

2345

**ASBESTOS CONTAINING MATERIAL (ACM)
AND
LEAD BASE PAINT (LBP) SURVEY**

**724 AND 710 CROSS HILL ROAD
COLUMBIA, SOUTH CAROLINA**

*Day care
Antique*

Prepared For

EDENS & AVANT

September 13, 2006





September 13, 2006

Mr. Jude Peck
Edens & Avant
1901 Main Street, Suite 900
Columbia, South Carolina 29201

Reference: Report of Asbestos/Lead Based Paint Survey
724 and 710 Cross Hill Road
Columbia, South Carolina
ECS Project No.: 14-2755

Dear Mr. Peck:

ECS Carolinas, LLP (ECS) has completed an asbestos and lead based paint survey at the above referenced property.

The objective of the services included the following:

- Identification of suspect asbestos containing material (ACM) and lead based paint (LBP) in readily observable locations.
- Asbestos survey with sample collection by a South Carolina accredited inspector.
- Suspect ACM analysis by polarized light microscopy (PLM) utilizing EMSL Analytical, an NVLAP certified laboratory, their accreditation number is 102104-0.
- Lead survey with sample collection and subsequent testing of paint chip samples obtained from on-site structures by an ELPAT certified laboratory.
- Suspect LBP sample testing by atomic absorption spectrometry analysis using Flame AAS (SW 846, 7420) methods.
- Presenting the results in a report identifying confirmed ACMs and LBPs.

Project Information

The survey was conducted of the two buildings located at 724 and 710 Cross Hill Road Columbia, South Carolina. The buildings include a one-story brick former residence that is currently in use as a daycare center and a metal warehouse used as a former antiques store. The daycare center had shingled roof systems. The warehouse had a metal roof system. The following list includes the interior building materials (homogeneous materials) used in each building.

Daycare

Sheetrock Walls
Textured Ceiling
Ceiling Tiles
Vinyl Floor Covering
Roofing Materials
Floor Tiles

Warehouse

Sheetrock Walls
Ceiling Tile
Floor Tiles
Textured Ceiling
Cove Base
Seam Tape on Duct Work

724 and 710 Cross Hill Road.
Columbia, South Carolina
ECS Project Number 14-2755
September 10, 2006

Procedure/Methodology

Asbestos Containing Materials (ACM) Survey

ECS was requested to perform an asbestos survey of the structures located on the subject property to identify asbestos-containing materials (ACM) which could be disturbed prior to or during demolition or renovation. The National Emission Standard for Hazardous Air Pollutants (NESHAP) requires the identification of friable ACM and non-friable ACM likely to become friable during demolition and/or renovation activities. NESHAP requires that the identified ACM be removed prior to initiating activities likely to disturb the ACM.

The asbestos survey was performed by Mr. Heath Adams (SC Asbestos Inspector No. BI-0840) on April 28, 2005. The survey consisted of observing the accessible areas of the buildings for the presence of suspect materials which may contain asbestos. The survey involved detecting both friable materials (materials which can be pulverized or reduced to a powder by hand pressure when dry) and non-friable materials (materials which pose a hazard when sawn, sanded, drilled or pulverized). Homogeneous materials (based on material type, color, texture, etc.) were identified in various functional spaces during the survey.

In order to determine if the suspect materials observed during the visual survey contained asbestos, representative bulk samples were collected and placed in sealed packages. Sixty-eight (68) bulk samples were collected during the survey and submitted to EMSL Analytical in Kernersville, North Carolina for analysis using the EPA recommended method of Polarized Light Microscopy (PLM) coupled with dispersion staining (Method No. EPA 600/M4-020-82, Dec. 1982). EMSL participates in the National Voluntary Laboratory Accreditation Program (NVLAP). Their NVLAP accreditation number is 102104-0. Several of the samples were layered and analyzed as multiple samples. The total number of analyzed samples was sixty-eight (68). The number of samples per building was as follows: 41 in the daycare center and 27 in the antiques facility. The EPA defines an asbestos-containing material as a material containing one percent or more asbestos by weight. EPA regulations require that multiple samples of each homogeneous area be collected for laboratory analysis. The material type, sample location and analytical results of each bulk sample are summarized in the attached Asbestos Bulk Analysis report in Appendix A.

Lead Based Paint (LBP) Survey

The Consumer Product Safety Commission banned the use of lead-based paint (LBP) in 1978. A lead-based paint survey was performed to evaluate the potential presence of LBP on the site structures. Mr. Heath Adams of ECS performed the lead-based paint survey on April 28, 2005. An inventory of visibly distinct testing combinations was made for the on-site structures with suspect painted surfaces. Testing combinations were based on the building component's paint color, type of substrate, application, component use, and date of installation (i.e. homogenous building areas). The survey began by randomly selecting painted surfaces representative of major building components. Typical test areas included interior and exterior walls, ceilings, doorframes, and window frames.

In order to determine if the suspect paints observed during the visual survey contained LBP, representative samples were collected and placed in sealed packages and shipped with a Chain-of-Custody to EMSL in Kernersville, NC. A total of four (4) paint samples of suspect LBP were collected for laboratory analysis from the structures located on-site. LBP samples collected were analyzed in the laboratory using the EPA recommended method of Flame Atomic Absorption (AAS) by Method No. SW 846, 7420. EMSL

724 and 710 Cross Hill Road.
 Columbia, South Carolina
 ECS Project Number 14-2755
 September 10, 2006

maintains registration with the Environmental Lead Proficiency Analytical Testing Program Proficiency Dust, Wipe, Soil and Paint Chip PAT, through AIHA.

Results

Asbestos Containing Material Survey

The EPA defines an asbestos-containing material as a material containing one percent or more asbestos. Provided below are site observations as well as building specific tables which list the asbestos containing materials identified in the buildings.

TABLE 1 SUMMARY OF ASBESTOS-CONTAINING MATERIALS 710 and 724 Cross Hill Road Columbia, South Carolina				
Asbestos Material	Approximate Location/Quantity	Friability (F/NF)	Condition	Recommendations
Vinyl Floor Covering	Daycare kitchen 200 sf	NF	damaged	Remove prior to Demolition
Floor Tile	Warehouse Rear floor 300 sf	NF	damaged	Remove prior to Demolition

Notes:

NF = Non-friable F = Friable

Suspect asbestos materials sampled from the buildings that were identified to be asbestos containing include:

Daycare

Vinyl Floor Covering

Warehouse

Floor Tile

Lead Based Paint (LBP) Survey

The collected samples of suspect lead-based paint were placed in sealed containers and submitted to EMSL Analytical for subsequent testing using flame atomic adsorption methodology to determine the absence or presence of lead. Four (4) samples of paint suspected to contain lead were collected from the site and submitted for laboratory analysis. The test results indicate that four (4) of the analyzed samples contained lead concentrations in excess of, or equal to, 0.06 percent by weight, the threshold above which the South Carolina Department of Health and Environmental Control considers materials to be lead containing. The laboratory analytical results and chain-of-custody are included in the Lead Analysis Reports in Attachment B.

Suspect lead based paints sampled from the building that were identified to be lead containing include:

Daycare:

Exterior Purple 50 lf

Warehouse:

Exterior White 5,000 sf

724 and 710 Cross Hill Road.
Columbia, South Carolina
ECS Project Number 14-2755
September 10, 2006

Recommendations and Discussion

If the above referenced asbestos materials are to be disturbed by renovations or demolition, the asbestos must be removed in accordance with EPA, State of South Carolina and OSHA asbestos regulations. The State of South Carolina, Department of Health and Environmental Control (DHEC) has specific regulations that must be adhered to during asbestos removal/abatement projects.

The EPA and State of South Carolina defines an asbestos-containing material as a material containing one percent or more asbestos. ECS recommends the following:

1. Abate the asbestos containing materials in the structure prior to renovation/demolition.
2. Follow OSHA asbestos regulations during demolition of the structures. You should be aware that stringent requirements are imposed upon anyone renovating or demolishing a structure in which ACM will be disturbed. This work must be performed in accordance with OSHA asbestos regulations, 29 CFR 1910 & 1926, and NESHAP asbestos regulations 40 CFR 61, subpart M. South Carolina regulations require the accreditation of personnel who work in the asbestos field and notification and permitting fees for asbestos removal projects. There is a 10 working day notification period required prior to abatement of asbestos in a facility. Failure to take proper precautions and actions to protect human health and the environment can result in penalties, danger to personnel, and construction delays.
3. ECS recommends that all of the painted surfaces identified as containing lead at concentrations in excess of 0.06 percent by weight, that will be disturbed by renovations be properly abated and that lead containing materials be disposed of properly after removal at a regulated lined landfill facility that accepts lead-based paint covered materials.

Please note that this document is not a specification for asbestos or lead based paint removal. It does not contain means and methods for abatement. Quantities of ACMs or LBP are estimated. Removal contractors are responsible for verifying amounts prior to bid/removal. If you are planning an abatement project, please contact ECS to discuss the requirements. Use of this document without the express written consent of ECS is at the sole risk of the user and/or abatement contractor.

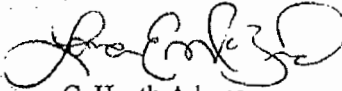
This report summarizes our evaluation of the conditions observed at the site. The findings prepared by ECS are based upon testing performed in the buildings. Additional ACM/LBP may exist (undetected) in other areas due to their inaccessibility or due to the limited nature of our testing. Our recommendations are based on the guidelines presented in EPA, State of South Carolina or OSHA asbestos regulations.

724 and 710 Cross Hill Road.
Columbia, South Carolina
ECS Project Number 14-2755
September 10, 2006

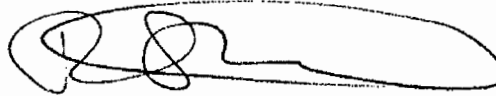
ECS appreciates the opportunity to provide our asbestos and lead based paint services for this project. If you have questions or need additional information, please contact us at (864) 987-1610.

Respectfully,

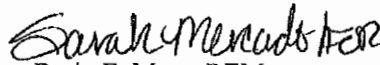
ECS Carolinas, LLP represented by;

 FOR

C. Heath Adams
Asbestos Inspector
SC Asbestos Inspector #BI-0840



Rebecca W. Shultz, MSPH
Industrial Hygiene Manager



Reviewed By: Brain E. Maas, REM
Principal Scientist

- Appendix A: Bulk Asbestos Analysis Sheets and Chain of Custody
- Appendix B: Lead Bulk Analysis Sheets and Chain of Custody
- Appendix C: Table of Non-Asbestos Containing Materials
- Appendix D: Licenses

Environmental Report 2700 2755 Edens & Avanti 724 & 710 Cross Hill 2755 Edens & Avanti 724 & 710 Cross Hill 10-1-06 Report

Asbestos Inspection Report

2430 Greene Street
Columbia, South Carolina



December 7, 2009

Prepared For: City of Columbia
Planning & Development Services
1136 Washington Street
Columbia, SC 29201

Phone: (803) 545-3333

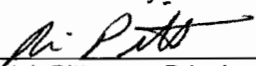
ARM Project No. 09-1065-09

Report Compiled By



Benjamin M. Craig, Project Manager
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Report Reviewed By



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TABLE OF CONTENTS

<i>Introduction</i>	<i>Page 1</i>
<i>Building Description</i>	<i>Page 1</i>
<i>Scope of Inspection</i>	<i>Page 2</i>
<i>Table 1: Sample Analytical Data</i>	<i>Page 2</i>
<i>Summary of Results</i>	<i>Page 4</i>
<i>Table 2: ACBM Hazard Summary</i>	<i>Page 4</i>
<i>Asbestos Abbreviation and Hazard Assessment Key</i>	<i>Page 5</i>
<i>Conclusions / Recommendations</i>	<i>Page 6</i>
<i>Warranty</i>	<i>Page 7</i>
<i>Floor Plan (Showing Sample Locations)</i>	<i>Figure 1</i>
<i>PLM & TEM Asbestos Laboratory Data</i>	<i>Appendix A</i>
<i>Copy of SCDHEC Consultant / Building Inspector License</i>	<i>Appendix B</i>

Introduction

On November 20, 2009, ARM surveyed the vacant house for the presence of asbestos containing building materials (ACBM). It is understood that the house is scheduled demolition. The surveyed areas include all of the accessible areas of the structure (excluding areas with obvious signs of structural damage). This survey has been conducted in accordance with the Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) regulation and SC Department of Health & Environmental Control (DHEC) regulation 61-86.1 prior to renovation or demolition of public or commercial structures. The identification of ACBM also facilitates compliance with the Occupational Safety and Health Administration (OSHA) standards pertaining to worker health and safety standards.

