 9x9 floor tile, 3) 12x12 floor tile, and 4) mastics associated vinyl floor tile.

- 1) Asbestos containing transite sheeting is found on the ceiling of one room in Building 337.  
A transite exhaust pipe is also located in this building.
- 2) Asbestos containing 9x9 inch floor tile and mastic is found in the following buildings:  
B256 B2102 B142 B267 B2098 B2091 B3213
- 3) Asbestos containing 12x12 inch floor tile and mastic is found in the following buildings:  
B1929 B1966 B3160 B3174 B2109 B337 B2051 B3213

### 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. The asbestos containing materials may be subject to routine maintenance activities that could involve significant disturbance. 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.

## 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 these buildings during the period of this contract. 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 may lie 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**

# UAH

The University of Alabama in Huntsville

Environmental Laboratory  
Kenneth E. Johnson Research  
Center

Huntsville, Alabama 35899  
Phone: (205) 890-6391  
Fax: (205) 890-6376

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

Receipt Date 07/26/97

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

Sample Date: 07/23-24/97

Microscopist Tom Carrington

Sample/Description	Asbestos Fibers (%)				Non-Asbestos Material (%)				
	Chry	Amos	Croc	Othr	Cell	Fbql	MW	CaSO4	Othr
B142-01/ ceiling tile above Drop ceiling					75				25
B142-02/ 9 X 9 tile	5								95
B142-03/ mastic	10				10		5		70
B142-04/ 12 X 12 floor tile					5				95
B142-05/ mastic					15				85
B256-01/ 9 X 9 floor tile	15								85
B256-02/ mastic from floor tile	10				10				80
B267-01/ 12 X 12 floor tile White									100
B267-02/ 9 X 9 floor tile Brown	10				5	2			83
B267-03/ 9 X 9 floor mastic	15				15				70
B267-04/ 9 X 9 floor tile black					5				95
B267-05/ 9 X 9 floor mastic	15				15				70
B267-06/ 9 X 9 floor tile Brown	15				5				80
B267-07/ 9 X 9 mastic	20				5				75
B337-01/ transite-like board On ceiling	30								70

Othr = Other  
Cell = Cellulose

MW = Mineral Wool  
Ca SO4 = Calcium  
Sulfate Fbql =  
Fiberglass

Chry = Chrysotile  
Amos = Amosite  
Croc = Crocidolite

# UAH

Environmental Laboratory  
Kenneth E. Johnson Research  
Center

The University of Alabama in Huntsville

Huntsville, Alabama 35899  
Phone: (205) 890-6391  
Fax: (205) 890-6376

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

Receipt Date: 06/20/97

Sample Date : 06/09/97

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

Microscopist: Tom Carrington

Sample/Description	Asbestos Fibers (%)				Non-Asbestos Material (%)				
	Chry	Amos	Croc	Othr	Cell	Fbql	MW	CaSO4	Othr
B1929-01A/ (a) Floor tile 12 X 12					10				90
(b) Mastic	20				15	1			64
B1929-02A/ (a) Floor tile 12 X 12					3				97
(b) Mastic	25				15	1			59
B1966-01A/ (a) Floor tile 12 X 12									100
(b) Mastic	15				10	1			74
B1966-02A/ (a) Floor tile 12 X 12					10				90
(b) Mastic	20				20	1			59
B1966-03A/ (a) Floor tile 12 X 12					3				97
(b) Mastic	18				10				72
B2051-01/ White powder around valve						5			95
B2051-02/ (a) Floor tile	10				15				75
(b) Mastic	25				15				60
B2051-03/ (a) Floor tile	10				5				85
(b) Mastic	10				25				65
B2091-01/ 9 X 9 floor tile	2				5				93
B2091-02/ ceiling tile					85				15

Chry = Chrysotile  
Amos = Amosite  
Croc = Crocidolite

Othr = Other  
Cell = Cellulose

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

# UAH

Environmental Laboratory  
Kenneth E. Johnson Research  
Center

The University of Alabama in Huntsville

Huntsville, Alabama 35899  
Phone: (205) 890-6391  
Fax: (205) 890-6376

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

Receipt Date: 06/20/97

Sample Date : 06/09/97

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

Microscopist: Tom Carrington

Sample/Description	Asbestos Fibers (%)				Non-Asbestos Material (%)				
	Chry	Amos	Croc	Othr	Cell	Fbgl	MW	CaSO4	Othr
B2098-01/ (a) 9 X 9 tile	15				15				70
B2098-01/ (b) Mastic					20				80
B2102-01/ 9 X 9 floor tile	15								85
B2102-02/ insul. Covering									100
B2109-01/ (a) Floor tile					25				75
(b) Mastic	15				20				65
B2109-02/ (a) Floor tile					12				88
(b) Mastic	12				25				63
B2109-03/ (a) Floor tile					10				90
(b) Mastic	1				30				69
B3160-01/ (a) 12 X 12 tile	15				10	1			74
(b) Mastic					8				92
B3174-01 (a) 12 X 12 tile					3				97
(b) Mastic	12				5				83

Chry = Chrysotile  
Amos = Amosite  
Croc = Crocidolite

Othr = Other  
Cell = Cellulose

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

# UAH

Environmental Laboratory  
Kenneth E. Johnson  
Research Center

The University of Alabama in  
Huntsville

Huntsville, Alabama 35899

Phone: (205) 890-6391

Fax: (205) 890-6376

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

ReceiptDate :01/15/98

AIHA: 023601

Sample Date :01/12/98

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

Microscopist : Tom Canington

Sample/Description	Asbestos Fibers (%)				Non-Asbestos Material (%)				
	Chry	Amos	Croc	Othr	Cell	Fbgl	NW	CaSO4	Othr
B3213-01/ (a) 9 x 9 tile			10		15				75
B3213-01/ (b) Mastic			30		10				60

Chry = Chrysotile  
Amos = Amosite  
Croc = Crocidolite

Othr = Other  
Cell =  
Cellulose

MW = Mineral Wool  
Ca SO4 = Calcium  
Sulfate Fbgl =  
Fiberglass

**APPENDIX B**

**SUMMARY OF ACM AND COST ESTIMATES**

<b>Building Number</b>	<b>PACM Material</b>	<b>Quantity</b>	<b>Estimated abatement cost*</b>
<b>B142</b>	9x9 floor tile and mastic	20000 sq. ft.	\$46000
<b>B256</b>	9x9 floor tile and mastic	300 sq. ft.	\$800
<b>B267</b>	9x9 under 12x12 floor tile and mastic	18000 sq. ft.	\$51750* *increase due to multiple layers
<b>B337</b>	Transite board on ceiling	1600 sq. ft.	\$3680
	Transite exhaust pipe (presumed)	8 ft. 12 inch dia.	\$250
	12x12 floor tile and mastic	2750 sq. ft.	\$6325 per bldg.
<b>B1929</b>	12x12 floor tile and mastic	8000 sq. ft.	\$18400
<b>B1966</b>	12X12 floor tile and mastic	7200 sq. ft.	\$16560
<b>B2051</b>	12x12 floor tile and mastic	17000 sq. ft.	\$39100
<b>B2091</b>	9x9 f.t. & mastic	3800	\$8740
<b>B2098</b>	9X9 floor tile and mastic	4400 sq. ft.	\$10120
<b>B2102</b>	9x9 floor tile and mastic	7000 sq. ft.	\$16100

<b>B2109</b>	12x12 floor tile and mastic	850 sq. ft.	\$1955
<b>B3160</b>	12x12 floor tile and mastic	2000 sq. ft.	\$4600
<b>B3174</b>	12x12 floor tile and mastic	1400 sq. ft.	\$3200
<b>B3213</b>	12x12 floor tile and mastic	5500 sq. ft.	\$12650
	9x9 floor tile and mastic	6500 sq. ft.	\$14950

