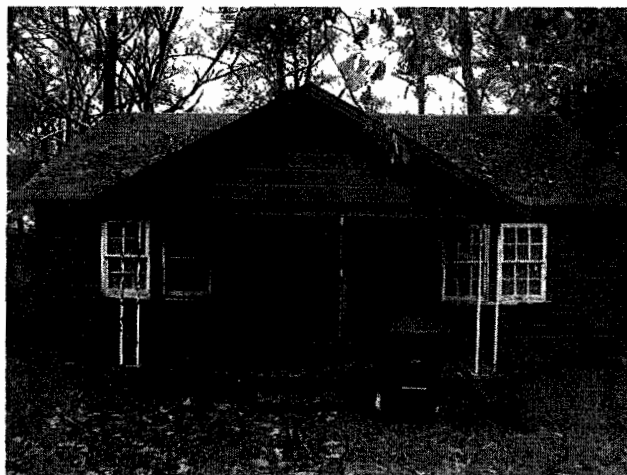


Asbestos Inspection Report

5883 Ames Road
Columbia, South Carolina



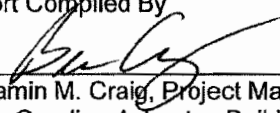
December 15, 2009

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

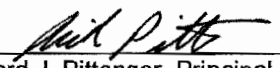
Phone: (803) 545-3333

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

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Introduction

On December 4, 2009, ARM surveyed the vacant 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 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.

Interior Materials – The interior floors are wood floors mostly covered by carpet and some vinyl flooring products. The walls consist of wood panel walls with some drywall materials. Ceiling materials consist mostly 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 wood siding. The A-frame 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	5883-01, 02, 03	Shingles	M	Roof	1,500 SF	No Asbestos Detected
HA-2	5883-04, 05, 06	Felt Paper	M	Under HA-1	1,500 SF	No Asbestos Detected
HA-3	5883-07, 08, 09	Sealant Tar	M	Chimney Penetration and Roof Patching	25 SF	10% Asbestos
HA-4	5883-10, 11, 12	Frame Caulk	M	Around Doors and Windows	150 LF	No Asbestos Detected
HA-5	5883-13, 14, 15	Window Glaze	M	Windows	250 LF	No Asbestos Detected
HA-6	5883-16, 17, 18	Vinyl Sheet Flooring	M	Living Room and Hallway (Top and Bottom Layers)	600 SF	18% Asbestos
HA-7	5883-19, 20, 21	Vinyl Sheet Flooring	M	Living Room and Hallway (2 nd Layer)	300 SF	18% Asbestos
HA-8	5883-22, 23, 24	Vinyl Sheet Flooring	M	Bedrooms 1 & 2 (Under Carpet)	350 SF	18% Asbestos

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-9	5883-25, 26, 27	Vinyl Sheet Flooring	M	Hall Outside of Bathroom	20 SF	No Asbestos Detected
HA-10	5883-28, 29, 30	Vinyl Sheet Flooring	M	Bathroom	20 SF	No Asbestos Detected
HA-11	5883-31, 32, 33	Vinyl Sheet Flooring	M	Master Bedroom	50 SF	15% Asbestos
HA-12	5883-34, 35, 36	Vinyl Sheet Flooring	M	Master Bedroom Closet (Top Layer)	50 SF	18% Asbestos
HA-13	5883-37, 38, 39	Vinyl Sheet Flooring	M	Dining Room (Under Carpet)	100 SF	15% Asbestos
HA-14	5883-40, 41, 42	Vinyl Sheet Flooring	M	Kitchen	100 SF	No Asbestos Detected
HA-15	5883-43, 44, 45, 46, 47	Joint Compound Layer	S	Ceiling	1,500 SF	3% Asbestos
HA-16	5883-48, 49, 50, 51, 52	Texture Ceiling	S	Ceiling	1,000 SF	Assumed ACBM
HA-17	5883-53, 54, 55	Drywall Layer	M	Ceiling	1,500 SF	Assumed ACBM

*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 sealant tar on the roof, the vinyl sheet flooring materials in the living room, hallway, all bedrooms, bathroom and dining room, and the joint compound in the drywall ceiling.

The drywall ceiling panels and associated textured ceiling materials are contaminated by the asbestos joint compound materials throughout this structure, and must be treated as an ACBM.

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-3	Sealant Tar	Chimney Penetration and Roof Patching	Non-Friable	G	LPD	1
HA-6	Vinyl Sheet Flooring	Living Room and Hallway (Top and Bottom Layers)	Non-friable	G	LPD	1
HA-7	Vinyl Sheet Flooring	Living Room and Hallway (2 nd Layer)	Non-friable	G	LPD	1
HA-8	Vinyl Sheet Flooring	Bedrooms 1 & 2 (Under Carpet)	Non-friable	G	LPD	1
HA-11	Vinyl Sheet Flooring	Master Bedroom	Friable	S	PSD	7
HA-12	Vinyl Sheet Flooring	Master Bedroom Closet (Top Layer)	Non-friable	G	LPD	1
HA-13	Vinyl Sheet Flooring	Dining Room (Under Carpet)	Non-friable	G	LPD	1
HA-15	Joint Compound Layer	Ceiling	Friable	G	LPD	1
HA-16	Texture Ceiling	Ceiling	Friable	G	LPD	1
HA-17	Drywall Layer	Ceiling	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)

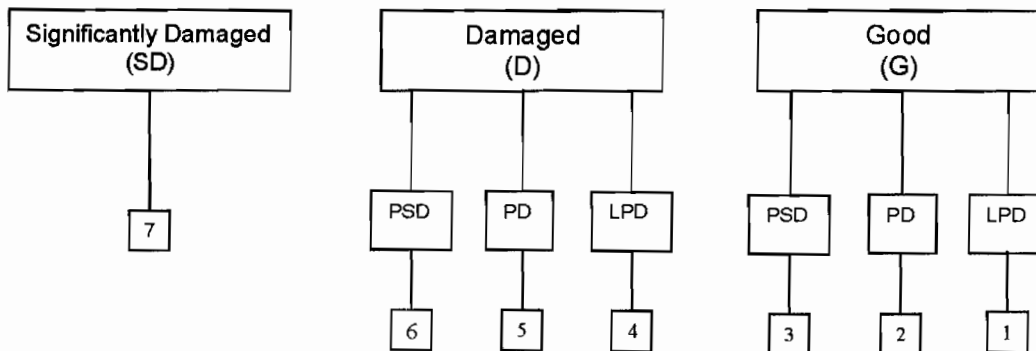
Potential for Future Disturbance

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.

• Sheet Flooring (Master Bedroom)	• Joint Compound on Drywall
• Ceiling Texture	• Drywall Layer

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 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 materials have been identified as non-friable Category I ACBM.

• Roof Sealant Tar	• Vinyl Sheet Flooring Materials (Excluding Master Bedroom)
--------------------	--

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.

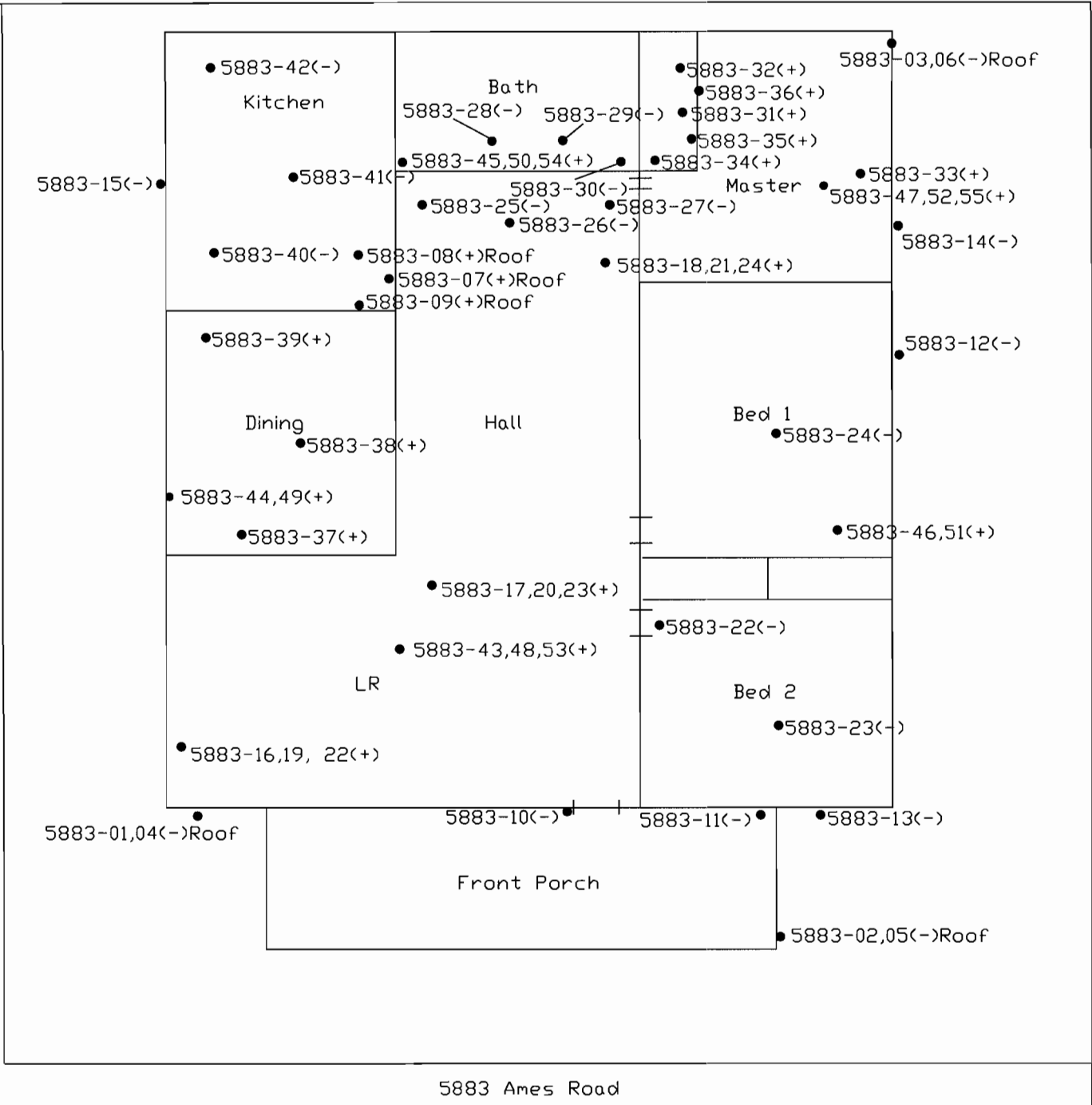
*Non-Friable **Category II** Asbestos Containing Building Materials* – No Category II non-friable ACBM were identified in this building.

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.

Mayer Street



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

<p><i>PROJECT:</i></p> <p>Asbestos Survey 5883 Ames Road 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> 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
4704 Colonial Drive (Portable Behind)
Columbia, South Carolina



December 10, 2009

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

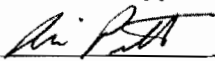
Phone: (803) 545-3333

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

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Introduction

On November 25, 2009, ARM surveyed the vacant portable building for the presence of asbestos containing building materials (ACBM). It is understood that the portable building 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 portable building is a one-story structure with wood siding over fiberglass insulation, a flat roof and a crawlspace. ARM viewed non-suspect fiberglass insulation on HVAC duct systems in the crawlspace. The portable building has approximately 1,400 square feet of interior floor space.