Building Description

The house is a one-story structure with brick siding. The house has approximately 1,200 square feet of interior floor space, and has an A-frame style roof and a crawlspace. The house has obvious signs of significant foundation problems and roof damage in the HVAC room at the rear of the house. The crawlspace area was viewed from crawlspace access locations but was not entered due to safety concerns. No suspect ACBMs were viewed from crawlspace access locations.

Interior Materials – The interior floors are wood floors mostly covered by carpet and some vinyl flooring products. The walls and ceiling consist of drywall materials. The attic space has wood trusses, wood roof deck and non-suspect fiberglass insulation.

Exterior Materials – The exterior siding materials consist mostly of brick siding. The roof over the building is covered with asphalt roofing products.

Scope of Inspection

Samples of suspect ACBM have been collected in accordance with the EPA-AHERA regulations by a DHEC licensed building inspector, and then forwarded to a National Voluntary Laboratory Accreditation Program (NVLAP) / National Institute for Standards and Technology (NIST) accredited laboratory for analysis. Samples of each suspect building material have been analyzed by polarized light microscopy (PLM) analysis with dispersion staining techniques in accordance with 40 CFR Part 763 Appendix B to Subpart F. At least one sample of each Negative Organically Bound (NOB) material such as flooring materials, caulks, mastics and roofing materials, was analyzed via Transmission Electron Microscopy (TEM) method as required by the current DHEC regulation 61-86.1. A floor plan drawing showing sample locations is included as Figure 1 of this report.

The sample descriptions, material location and corresponding analytical data are tabulated in Table 1 with a copy of the laboratory data sheets and chain of custody documentation included in Appendix A of this report. The conditions of any materials identified with asbestos are summarized in Table 2 of this report.

Table 1: Sample Analytical Data

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-1	2430-01, 02, 03	Vinyl Sheet Flooring, Brown	M	Pool Room	150 SF	No Asbestos Detected
HA-2	2430-04, 05, 06	Vinyl Sheet Flooring, Brown	M	Kitchen, Between Plywood Sub-Floors	150 SF	18% Asbestos
HA-3	2430-07, 08, 09	12" Tan Floor Tile	M	HVAC Room, (Rear)	150 SF	6% Asbestos
HA-4	2430-10, 11, 12, 13, 14	Joint Compound Layer	S	Walls and Ceiling Throughout House	4,000 SF	3% Asbestos
HA-5	2430-15, 16, 17	Drywall Layer	M	Associated with HA-4	4,000 SF	No Asbestos Detected
HA-6	2430-18, 19, 20	Ceiling Texture (Popcorn)	S	Throughout Most of the House	800 SF	No Asbestos Detected
HA-7	2430-21, 22, 23	Ceiling Texture	S	Den	225 SF	4% Asbestos

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-8	2430-24, 25, 26	Frame Caulk	M	Front Door	15 LF	6% Asbestos
HA-9	2430-27, 28, 29	Frame Caulk	M	Windows	180 LF	No Asbestos Detected
HA-10	2430-30, 31, 32	Sealant Tar	M	Roof, Around Chimney	6 LF	5% Asbestos
HA-11	2430-33, 34, 35	Shingles	M	Throughout the Roof	1,500 SF	No Asbestos Detected
HA-12	2430-36, 37, 38	Roof Felt	M	Under HA-11	1,500 SF	No Asbestos Detected

*Asbestos Content: The United States EPA and DHEC regulations define asbestos containing material as any material with greater than one percent (>1%) asbestos content. OSHA regulations

Notes: "HA" – Homogeneous Area

"Category" - S=Surfacing Material, M=Miscellaneous Material, T=Thermal System Insulation.

SF = Square Feet or LF = Linear Feet (Quantities are rough visual estimates, not exact measurements).

Laboratory analysis for the subject building indicate that asbestos was found in the brown sheet flooring located in the kitchen (between plywood sub-floors), the twelve inch by twelve inch white floor tile located in the HVAC room at the rear of the house, the joint compound associated with drywall walls and ceiling, the troweled-on ceiling finish located in the den, the frame caulk around the front door and sealant tar located on the roof around the chimney.

Summary of Results

Material friability and condition for each ACBM found to contain greater than one percent (>1%) asbestos are summarized in Table 2 below.

Table 2: ACBM Hazard Summary

Suspect Material Number	Material Description	Material Location	Friable or Non-friable ^A	Material Condition	Potential For Disturbance	Hazard Assessment Ranking
HA-2	Vinyl Sheet Flooring, Brown	Kitchen, Between Plywood Sub-Floors	Non-Friable	D	LPD	4
HA-3	12" Tan Floor Tile	HVAC Room, (Rear)	Non-friable	D	PD	5
HA-4	Joint Compound Layer	Walls and Ceiling Throughout House	Friable	D	PSD	6
HA-7	Ceiling Texture (Troweled)	Den	Friable	G	PD	2
HA-8	Frame Caulk	Front Door	Non-friable	D	LPD	4
HA-10	Sealant Tar	Roof, Around Chimney	Non-friable	G	LPD	1

^A "Friable" – Refers to an ACM, which may, when dry, be crumbled, pulverized, or reduced to powder by the forces expected to act upon it in the course of demolition or renovation operations. This also refers to previously non-friable ACM after such materials become damaged to the extent that when dry, can be or has been crumbled, pulverized, or reduced to powder.

Asbestos Abbreviations and Hazard Assessment Key

The EPA and SCDHEC require that confirmed ACM is given a hazard assessment based on its present condition and potential for future disturbance. This hazard assessment is used as a tool for prioritization in future remedial actions regarding the ACM. The following key demonstrates the criteria that make up the hazard assessments.

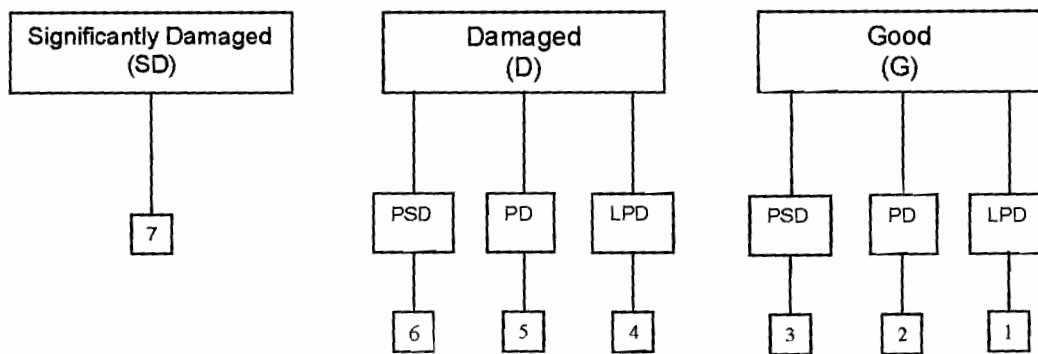
Present Condition

- G = Good (very localized Comprehensive damage)
- D = Damaged (<10% distributed and/or <25% localized)
- S = Significantly Damaged (>10% distributed and/or 25% localized)

Potential for Future Disturbance

- LPD = Low Potential for Disturbance (Contact, Vibration, and/or Air Erosion – low concern)
- PD = Potential for Damage (Contact, Vibration, and/or Air Erosion – high concern)
- PSD = Potential for Significant Damage (Contact, Vibration, and/or Air Erosion)

HAZARD ASSESSMENT



Conclusions / Recommendations

Regulated Asbestos Containing Materials (RACM) – The following materials have been identified as friable RACM in this building.

• Joint Compound on Drywall	• Ceiling Texture (Troweled-On)
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In the present condition, there is a high potential for asbestos fibers to be released from these friable asbestos materials. State and Federal regulations require the removal of this material by a licensed DHEC asbestos abatement contractor prior to any disturbance caused by renovation or demolition.

Non-Friable Category I Asbestos Containing Building Materials – The following materials have been identified as non-friable Category I ACBM.

• Vinyl Sheet Flooring Materials	• 12" Floor Tile
• Door Frame Caulk	• Roof Sealant Tar

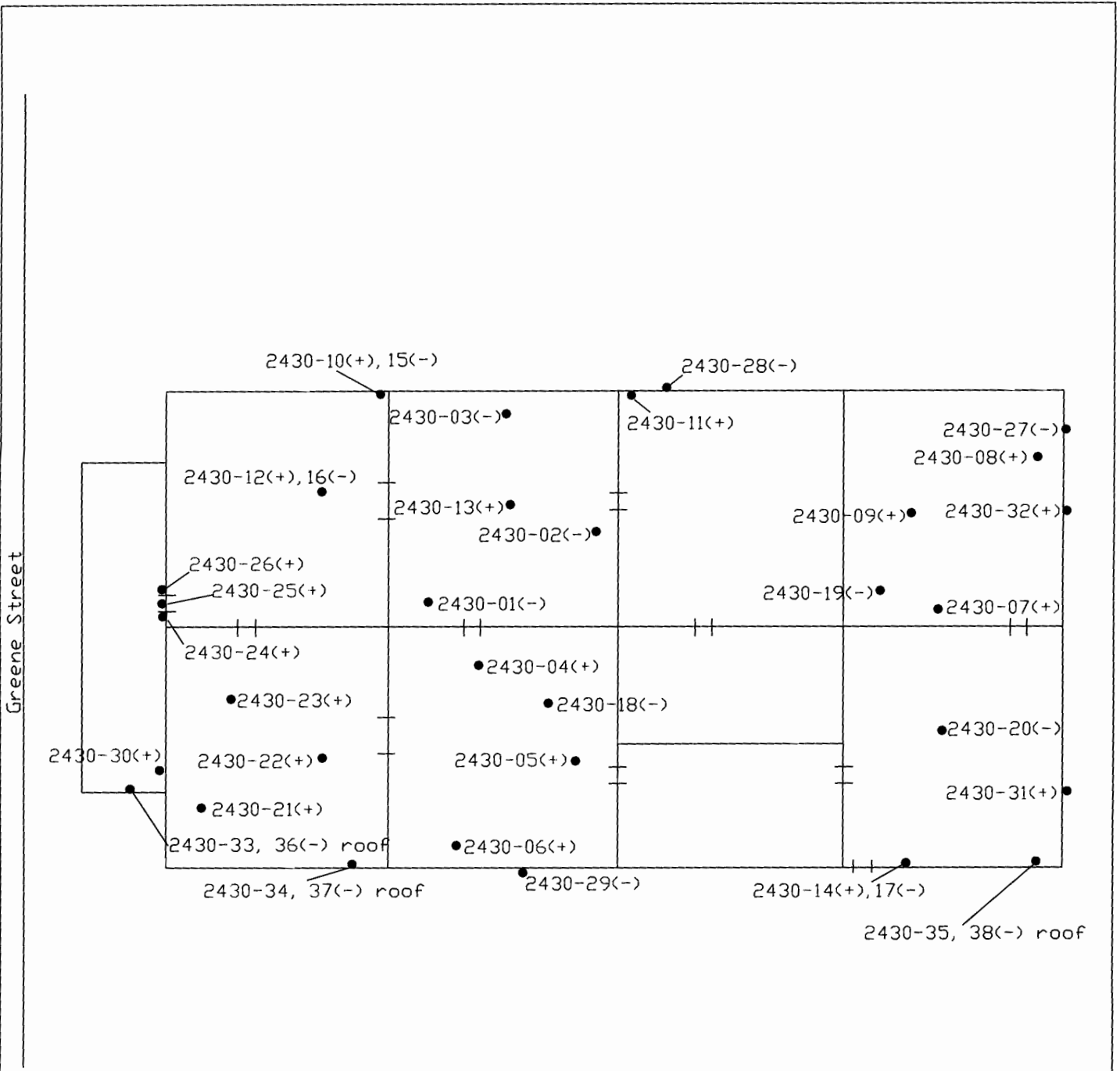
In the present condition, there is a low potential for significant concentrations of asbestos fibers to be released into the air from these non-friable category I asbestos materials. It is recommended that a licensed asbestos abatement contractor conduct or supervise the removal and proper disposal of these materials prior to demolition of this building.

Non-Friable Category II Asbestos Containing Building Materials – No Category II non-friable ACBM were identified in this building.