\*Includes all air monitoring and design fees

**APPENDIX C**

**LIST OF BUILDINGS**

BUILDING NUMBER

142

256

267

337

1929

1966

2051

2091

2098

2102

2109

3160

3174

3213

**APPENDIX D**

**ACM SAMPLE LOCATION PLANS**

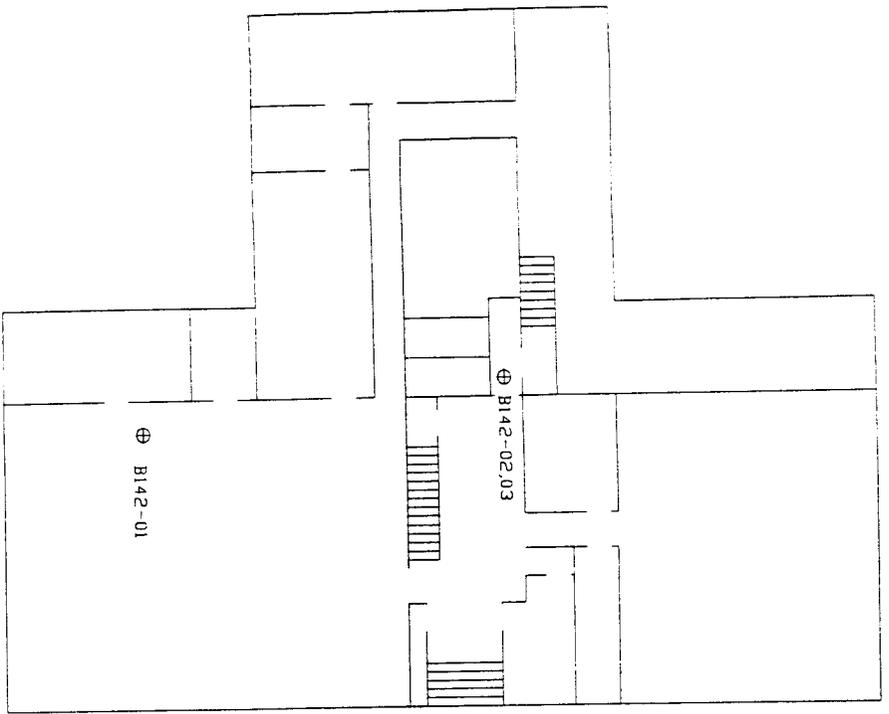


FIG. 2

FIRST FLOOR

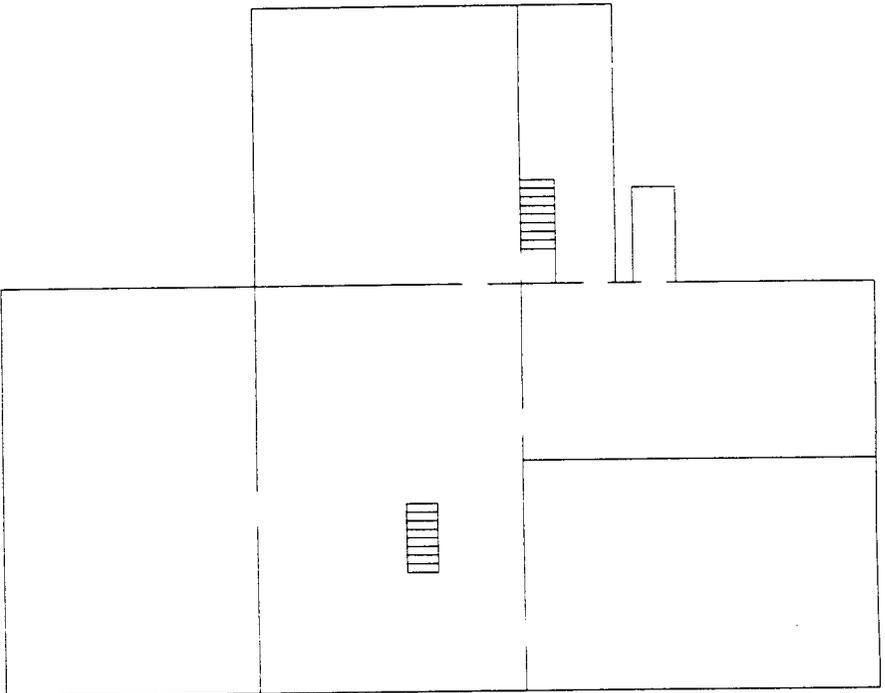


FIG. 1

BASEMENT

- ⊕ Negative Sample Locations
- ⊕ Positive Sample Locations

BUILDING 142

FIG. 1 BASEMENT  
FIG. 2 FIRST FLOOR

ASBESTOS SURVEY  
DABT02-96-D-0005  
FM705

**REISZ ENGINEERING**

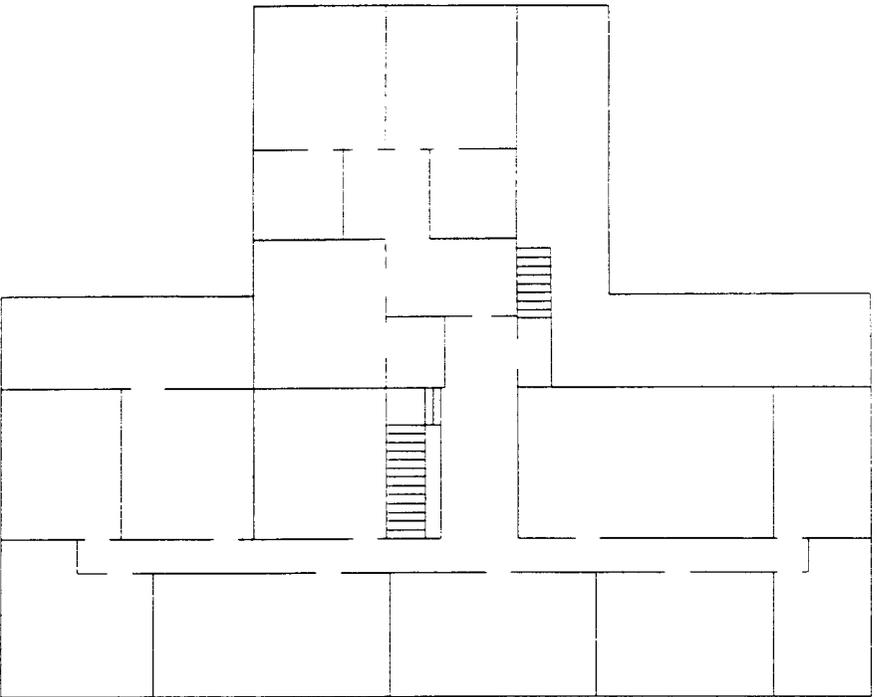


FIG. 3

SECOND FLOOR

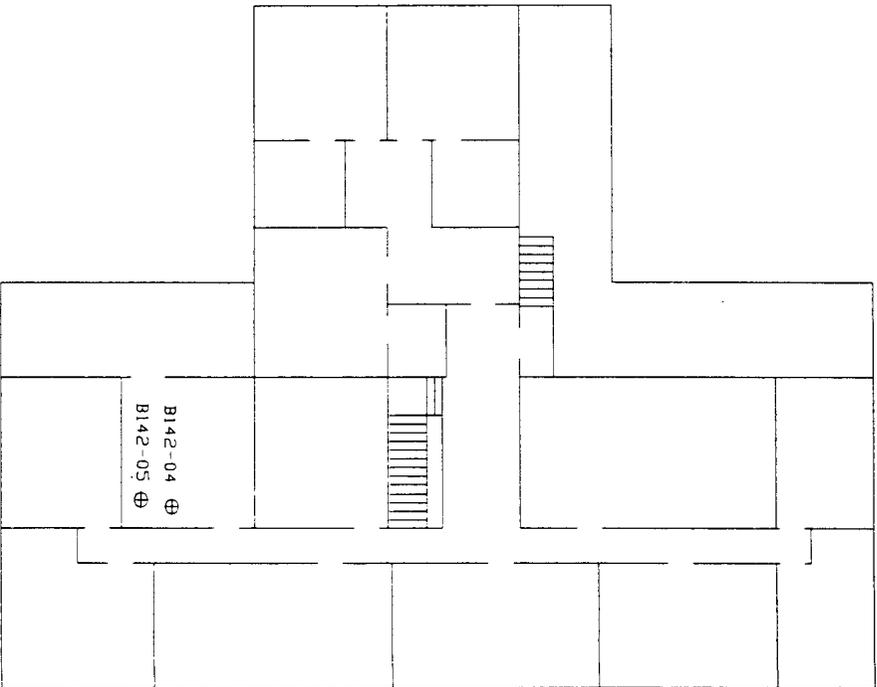
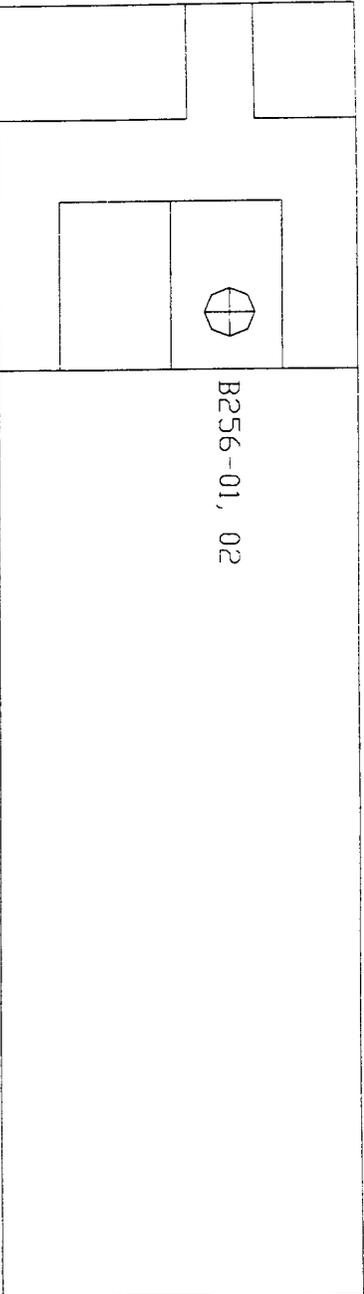


FIG. 4

THIRD FLOOR

- ⊕ Negative Sample Locations
- ⊕ Positive Sample Locations

BUILDING 142	FIG. 3 SECOND FLOOR FIG. 4 THIRD FLOOR	ASBESTOS SURVEY DABT02-96-D-0005 FM705	<b>REISZ ENGINEERING</b>
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⊕ Positive Sample Locations