Interior Materials – The interior floors are wood floors covered with carpet. The walls and ceiling consist of drywall panel materials.

Exterior Materials – The exterior siding materials consist of wood siding over fiberglass insulation. The roof is a flat metal roof.

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	4704-01, 02, 03	Drywall	M	Walls and Ceiling	3,000 SF	No Asbestos Detected
HA-2	4704-04, 05, 06	Seam Mastic	M	Exterior HVAC Units	100 SF	No Asbestos Detected
HA-3	4704-07, 08, 09	Sealant Tar	M	Roof, Expansion Joint	50 SF	3.7% Asbestos (TEM)

***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 covering the expansion joint at the center of the roof.

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-3	Sealant Tar	Roof, Expansion Joint	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)

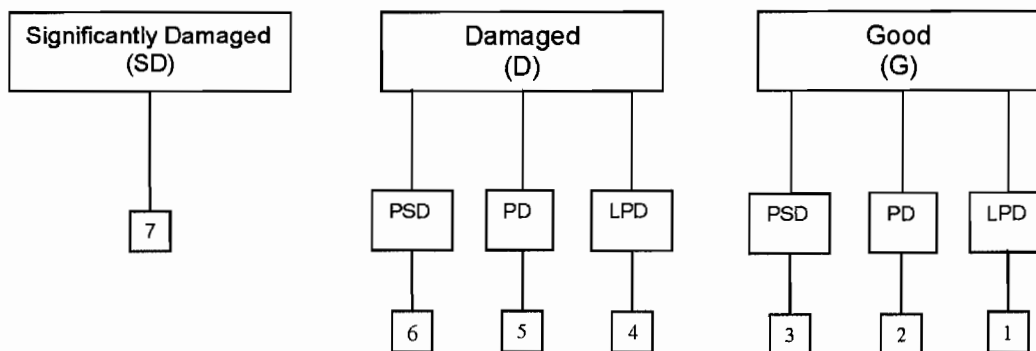
Potential for Future Disturbance

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 materials have been identified as non-friable Category I ACBM.

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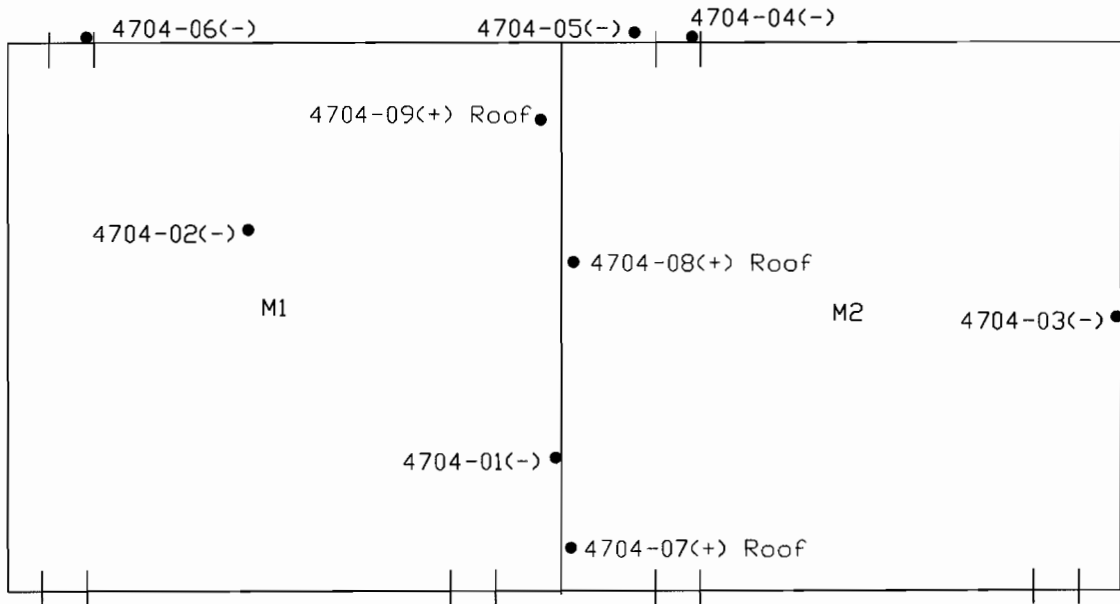
In its present condition, there is a low potential for significant concentrations of asbestos fibers to be released into the air from this non-friable category I asbestos material. It is recommended that a licensed asbestos abatement contractor conduct or supervise the removal and proper disposal of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

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 are encountered, the materials 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.



Parking

4704 Colonial Drive

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

PROJECT:

Asbestos Survey
 4704 Colonial Drive
 Columbia, South Carolina
 ARM #09-1065-09

DESCRIPTION:

Sample Location Map

FIGURE 1

DATE:

November 2009



REFERENCE:

Field Notes

NOTE:

Not to Scale

Asbestos Inspection Report

5706 Farrow Road
Columbia, South Carolina



December 8, 2009

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

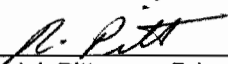
Phone: (803) 545-3333

ARM Project No. 09-1065-09

Report Compiled By


Benjamin M. Craig, Project Manager
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Report Reviewed By


Richard J. Pittenger, Principal
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ARM ENVIRONMENTAL
SERVICES, INC.

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

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<i>Copy of SCDHEC Consultant / Building Inspector License</i>	<i>Appendix B</i>

Introduction

On November 23, 2009, ARM surveyed the vacant building for the presence of asbestos containing building materials (ACBM). It is understood that the building 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 building on slab with concrete block siding and an A-frame roof (that is mostly collapsed). The portion of the structure with the roof has approximately 500 square feet of interior floor space. The remaining portion of the structure (with no roof) has approximately 2,000 square feet of floor space based on the walls that are still standing. The floor associated with the portion of the structure without a roof is over grown with a thick layer of vegetation.

Interior Materials – The interior floors for the portion of the structure with a roof has a concrete floor. The walls for the entire structure consist of concrete block. The portion of the ceiling still intact is drywall. The open attic space viewable has wood trusses and a wood roof deck.

Exterior Materials – The exterior siding materials consist of concrete block siding. The roof over the front portion 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	5706-01, 02, 03	Skim Coat Walls	S	Various Locations	900 SF	No Asbestos Detected
HA-2	5706-04, 05, 06	Joint Compound Layer	S	Drywall Ceiling	100 SF	3% Asbestos
HA-3	5706-07, 08, 09	Ceiling Texture	S	Drywall Ceiling	100 SF	Contaminated By HA-2
HA-4	5706-10, 11, 12	Drywall Layer	M	Ceiling	100 SF	Contaminated By HA-2
HA-5	5706-13, 14, 15	Window Glaze	M	Rear Door Window	10 LF	6% Asbestos
HA-6	5706-16, 17, 18	Frame Caulk	M	Windows	30 LF	8% Asbestos
HA-7	5706-19, 20, 21	Frame Caulk	M	Doors	20 LF	6% Asbestos
HA-8	5706-22, 23, 24	Shingles	M	Throughout the Intact Roof	500 SF	No Asbestos Detected
HA-9	5706-25, 26, 27	Roof Felt	M	Under HA-8	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 indicates that asbestos was found in the joint compound associated with the drywall ceiling system, the glaze on a rear door window and the frame caulk around windows and doors.

The ceiling texture materials and drywall panels associated with the drywall ceiling system are unable to be separated from the asbestos joint compound, and must be treated as an ACM.

Summary of Results

Material friability and condition for each 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-2	Joint Compound Layer	Drywall Ceiling	Friable	S	PSD	7
HA-3	Ceiling Texture	Drywall Ceiling	Friable	S	PSD	7
HA-4	Drywall Layer	Ceiling	Friable	S	PSD	7
HA-5	Window Glaze	Rear Door Window	Friable	S	PSD	7
HA-6	Frame Caulk	Windows	Friable	S	PSD	7
HA-7	Frame Caulk	Doors	Friable	S	PSD	7

^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.

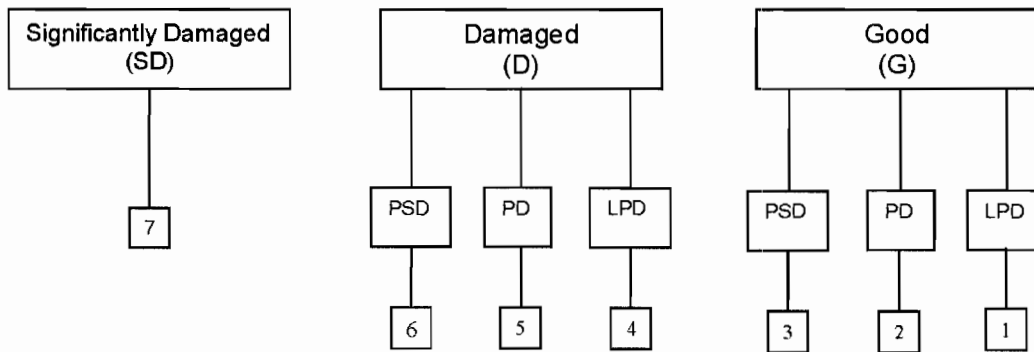
Present Condition

- 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 on Drywall Ceiling	• Texture on Drywall Ceiling
• Drywall Ceiling	

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.

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

• Window Glaze	• Window Frame Caulk
• Door Frame Caulk	

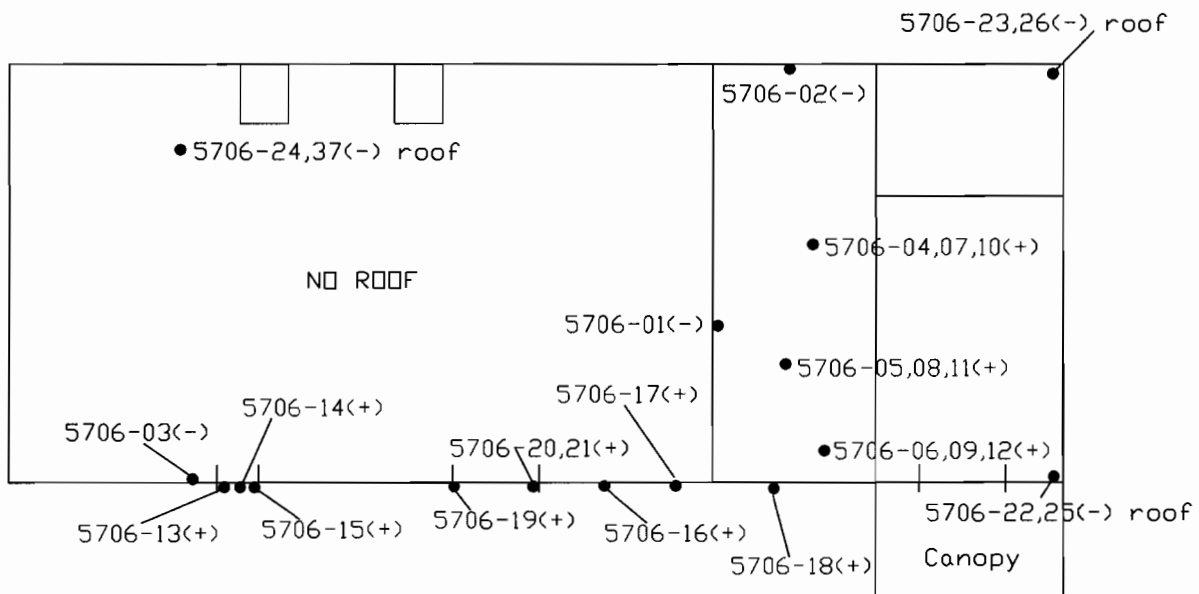
In the present condition, there is a high potential for significant concentrations of asbestos fibers to be released into the air from these friable category I asbestos materials due the weather deterioration. State and Federal regulations require the removal of this material by a licensed DHEC asbestos abatement contractor prior to any disturbance caused by renovation or demolition.