Based on structural damage to the subject building (i.e. collapsed roof, damaged foundation), there is a significant potential that additional materials may be present that could not be accessed during the survey. In the event that any suspect asbestos containing material, which was not addressed in this survey is encountered, the material should be presumed to contain asbestos until laboratory analysis can be conducted.

Warranty

ARM warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report. The field and laboratory results reported herein are considered sufficient in detail and scope to determine the presence of accessible and/or exposed suspect asbestos containing at the time of the inspection. Test results are valid only for the materials tested. There is a distinct possibility that conditions may exist which could not be identified within the scope of study or which were not apparent during the site visit. This inspection covered only those materials, which were exposed and/or accessible to the inspector. No other warranties are implied or expressed.

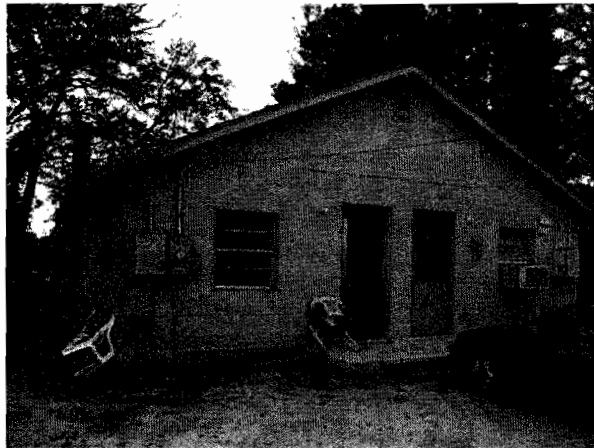


(-): Non-Asbestos Sample
 (+): Asbestos-Containing Sample

<p><i>PROJECT:</i></p> <p>Asbestos Survey 2430 Greene Street Columbia, South Carolina ARM #09-1065-09</p>	<p><i>DESCRIPTION:</i></p> <p>Sample Location Map</p>	<p style="text-align: center;">FIGURE 1</p> <p><i>DATE:</i> November 2009</p>
	<p><i>REFERENCE:</i></p> <p>Field Notes</p>	<p><i>NOTE:</i></p> <p>Not to Scale</p>

Asbestos Inspection Report

1818 / 1820 Mitchell Street
Columbia, South Carolina



December 18, 2009

Prepared For: City of Columbia
Planning & Development Services
1136 Washington Street
Columbia, SC 29201

Phone: (803) 545-3333

ARM Project No. 09-1065-09

Report Compiled By

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Report Reviewed By

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TABLE OF CONTENTS

<i>Introduction</i>	<i>Page 1</i>
<i>Building Description</i>	<i>Page 1</i>
<i>Scope of Inspection</i>	<i>Page 2</i>
<i>Table 1: Sample Analytical Data</i>	<i>Page 2</i>
<i>Summary of Results</i>	<i>Page 3</i>
<i>Table 2: ACBM Hazard Summary</i>	<i>Page 3</i>
<i>Asbestos Abbreviation and Hazard Assessment Key</i>	<i>Page 4</i>
<i>Conclusions / Recommendations</i>	<i>Page 5</i>
<i>Warranty</i>	<i>Page 6</i>
<i>Floor Plan (Showing Sample Locations)</i>	<i>Figure 1</i>
<i>PLM & TEM Asbestos Laboratory Data</i>	<i>Appendix A</i>
<i>Copy of SCDHEC Consultant / Building Inspector License</i>	<i>Appendix B</i>

Introduction

On December 4, 2009, ARM surveyed the vacant duplex house for the presence of asbestos containing building materials (ACBM). It is understood that the structure is scheduled for demolition. The surveyed areas include all of the accessible areas of the structure. This survey has been conducted in accordance with the Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) regulation and SC Department of Health & Environmental Control (DHEC) regulation 61-86.1 prior to renovation or demolition of public or commercial structures. The identification of ACBM also facilitates compliance with the Occupational Safety and Health Administration (OSHA) standards pertaining to worker health and safety standards.

Building Description

The duplex house is a one-story structure of concrete block construction on a concrete slab foundation. The structure has approximately 950 square feet of interior floor space and has an A-frame style roof.

Interior Materials – The interior floors are concrete floors covered mostly with vinyl flooring products and/or a painted floor finish. The walls consist of concrete block finished with plaster materials. The ceilings are plaster. Some finished drywall is also present over the plaster ceiling in Unit 1818. The attic space has wood trusses and a wood roof deck.

Exterior Materials – The exterior siding materials consist of concrete block. The A-frame roof is covered with metal panels.

Scope of Inspection

Samples of suspect ACBM have been collected in accordance with the EPA-AHERA regulations by a DHEC licensed building inspector, and then forwarded to a National Voluntary Laboratory Accreditation Program (NVLAP) / National Institute for Standards and Technology (NIST) accredited laboratory for analysis. Samples of each suspect building material have been analyzed by polarized light microscopy (PLM) analysis with dispersion staining techniques in accordance with 40 CFR Part 763 Appendix B to Subpart F. At least one sample of each Negative Organically Bound (NOB) material such as flooring materials, caulks, mastics and roofing materials, was analyzed via Transmission Electron Microscopy (TEM) method as required by the current DHEC regulation 61-86.1. A floor plan drawing showing sample locations is included as Figure 1 of this report.

The sample descriptions, material location and corresponding analytical data are tabulated in Table 1 with a copy of the laboratory data sheets and chain of custody documentation included in Appendix A of this report. The conditions of any materials identified with asbestos are summarized in Table 2 of this report.

Table 1: Sample Analytical Data

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-1	1818-01, 02, 03	Painted Floor Finish	S	Unit 1820 Bathroom, Bedroom, Living Room	475 SF	No Asbestos Detected
HA-2	1818-04, 05, 06	Vinyl Sheet Flooring	M	Unit 1820 Kitchen, Bedroom	50 SF	No Asbestos Detected
HA-3	1818-07, 08, 09, 10, 11	Plaster Skimcoat	S	Walls, Ceilings (Both Units)	3,300 SF	0.46% Asbestos (TEM)
HA-4	1818-12, 13, 14, 15, 16	Plaster Browncoat	S	Walls, Ceilings (Both Units)	3,300 SF	No Asbestos Detected
HA-5	1818-17, 18, 19	Painted Floor Finish	S	Unit 1818 Bathroom, Bedroom, Living Room	475 SF	No Asbestos Detected
HA-6	1818-20, 21, 22	Joint Compound	S	1818 Ceiling	475 SF	No Asbestos Detected

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-7	1818-23, 24, 25	Drywall	M	1818 Ceiling (over plaster)	475 SF	No Asbestos Detected
HA-8	1818-26, 27, 28	Roof Sealant	M	Entire Roof	1,200 SF	10% Asbestos
HA-9	1818-29, 30, 31	Roof Shingles	M	Canopies at Rear of Structure	30 SF	No Asbestos Detected
HA-10	1818-32, 33, 34	Roof Felt	M	Canopies at Rear of Structure	30 SF	No Asbestos Detected

***Asbestos Content:** The United States EPA and DHEC regulations define asbestos containing material as any material with greater than one percent (>1%) asbestos content. OSHA regulates worker exposure with any amount of asbestos present.

Notes: "HA" – Homogeneous Area

"Category" - S=Surfacing Material, M=Miscellaneous Material, T=Thermal System Insulation.

SF = Square Feet or LF = Linear Feet (Quantities are rough visual estimates, not exact measurements).

Laboratory analysis for the subject building indicate that asbestos was found in the roof sealant material coating the metal panel roofing on the structure.

Summary of Results

Material friability and condition for any ACBM found to contain greater than one percent (>1%) asbestos are summarized in Table 2 below.

Table 2: ACBM Hazard Summary

Suspect Material Number	Material Description	Material Location	Friable or Non-friable ^A	Material Condition	Potential For Disturbance	Hazard Assessment Ranking
HA-8	Roof Sealant	Entire Roof	Non-Friable	G	LPD	1

^A "Friable" – Refers to an ACM, which may, when dry, be crumbled, pulverized, or reduced to powder by the forces expected to act upon it in the course of demolition or renovation operations. This also refers to previously non-friable ACM after such materials become damaged to the extent that when dry, can be or has been crumbled, pulverized, or reduced to powder.

Asbestos Abbreviations and Hazard Assessment Key

The EPA and SCDHEC require that confirmed ACBM is given a hazard assessment based on its present condition and potential for future disturbance. This hazard assessment is used as a tool for prioritization in future remedial actions regarding the ACBM. The following key demonstrates the criteria that make up the hazard assessments.

Present Condition

G = Good (very localized Comprehensive damage)

D = Damaged (<10% distributed and/or <25% localized)

S = Significantly Damaged (>10% distributed and/or 25% localized)

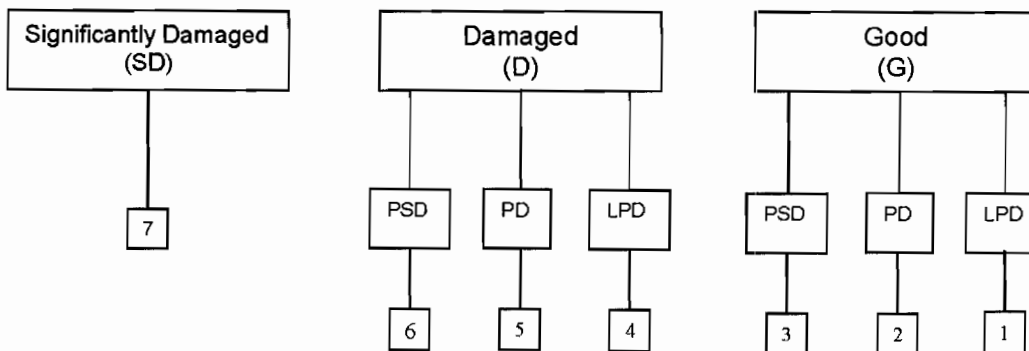
Potential for Future Disturbance

LPD = Low Potential for Disturbance (Contact, Vibration, and/or Air Erosion – low concern)

PD = Potential for Damage (Contact, Vibration, and/or Air Erosion – high concern)

PSD = Potential for Significant Damage (Contact, Vibration, and/or Air Erosion

HAZARD ASSESSMENT



Conclusions / Recommendations

Regulated Asbestos Containing Materials (RACM) – No friable RACM were identified in this building.

*Non-Friable **Category I** Asbestos Containing Building Materials* – The following material has been identified as a non-friable Category I ACBM.

- Roof Sealant Material

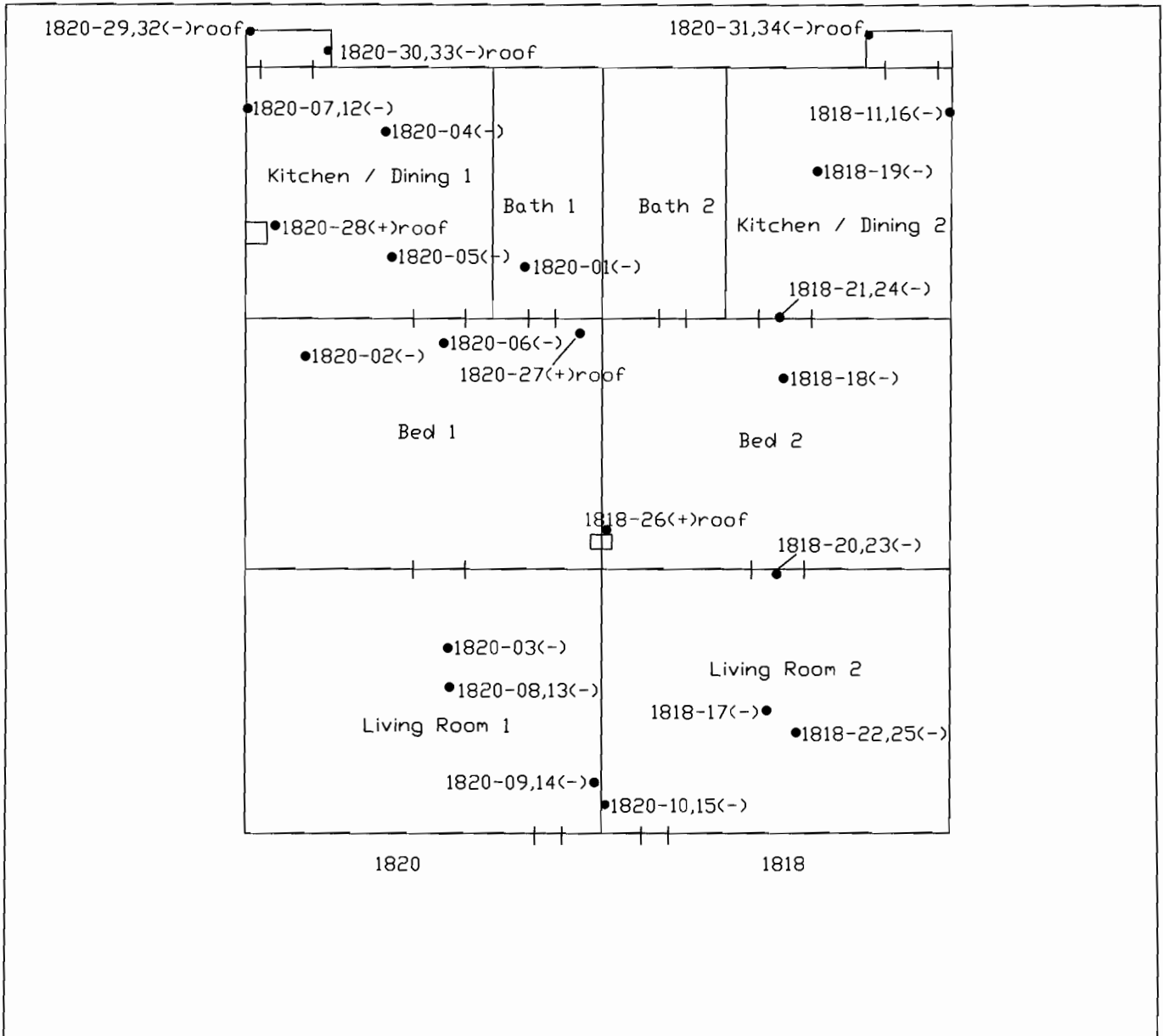
In its present condition, there is a low potential for significant concentrations of asbestos fibers to be released into the air from this non-friable category I asbestos material. It is recommended that a licensed asbestos abatement contractor conduct or supervise the removal and proper disposal of this material prior to demolition of this building.