BUILDING: 256

FIG. 1 LAYOUT

ASBESTOS SURVEY  
DABT02-96-D-00  
FM705

**REISZ ENGINEERING**

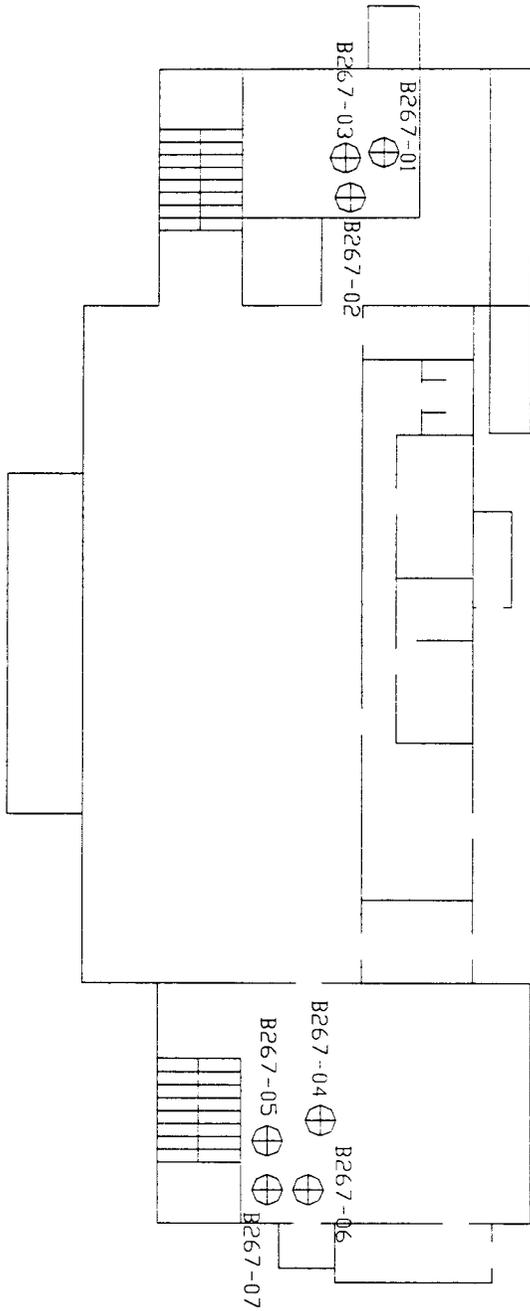


FIG. 1

LAYOUT PLAN

- ⊕ Negative Sample Locations
- ⊗ Positive Sample Locations

BUILDING 267	FIG. 1 FIRST FLOOR	ASBESTOS SURVEY DAB102-96-D-0005 FM705	<b>REISZ ENGINEERING</b>
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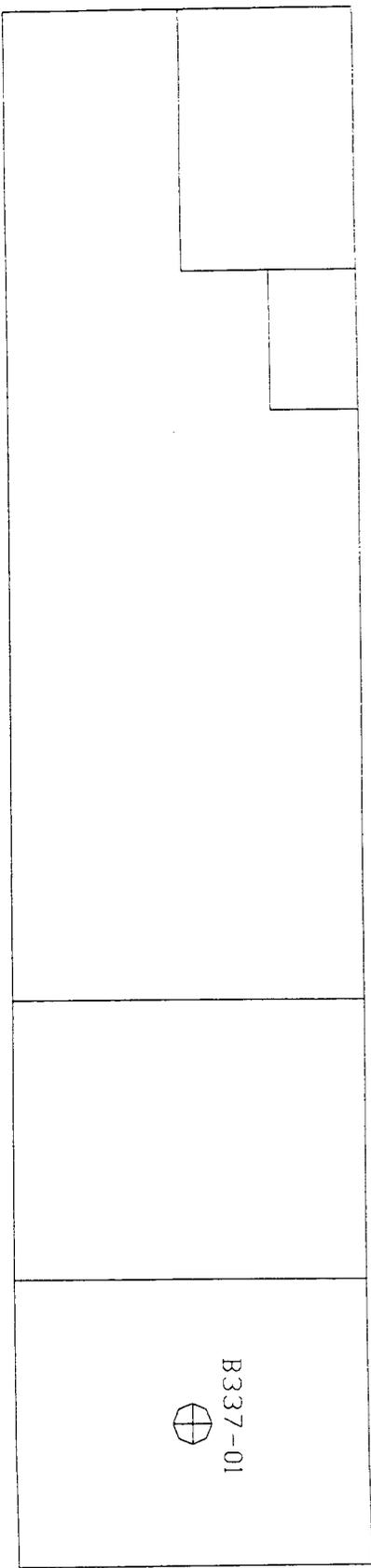
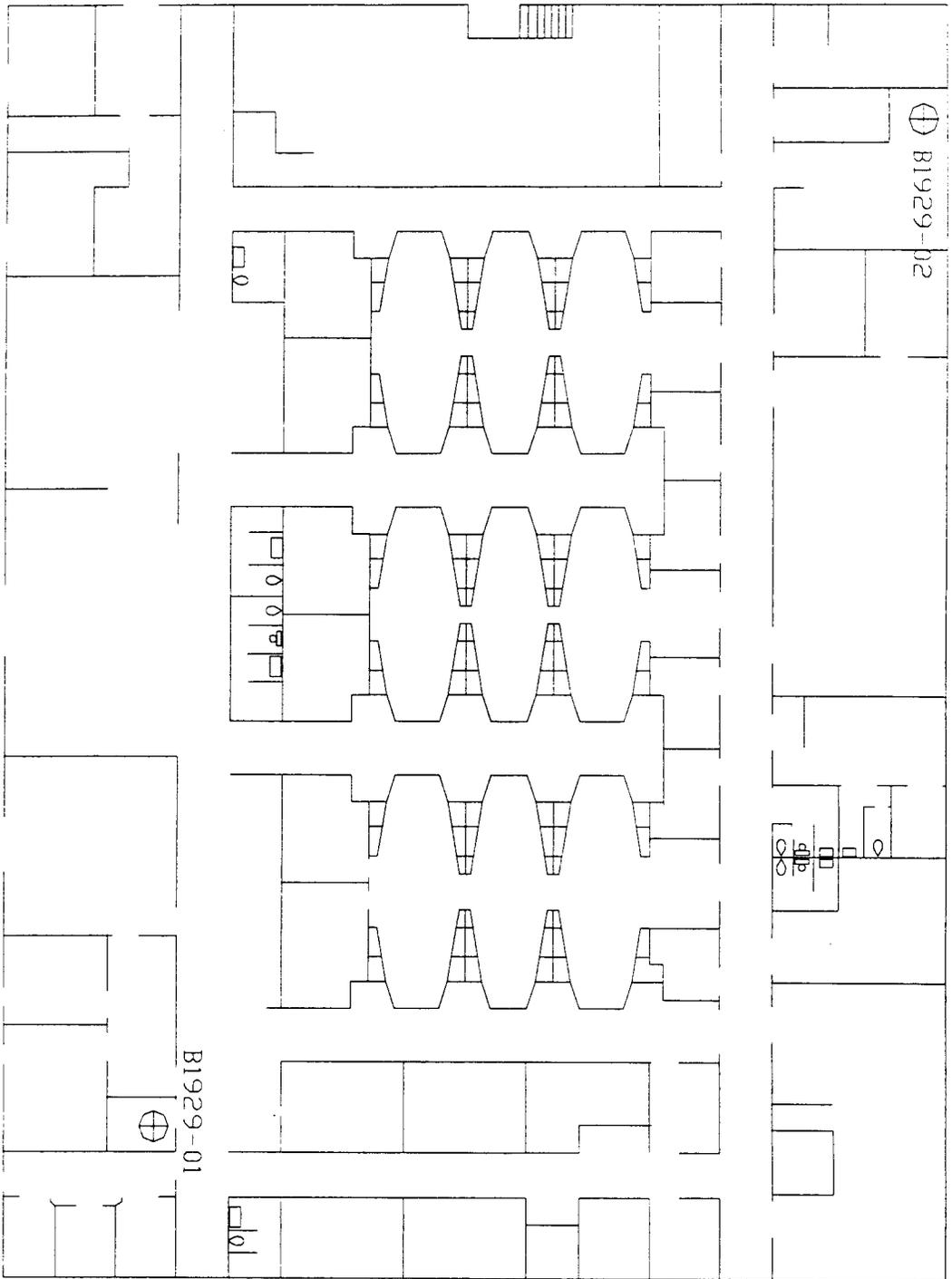


FIG. 1 LAYOUT PLAN

BUILDING: 337	FIG. 1 LAYOUT	ASBESTOS SURVEY DAB102-96-D-0005 FM705	<b>REISZ ENGINEERING</b>
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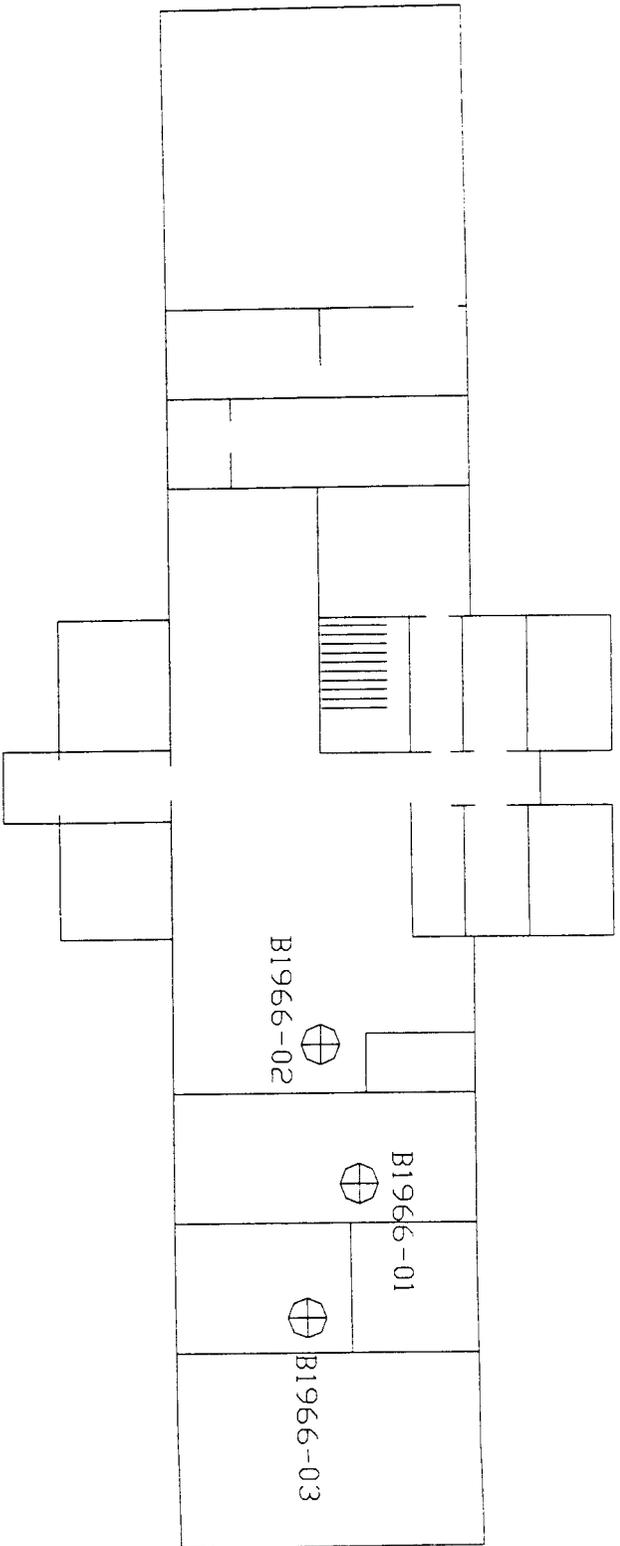
⊕ Positive Sample Locations

BUILDING: 1929

FIG. 1 LAYOUT

ASBESTOS SURVEY  
DAB102-96-D-0005  
FM705

**REISZ ENGINEERING**

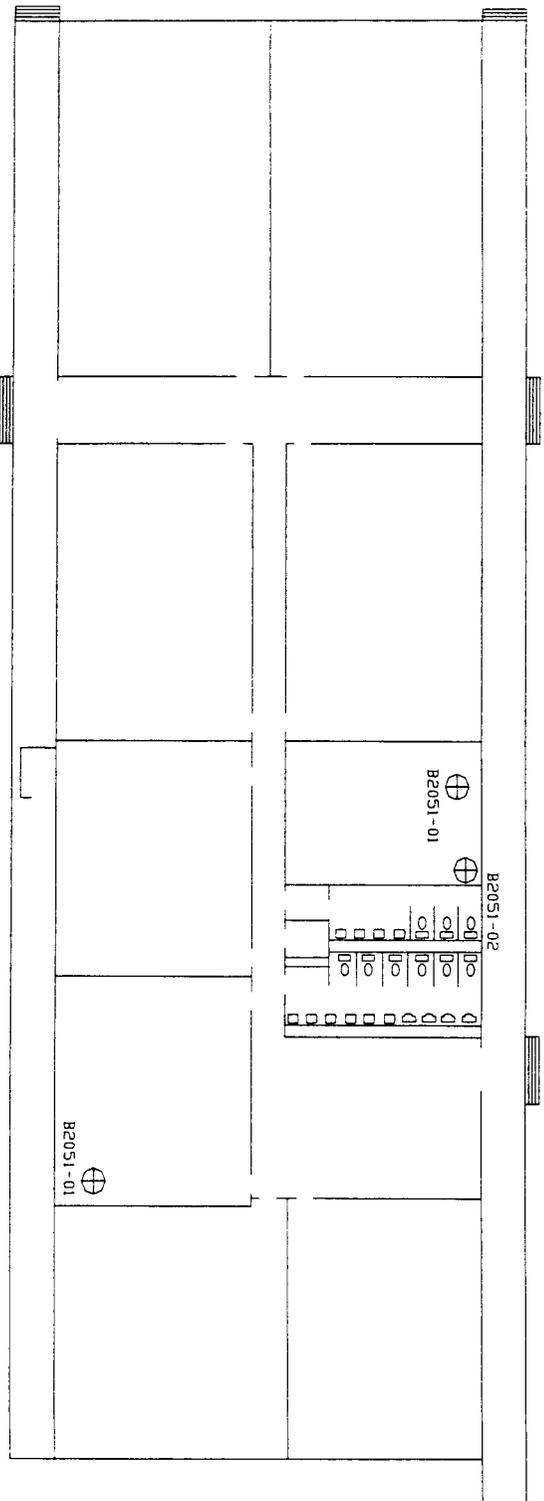


⊕ Positive Sample Locations

FIG. 1

LAYOUT PLAN

BUILDING: 1966	FIG. 1 LAYOUT	ASBESTOS SURVEY BT02-96-D-0005 705	<b>REISZ ENGINEERING</b>
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- ⊕ Negative Sample Locations
- ⊕ Positive Sample Locations

FIG. 1

LAYOUT PLAN

BUILDING: 2051	FIG. 1 LAYOUT	ASBESTOS SURVEY DAB102-96-D-0005 FM705	<b>REISZ ENGINEERING</b>
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⊕ Negative Sample Locations  
 ⊕ Positive Sample Locations