*Non-Friable **Category 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.



5706 Farrow Road

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

<p><i>PROJECT:</i></p> <p>Asbestos Survey 5706 Farrow Road 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> November 2009</p>
	<p><i>REFERENCE:</i></p> <p>Field Notes</p>	<p><i>NOTE:</i></p> <p>Not to Scale</p>

Limited Asbestos Inspection Report

5710 Farrow Road
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

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<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 1, 2009, ARM surveyed the vacant house for the presence of asbestos containing building materials (ACBM). It is understood that the house is scheduled for demolition. *This structure has significant structural damage, including deteriorated roof and flooring components. The scope of this survey is therefore limited to the accessible portions of the structure; primarily those areas near the entrance doorways.*

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 two-story structure with concrete block siding and a one-story workshop (attached to the rear of the house) that also has concrete block siding. ARM had limited access to the interior spaces due to significantly damaged roofs and safety concerns. ARM collected samples of suspect wall and ceiling materials that could be accessed within proximity to the entrance doorways.

Interior Materials – The interior walls and ceiling in the house portion of the structure consist of plaster materials. Floors throughout the house could not be surveyed due to limited access and the amount of debris materials covering the floors. The interior walls of the workshop portion of the structure are wood panel with a drywall ceiling. The floor in the workshop is bare concrete.

Exterior Materials – The exterior siding materials for the entire structure consist of concrete block siding. Both portions of the structure have A-frame roofs covered with asphalt roofing products.

Scope of Inspection

Samples of suspect ACBM were 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	5710-01, 02, 03	Textured Ceiling	S	Workshop Portion of the Building	650 SF	5% Asbestos
HA-2	5710-04, 05, 06	Joint Compound Layer	S	Associated with HA-1 and HA-3	650 SF	Assumed ACBM
HA-3	5710-07, 08, 09	Drywall Layer	M	Associated with HA-1 and HA-2	650 SF	Assumed ACBM
HA-4	5710-10, 11, 12	Plaster Skim Coat	S	Throughout House Portion	6,000 SF	No Asbestos Detected
HA-5	5710-13, 14, 15	Plaster Brown Coat	S	Associated with HA-4	6,000 SF	No Asbestos Detected
HA-6	5710-16, 17, 18	Window Glaze	M	Throughout This Structure	450 LF	3% Asbestos
HA-7	5710-19, 20, 21	Shingles, Brown	M	Roof over House	1,200 SF	No Asbestos Detected
HA-8	5710-22, 23, 24	Felt Paper	M	Under HA-7	1,200 SF	No Asbestos Detected
HA-9	5710-25, 26, 27	Shingles, Gray	M	Roof over Workshop	900 SF	No Asbestos Detected
HA-10	5710-28, 29, 30	Felt Paper	M	Under HA-9	900 SF	No Asbestos Detected
HA-11	5710-31, 32, 33	Frame Caulk	M	Exterior Windows	250 LF	1.59% Asbestos (TEM)

***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 textured ceiling materials in the workshop portion of the structure, all exterior window glaze and frame caulk.

The drywall ceiling panels and associated joint compound materials are contaminated by the asbestos textured ceiling materials found in the workshop portion of this structure, and must be treated as an ACBM.

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-1	Textured Ceiling	Workshop Portion of the Building	Friable	D	PSD	6
HA-2	Joint Compound Layer	Associated with HA-1 and HA-3	Friable	D	PSD	6
HA-3	Drywall Layer	Associated with HA-1 and HA-2	Friable	D	PSD	6
HA-6	Window Glaze	Throughout This Structure	Non-Friable	D	PD	5
HA-11	Frame Caulk	Exterior Windows	Non-friable	D	PD	5

^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.

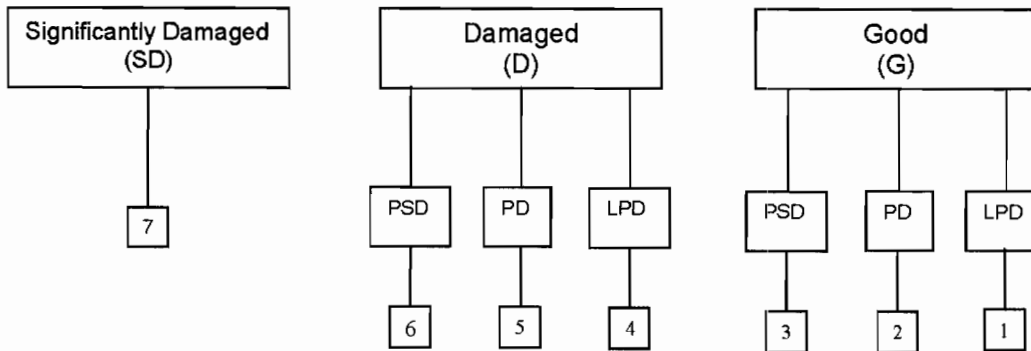
Present Condition

- 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.

• Textured Ceiling	• Joint Compound on Drywall
• Drywall	

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 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 materials have been identified as non-friable Category I ACBM.

• Window Glaze	• Window Frame Caulk
----------------	----------------------

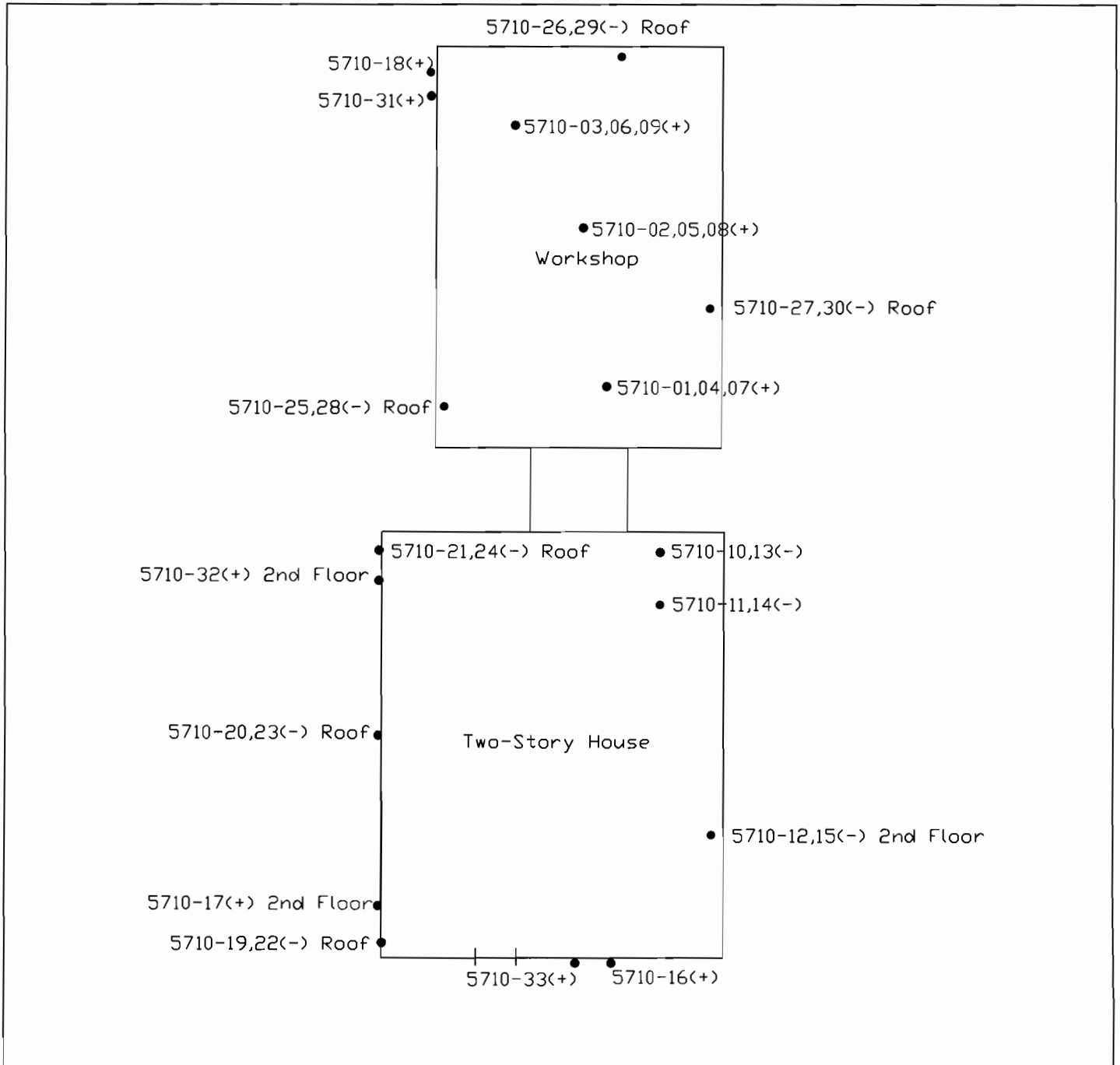
In the present condition, there is a low potential for significant concentrations of asbestos fibers to be released into the air from these non-friable category I asbestos materials. It is recommended that a licensed asbestos abatement contractor conduct or supervise the removal and proper disposal of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



5710 Farrow Road

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

<p><i>PROJECT:</i></p> <p>Asbestos Survey 5710 Farrow Road 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></p> <p>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

314 Glenn 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

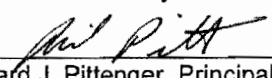
ARM Project No. 09-1065-09

Report Compiled By



Benjamin M. Craig, Project Manager
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

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<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 19, 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 and wood siding at the rear. The house has approximately 1,600 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. 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. A wood framed shed with a metal panel roof is located on the property behind the house. No suspect ACBM were found on this structure.

Interior Materials – The interior floors are hardwood floors covered with vinyl flooring products throughout the kitchen, dining and bathroom areas. The walls and ceiling consist of plaster materials, wood paneling and some drywall materials in one rear bedroom. The attic space has wood trusses, wood roof deck and non-suspect fiberglass insulation.