*Non-Friable **Category II** Asbestos Containing Building Materials* – No Category II non-friable ACBM were identified in this building.

There is a potential that additional materials may be present that could not be accessed during the survey. In the event that any suspect asbestos containing material, which was not addressed in this survey is encountered, the material should be presumed to contain asbestos until laboratory analysis can be conducted.


Warranty

ARM warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report. The field and laboratory results reported herein are considered sufficient in detail and scope to determine the presence of accessible and/or exposed suspect asbestos containing at the time of the inspection. Test results are valid only for the materials tested. There is a distinct possibility that conditions may exist which could not be identified within the scope of study or which were not apparent during the site visit. This inspection covered only those materials, which were exposed and/or accessible to the inspector. No other warranties are implied or expressed.



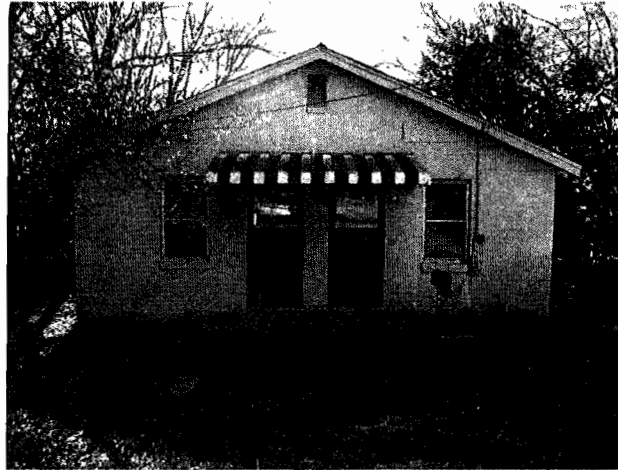
1818/1820 Mitchell

(-): Non-Asbestos Sample
 (+): Asbestos-Containing Sample

<p><i>PROJECT:</i></p> <p>Asbestos Survey 1818/1820 Mitchell Columbia, South Carolina ARM #09-1065-09</p>	<p><i>DESCRIPTION:</i></p> <p>Sample Location Map</p>	<p>FIGURE 1</p> <p><i>DATE:</i> December 2009</p>
	<p><i>REFERENCE:</i></p> <p>Field Notes</p>	<p><i>NOTE:</i></p> <p>Not to Scale</p>

Asbestos Inspection Report

1900 Mitchell Street
Columbia, South Carolina



December 10, 2009

Prepared For: City of Columbia
Planning & Development Services
1136 Washington Street
Columbia, SC 29201

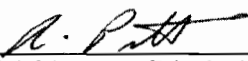
Phone: (803) 545-3333

ARM Project No. 09-1065-09

Report Compiled By


Benjamin M. Craig, Project Manager
South Carolina Asbestos Building Inspector License #BI-00345

Report Reviewed By


Richard J. Pittenger, Principal
South Carolina Consultant / Building Inspector License #20801

ARM ENVIRONMENTAL
SERVICES, INC.

1210 1st STREET SOUTH EXT. / COLUMBIA, SC 29209 / phone (803)783-3314 fax (803)783-2587

TABLE OF CONTENTS

<i>Introduction</i>	Page 1
<i>Building Description</i>	Page 1
<i>Scope of Inspection</i>	Page 1
<i>Table 1: Sample Analytical Data</i>	Page 2
<i>Summary of Results</i>	Page 3
<i>Table 2: ACBM Hazard Summary</i>	Page 3
<i>Asbestos Abbreviation and Hazard Assessment Key</i>	Page 4
<i>Conclusions / Recommendations</i>	Page 5
<i>Warranty</i>	Page 5
<i>Floor Plan (Showing Sample Locations)</i>	Figure 1
<i>PLM & TEM Asbestos Laboratory Data</i>	Appendix A
<i>Copy of SCDHEC Consultant / Building Inspector License</i>	Appendix B

Introduction

On December 3, 2009, ARM surveyed the vacant duplex house for the presence of asbestos containing building materials (ACBM). It is understood that the house is scheduled for demolition. The surveyed areas include all of the accessible areas of the structure. This survey has been conducted in accordance with the Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) regulation and SC Department of Health & Environmental Control (DHEC) regulation 61-86.1 prior to renovation or demolition of public or commercial structures. The identification of ACBM also facilitates compliance with the Occupational Safety and Health Administration (OSHA) standards pertaining to worker health and safety standards.

Building Description

The duplex house is a one-story structure with concrete block siding on slab and an A-frame roof. The duplex house has approximately 950 square feet of interior floor space.

Interior Materials – The interior floors are concrete floors covered mostly with vinyl flooring products. The walls consist of concrete block finished with plaster materials. The ceiling is finished with plaster. The attic space consists of wood trusses and a wood roof deck.

Exterior Materials – The exterior siding materials consist of concrete block siding. The A-frame roof is covered with metal panels.

Scope of Inspection

Samples of suspect ACBM have been collected in accordance with the EPA-AHERA regulations by a DHEC licensed building inspector, and then forwarded to a National Voluntary Laboratory Accreditation Program (NVLAP) / National Institute for Standards and Technology (NIST) accredited laboratory for analysis. Samples of each suspect building material have been analyzed by polarized light microscopy (PLM) analysis with dispersion staining techniques in accordance with 40 CFR Part 763 Appendix B to Subpart F. At least one sample of each Negative Organically Bound (NOB) material such as flooring materials, caulks,

mastics and roofing materials, was analyzed via Transmission Electron Microscopy (TEM) method as required by the current DHEC regulation 61-86.1. A floor plan drawing showing sample locations is included as Figure 1 of this report.

The sample descriptions, material location and corresponding analytical data are tabulated in Table 1 with a copy of the laboratory data sheets and chain of custody documentation included in Appendix A of this report. The conditions of any materials identified with asbestos are summarized in Table 2 of this report.

Table 1: Sample Analytical Data

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-1	1900-01, 02, 03	Vinyl Sheet Flooring, Dark Green	M	Kitchen / Dining	70 SF	No Asbestos Detected
HA-2	1900-04, 05, 06	Vinyl Sheet Flooring, Brown	M	Bedroom 2	150 SF	No Asbestos Detected
HA-3	1900-07, 08, 09	Vinyl Sheet Flooring, Beige	M	Bathroom 1	30 SF	No Asbestos Detected
HA-4	1900-10, 11, 12, 13, 14	Plaster, Skim Coat Layer	S	Walls & Ceiling Throughout Structure	3,300 SF	No Asbestos Detected
HA-5	1900-15, 16, 17, 18, 19	Plaster, Brown Coat Layer	S	Under HA-4	3,300 SF	No Asbestos Detected
HA-6	1900-20, 21, 22	Floor Finish, Brown	M	All of Unit 2 & Kitchen / Dining & Bath Unit 1	600 SF	No Asbestos Detected
HA-7	1900-23, 24, 25	Floor Finish, Black	M	Living Room & Bedroom Unit 1	300 SF	No Asbestos Detected
HA-8	1900-26, 27, 28	Sealant Tar	M	Roof Patching and around Chimneys	50 LF	10% Asbestos

***Asbestos Content:** The United States EPA and DHEC regulations define asbestos containing material as any material with greater than one percent (>1%) asbestos content. OSHA regulates worker exposure with any amount of asbestos present.

Notes: "HA" – Homogeneous Area

"Category" - S=Surfacing Material, M=Miscellaneous Material, T=Thermal System Insulation.

SF = Square Feet or LF = Linear Feet (Quantities are rough visual estimates, not exact measurements).

Laboratory analysis for the subject building indicates that asbestos was found in the sealant tar located at one seam on the metal panel roof and around chimneys.

Summary of Results

Material friability and condition for any material found to contain greater than one percent (>1%) asbestos are summarized in Table 2 below.

Table 2: ACBM Hazard Summary

Suspect Material Number	Material Description	Material Location	Friable or Non-friable^A	Material Condition	Potential For Disturbance	Hazard Assessment Ranking
HA-8	Roof Sealant Tar	Roof Patching and around Chimneys	Non-Friable	G	LPD	1

^A "Friable" – Refers to an ACM, which may, when dry, be crumbled, pulverized, or reduced to powder by the forces expected to act upon it in the course of demolition or renovation operations. This also refers to previously non-friable ACM after such materials become damaged to the extent that when dry, can be or has been crumbled, pulverized, or reduced to powder.

Asbestos Abbreviations and Hazard Assessment Key

The EPA and SCDHEC require that confirmed ACBM is given a hazard assessment based on its present condition and potential for future disturbance. This hazard assessment is used as a tool for prioritization in future remedial actions regarding the ACBM. The following key demonstrates the criteria that make up the hazard assessments.

Present Condition

G = Good (very localized Comprehensive damage)

D = Damaged (<10% distributed and/or <25% localized)

S = Significantly Damaged (>10% distributed and/or 25% localized)

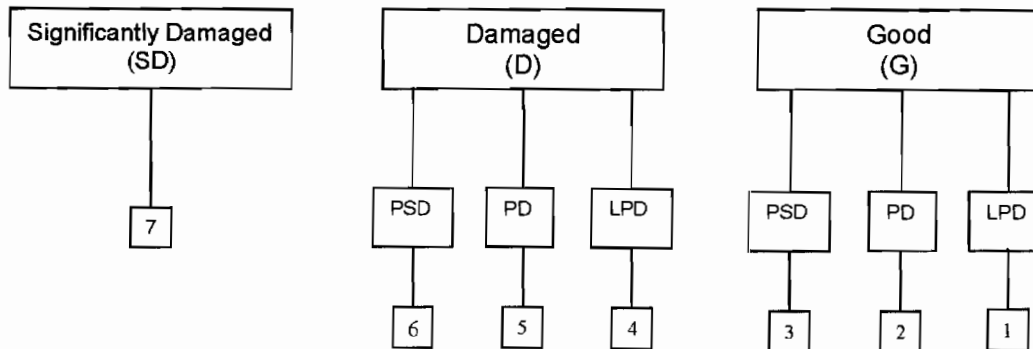
Potential for Future Disturbance

LPD = Low Potential for Disturbance (Contact, Vibration, and/or Air Erosion – low concern)

PD = Potential for Damage (Contact, Vibration, and/or Air Erosion – high concern)

PSD = Potential for Significant Damage (Contact, Vibration, and/or Air Erosion

HAZARD ASSESSMENT



Conclusions / Recommendations

Regulated Asbestos Containing Materials (RACM) – No friable RACM were identified in this building.