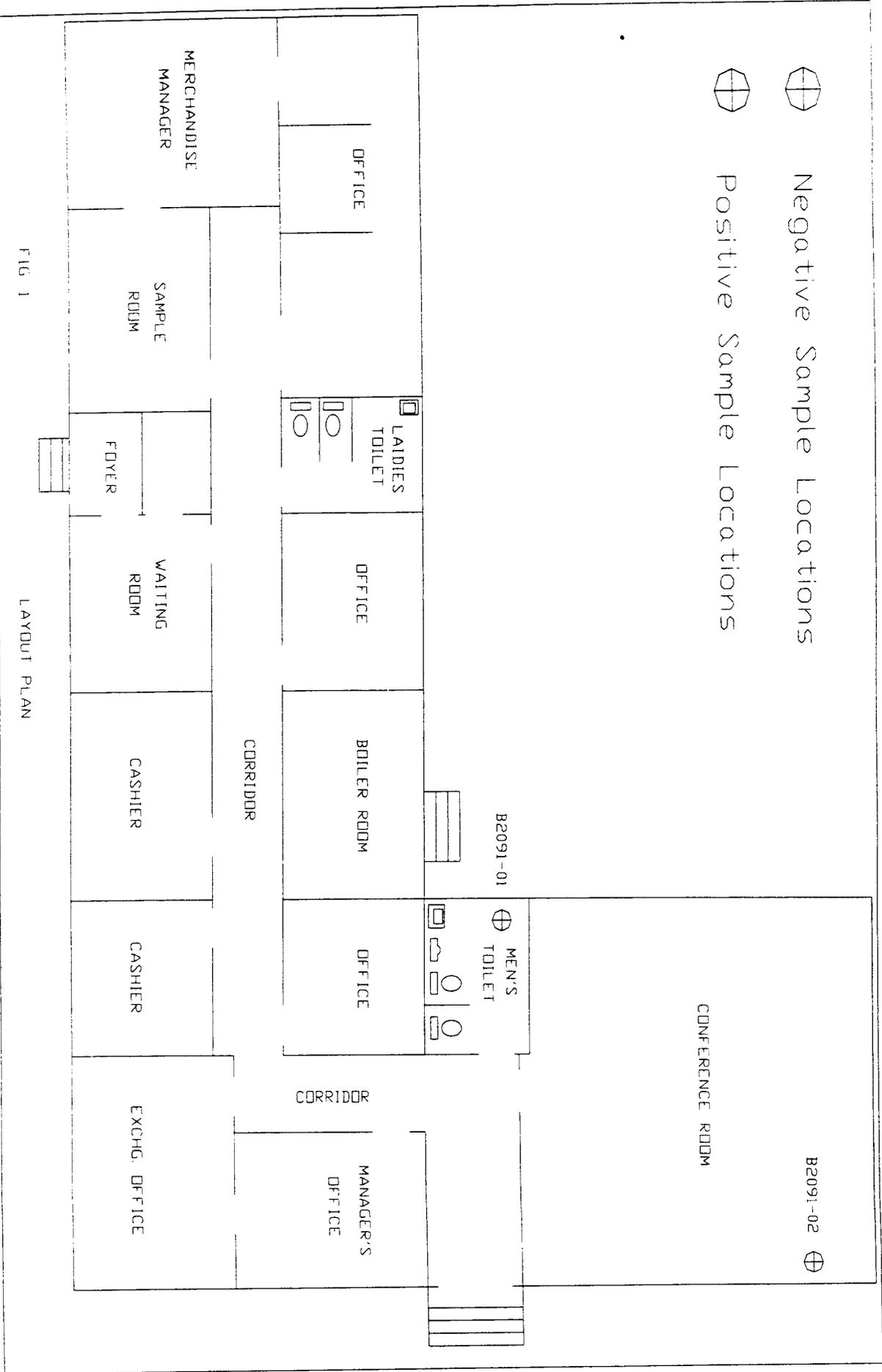
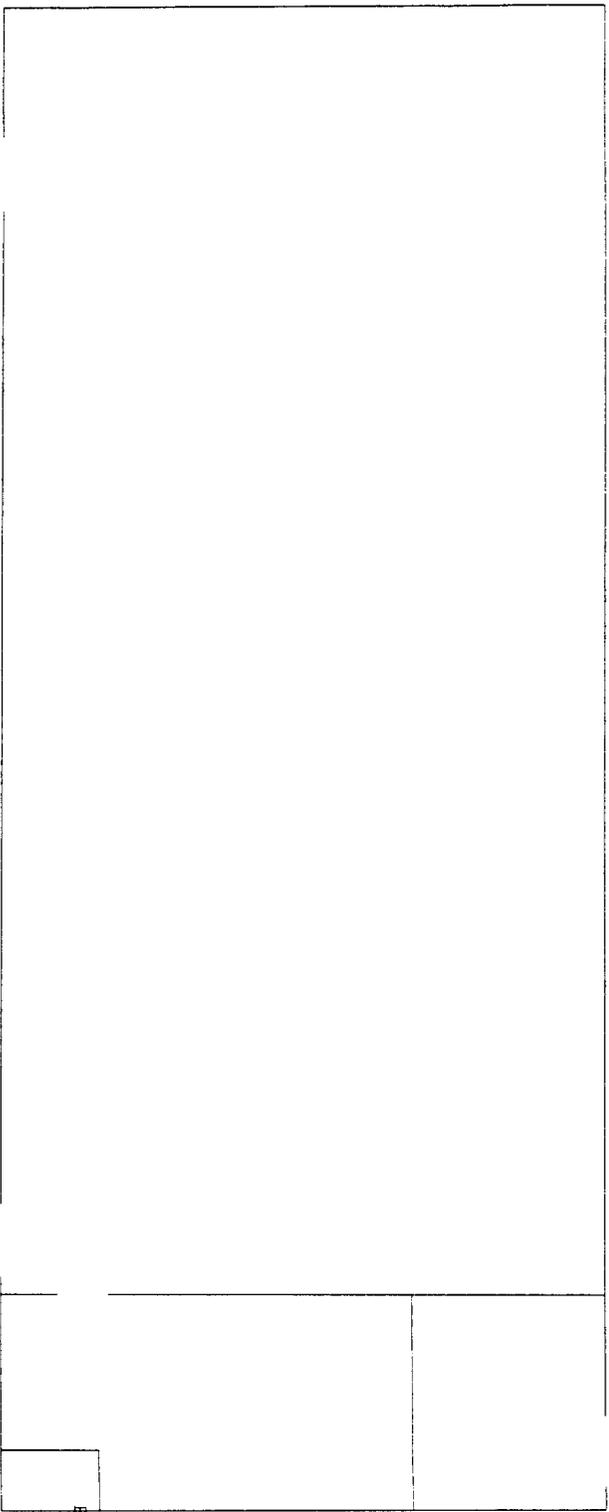


FIG. 1

LAYOUT PLAN

BUILDING: 2091      FIG. 1 LAYOUT      ASBESTOS SURVEY  
 DAB102-96-D-0005  
 FM705

**REISZ ENGINEERING**



#2098-01 ⊕



Negative Sample Locations

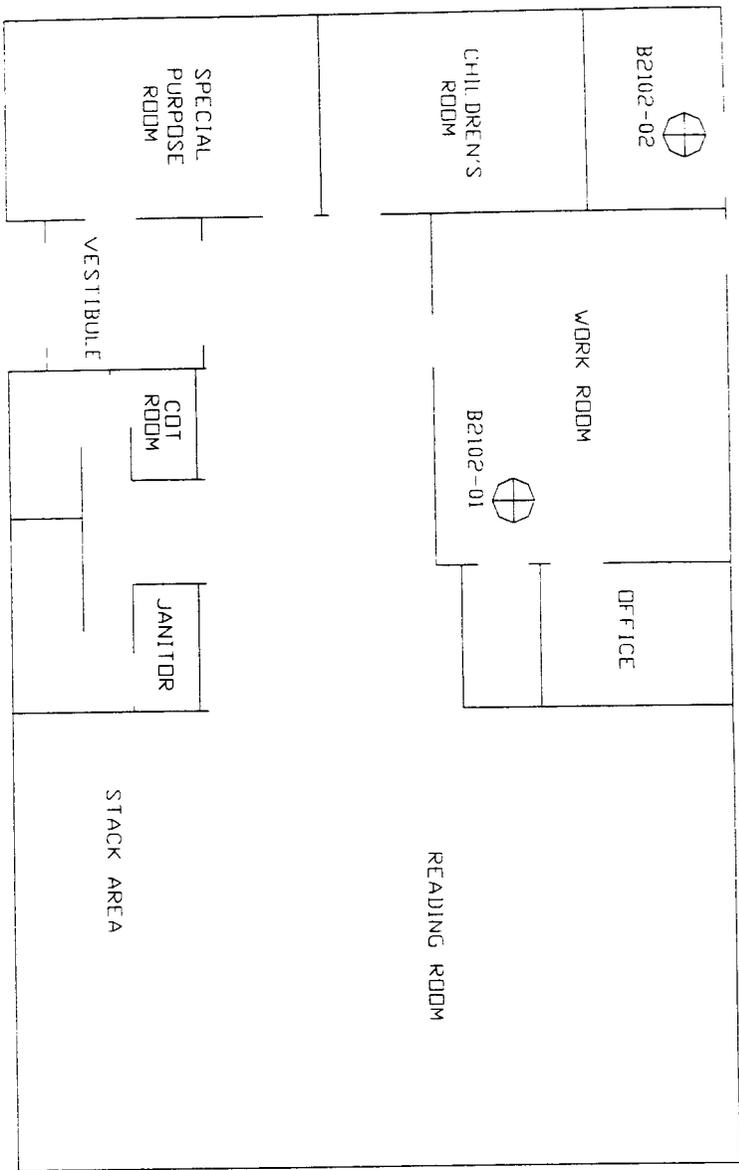


Positive Sample Locations

FIG. 1

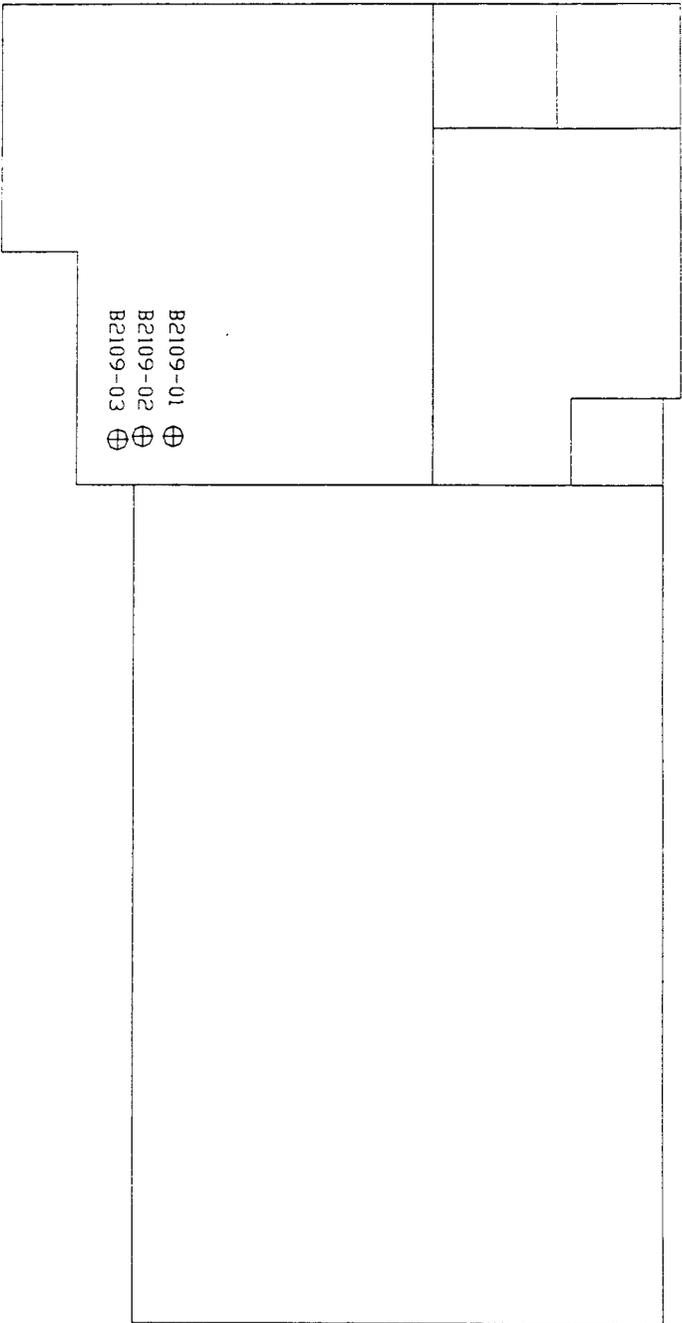
LAYOUT PLAN

BUL. DING: 2098	FIG. 1 LAYOUT	ASBESTOS SURVEY DABT02-96-D-0005 FM705	<b>REISZ ENGINEERING</b>
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-  Negative Sample Locations
-  Positive Sample Locations