Exterior Materials – The exterior siding materials consist mostly of brick with some wood siding at the rear of the house and at the 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	314-01, 02, 03	Vinyl Sheet Flooring, Brown Rock Pattern	M	Dining and Bathroom	125 SF	No Asbestos Detected
HA-2	314-04, 05, 06	Mastic	M	Associated with HA-1 in Dining	80 SF	No Asbestos Detected
HA-3	314-07, 08, 09	Vinyl Sheet Flooring, Green	M	Kitchen	20 SF	20% Asbestos
HA-4	314-10, 11, 12	Vinyl Sheet Flooring, Yellow/Green Pebbles	M	Kitchen	100 SF	0.75 Asbestos (TEM)
HA-5	314-13, 14, 15	Floor Tile (2 nd Layer)	M	Kitchen	100 SF	0.75 Asbestos (TEM)
HA-6	314-16, 17, 18	Vinyl Sheet Flooring, Brown	M	Kitchen	50 SF	20% Asbestos
HA-7	314-19, 20, 21	9" White Floor Tile	M	Dining	35 SF	6% Asbestos

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-8	314-22, 23, 24	Mastic	M	Associated with HA-7	35 SF	9.5% Asbestos (TEM)
HA-9	314-25, 26, 27	Joint Compound Layer	S	Rear (Middle) Room, Walls and Ceiling	250 SF	No Asbestos Detected
HA-10	314-28, 29, 30	Drywall Layer	M	Associated with HA-9	250 SF	No Asbestos Detected
HA-11	314-31, 32, 33, 34, 35	Plaster, Skim Coat Layer	S	Throughout the Front Portion of the House	4,500 SF	No Asbestos Detected
HA-12	314-36, 37, 38, 39, 40	Plaster, Brown Coat Layer	S	Associated with HA-11	4,500 SF	No Asbestos Detected
HA-13	314-41, 42, 43	Roof Shingles	M	Throughout the Front Portion of the House	1,000 SF	No Asbestos Detected
HA-14	314-44, 45, 46	Roof Felt	M	Under HA-13	1,000 SF	No Asbestos Detected
HA-15	314-47, 48, 49	Roof Material	M	Throughout the Rear Portion of the House and on the Ground	1,100 SF	6.2% Asbestos (TEM)
HA-16	314-50, 51, 52	Roof Sealant Tar	M	Throughout the Rear Portion of the House and on the Ground	1,100 SF	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 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 green sheet flooring and brown sheet flooring located in the kitchen, the nine inch by nine inch white floor tile and associated black mastic located in the dining area and the roof materials and roof sealant tar located on the rear portion of the roof and on the ground where a portion of the structure has been collapsed.

No suspect ACM were found on the wood framed shed with a metal panel roof located on the property behind the house.

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-3	Vinyl Sheet Flooring, Green	Kitchen	Non-Friable	G	LPD	1
HA-6	Vinyl Sheet Flooring, Brown	Kitchen	Non-friable	G	LPD	1
HA-7	9" White Floor Tile	Dining	Non-friable	G	LPD	1
HA-8	Mastic	Associated with HA-7	Non-friable	G	LPD	1
HA-15	Roof Material	Throughout the Rear Portion of the House and on the Ground	Non-friable	D	PD	5
HA-16	Roof Sealant Tar	Throughout the Rear Portion of the House and on the Ground	Non-friable	D	PD	5

^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)

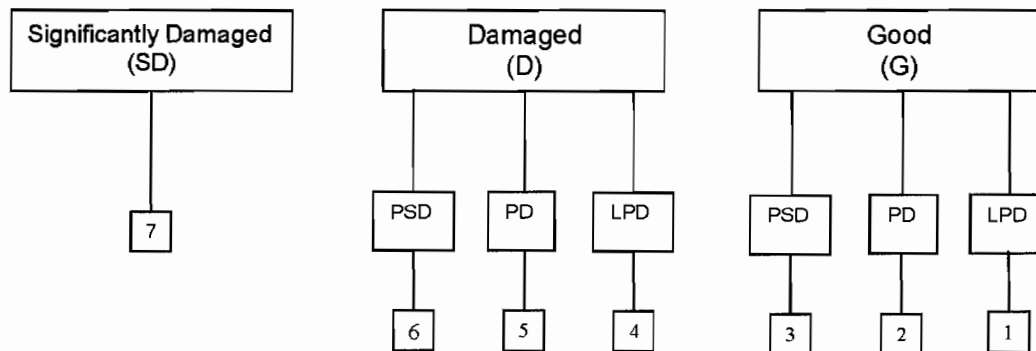
Potential for Future Disturbance

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 materials have been identified as non-friable Category I ACBM.

• Vinyl Sheet Flooring Materials	• 9" White Floor Tile
• Floor Tile Mastic, Black	• Roof Material
• 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.

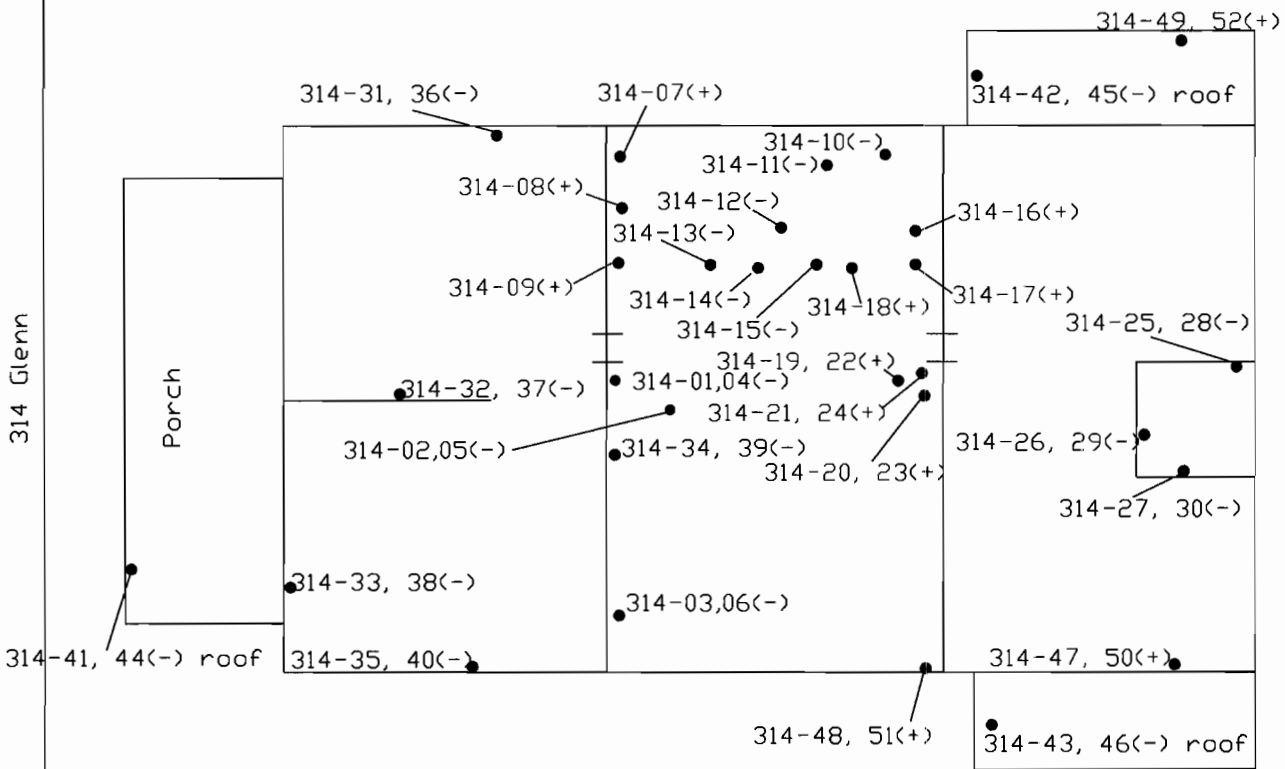
Non-Friable Category II Asbestos Containing Building Materials – No Category II non-friable ACBM were identified in this building.

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.

314 Glenn



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

PROJECT:

Asbestos Survey
 314 Glenn
 Columbia, South Carolina
 ARM #09-1065-09

DESCRIPTION:

Sample Location Map

FIGURE 1

DATE:
 November 2009



REFERENCE:

Field Notes

NOTE:

Not to Scale

Asbestos Inspection Report

1725 Mayer Street
Columbia, South Carolina



December 8, 2009

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

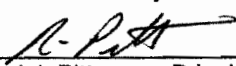
Phone: (803) 545-3333

ARM Project No. 09-1065-09

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

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<i>Copy of SCDHEC Consultant / Building Inspector License</i>	<i>Appendix B</i>

Introduction

On November 23, 2009, ARM surveyed the vacant 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 house is a one-story structure with aluminum siding over old wood siding, an A-frame roof and a crawlspace. The house has approximately 800 square feet of interior floor space to include additions.

Interior Materials – The interior walls and ceiling finishes of the house have been mostly demolished leaving some partial drywall materials intact, and wood studs and roof trusses partially exposed. The floors are wood floors covered by some vinyl flooring products. The attic space has wood trusses and a wood roof deck.

Exterior Materials – The exterior siding materials consist mostly of aluminum siding over older wood plank 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	1725-01, 02, 03	Vinyl Sheet Flooring, Green	M	Master Bedroom	100 SF	0.14% Asbestos (TEM)
HA-2	1725-04, 05, 06	Vinyl Sheet Flooring, White	M	Bathroom	30 SF	No Asbestos Detected
HA-3	1725-07, 08, 09	Vinyl Sheet Flooring, White / Gray	M	Bathroom Wall	25 SF	No Asbestos Detected
HA-4	1725-10, 11, 12	9" Floor Tile, Beige	M	Kitchen / Dining	100 SF	10% Asbestos
HA-5	1725-13, 14, 15	Mastic	M	Associated with HA-4	120 SF	1.4% Asbestos (TEM)
HA-6	1725-16, 17, 18	Joint Compound Layer	S	Various Areas Throughout Most of the House	300 SF	5% Asbestos
HA-7	1725-19, 20, 21	Drywall Layer	M	Associated with HA-6	300 SF	No Asbestos Detected

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-8	1725-22, 23, 24	Shingles (Old Roof)	M	Interior, Over Kitchen	100 SF	No Asbestos Detected
HA-9	1725-25, 26, 27	Shingles, Black	M	Exterior, Roof	1,100 SF	No Asbestos Detected
HA-10	1725-28, 29, 30	Roof Felt	M	Under HA-9	1,100 SF	No Asbestos Detected
HA-11	1725-31, 32, 33	Sealant Tar	M	Roof, Around Chimney	6 LF	15% 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 nine by nine inch beige floor tile and associated mastic located in the kitchen and dining areas, the joint compound associated with drywall walls and ceiling materials throughout various areas of the house and sealant tar located on the roof around the chimney.

Note: Dust from the previous disturbance of drywall walls and ceiling materials with asbestos joint compound can be found throughout the areas with damaged walls and ceilings. It may be warranted to use a High Efficiency Particulate Air (HEPA) vacuum to remove the wallboard dust from the non-asbestos building materials.

Asbestos was also identified in the green vinyl sheet flooring material (0.14% asbestos content via TEM analysis) located in the master bedroom. The asbestos amount, however, are below the EPA-DHEC regulatory limit of greater than one percent (>1%) asbestos content.