*Non-Friable **Category I** Asbestos Containing Building Materials* – The following material has been identified as a non-friable Category I ACBM.

- | | |
|--------------------|--|
| • Roof Sealant Tar | |
|--------------------|--|

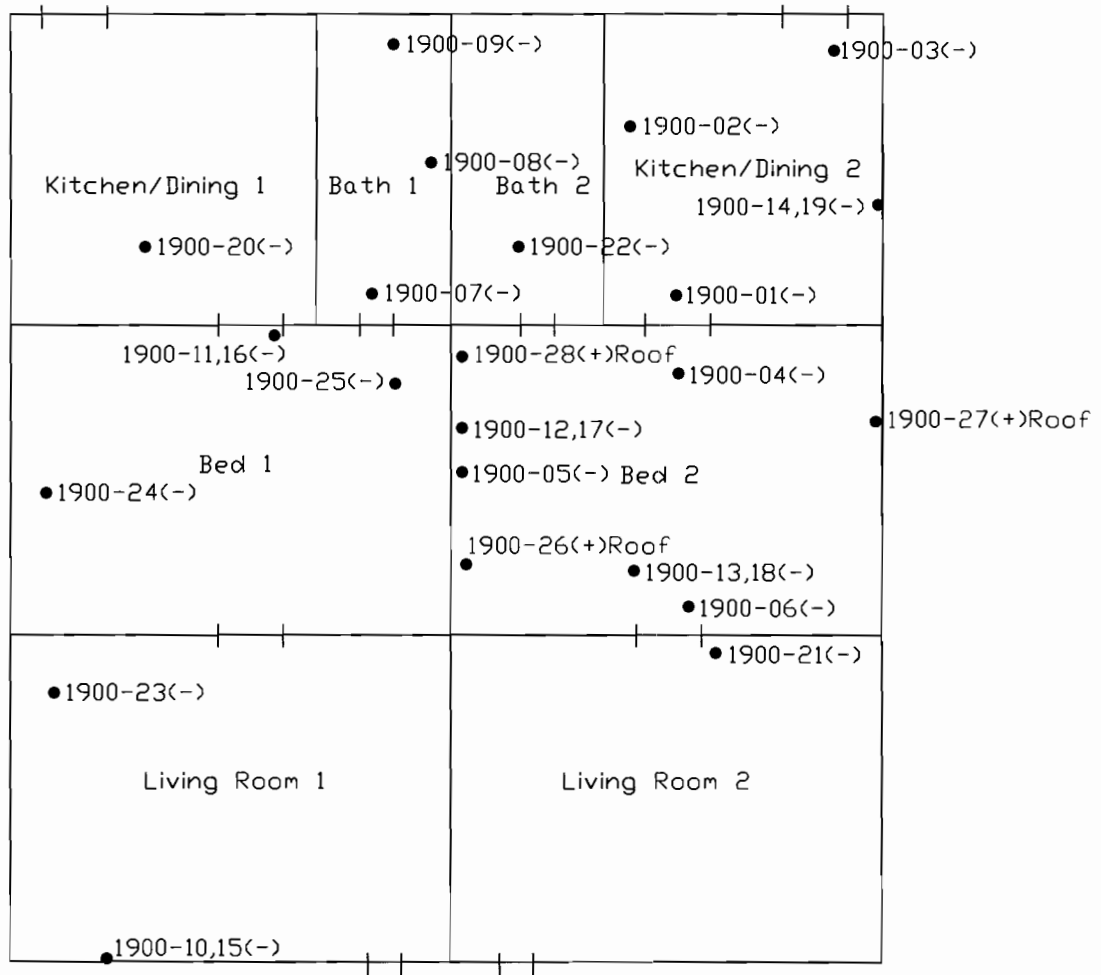
In its present condition, there is a low potential for significant concentrations of asbestos fibers to be released into the air from this non-friable category I asbestos material. It is recommended that a licensed asbestos abatement contractor conduct or supervise the removal and proper disposal of this material prior to demolition of this building.

*Non-Friable **Category II** Asbestos Containing Building Materials* – No Category II non-friable ACBM were identified in this building.

The survey was limited to the accessible building materials. In the event that any suspect asbestos containing material, which was not addressed in this survey is encountered, the material should be presumed to contain asbestos until laboratory analysis can be conducted.

Warranty

ARM warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report. The field and laboratory results reported herein are considered sufficient in detail and scope to determine the presence of accessible and/or exposed suspect asbestos containing at the time of the inspection. Test results are valid only for the materials tested. There is a distinct possibility that conditions may exist which could not be identified within the scope of study or which were not apparent during the site visit. This inspection covered only those materials, which were exposed and/or accessible to the inspector. No other warranties are implied or expressed.



1900 Mitchell

(-): Non-Asbestos Sample
 (+): Asbestos-Containing Sample

PROJECT:

Asbestos Survey
 1900 Mitchell Street
 Columbia, South Carolina
 ARM #09-1065-09

DESCRIPTION:

Sample Location Map

FIGURE 1

DATE:

December 2009

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

Field Notes

NOTE:

Not to Scale

Asbestos Inspection Report

1918 / 1920 Mitchell Street
Columbia, South Carolina



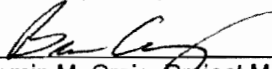
December 11, 2009

Prepared For: City of Columbia
Planning & Development Services
1136 Washington Street
Columbia, SC 29201

Phone: (803) 545-3333

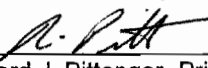
ARM Project No. 09-1065-09

Report Compiled By



Benjamin M. Craig, Project Manager
South Carolina Asbestos Building Inspector License #BI-00345

Report Reviewed By



Richard J. Pittenger, Principal
South Carolina Consultant / Building Inspector License #20801

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TABLE OF CONTENTS

<i>Introduction</i>	<i>Page 1</i>
<i>Building Description</i>	<i>Page 1</i>
<i>Scope of Inspection</i>	<i>Page 2</i>
<i>Table 1: Sample Analytical Data</i>	<i>Page 2</i>
<i>Summary of Results</i>	<i>Page 4</i>
<i>Table 2: ACBM Hazard Summary</i>	<i>Page 4</i>
<i>Asbestos Abbreviation and Hazard Assessment Key</i>	<i>Page 5</i>
<i>Conclusions / Recommendations</i>	<i>Page 6</i>
<i>Warranty</i>	<i>Page 7</i>
<i>Floor Plan (Showing Sample Locations)</i>	<i>Figure 1</i>
<i>PLM & TEM Asbestos Laboratory Data</i>	<i>Appendix A</i>
<i>Copy of SCDHEC Consultant / Building Inspector License</i>	<i>Appendix B</i>

Introduction

On December 3, 2009, ARM surveyed the vacant church for the presence of asbestos containing building materials (ACBM). It is understood that the church is scheduled for demolition. The surveyed areas include all of the accessible areas of the structure (excluding areas with obvious signs of structural damage). This survey has been conducted in accordance with the Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) regulation and SC Department of Health & Environmental Control (DHEC) regulation 61-86.1 prior to renovation or demolition of public or commercial structures. The identification of ACBM also facilitates compliance with the Occupational Safety and Health Administration (OSHA) standards pertaining to worker health and safety standards.

Building Description

The church is a two-story structure on slab with concrete block siding and wood siding at the gables and an A-frame roof. The church has approximately 3,500 square feet of interior floor space. The church has obvious signs of significant structural problems. The ceiling in the sanctuary has large cracks due to outer wall movement according to a City of Columbia official.

Interior Materials – The interior floors are wood covered by carpet on the 2nd floor and concrete covered by vinyl flooring materials on the ground level. The outer walls consist of concrete block and interior walls consist of wood panels. The ceilings are finished with drywall materials. The attic space has wood trusses, wood roof deck and non-suspect fiberglass insulation.

Exterior Materials – The exterior siding materials consist mostly of concrete block siding with some wood siding at gables. The roof is covered with asphalt roofing products.

Scope of Inspection

Samples of suspect ACBM have been collected in accordance with the EPA-AHERA regulations by a DHEC licensed building inspector, and then forwarded to a National Voluntary Laboratory Accreditation Program (NVLAP) / National Institute for Standards and Technology (NIST) accredited laboratory for analysis. Samples of each suspect building material have been analyzed by polarized light microscopy (PLM) analysis with dispersion staining techniques in accordance with 40 CFR Part 763 Appendix B to Subpart F. At least one sample of each Negative Organically Bound (NOB) material such as flooring materials, caulks, mastics and roofing materials, was analyzed via Transmission Electron Microscopy (TEM) method as required by the current DHEC regulation 61-86.1. A floor plan drawing showing sample locations is included as Figure 1 of this report.

The sample descriptions, material location and corresponding analytical data are tabulated in Table 1 with a copy of the laboratory data sheets and chain of custody documentation included in Appendix A of this report. The conditions of any materials identified with asbestos are summarized in Table 2 of this report.

Table 1: Sample Analytical Data

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-1	1920-01, 02, 03	Floor Mastic (Bottom Layer)	M	Throughout Ground Floor Under Vinyl Flooring	1,500 SF	8% Asbestos
HA-2	1920-04, 05, 06	Leveling Compound	M	Classroom 1, (Associated with HA-1)	480 SF	Assumed ACBM
HA-3	1920-07, 08, 09	12" Floor Tile, Brown (Top Layer)	M	Associated with HA-1	1,400 SF	Assumed ACBM
HA-4	1920-10, 11, 12	12" Floor Tile, Beige w/Black Specks (2nd Layer)	M	Associated with HA-1	850 SF	Assumed ACBM
HA-5	1920-13, 14, 15	12" Floor Tile, Beige w/Flowers	M	Office 2 (Associated with HA-1)	120 SF	Assumed ACBM
HA-6	1920-16, 17, 18	Paint Layer (Bottom Layer)	M	Women's Restroom	100 SF	5% Asbestos

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-7	1920-19, 20, 21	Glue Layer	M	Associated with HA-6	100 SF	Assumed ACBM
HA-8	1920-22, 23, 24	12" Floor Tile, White	M	Associated with HA-6	100 SF	Assumed ACBM
HA-9	1920-25, 26, 27	12" Floor Tile, Gray	M	Men's Restroom (Associated with HA-1)	60 SF	Assumed ACBM
HA-10	1920-28, 29, 30, 31, 32	Joint Compound Layer	S	Ceilings (Some Walls) Throughout Building	4,500 SF	No Asbestos Detected
HA-11	1920-33, 34, 35, 36, 37	Textured Ceiling Finish	S	Ceilings Throughout Building	3,500 SF	No Asbestos Detected
HA-12	1920-38, 39, 40	Drywall Layer	M	Associated with HA-10 & HA-11	4,500 SF	No Asbestos Detected
HA-13	1920-41, 42, 43	Window Glaze	M	Upper Level Windows	500 LF	3% Asbestos
HA-14	1920-44, 45, 46	Shingles	M	Roof	2,500 SF	No Asbestos Detected
HA-15	1920-47, 48, 49	Roof Felt	M	Under HA-14	2,500 SF	No Asbestos Detected

***Asbestos Content:** The United States EPA and DHEC regulations define asbestos containing material as any material with greater than one percent (>1%) asbestos content. OSHA regulates worker exposure with any amount of asbestos present.

Notes: "HA" – Homogeneous Area

"Category" - S=Surfacing Material, M=Miscellaneous Material, T=Thermal System Insulation.

SF = Square Feet or LF = Linear Feet (Quantities are rough visual estimates, not exact measurements).

Laboratory analysis for the subject building indicate that asbestos was found in the bottom layer of floor tile mastic and bottom paint layer under all vinyl flooring materials, leveling compound and floor glues located on the ground level. The floor tile mastic and bottom paint layer are tightly bound with the vinyl flooring materials, leveling compound and floor glues, therefore contaminating these materials.

Summary of Results

Material friability and condition for any ACM found to contain greater than one percent (>1%) asbestos are summarized in Table 2 below.