BUILDING 2102	FIG. 1 LAYOUT	ASBESTOS SURVEY DAB102-96 11-0005 FM705	<b>REISZ ENGINEERING</b>
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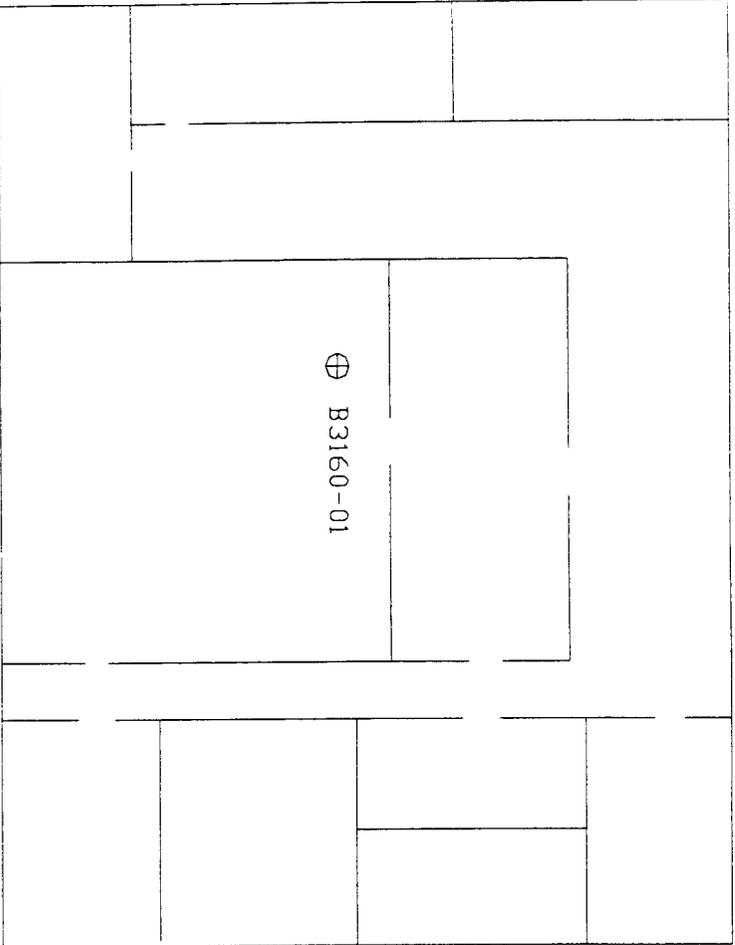
B2109-01 ⊕  
 B2109-02 ⊕  
 B2109-03 ⊕

⊕ Positive Sample Locations

FIG. 1

LAYOUT PLAN

BUILDING: 2109	FIG. 1 LAYOUT	ASBESTOS SURVEY DAB102-96-D-0005 FM705	<b>REISZ ENGINEERING</b>
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⊕ Positive Sample Locations

BUILDING: 3160

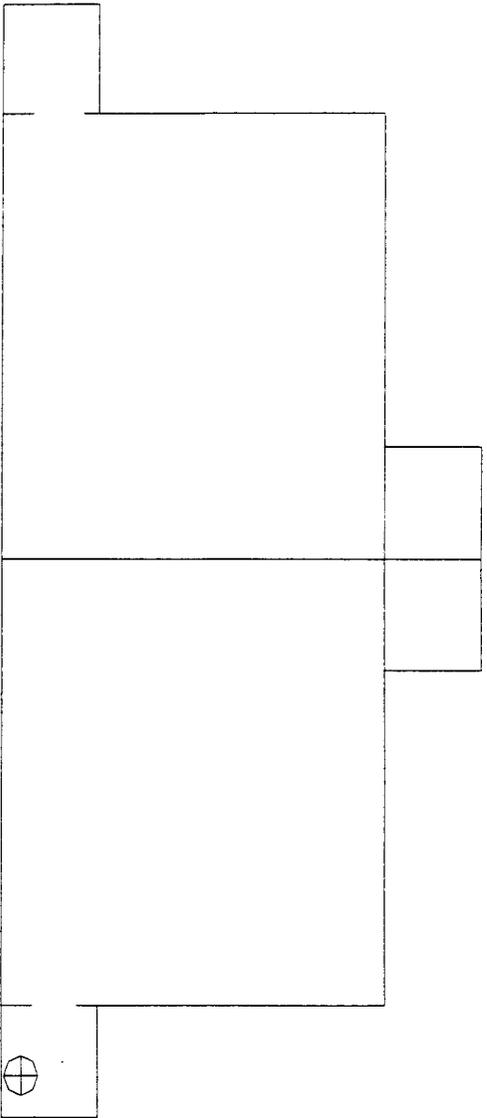
ASBESTOS SURVEY  
DABT02-96-D-0005  
FM705

**REISZ ENGINEERING**

BUILDING 3174

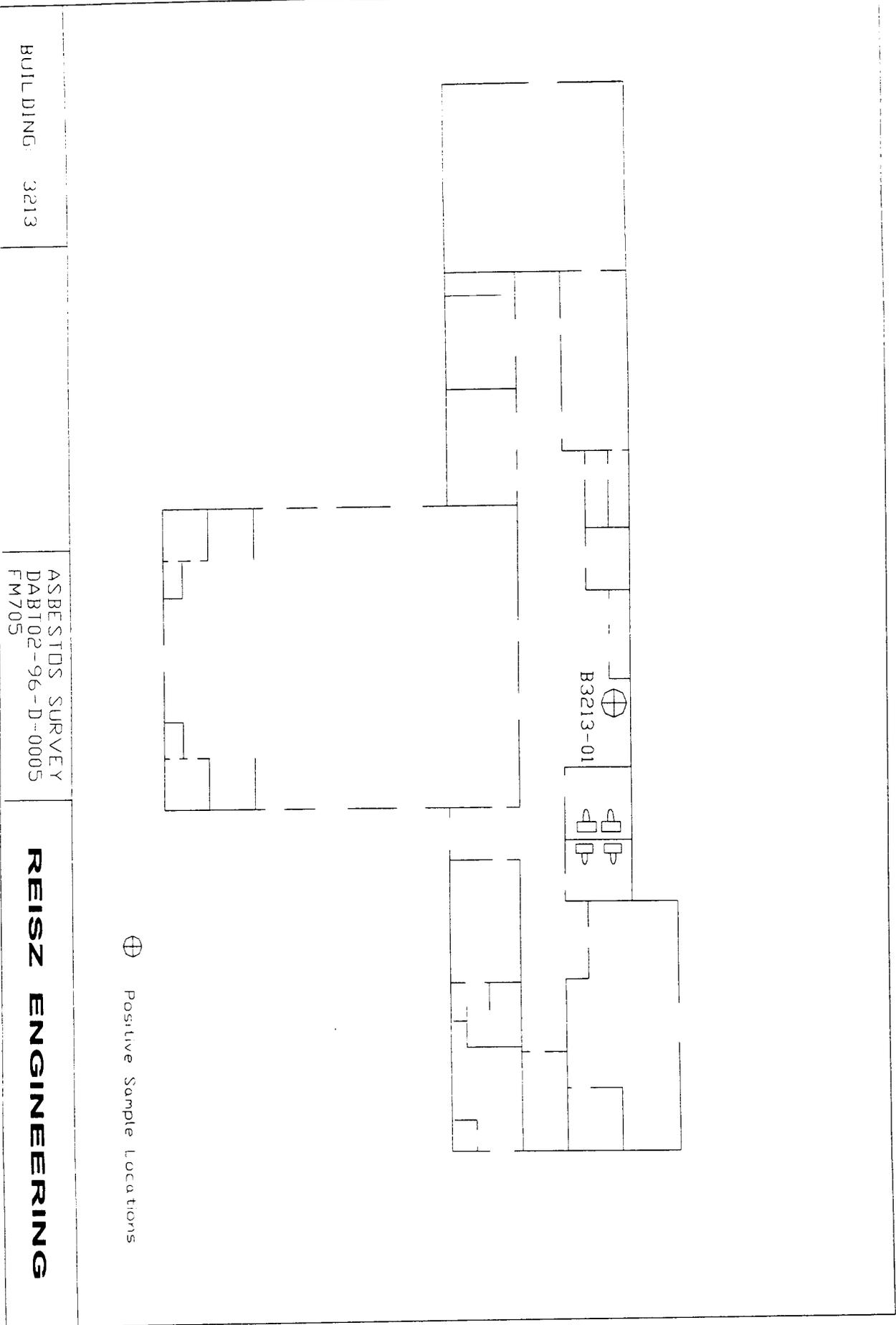
ASBESTOS SURVEY  
DAB102-96-D-0005  
FM705