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-4	9" Floor Tile, Beige	Kitchen / Dining	Non-Friable	D	PSD	6
HA-5	Mastic	Associated with HA-4	Non-friable	D	PD	5
HA-6	Joint Compound Layer	Various Areas Throughout Most of the House	Friable	S	PSD	7
HA-11	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 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)

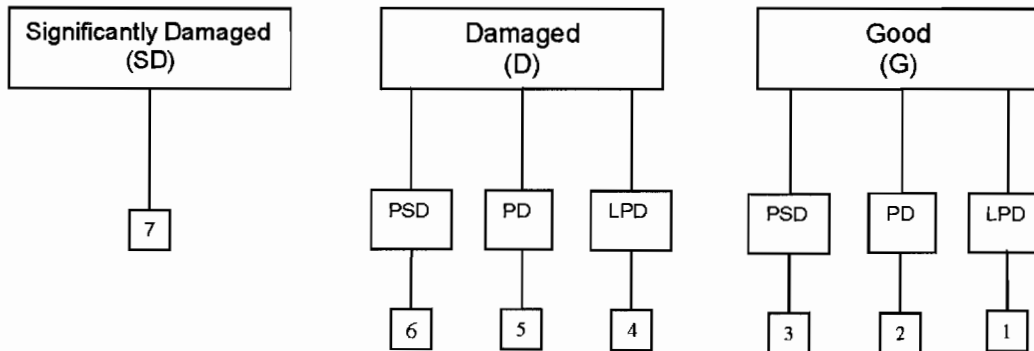
Potential for Future Disturbance

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.

• Joint Compound on Drywall	
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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.

• 9" Beige Floor Tile	• Floor Tile Mastic
• Roof Sealant Tar	

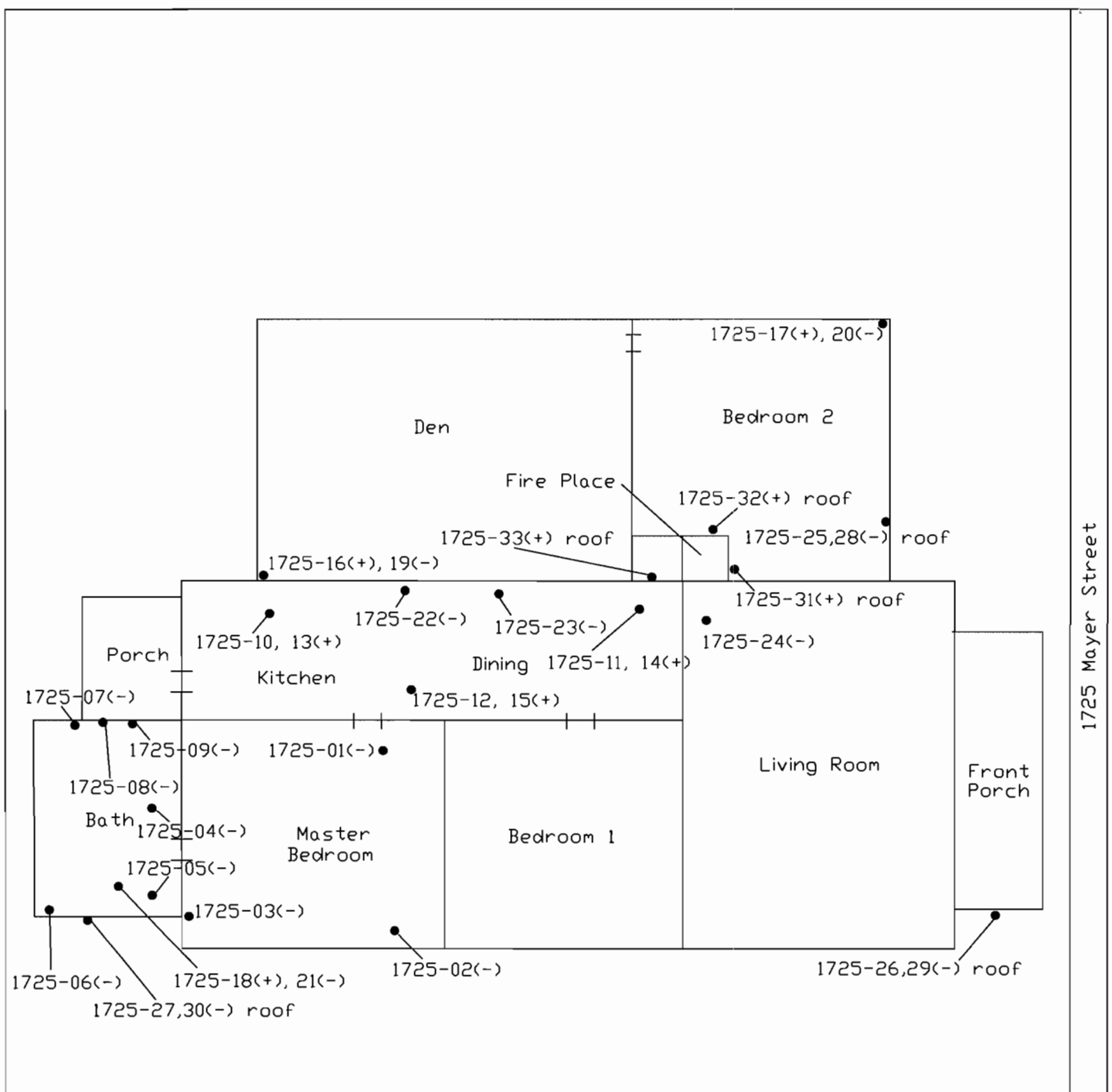
In the present condition, there is a low potential for significant concentrations of asbestos fibers to be released into the air from these non-friable category I asbestos materials. It is recommended that a licensed asbestos abatement contractor conduct or supervise the removal and proper disposal of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



1725 Mayer Street

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

<p><i>PROJECT:</i></p> <p>Asbestos Survey 1725 Mayer Street 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> 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

3300 N. Main Street
Columbia, South Carolina



December 9, 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

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<i>Copy of SCDHEC Consultant / Building Inspector License</i>	<i>Appendix B</i>

Introduction

On November 30, 2009, ARM surveyed two vacant automotive repair structures at the referenced location for the presence of asbestos containing building materials (ACBM). It is understood that the structures are scheduled for demolition. The surveyed areas include all of the accessible areas of the structures. 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 Descriptions

The structures include a one-story building with brick siding and concrete block siding, metal panel facia, a flat asphalt roof and multiple open auto maintenance bays on both sides on the building with metal panel roofs. The one-story building has approximately 800 square feet of interior floor space. Also included is a two-story storage concrete block building with an A frame metal panel roof located behind the auto maintenance bays. The two-story building has approximately 1,200 square feet. No suspect ACBM were identified with the two-story storage building.

One-Story Auto Maintenance Building

Interior Materials – The interior floor is concrete covered by vinyl flooring products in the store front and bare concrete floor in the back area of the store. The walls and ceiling consist of wood panels in the store front and concrete block walls in the back area and restrooms.

Exterior Materials – The exterior siding materials consist of brick siding or concrete block siding. The roof over the building is a flat roof covered with asphalt roofing products. The open auto maintenance bays are constructed of metal support columns, metal panel roofs over a concrete slab and concrete block retaining walls.

Two-Story Storage Building

Interior Materials – The interior floor is bare concrete and a large wood platform for storage. The walls consist of concrete block and the ceiling is open to a metal panel roof supported by wood trusses.

Exterior Materials – The exterior siding materials consist of concrete block materials. The A-frame roof over the building 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*
One-Story Auto Maintenance Building						
HA-1	3300-01, 02, 03	12" Brown Floor Tile	M	Store Front	400 SF	No Asbestos Detected
HA-2	3300-04, 05, 06	Mastic	M	Associated with HA-1	400 SF	10% Asbestos
HA-3	3300-07, 08, 09	Ceiling Texture (Popcorn)	S	Throughout the Store Front	500 SF	3% Asbestos

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
One-Story Auto Maintenance Building (cont.)						
HA-4	3300-10, 11, 12	Joint Compound Layer	S	Associated with HA-3 and HA-5	500 SF	Assumed ACM
HA-5	3300-13, 14, 15	Drywall Layer	M	Associated with HA-3 and HA-4	400 SF	Assumed ACM
HA-6	3300-16, 17, 18	Asphalt Roof	M	Throughout the Roof	900 SF	0.21% Asbestos (TEM)
HA-7	3300-19, 20, 21	Roof Edge / Flashing	M	Roof Perimeter and Penetrations	150 SF	20% Asbestos
Two-Story Storage Building (No Suspect ACBM Found)						

***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 indicates that asbestos was found in the floor tile mastic, the textured (popcorn style) ceiling material and the roof edge / flashing material. Asbestos was also identified in the asphalt roof material (0.21% asbestos content via TEM analysis). The asbestos amount, however, is below the EPA-DHEC regulatory limit of greater than one percent (>1%) asbestos content.

The drywall panels and the associated joint compound material are unable to be separated from the asbestos ceiling texture and must be treated as an ACBM.

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
One-Story Auto Maintenance Building						
HA-2	Mastic	Under 12' Brown Floor Tile	Non-Friable	G	LPD	1
HA-3	Ceiling Texture (Popcorn)	Throughout the Store Front	Friable	G	LPD	1
HA-4	Joint Compound Layer	Associated with HA-3 and HA-5	Friable	G	LPD	1
HA-5	Drywall Layer	Associated with HA-3 and HA-4	Friable	G	LPD	1
HA-7	Roof Edge / Flashing	Roof Perimeter and Penetrations	Non-Friable	G	LPD	1
Two-Story Storage Building (No Suspect ACM Found)						

^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)

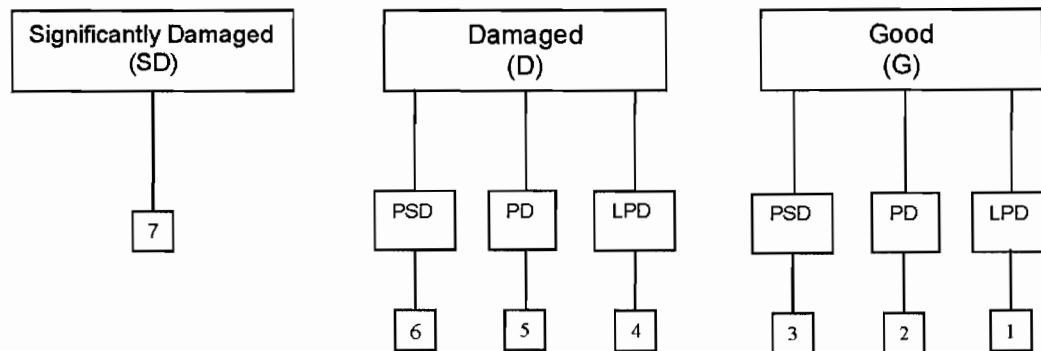
Potential for Future Disturbance

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 the one-story building.

• Ceiling Texture	• Joint Compound on Drywall
• Drywall	

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 in the one-story building.

• Floor Tile Mastic	• Roof Edge / Flashing Materials
---------------------	----------------------------------

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 either building.

This survey was conducted for accessible ACBM. 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.

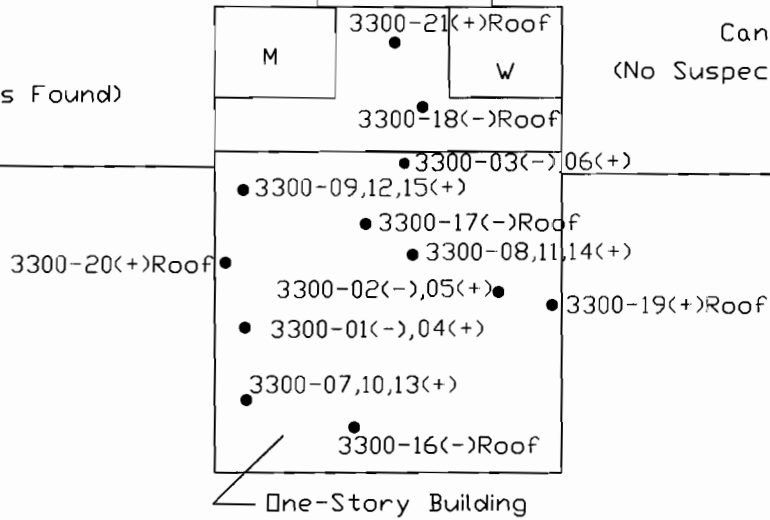
Warranty

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.