Table 2: ACM Hazard Summary

Suspect Material Number	Material Description	Material Location	Friable or Non-friable ^A	Material Condition	Potential For Disturbance	Hazard Assessment Ranking
HA-1	Floor Mastic (Bottom Layer)	Throughout Ground Floor Under Vinyl Flooring	Non-Friable	G	LPD	1
HA-2	Leveling Compound	Classroom 1, Associated with HA-1	Non-friable	G	LPD	1
HA-3	12" Floor Tile, Brown (Top Layer)	Associated with HA-1	Non-friable	G	LPD	1
HA-4	12" Floor Tile, Beige w/Black Specks (2nd Layer)	Associated with HA-1	Non-friable	G	LPD	1
HA-5	12" Floor Tile, Beige w/Flowers	Office 2, Associated with HA-1	Non-friable	G	LPD	1
HA-6	Paint Layer (Bottom Layer)	Women's Restroom	Non-friable	G	LPD	1
HA-7	Glue Layer	Associated with HA-6	Non-friable	G	LPD	1
HA-8	12" Floor Tile, White	Associated with HA-6	Non-friable	G	LPD	1
HA-9	12" Floor Tile, Gray	Men's Restroom, Associated with HA-1	Non-friable	G	LPD	1
HA-13	Window Glaze	Upper Level Windows	Non-friable	G	LPD	1

^A "Friable" – Refers to an ACM, which may, when dry, be crumbled, pulverized, or reduced to powder by the forces expected to act upon it in the course of demolition or renovation operations. This also refers to previously non-friable ACM after such materials become damaged to the extent that when dry, can be or has been crumbled, pulverized, or reduced to powder.

Asbestos Abbreviations and Hazard Assessment Key

The EPA and SCDHEC require that confirmed ACBM is given a hazard assessment based on its present condition and potential for future disturbance. This hazard assessment is used as a tool for prioritization in future remedial actions regarding the ACBM. The following key demonstrates the criteria that make up the hazard assessments.

Present Condition

G = Good (very localized Comprehensive damage)

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S = Significantly Damaged (>10% distributed and/or 25% localized)

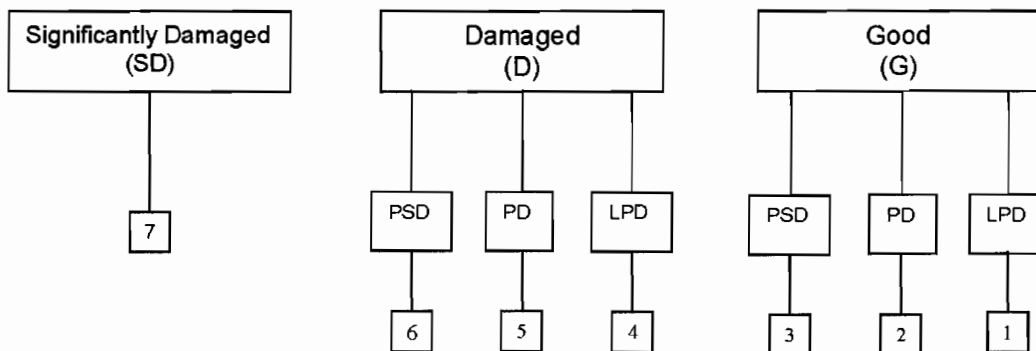
Potential for Future Disturbance

LPD = Low Potential for Disturbance (Contact, Vibration, and/or Air Erosion – low concern)

PD = Potential for Damage (Contact, Vibration, and/or Air Erosion – high concern)

PSD = Potential for Significant Damage (Contact, Vibration, and/or Air Erosion

HAZARD ASSESSMENT



Conclusions / Recommendations

Regulated Asbestos Containing Materials (RACM) – No friable RACM were identified in this building.

*Non-Friable **Category I** Asbestos Containing Building Materials* – The following materials have been identified as non-friable Category I ACBM.

• Floor Tile Mastic, Black	• Painted Floor Materials, Brown
• Leveling Comp. (Assumed ACBM)	• Vinyl Flooring (Assumed ACBM)
• Floor Glue (Assumed ACBM)	• Window Glaze

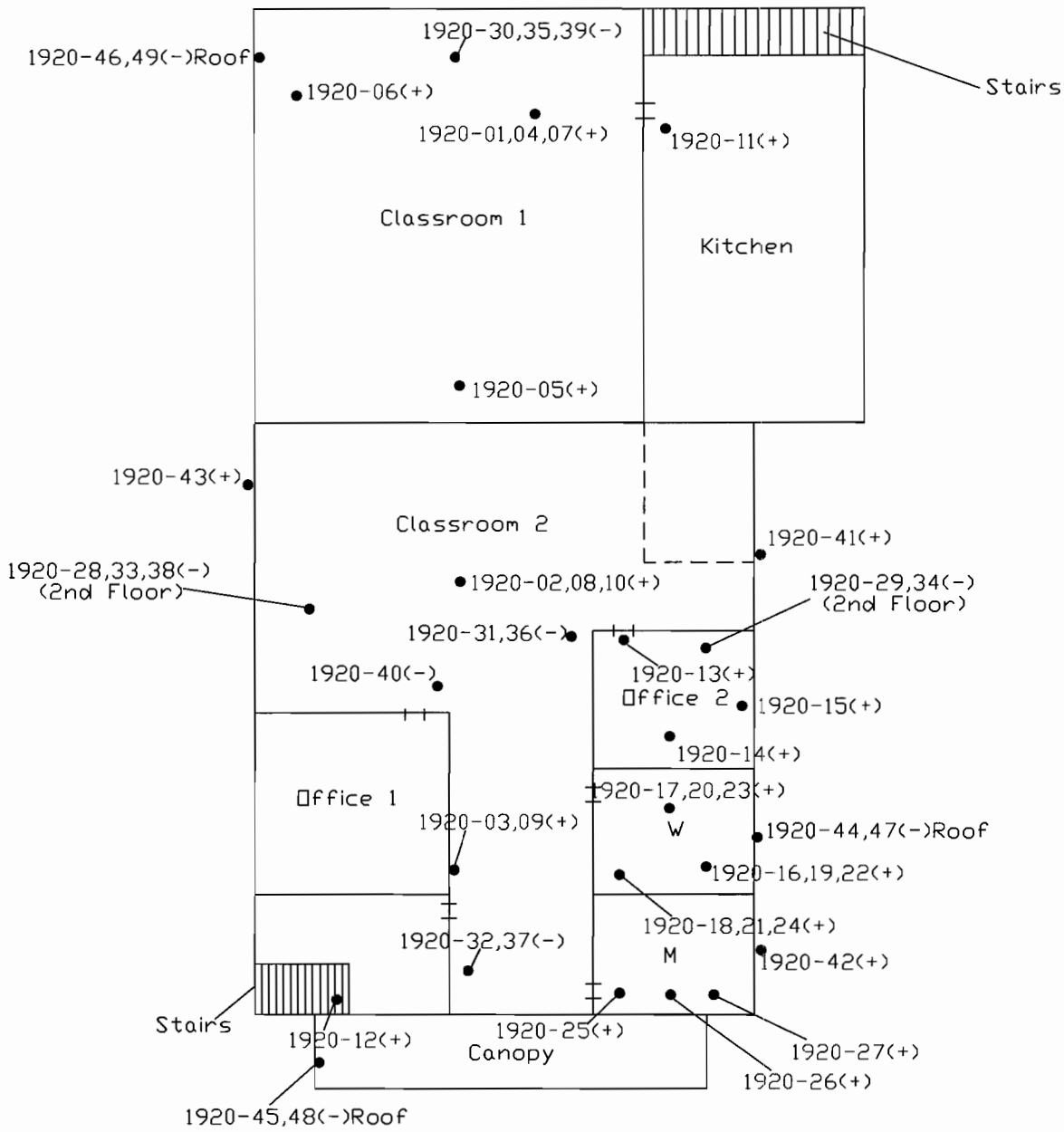
In the present condition, there is a low potential for significant concentrations of asbestos fibers to be released into the air from these non-friable category I asbestos materials. It is recommended that a licensed asbestos abatement contractor conduct or supervise the removal and proper disposal of these materials prior to demolition of this building.

*Non-Friable **Category II** Asbestos Containing Building Materials* – No Category II non-friable ACBM were identified in this building.

Based on structural damage to the subject building (i.e. collapsed roof, damaged foundation), there is a significant potential that additional materials may be present that could not be accessed during the survey. In the event that any suspect asbestos containing material, which was not addressed in this survey is encountered, the material should be presumed to contain asbestos until laboratory analysis can be conducted.

Warranty

ARM warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report. The field and laboratory results reported herein are considered sufficient in detail and scope to determine the presence of accessible and/or exposed suspect asbestos containing at the time of the inspection. Test results are valid only for the materials tested. There is a distinct possibility that conditions may exist which could not be identified within the scope of study or which were not apparent during the site visit. This inspection covered only those materials, which were exposed and/or accessible to the inspector. No other warranties are implied or expressed.



1918/1920 Mitchell

(-): Non-Asbestos Sample
 (+): Asbestos-Containing Sample

PROJECT:

Asbestos Survey
 1918/1920 Mitchell Street
 Columbia, South Carolina
 ARM #09-1065-09

DESCRIPTION:

Sample Location Map

FIGURE 1

DATE:

December 2009



REFERENCE:

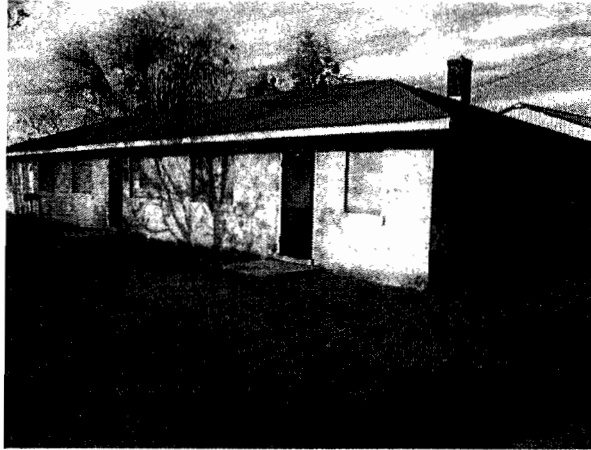
Field Notes

NOTE:

Not to Scale

Asbestos Inspection Report

1934 Mitchell Street
Columbia, South Carolina



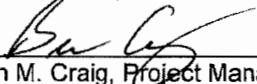
December 10, 2009

Prepared For: City of Columbia
Planning & Development Services
1136 Washington Street
Columbia, SC 29201

Phone: (803) 545-3333

ARM Project No. 09-1065-09

Report Compiled By


Benjamin M. Craig, Project Manager
South Carolina Asbestos Building Inspector License #BI-00345

Report Reviewed By


Richard J. Pittenger, Principal
South Carolina Consultant / Building Inspector License #20801

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TABLE OF CONTENTS

<i>Introduction</i>	Page 1
<i>Building Description</i>	Page 1
<i>Scope of Inspection</i>	Page 2
<i>Table 1: Sample Analytical Data</i>	Page 2
<i>Summary of Results</i>	Page 3
<i>Table 2: ACBM Hazard Summary</i>	Page 3
<i>Asbestos Abbreviation and Hazard Assessment Key</i>	Page 4
<i>Conclusions / Recommendations</i>	Page 5
<i>Warranty</i>	Page 6
<i>Floor Plan (Showing Sample Locations)</i>	Figure 1
<i>PLM & TEM Asbestos Laboratory Data</i>	Appendix A
<i>Copy of SCDHEC Consultant / Building Inspector License</i>	Appendix B

Introduction

On December 2, 2009, ARM surveyed the vacant tri-plex house for the presence of asbestos containing building materials (ACBM). It is understood that the house is scheduled for demolition. The surveyed areas include all of the accessible areas of the structure. This survey has been conducted in accordance with the Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) regulation and SC Department of Health & Environmental Control (DHEC) regulation 61-86.1 prior to renovation or demolition of public or commercial structures. The identification of ACBM also facilitates compliance with the Occupational Safety and Health Administration (OSHA) standards pertaining to worker health and safety standards.

Building Description

The tri-plex house is a one-story concrete block structure. The structure has approximately 1,875 square feet of interior floor space, and has an A-frame style roof and is built on a concrete slab.

Interior Materials – The interior floor is mostly concrete but is covered in some places by vinyl flooring products. The walls are concrete block and the ceiling consists of drywall. Wood paneling is located over the drywall ceiling in Unit B.

Exterior Materials – The structure is built on a concrete slab and the exterior walls consist of concrete block. The wooden framed roof over the building is covered with asphalt roofing products.

Scope of Inspection

Samples of suspect ACBM have been collected in accordance with the EPA-AHERA regulations by a DHEC licensed building inspector, and then forwarded to a National Voluntary Laboratory Accreditation Program (NVLAP) / National Institute for Standards and Technology (NIST) accredited laboratory for analysis. Samples of each suspect building material have been analyzed by polarized light microscopy (PLM) analysis with dispersion staining techniques in accordance with 40 CFR Part 763 Appendix B to Subpart F. At least one sample of each Negative Organically Bound (NOB) material such as flooring materials, caulks, mastics and roofing materials, was analyzed via Transmission Electron Microscopy (TEM) method as required by the current DHEC regulation 61-86.1. A floor plan drawing showing sample locations is included as Figure 1 of this report.