**REISZ ENGINEERING**



⊕ Positive Sample Locations

B3174-01



⊕ Positive Sample Locations

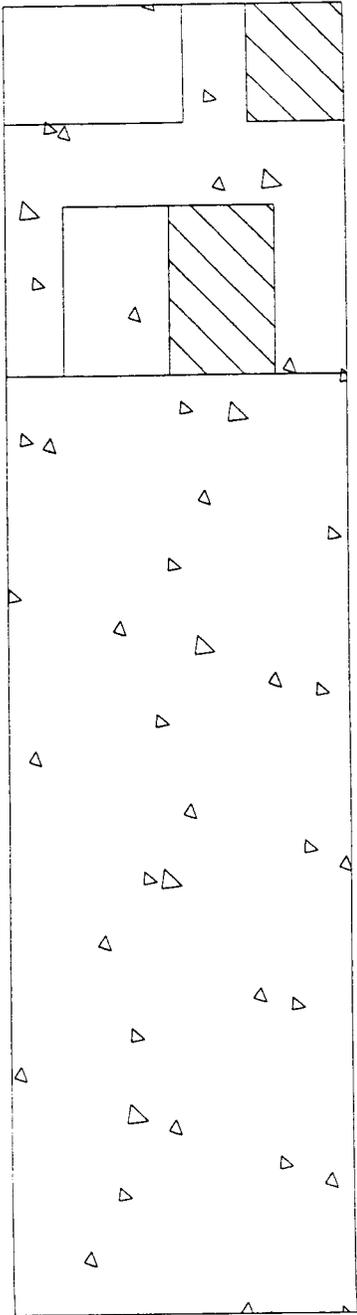
BUILDING: 3213

ASBESTOS SURVEY  
DAB102-96-D-0005  
FM705

**REISZ ENGINEERING**

**APPENDIX E**

**SELECTED ACM LOCATION PLANS**



Cement Floors



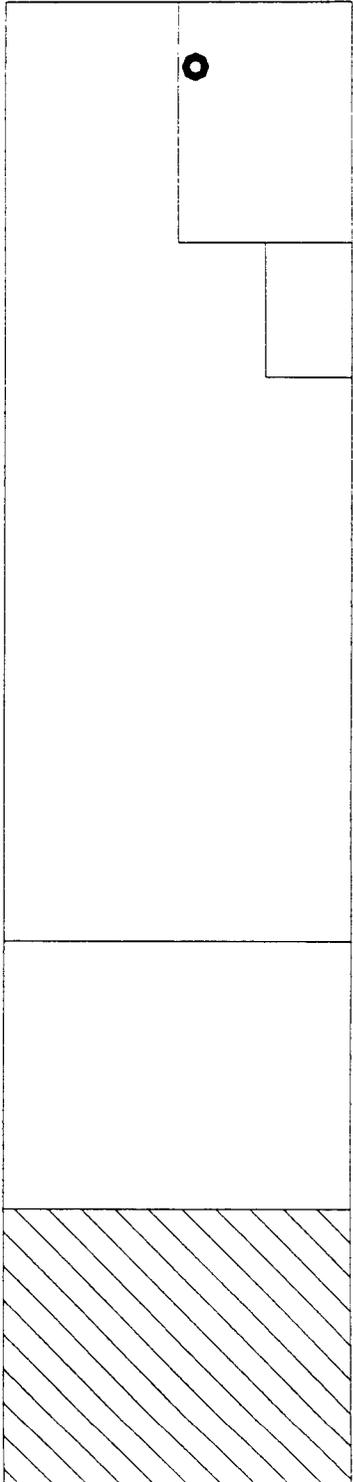
9 x 9 Floor Tile

BUILDING: 256

FIG. 1 LAYOUT

ASBESTOS SURVEY  
DAB102-96-D- '95  
FM705

**REISZ ENGINEERING**



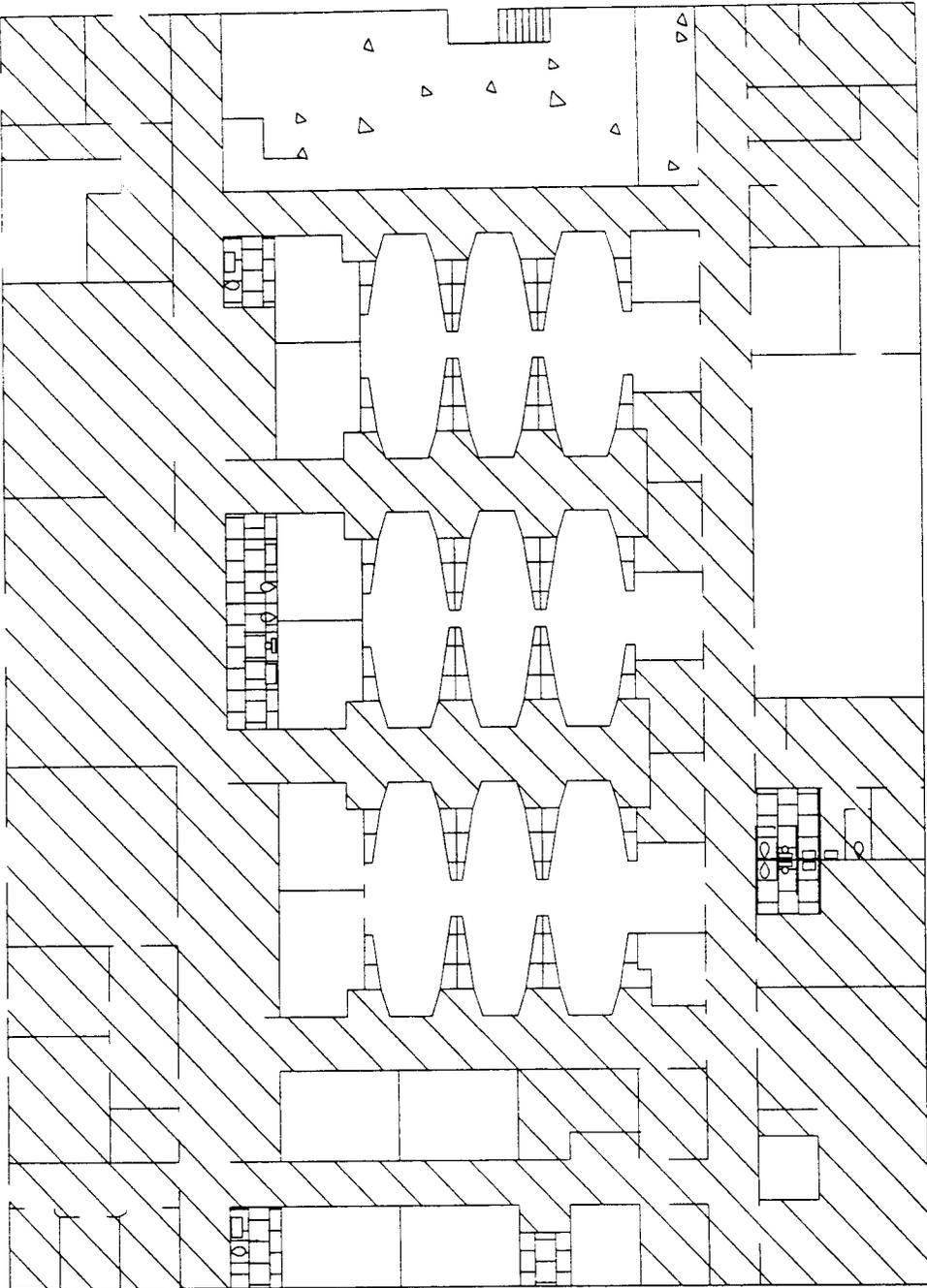
○ Transite Exhaust Pipe

▨ Transite Ceiling Tile

FIG. 1 LAYOUT PLAN

SCALE: 1"=20'

BUILDING: 337	FIG. 1 LAYOUT	ASBESTOS SURVEY DAB102-96-D-0005 FM705	<b>REISZ ENGINEERING</b>
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12 x 12 Floor Tile



Cement Floor



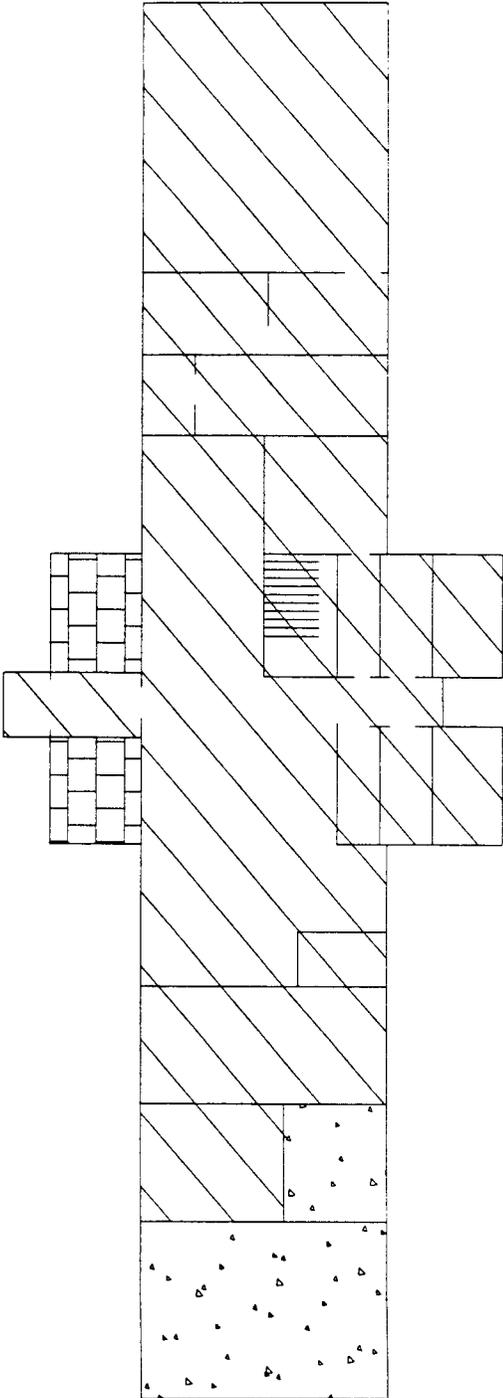
Ceramic Tile Floor

BUILDING 1929

FIG. 1 LAYOUT

ASBESTOS SURVEY  
DAB102-96-D-0005  
FM705

**REISZ ENGINEERING**



12 x 12 Floor Tile



Cement Floor



Ceramic Floor Tile

FIG. 1

LAYOUT PLAN

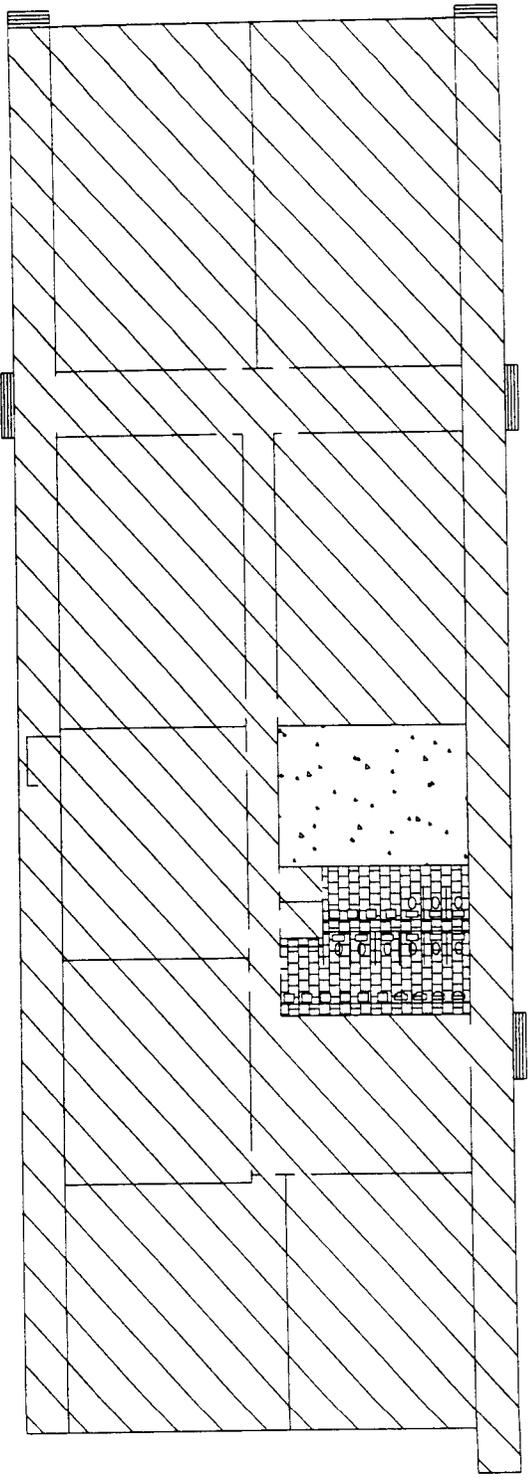
SCALE: 1" = 10'

BUILDING: 1966

FIG. 1 LAYOUT

ASBESTOS SURVEY  
DAB102-96-D-0005  
FM705

**REISZ ENGINEERING**



12 x 12 Floor Tile



Ceramic Floor Tile



Mechanical Room (Cement floor)

FIG. 1

LAYOUT PLAN

SCALE: 1" = 30'