Two-Story Storage Building
(No Suspect ACMs Found)

Canopy
(No Suspect ACMs Found)

Canopy
(No Suspect ACMs Found)



3300 N. Main Street

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

PROJECT:

Asbestos Survey
3300 N. Main Street
Columbia, South Carolina
ARM #09-1065-09

DESCRIPTION:

Sample Location Map

FIGURE 1

DATE:

November 2009

ARM ENVIRONMENTAL SERVICES, INC.

REFERENCE:

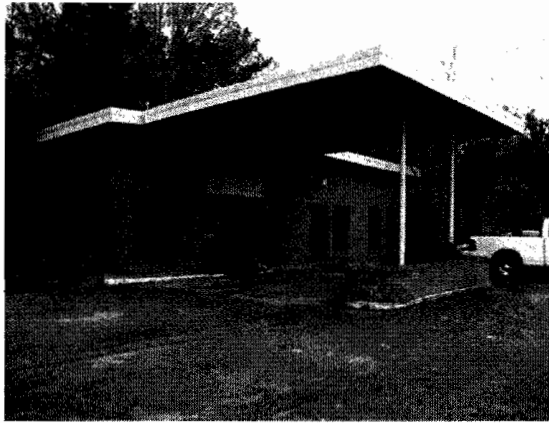
Field Notes

NOTE:

Not to Scale

Asbestos Inspection Report

4630 North Main Street
Columbia, South Carolina



December 17, 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

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Introduction

On November 25, 2009, ARM surveyed the vacant structure 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 building is a one-story structure of brick and concrete construction on a concrete slab. The building has a flat roof with a metal soffit and fascia. The structure has approximately 2,125 square feet of interior floor space.

Interior Materials – The interior consists of drywall walls, a suspended ceiling with ceiling tiles, a mostly wooden roofing deck and some plaster on a few ceilings and walls. The concrete sub-flooring is covered with carpet except in the restrooms, which have vinyl floor tile over concrete.

Exterior Materials – The exterior siding materials consist mostly of brick and concrete block. The flat roof is covered with asphalt roofing products and the building has a metal soffit and fascia.

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	4630-01, 02, 03	12" White Floor Tile	M	Restrooms	70 SF	No Asbestos Detected
HA-2	4630-04, 05, 06	Floor Tile Glue	M	Restrooms	70 SF	No Asbestos Detected
HA-3	4630-07, 08, 09	Carpet Adhesive	M	Throughout (except for restrooms)	1,400 SF	No Asbestos Detected
HA-4	4630-10, 11, 12, 13, 14	Joint Compound	S	Drywall Walls	1,500 SF	No Asbestos Detected
HA-5	4630-15, 16, 17	Drywall	M	Drywall Walls	1,500 SF	No Asbestos Detected
HA-6	4630-18, 19, 20	2' Ceiling Tile	M	Suspended Ceiling Throughout	1,400 SF	No Asbestos Detected
HA-7	4630-21, 22, 23, 24, 25	Plaster - Skimcoat	S	Some Walls and Ceilings and Exterior Canopy	1,500 SF	No Asbestos Detected

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-8	4630-26, 27, 28, 29, 30	Plaster - Browncoat	S	Some Walls and Ceilings and Exterior Canopy	1,500 SF	No Asbestos Detected
HA-9	4630-31, 32, 33	Frame Caulk	M	Door and Window Frames	170 LF	No Asbestos Detected
HA-10	4630-34, 35, 36	Built up roof materials	M	Roof – Middle Portion	1,250 SF	4.8% Asbestos (TEM)
HA-11	4630-37, 38, 39	Roof Flashing / Edge materials	M	Roof – Edge Portion	750 SF	0.64% Asbestos (TEM)
HA-12	4630-40, 41, 42	HVAC Seam Caulk	M	HVAC Unit on Roof	25 SF	15% 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 built up roofing materials for the middle (main) portions of the roof and in the HVAC seam caulk associated with the HVAC components on the roof.

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-10	Built up roof materials	Roof – Middle Portion	Non-Friable	G	LPD	1
HA-12	HVAC Seam Caulk	HVAC Unit on 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)

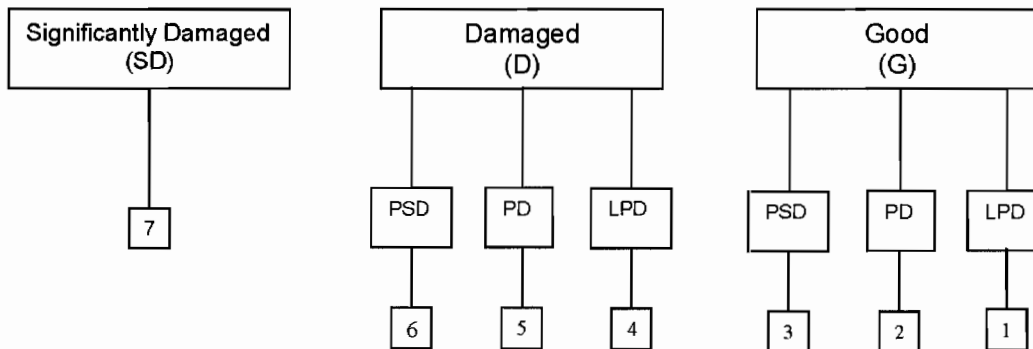
Potential for Future Disturbance

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 materials have been identified as non-friable Category I ACBM.

• Roofing Materials	• HVAC Seam Caulk (Roof)
---------------------	--------------------------

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.

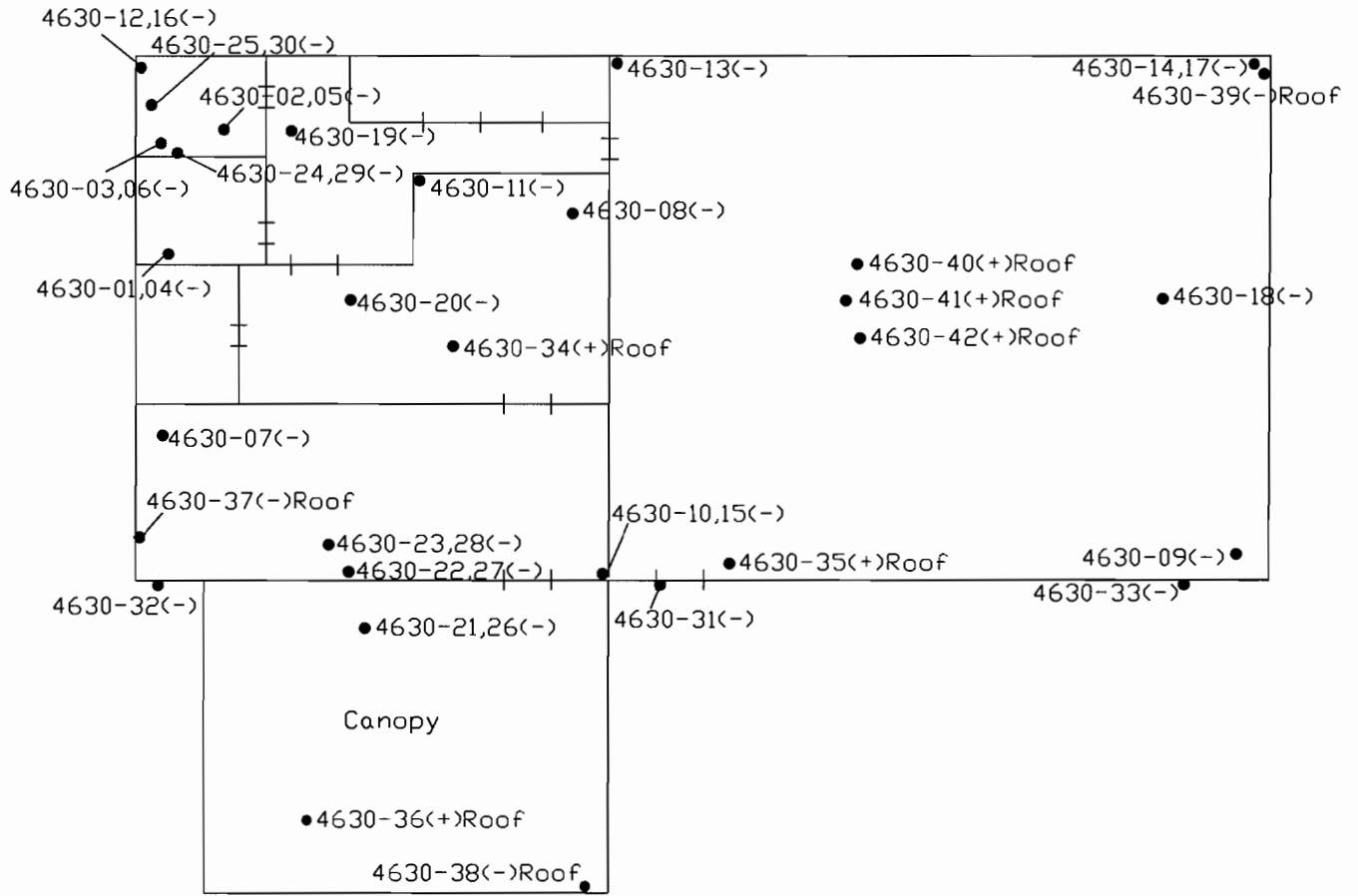
*Non-Friable **Category II** Asbestos Containing Building Materials* – No Category II non-friable ACBM were identified in this building.

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.

Columbia College Drive



N. Main Street

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

<p><i>PROJECT:</i></p> <p>Asbestos Survey 4630 N. Main Street 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> 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

5527 N. Main Street
Columbia, South Carolina



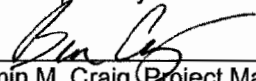
December 10, 2009

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

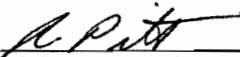
Phone: (803) 545-3333

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

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<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 30, 2009, ARM surveyed the vacant 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 (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 transite panel siding and an A-frame roof. The house has approximately 1,500 square feet of interior floor space. The house has obvious signs of significant structural problems and fire damage. The crawlspace area was viewed from crawlspace access locations but was not entered due to safety concerns. Suspect transite panels are stacked in the crawlspace below the side entrance porch. Also included with this survey are two sheds located on the property behind the house.

Interior Materials – The interior floors are hardwood floors mostly covered by vinyl flooring products in the rear bathroom. The walls and ceiling consist of plaster in the front portion of the house and drywall materials in the rear portion. The attic space has wood trusses, wood roof deck and non-suspect fiberglass insulation. The sheds have wood floors and wood walls.

Exterior Materials – The exterior siding materials consist mostly of transite panel siding. The A-frame roof over the house is covered with asphalt roofing products. The siding on the sheds consists of asphalt sheet materials over wood with some brick siding and the roofs are metal panel roofs.