The sample descriptions, material location and corresponding analytical data are tabulated in Table 1 with a copy of the laboratory data sheets and chain of custody documentation included in Appendix A of this report. The conditions of any materials identified with asbestos are summarized in Table 2 of this report.

Table 1: Sample Analytical Data

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-1	1934-01, 02, 03	12" White Floor Tile	M	Kitchen and Bath – Unit C	100 SF	No Asbestos Detected
HA-2	1934-04, 05, 06	Floor Tile Adhesive	M	Kitchen and Bath – Unit C	100 SF	No Asbestos Detected
HA-3	1934-07, 08, 09	Vinyl Sheet Flooring	M	Kitchen – Unit C (2 nd Layer)	80 SF	No Asbestos Detected
HA-4	1934-10, 11, 12	12" Brown Floor Tile	M	Unit B	450SF	No Asbestos Detected
HA-5	1934-13, 14, 15	Baseboard Mastic	M	Kitchen and Bath – Unit C	25 LF	No Asbestos Detected
HA-6	1934-16, 17, 18, 19, 20	Joint Compound	S	Drywall - Ceilings	1,900 SF	3% Asbestos
HA-7	1934-21, 22, 23	Drywall	M	Ceilings	1,900 SF	Assumed Asbestos

Table 1: Sample Analytical Data (cont.)

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-8	1934-24, 25, 26	Roof Sealant Tar	M	Roof – Chimneys and Vents	15 LF	8% Asbestos
HA-9	1934-27, 28, 29	Roof Shingles	M	Roof	2,700 SF	No Asbestos Detected
HA-10	1934-30, 31, 32	Roof Felt	M	Roof	2,700 SF	No Asbestos Detected

***Asbestos Content:** The United States EPA and DHEC regulations define asbestos containing material as any material with greater than one percent (>1%) asbestos content. OSHA regulates worker exposure with any amount of asbestos present.

Notes: "HA" – Homogeneous Area

"Category" - S=Surfacing Material, M=Miscellaneous Material, T=Thermal System Insulation.

SF = Square Feet or LF = Linear Feet (Quantities are rough visual estimates, not exact measurements).

Laboratory analysis for the subject building indicates that asbestos was found in the joint compound located on the drywall ceiling and the penetration caulk on the roof at the chimneys and vents.

Summary of Results

Material friability and condition for any ACBM found to contain greater than one percent (>1%) asbestos are summarized in Table 2 below.

Table 2: ACBM Hazard Summary

Suspect Material Number	Material Description	Material Location	Friable or Non-friable ^A	Material Condition	Potential For Disturbance	Hazard Assessment Ranking
HA-6	Joint Compound	Drywall Ceilings	Friable	G	LPD	1
HA-7	Drywall (Assumed ACM)	Ceilings	Friable	G	LPD	1
HA-4	Roof Sealant Tar	Roof – Chimneys and Vents	Non-friable	G	LPD	1

^A "Friable" – Refers to an ACM, which may, when dry, be crumbled, pulverized, or reduced to powder by the forces expected to act upon it in the course of demolition or renovation operations. This also refers to previously non-friable ACM after such materials become damaged to the extent that when dry, can be or has been crumbled, pulverized, or reduced to powder.

Asbestos Abbreviations and Hazard Assessment Key

The EPA and SCDHEC require that confirmed ACBM is given a hazard assessment based on its present condition and potential for future disturbance. This hazard assessment is used as a tool for prioritization in future remedial actions regarding the ACBM. The following key demonstrates the criteria that make up the hazard assessments.

Present Condition

G = Good (very localized Comprehensive damage)

D = Damaged (<10% distributed and/or <25% localized)

S = Significantly Damaged (>10% distributed and/or 25% localized)

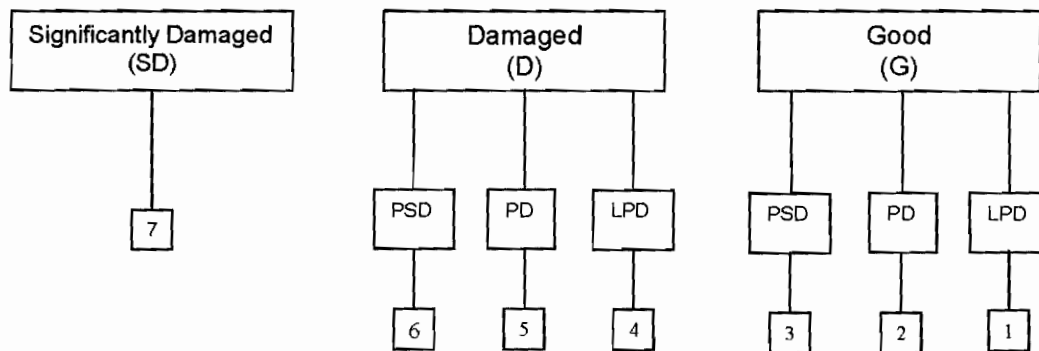
Potential for Future Disturbance

LPD = Low Potential for Disturbance (Contact, Vibration, and/or Air Erosion – low concern)

PD = Potential for Damage (Contact, Vibration, and/or Air Erosion – high concern)

PSD = Potential for Significant Damage (Contact, Vibration, and/or Air Erosion

HAZARD ASSESSMENT



Conclusions / Recommendations

Regulated Asbestos Containing Materials (RACM) – The following materials have been identified as friable RACM in this building.

• Joint Compound associated with Drywall	• Drywall (Assumed ACBM)
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In the present condition, there is a low potential for asbestos fibers to be released from these friable asbestos materials. State and Federal regulations require the removal of these materials by a licensed DHEC asbestos abatement contractor prior to any disturbance caused by renovation or demolition.

Non-Friable Category I Asbestos Containing Building Materials – The following material has been identified as a non-friable Category I ACBM.

• Roof Sealant Tar	
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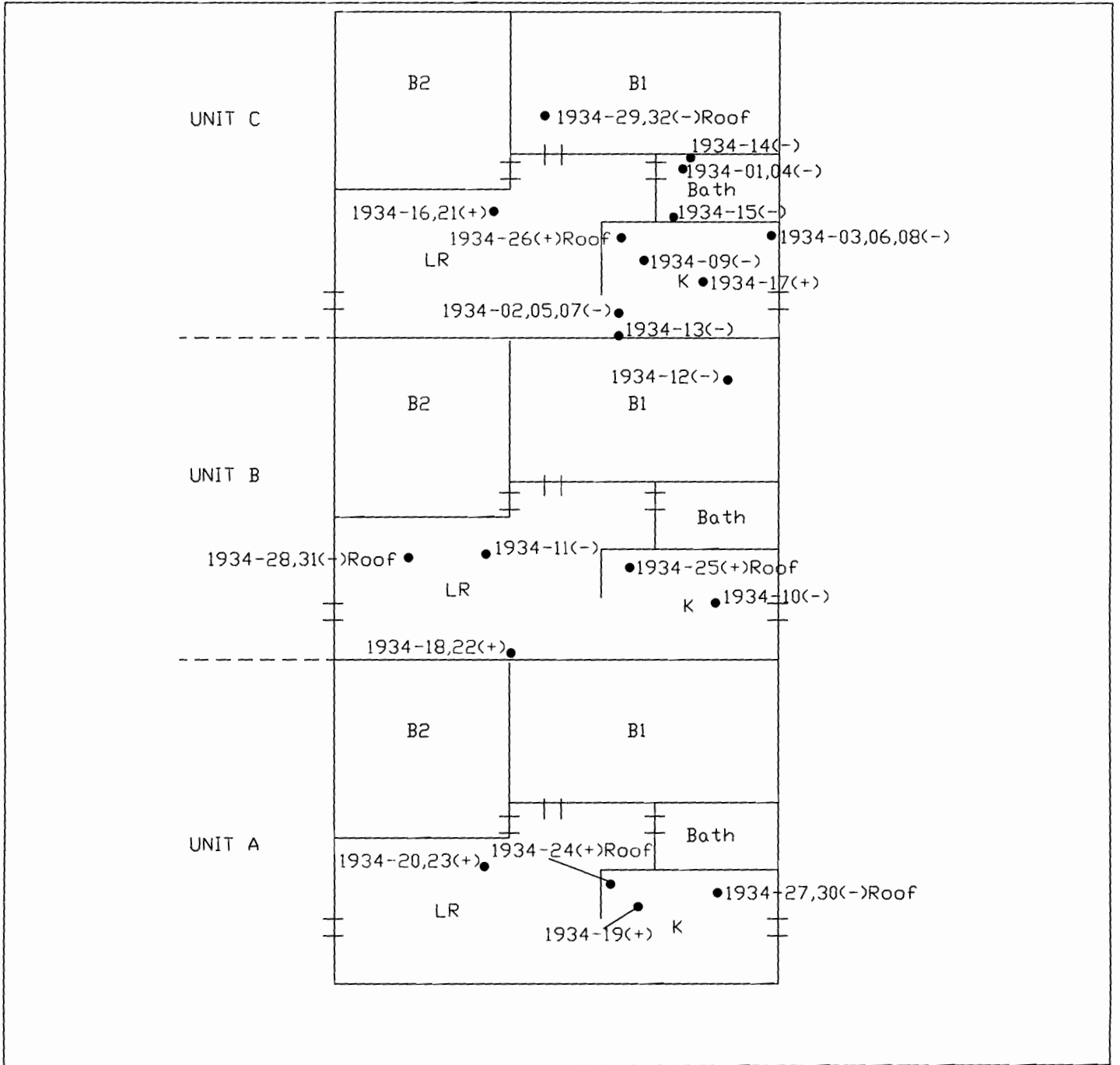
In its present condition, there is a low potential for significant concentrations of asbestos fibers to be released into the air from this non-friable category I asbestos material. It is recommended that a licensed asbestos abatement contractor conduct or supervise the removal and proper disposal of this material prior to demolition of this building.

Non-Friable Category II Asbestos Containing Building Materials – No Category II non-friable ACBM were identified in this building.

There is a potential that additional materials may be present that could not be accessed during the survey. In the event that any suspect asbestos containing material, which was not addressed in this survey is encountered, the material should be presumed to contain asbestos until laboratory analysis can be conducted.


Warranty

ARM warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report. The field and laboratory results reported herein are considered sufficient in detail and scope to determine the presence of accessible and/or exposed suspect asbestos containing at the time of the inspection. Test results are valid only for the materials tested. There is a distinct possibility that conditions may exist which could not be identified within the scope of study or which were not apparent during the site visit. This inspection covered only those materials, which were exposed and/or accessible to the inspector. No other warranties are implied or expressed.



1934 Mitchell Street

(-): Non-Asbestos Sample
(+): Asbestos-Containing Sample

<p><i>PROJECT:</i></p> <p>Asbestos Survey 1934 Mitchell Street Columbia, South Carolina ARM #09-1065-09</p>	<p><i>DESCRIPTION:</i></p> <p>Approximate Sample Location Map</p>	<p style="text-align: center;">FIGURE 1</p> <p><i>DATE:</i> December 2009</p>
	<p><i>REFERENCE:</i></p> <p>Field Notes</p>	<p><i>NOTE:</i></p> <p>Not to Scale</p>



Asbestos Inspection Report
2309 Washington Street (Guesthouse)
Columbia, South Carolina



December 8, 2009

Prepared For: City of Columbia
Planning & Development Services
1136 Washington Street
Columbia, SC 29201

Phone: (803) 545-3333

ARM Project No. 09-1065-09

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TABLE OF CONTENTS

<i>Introduction</i>	<i>Page 1</i>
<i>Building Description</i>	<i>Page 1</i>
<i>Scope of Inspection</i>	<i>Page 2</i>
<i>Table 1: Sample Analytical Data</i>	<i>Page 2</i>
<i>Summary of Results</i>	<i>Page 3</i>
<i>Table 2: ACBM Hazard Summary</i>	<i>Page 3</i>
<i>Asbestos Abbreviation and Hazard Assessment Key</i>	<i>Page 4</i>
<i>Conclusions / Recommendations</i>	<i>Page 5</i>
<i>Warranty</i>	<i>Page 6</i>
<i>Floor Plan (Showing Sample Locations)</i>	<i>Figure 1</i>
<i>PLM & TEM Asbestos Laboratory Data</i>	<i>Appendix A</i>
<i>Copy of SCDHEC Consultant / Building Inspector License</i>	<i>Appendix B</i>

Introduction

On November 20, 2009, ARM surveyed the vacant guesthouse for the presence of asbestos containing building materials (ACBM). It is understood that the structure is scheduled for demolition. The surveyed areas include all of the accessible areas of the structure (excluding areas with obvious signs of structural damage). This survey has been conducted in accordance with the Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) regulation and SC Department of Health & Environmental Control (DHEC) regulation 61-86.1 prior to renovation or demolition of public or commercial structures. The identification of ACBM also facilitates compliance with the Occupational Safety and Health Administration (OSHA) standards pertaining to worker health and safety standards.