BUILDING: 2051

FIG. 1 LAYOUT

ASBESTOS SURVEY  
DAB102-96-D-0005  
FM705

**REISZ ENGINEERING**

-  9 x 9 Floor Tile
-  12 x 12 Floor Tile

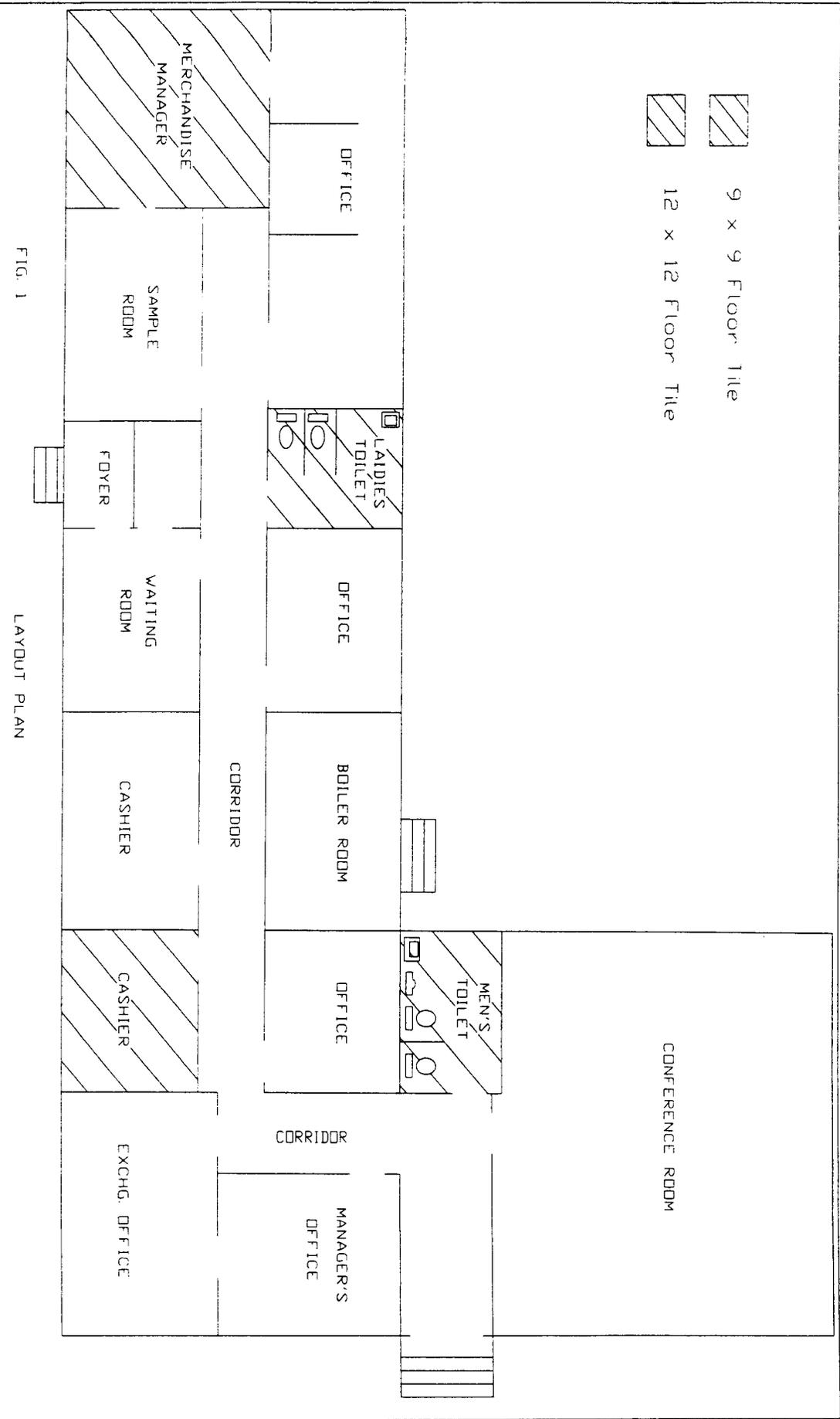
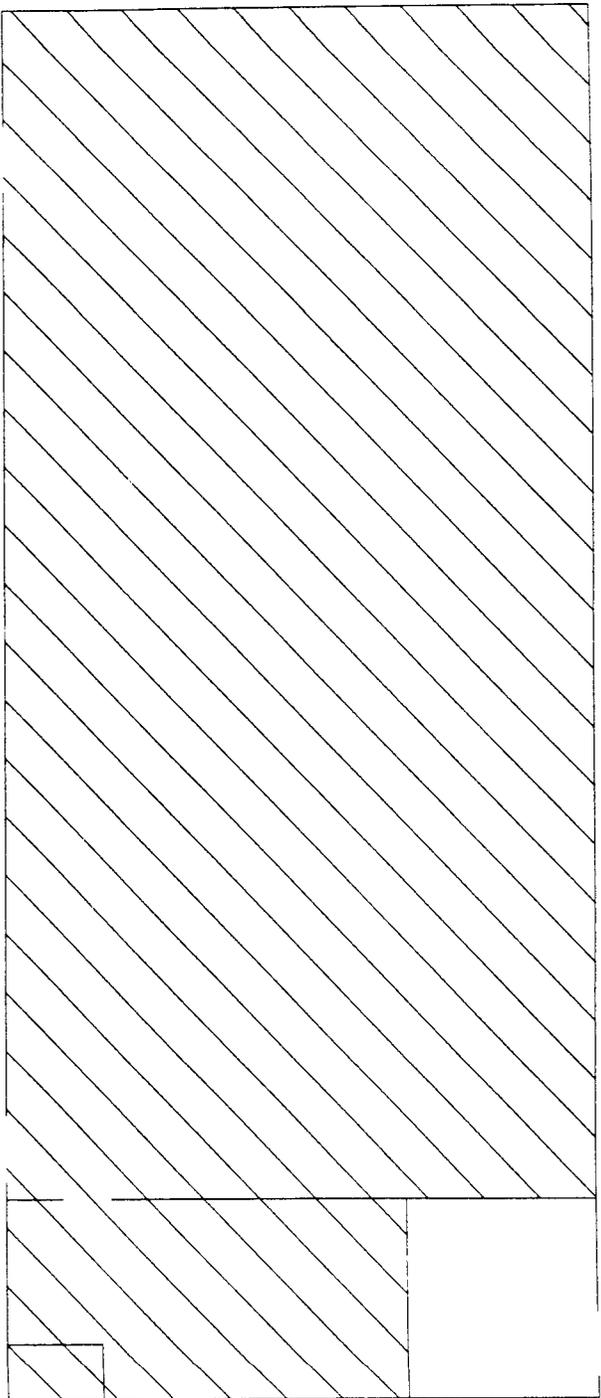


FIG. 1

LAYOUT PLAN

BUILDING: 2091	FIG. 1 LAYOUT	ASBESTOS SURVEY DAB102-96-D-0005 FM705	<b>REISZ ENGINEERING</b>
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9 x 9 Floor Tile

FIG. 1

LAYOUT PLAN

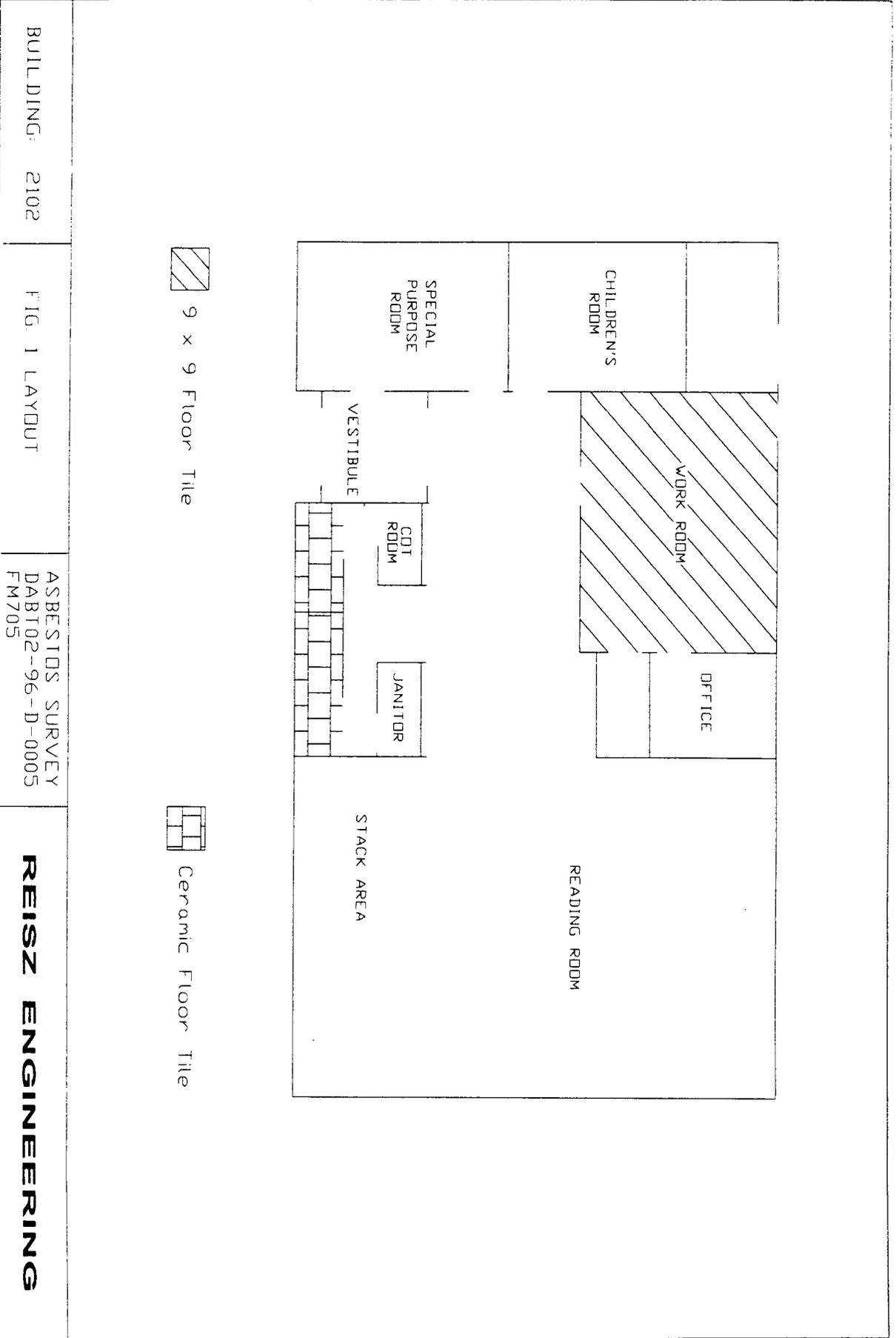
SCALE: 1" = 10'