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	5527-01, 02, 03	Transite Siding	M	Exterior Siding and Storage	2,000 SF	20% Asbestos
HA-2	5527-04, 05, 06	Felt Paper	M	Under HA-1	1,500 SF	No Asbestos Detected
HA-3	5527-07, 08, 09	Asphalt Strips	M	Under HA-1	300 SF	No Asbestos Detected
HA-4	5527-10, 11, 12, 13, 14	Joint Compound Layer	S	Walls and Ceiling Throughout Rear Portion	1,700 SF	3% Asbestos
HA-5	5527-15, 16, 17	Drywall Layer	M	Associated with HA-4	1,700 SF	No Asbestos Detected
HA-6	5527-18, 19, 20, 21, 22	Plaster, Skim Coat	S	Walls and Ceiling Throughout Front Portion	3,000 SF	No Asbestos Detected
HA-7	5527-23, 24, 25, 26, 27	Plaster, Skim Coat	S	Under HA-6	3,000 SF	No Asbestos Detected

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-8	5527-28, 29, 30	Shingles	M	Roof	1,700 SF	No Asbestos Detected
HA-9	5527-31, 32, 33	Felt Paper	M	Under HA-8	1,700 SF	No Asbestos Detected
HA-10	2430-34, 35, 36	Sealant Tar	M	Roof, Around Two Chimneys	10 LF	15% Asbestos
HA-11	5527-37, 38, 39	Window Glaze	M	Windows Throughout	600 LF	No Asbestos Detected
HA-12	5527-40, 41, 42	Asphalt Sheet Siding	M	Sheds	500 SF	No Asbestos Detected
HA-13	5527-43, 44, 45	12" Floor Tile	M	Rear Bathroom (Top Layer)	35 SF	4% Asbestos
HA-14	5527-46, 47, 48	Adhesive	M	Under HA-13	35 SF	0.48% Asbestos (TEM)
HA-15	5527-49, 50, 51	Vinyl Flooring	M	Under HA-13 and HA-14	35 SF	0.4% Asbestos (TEM)
HA-16	5527-52, 53, 54	Felt Backing	M	Under HA-15	35 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 transite siding, joint compound material associated with drywall in the back rooms of the house, the top layer of twelve inch by twelve inch floor tile in the back bathroom and in the sealant roof tar around both chimneys.

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-1	Transite Siding	Exterior Siding and Storage	Non-Friable	D	LPD	4
HA-4	Joint Compound Layer	Walls and Ceiling Throughout Rear Portion of House	Friable	S	PSD	7
HA-10	Sealant Tar	Around Two Chimneys	Non-friable	G	LPD	1
HA-13	12" Floor Tile	Rear Bathroom Floor (Top Layer)	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)

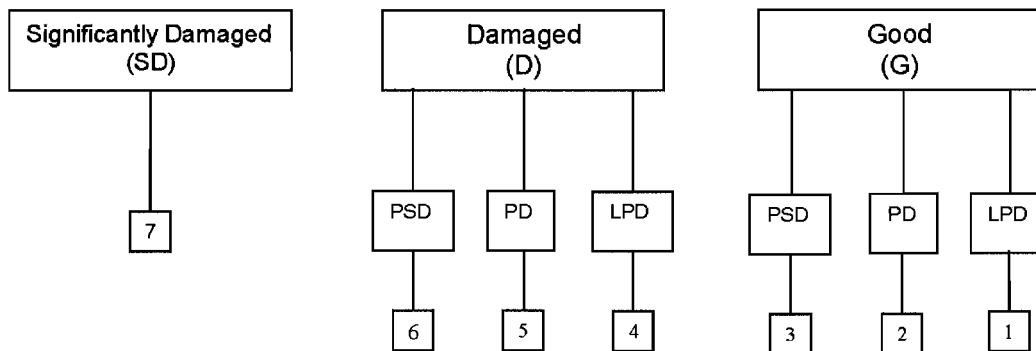
Potential for Future Disturbance

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.

• Joint Compound on Drywall	
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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.

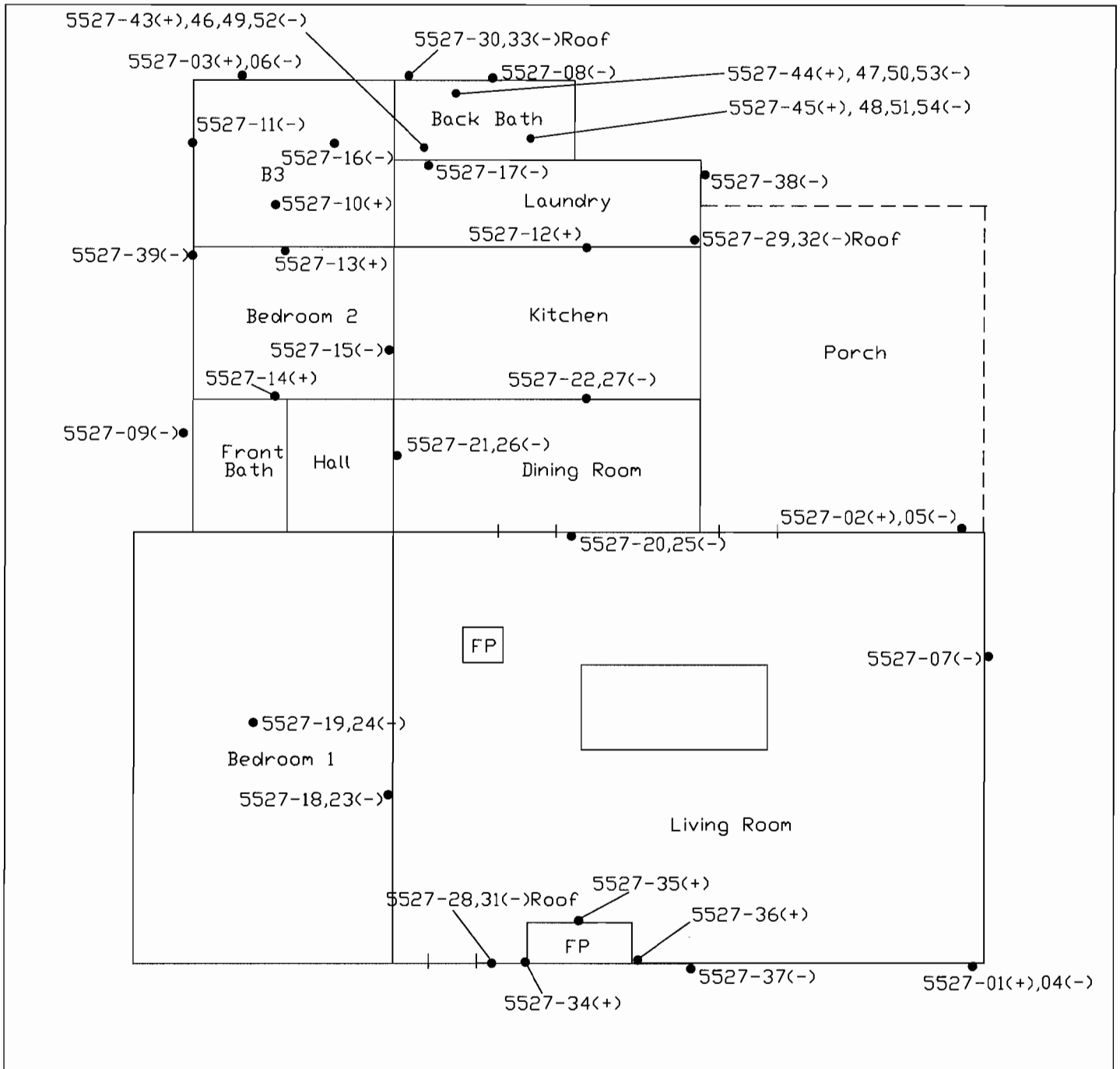
• 12" Floor Tile	• Roof Sealant Tar
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In the present condition, there is a low potential for significant concentrations of asbestos fibers to be released into the air from these non-friable category I asbestos materials. It is recommended that a licensed 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* – The following materials have been identified as non-friable Category II ACBM.


• Transite Siding	
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In its present condition, there is a high potential for asbestos fibers to be released from this non-friable category II 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.



5527 N. Main Street

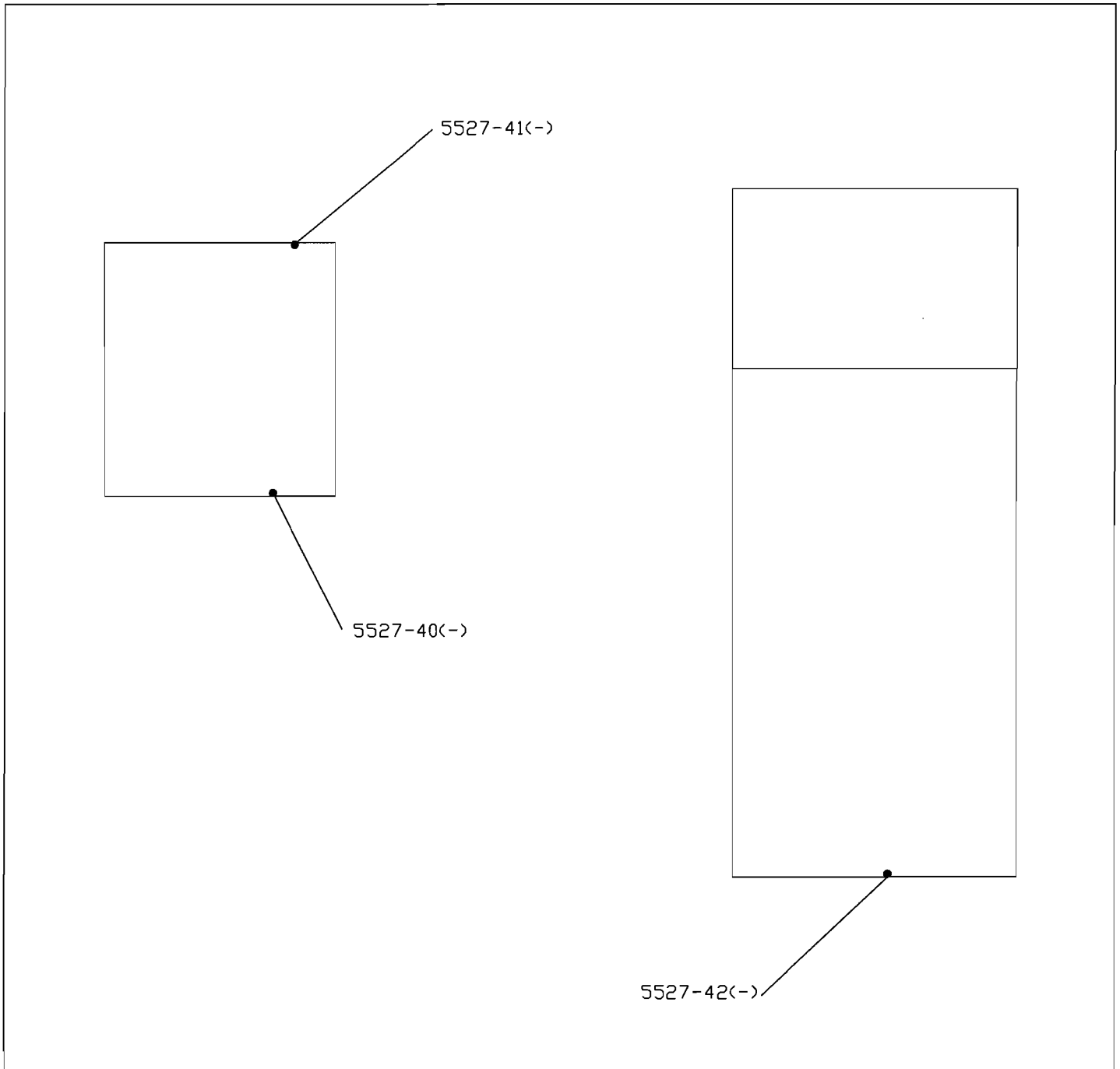
(-): Non-Asbestos Sample
 (+): Asbestos-Containing Sample

<p><i>PROJECT:</i></p> <p>Asbestos Survey 5527 N. Main 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>

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.