Building Description

The structure is a one-story guesthouse with concrete block siding and an A-frame roof. The guesthouse is located near the back of the property behind the house located at 2309 Washington Street. The guesthouse has approximately 450 square feet of interior floor space. The guesthouse has obvious signs of significant roof damage at the rear of the house.

Interior Materials – The interior floors are concrete mostly covered by carpet with some vinyl flooring products. The walls consist of concrete block materials. The ceiling consists of drywall materials. The attic space has wood trusses, wood roof deck and non-suspect fiberglass insulation.

Exterior Materials – The exterior siding materials consist mostly of concrete block siding. The roof over the building is covered with asphalt shingles.

Scope of Inspection

Samples of suspect ACBM have been collected in accordance with the EPA-AHERA regulations by a DHEC licensed building inspector, and then forwarded to a National Voluntary Laboratory Accreditation Program (NVLAP) / National Institute for Standards and Technology (NIST) accredited laboratory for analysis. Samples of each suspect building material have been analyzed by polarized light microscopy (PLM) analysis with dispersion staining techniques in accordance with 40 CFR Part 763 Appendix B to Subpart F. At least one sample of each Negative Organically Bound (NOB) material such as flooring materials, caulks, mastics and roofing materials, was analyzed via Transmission Electron Microscopy (TEM) method as required by the current DHEC regulation 61-86.1. A floor plan drawing showing sample locations is included as Figure 1 of this report.

The sample descriptions, material location and corresponding analytical data are tabulated in Table 1 with a copy of the laboratory data sheets and chain of custody documentation included in Appendix A of this report. The conditions of any materials identified with asbestos are summarized in Table 2 of this report.

Table 1: Sample Analytical Data

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-1	2309-01, 02, 03	Vinyl Sheet Flooring, White	M	Kitchen / Dining (Top Layer)	100 SF	No Asbestos Detected
HA-2	2309-04, 05, 06	Vinyl Sheet Flooring, Brown	M	Kitchen / Dining (Bottom Layer)	100 SF	18% Asbestos
HA-3	2309-07, 08, 09	Carpet Adhesive	M	Kitchen / Dining	100 SF	No Asbestos Detected
HA-4	2309-10, 11, 12	Textured Wall Finish	S	Walls Throughout House	900 SF	No Asbestos Detected
HA-5	2309-13, 14, 15	Skim Coat Finish	S	Ceiling	450 SF	3% Asbestos
HA-6	2309-16, 17, 18	Drywall	M	Ceiling	450 SF	No Asbestos Detected
HA-7	2309-19, 20, 21	Window Glaze	M	Window Panes	200 LF	No Asbestos Detected
HA-8	2309-22, 23, 24	Shingles, New	M	Throughout the Front Portion of the Roof	200 SF	No Asbestos Detected

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-9	2309-25, 26, 27	Shingles, Old	M	Throughout the Rear Portion of the Roof	600 SF	No Asbestos Detected
HA-10	2430-28, 29, 30	Roof Felt	M	Under HA-8 and HA-9	800 SF	0.11% Asbestos

*Asbestos Content: The United States EPA and DHEC regulations define asbestos containing material as any material with greater than one percent (>1%) asbestos content. OSHA regulations

Notes: "HA" – Homogeneous Area

"Category" - S=Surfacing Material, M=Miscellaneous Material, T=Thermal System Insulation.

SF = Square Feet or LF = Linear Feet (Quantities are rough visual estimates, not exact measurements).

Laboratory analysis for the subject building indicate that asbestos was found in the brown sheet flooring located in the kitchen / dining area (bottom layer) and in the skim coat ceiling finish material throughout the guesthouse. An asbestos concentration of less than 1% was also identified in the roof-felt materials (0.11% asbestos content via TEM analysis) located under the roof shingles. This material is below the EPA-DHEC regulatory limit of greater than one percent (>1%) asbestos content. Approximately eight (8) linear feet of roof sealant tar located around the chimney was viewed but was not sampled due to unsafe roof conditions and is assumed to contain asbestos.

Summary of Results

Material friability and condition for each ACBM found to contain greater than one percent (>1%) asbestos are summarized in Table 2 below.

Table 2: ACBM Hazard Summary

Suspect Material Number	Material Description	Material Location	Friable or Non-friable ^A	Material Condition	Potential For Disturbance	Hazard Assessment Ranking
HA-2	Vinyl Sheet Flooring, Brown	Kitchen / Dining (Bottom Layer)	Non-Friable	G	PD	2
HA-5	Skim Coat Finish	Ceiling	Friable	S	PSD	7
HA-11	Sealant Tar (Assumed ACM)	Roof, Around Chimney	Non-friable	G	LPD	1

^A "Friable" – Refers to an ACM, which may, when dry, be crumbled, pulverized, or reduced to powder by the forces expected to act upon it in the course of demolition or renovation operations. This also refers to previously non-friable ACM after such materials become damaged to the extent that when dry, can be or has been crumbled, pulverized, or reduced to powder.

Asbestos Abbreviations and Hazard Assessment Key

The EPA and SCDHEC require that confirmed ACBM is given a hazard assessment based on its present condition and potential for future disturbance. This hazard assessment is used as a tool for prioritization in future remedial actions regarding the ACBM. The following key demonstrates the criteria that make up the hazard assessments.

Present Condition

G = Good (very localized Comprehensive damage)

D = Damaged (<10% distributed and/or <25% localized)

S = Significantly Damaged (>10% distributed and/or 25% localized)

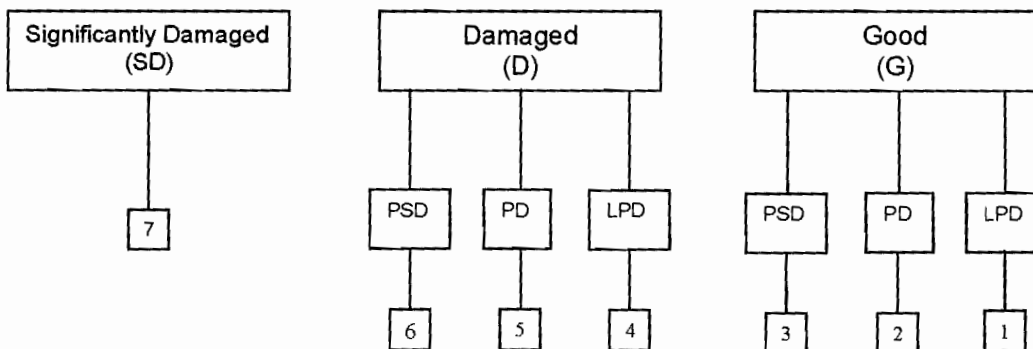
Potential for Future Disturbance

LPD = Low Potential for Disturbance (Contact, Vibration, and/or Air Erosion – low concern)

PD = Potential for Damage (Contact, Vibration, and/or Air Erosion – high concern)

PSD = Potential for Significant Damage (Contact, Vibration, and/or Air Erosion

HAZARD ASSESSMENT



Conclusions / Recommendations

Regulated Asbestos Containing Materials (RACM) – The following material has been identified as a friable RACM in this building.

- | | |
|----------------------------|--|
| • Skim Coat Ceiling Finish | |
|----------------------------|--|

In its present condition, there is a high potential for asbestos fibers to be released from this friable asbestos material. State and Federal regulations require the removal of this material by a licensed DHEC asbestos abatement contractor prior to any disturbance caused by renovation or demolition.

*Non-Friable **Category I** Asbestos Containing Building Materials* – The following materials have been identified as non-friable Category I ACBM.

- | | |
|----------------------------------|----------------------------------|
| • Vinyl Sheet Flooring Materials | • Roof Sealant Tar (Assumed ACM) |
|----------------------------------|----------------------------------|

In the present condition, there is a low potential for significant concentrations of asbestos fibers to be released into the air from these non-friable category I asbestos materials. It is recommended that a licensed asbestos abatement contractor conduct or supervise the removal and proper disposal of these materials prior to demolition of this building.

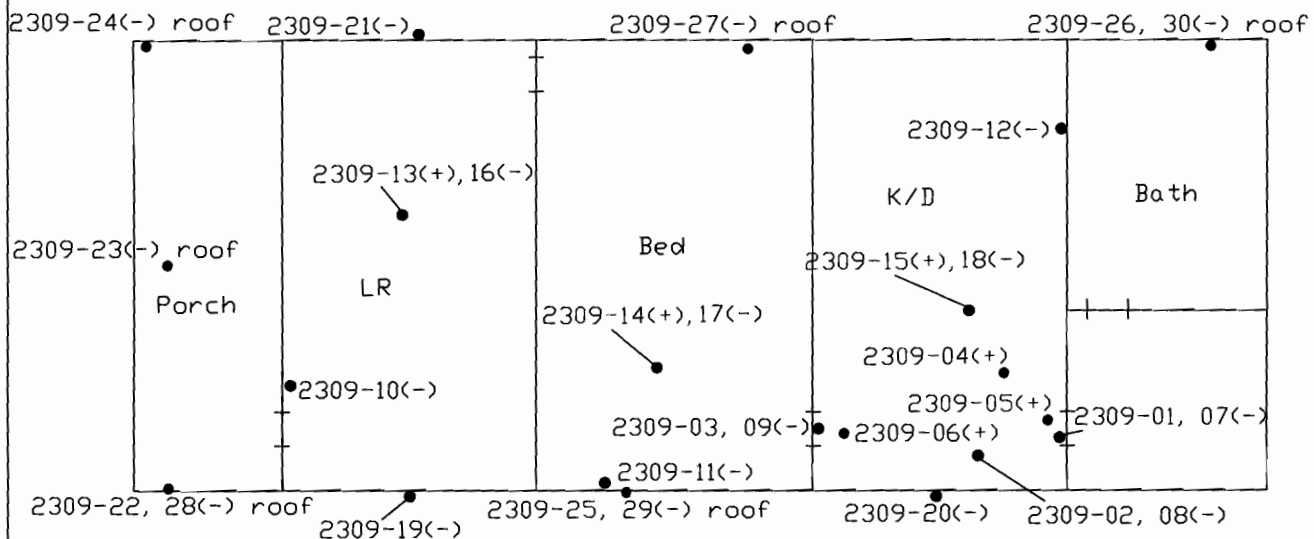
*Non-Friable **Category II** Asbestos Containing Building Materials* – No Category II non-friable ACBM were identified in this building.

Based on structural damage to the subject building (i.e. collapsed roof, damaged foundation), there is a significant potential that additional materials may be present that could not be accessed during the survey. In the event that any suspect asbestos containing material, which was not addressed in this survey is encountered, the material should be presumed to contain asbestos until laboratory analysis can be conducted.

Warranty

ARM warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report. The field and laboratory results reported herein are considered sufficient in detail and scope to determine the presence of accessible and/or exposed suspect asbestos containing at the time of the inspection. Test results are valid only for the materials tested. There is a distinct possibility that conditions may exist which could not be identified within the scope of study or which were not apparent during the site visit. This inspection covered only those materials, which were exposed and/or accessible to the inspector. No other warranties are implied or expressed.

Guesthouse behind House at
2309 Washington Street



(-): Non-Asbestos Sample
(+): Asbestos-Containing Sample

<p>PROJECT: Asbestos Survey Guesthouse Behind the House at 2309 Washington Columbia, South Carolina ARM #09-1065-09</p>	<p>DESCRIPTION: Sample Location Map</p>	<p style="text-align: center;">FIGURE 1</p> <p>DATE: November 2009</p>
<p>ARM ENVIRONMENTAL SERVICES, INC.</p>	<p>REFERENCE: Field Notes</p>	<p>NOTE: Not to Scale</p>