BUILDING: 2098

FIG. 1 LAYOUT

ASBESTOS SURVEY  
DAB102-96-D-0005  
FM705

**REISZ ENGINEERING**

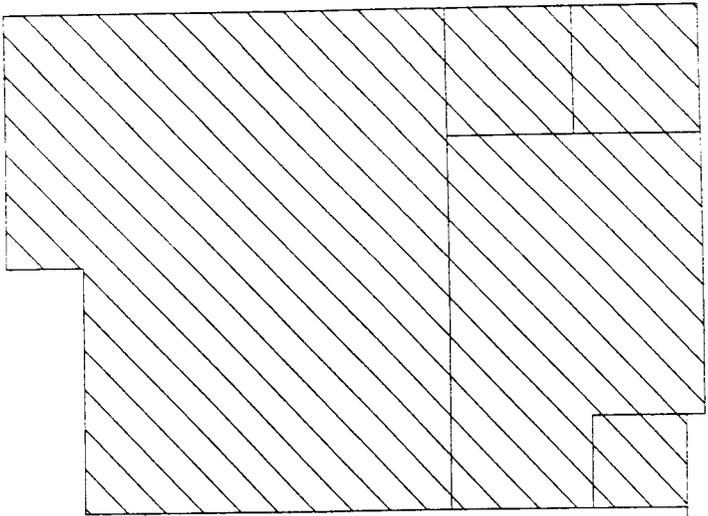


BUILDING: 2102

FIG. 1 LAYOUT

ASBESTOS SURVEY  
DAB102--96-D-0005  
FM705

**REISZ ENGINEERING**



12 x 12 Floor Tile

FIG. 1

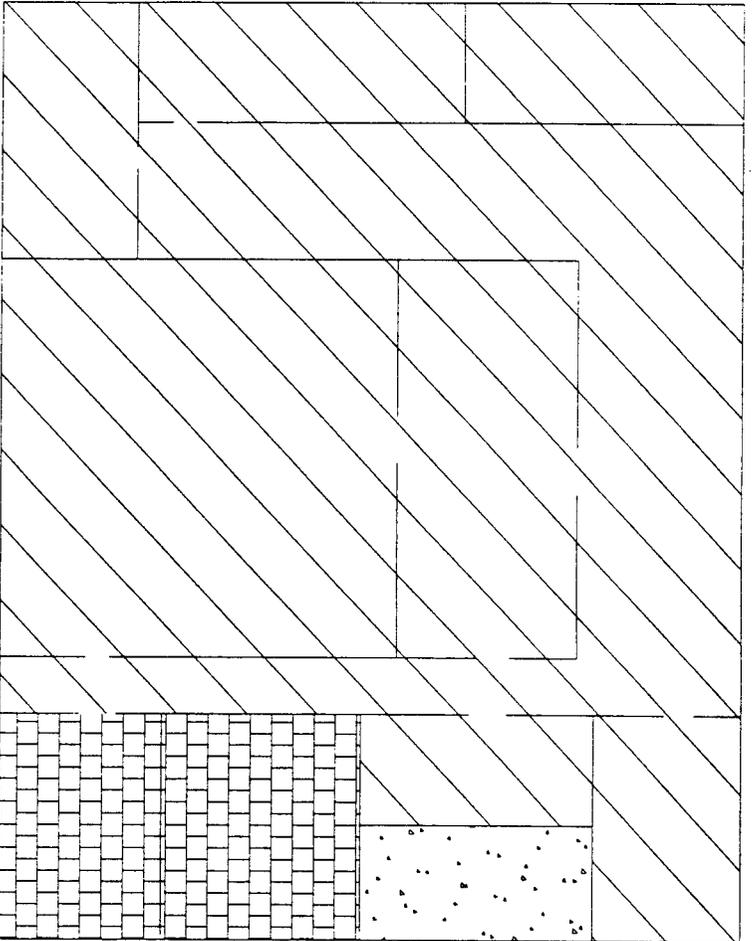
LAYOUT PLAN

BUILDING: 2109

FIG. 1 LAYOUT

ASBESTOS SURVY  
DABT02-96-D-1  
FM705

**REISZ ENGINEERING**



12 x 12 Floor Tile



Cement Floor

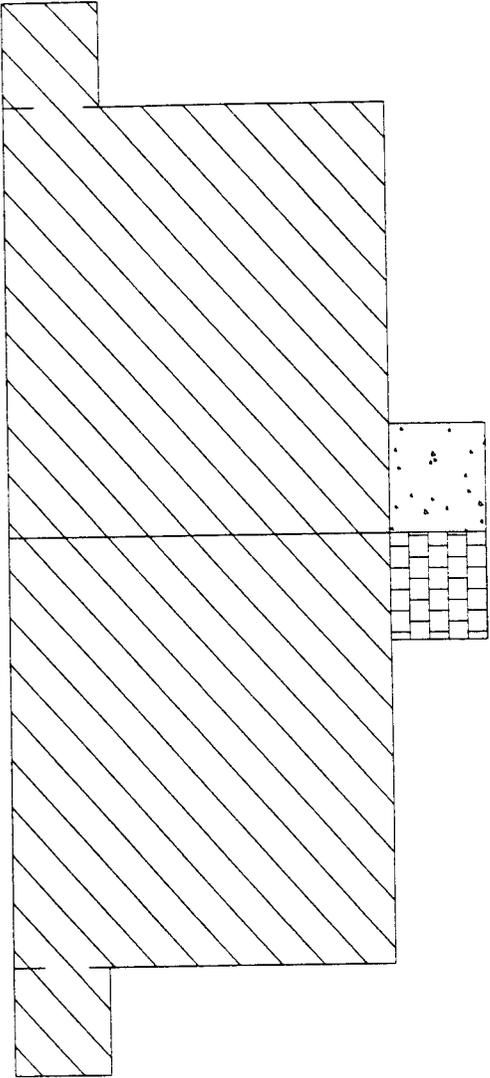


12 x 12 Floor Tile

BUILDING: 3160

ASBESTOS SURVEY  
DAB102-96-D-0005  
FM705

**REISZ ENGINEERING**



12 x 12 Floor Tile



Cement Floor

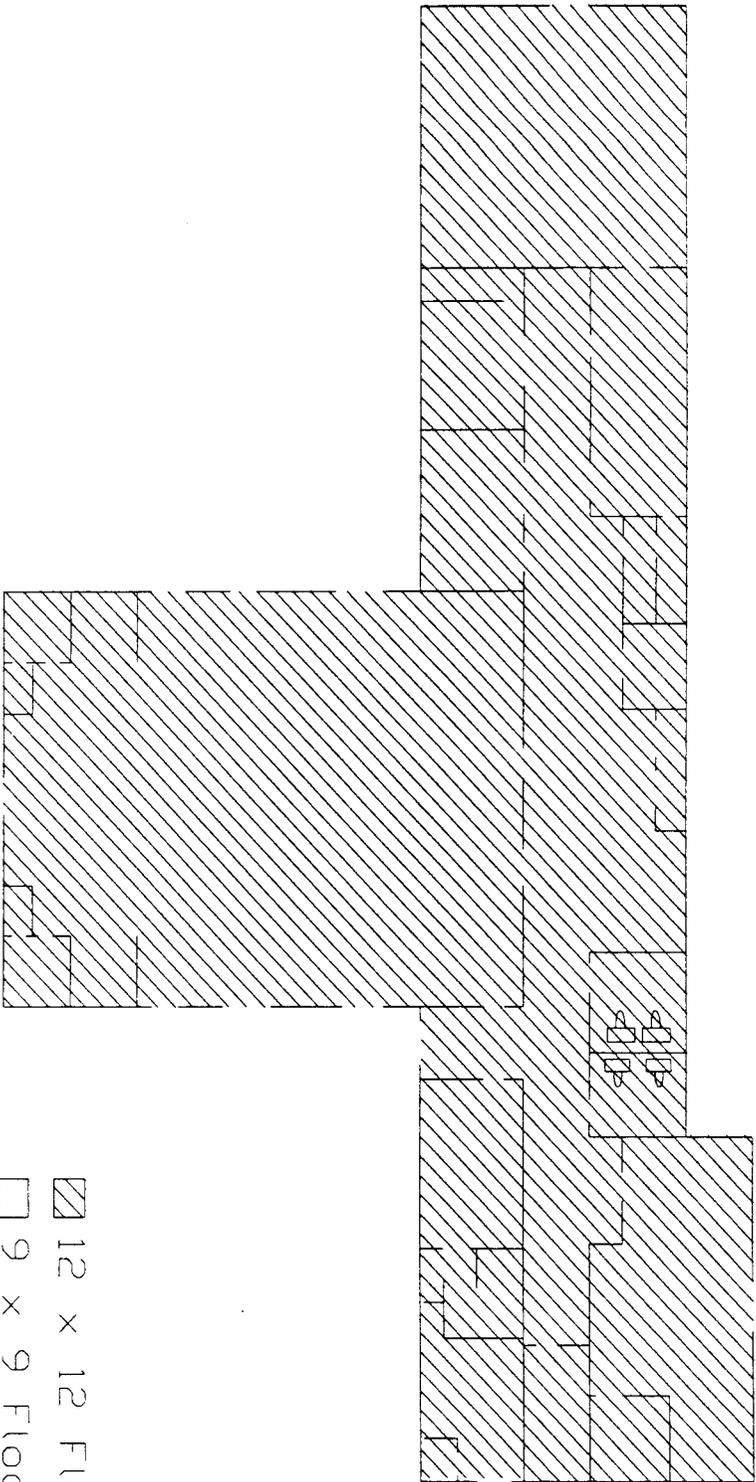


Ceramic Tile Floor

BUILDING: 3174

ASBESTOS SURVEY  
DAB102-96-D-0005  
FM705

**REISZ ENGINEERING**



- 12 x 12 Floor Tile
- 9 x 9 Floor Tile
- Ceramic Tile

BUILDING: 3213

ASBESTOS SURVEY  
DABT02-96-D-0005  
FM705

**REISZ ENGINEERING**

**ASBESTOS CONTAINING BUILDING MATERIALS SURVEY  
MISCELLANEOUS BUILDINGS  
NO PACM**

**BUILDING(S): 57, 181, 197, 198, 250, 2105, 3133, 3134,  
3135, 3165, and 3192**

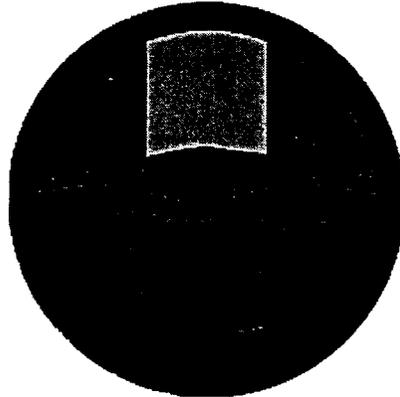
**ASBESTOS CONTAINING BUILDING MATERIALS SURVEY  
MISCELLANEOUS BUILDINGS  
No PACM**

57, 129, 137, 144, 181, 197, 198, 200, 201, 206, 208, 212, 213, 234, 235, 236, 242, 243, 250, 257,  
262, 265, 266, 294, 309, 326, 327, 341, 342, 345, 346, 402, 699, 1077, 1122, 1211, 1212, 1213,  
1214, 1215, 1216, 1217, 1218, 1219, 1220, 1221, 1222, 1367, 1387, 1928, 1965, 1967, 2041, 2099,  
2105, 3133, 3134, 3135, 3165, 3182, 3192, 4400, 4405, 4417, 4420, 4422, 4423, 4424, 4450, 6357,  
6530, 6552, 6574, 6586, 6594

**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  
MISCELLANEOUS BUILDINGS  
No PACM**

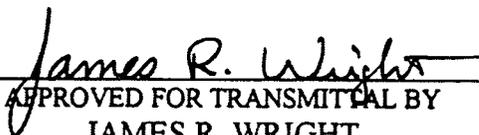
57, 129, 137, 144, 181, 197, 198, 200, 201, 206, 208, 212, 213, 234, 235, 236, 242, 243, 250, 257,  
262, 265, 266, 294, 309, 326, 327, 341, 342, 345, 346, 402, 699, 1077, 1122, 1211, 1212, 1213,  
1214, 1215, 1216, 1217, 1218, 1219, 1220, 1221, 1222, 1367, 1387, 1928, 1965, 1967, 2041, 2099,  
2105, 3133, 3134, 3135, 3165, 3182, 3192, 4400, 4405, 4417, 4420, 4422, 4423, 4424, 4450, 6357,  
6530, 6552, 6574, 6586, 6594

**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**

**June, 1998**

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2.0	PROJECT CHARACTERISTICS.....	2

## APPENDICES

APPENDIX A – LIST OF BUILDINGS WITH NO PRESUMED ACM

## **1.0 PURPOSE AND SCOPE OF SERVICES**

The purpose of this survey was to locate and identify asbestos containing building materials 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 PROJECT CHARACTERISTICS

Reisz Engineering accredited Asbestos Inspectors performed inspections of the buildings listed in Appendix A for the purpose of identifying building materials suspected to contain asbestos. None of the buildings listed in the survey report were found to contain PACM.

**APPENDIX A**

MISCELLANEOUS BUILDINGS WITH NO PACM

BUILDING NUMBERS

57	1215
129	1216
137	1217
144	1218
181	1219
197	1220
198	1221
200	1222
201	1367
206	1387
208	1928
212	1965 (has transite cooling tower)
213	1967
234	2041
235	2099
236	2105
242	3133
243	3134
250	3135
257	3165
262	3182
265	3192
266	4400
294	4405
309	4417
326	4420
327	4422
341	4423
342	4424
345	4450
346	6357
402	6530
699	6552
1077	6574
1122	6586
1211	6594
1212	
1213	

1214