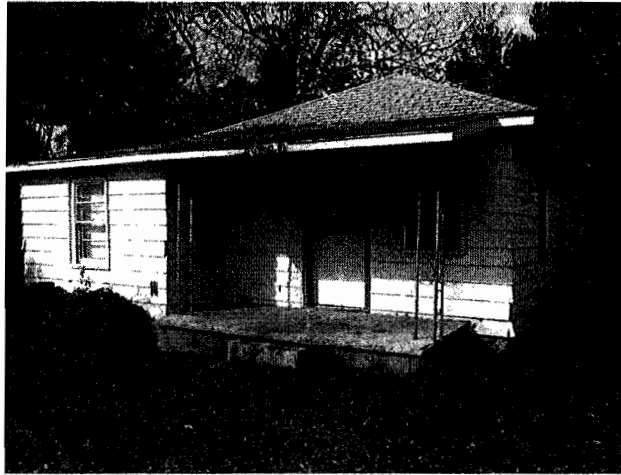
5527 N. Main Street

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

<p><i>PROJECT:</i></p> <p>Asbestos Survey 5527 N. Main Columbia, South Carolina ARM #09-1065-09</p>	<p><i>DESCRIPTION:</i></p> <p>Sample Location Map (Sheds)</p>	<p>FIGURE 2</p>
		<p><i>DATE:</i></p> <p>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

3907 Shaw Street
Columbia, South Carolina



December 11, 2009

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

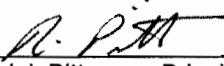
Phone: (803) 545-3333

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

ARM ENVIRONMENTAL
SERVICES, INC.

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

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<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 4, 2009, ARM surveyed the vacant 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 (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 aluminum siding over wood siding and an A-frame roof. The house has approximately 750 square feet of interior floor space and a crawlspace. The house has obvious signs of significant foundation damage and roof damage. 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 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 aluminum siding over wood siding. The A-frame 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	3907-01, 02, 03	Vinyl Sheet Flooring, with Pebbles	M	Den / Kitchen (Top Layer)	225 SF	No Asbestos Detected
HA-2	3907-04, 05, 06	12" Floor Tile, Beige	M	Kitchen	50 SF	No Asbestos Detected
HA-3	3907-07, 08, 09	Vinyl Sheet Flooring, Beige	M	Master Bedroom, Living Room and Spare Bedroom	300 SF	No Asbestos Detected
HA-4	3907-10, 11, 12, 13, 14	Joint Compound Layer	S	Walls and Ceiling Throughout House	2,500 SF	3% Asbestos
HA-5	3907-15, 16, 17	Ceiling Texture (Popcorn)	S	Associated with HA-4 & HA-6	750 SF	Assumed ACBM
HA-6	3907-18, 19, 20	Drywall Layer	M	Associated with HA-4 & HA-5	2,500 SF	Assumed ACBM

Suspect Material Number	Sample ID No.	Material Description	Category (S, M, T)	Material Location	Approximate Quantity	Analytical Results*
HA-7	3907-21, 22, 23	Sealant Tar	M	Roof, Around Chimneys	6 LF	20% Asbestos
HA-8	3907-24, 25, 26	Roof Patch Tar	M	Roof over Spare Bedroom	6 SF	10% Asbestos
HA-9	3907-27, 28, 29	Shingles	M	Throughout the Roof	900 SF	No Asbestos Detected
HA-10	3907-30, 31, 32	Roof Felt	M	Under HA-9	900 SF	No Asbestos Detected
HA-11	3907-33, 34, 35	Frame Caulk	M	Exterior Doors and Windows	150 LF	5% Asbestos
HA-12	3907-36, 37, 38	Window Glaze	M	Windows	150 LF	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 joint compound associated with drywall walls and ceiling, the sealant tar located on the roof around the chimney, the roof patch material on the roof above the spare bedroom and frame caulk around exterior windows and doors.

The drywall ceiling panels and associated textured ceiling materials are contaminated by the asbestos joint compound materials throughout this structure, and must be treated as an ACBM.

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-4	Joint Compound Layer	Walls and Ceiling Throughout House	Friable	D	PSD	6
HA-5	Ceiling Texture (Popcorn)	Associated with HA-4 & HA-6	Friable	D	PD	5
HA-6	Drywall Layer	Associated with HA-4 & HA-5	Non-Friable	D	PSD	6
HA-7	Sealant Tar	Roof, Around Chimneys	Non-Friable	G	LPD	1
HA-8	Roof Patch Tar	Roof over Spare Bedroom	Non-friable	G	LPD	1
HA-11	Frame Caulk	Exterior Doors and 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)

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

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

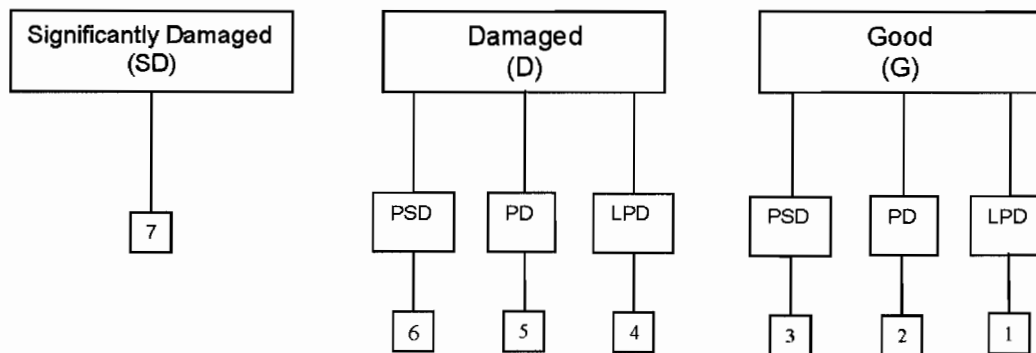
Potential for Future Disturbance

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 (Assumed ACBM)
• Drywall Panels (Assumed ACBM)	

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 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 materials have been identified as non-friable Category I ACBM.

• Roof Sealant Tar	• Roof Patch Tar
• Frame Caulk	• Roof Sealant Tar

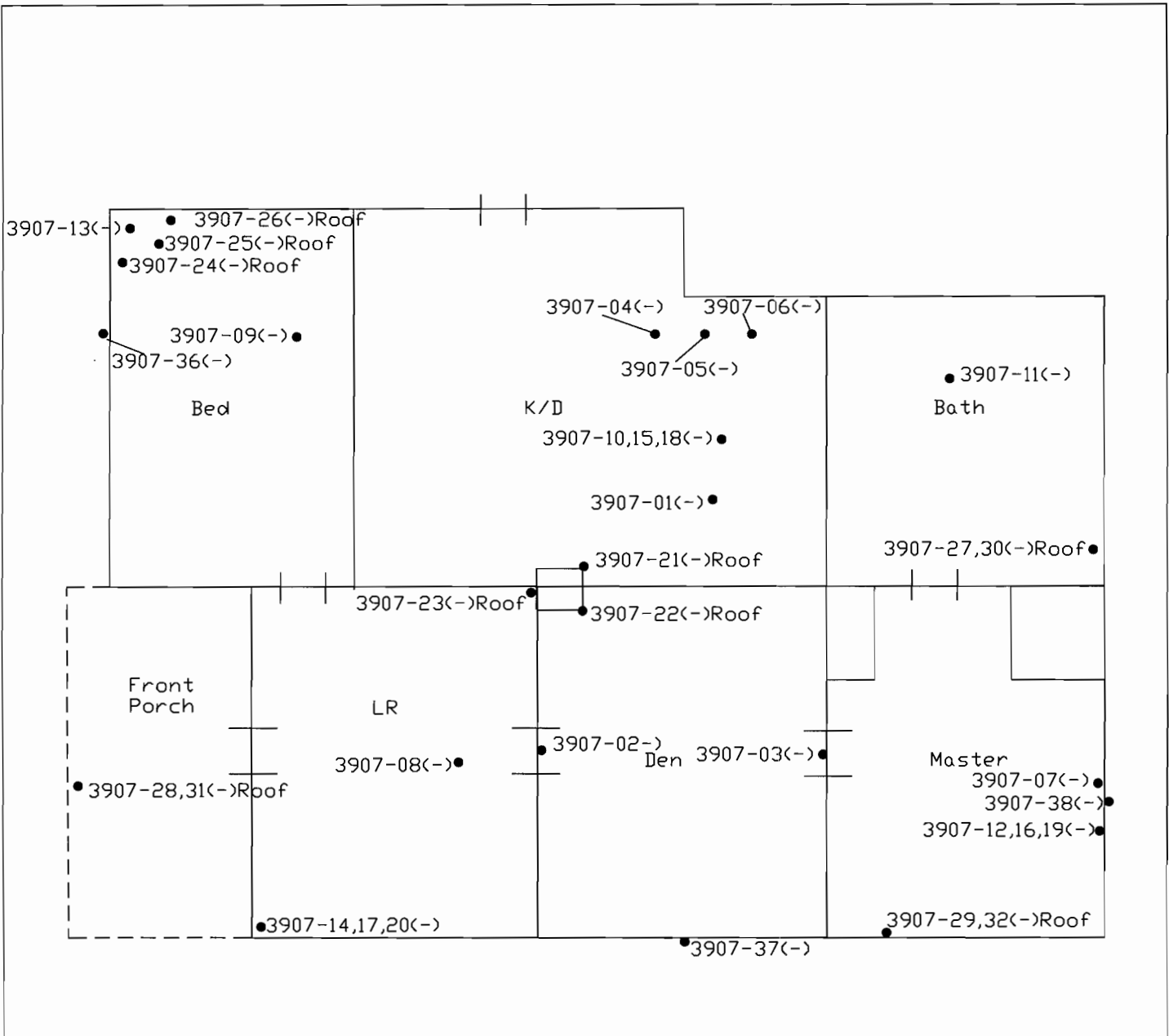
In the present condition, there is a low potential for significant concentrations of asbestos fibers to be released into the air from these non-friable category I asbestos materials. It is recommended that a licensed asbestos abatement contractor conduct or supervise the removal and proper disposal of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



3907 Shaw

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

<p><i>PROJECT:</i></p> <p>Asbestos Survey 3907 Shaw 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> December 2009</p>
	<p><i>REFERENCE:</i></p> <p>Field Notes</p>	<p><i>NOTE:</i></p> <p>Not to Scale</p>