



Asbestos & Lead Based Paint Assessment

City of Spartanburg
158 Bomar Avenue
Spartanburg, South Carolina 29306

Prepared for:

The City of Spartanburg
440 South Church St., Suite B
Spartanburg, South Carolina 29306

Prepared by:

Apex Environmental Management, Inc.
7 Winchester Court
Mauldin, South Carolina 29662

Project Number: 0519-118

July 22, 2019



**Environmental
Management**



Apex Project Number 0519-118

July 22, 2019

Mr. Jeff Tillerson
City of Spartanburg
440 South Church Street, Suite B
Spartanburg, SC 29306

Reference: Asbestos and Lead-Based Paint Assessment Services
158 Bomar Avenue
Spartanburg, South Carolina 29306

Dear Mr. Tillerson:

Apex Environmental Management, Inc. (Apex) is pleased to provide the results of our assessment services for the referenced property.

This report and the associated attachments summarize our evaluation of the conditions observed at the project site. The findings presented by Apex are based upon sampling performed in the subject building. There is a chance that undetected ACM may exist in the building between walls or in other areas that would only be exposed during demolition or structural renovations. Should material be discovered that could potentially contain asbestos during the demolition process, additional samples of the material should be collected by a licensed asbestos inspector and submitted to an accredited laboratory for analytical interpretation. Our recommendations are based on the guidelines presented in EPA and/or OSHA regulations.

Please note that this document is not a specification for asbestos removal. It does not contain means and methods for abatement. Quantities are estimates and contractors must verify amounts prior to bidding or removal. If you are planning an abatement project, please contact Apex to discuss the requirements. Use of this document without the express written consent of Apex is at the sole risk of the user and or/abatement contractor.

The conclusions and/or recommendations contained in this report are based on our understanding of the applicable standards at the time this report was prepared. No warranty, expressed or implied, is made. If you have any questions please feel free to contact us at (864) 404-3210.

Respectfully submitted,
APEX ENVIRONMENTAL MANAGEMENT, INC.

A handwritten signature in blue ink, appearing to read 'Tom Oliver', is written over a horizontal line.

Tom Oliver
Director of Operations

Appendices

7 Winchester Court
Mauldin, SC 29662
864.404.3210 office
864.404.3213 fax

802 E. Martintown Rd
N. Augusta, SC 29841
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ASBESTOS AND LEAD BASED PAINT ASSESSMENT

**CITY OF SPARTANBURG
158 BOMAR AVENUE
SPARTANBURG, SOUTH CAROLINA 29306**

APEX PROJECT NO. 0519-118

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SECTION I

Asbestos & Lead Evaluation Report

ASBESTOS EVALUATION REPORT
APEX PROJECT NUMBER: 0519-118

Date:	7/22/2019	Page Number:	1 of 4
Client:	City of Spartanburg	Client Contact:	Mr. Jeff Tillerson
Client Address:	440 South Church Street Suite B Spartanburg, SC 29306	Client Phone Number:	(864) 596-2911
Project:	Asbestos Evaluation and Lead Based Paint Assessment		
Property Address:	158 Bomar Avenue Spartanburg, SC 29306		
Assessor:	Tom Oliver	Date of Assessment:	7/4/2019
Company:	Apex Environmental Management 7 Winchester Court Mauldin, SC 29662	Phone Number:	(864) 404-3210
Purpose of Assessment:	Demolition	Age of Structure:	Approximately 90 years
Building Type:	Residential	Number of Stories:	1
Foundation:	Brick Crawlspace	Approximate Square Footage:	1,100 SF

EXTERIOR BUILDING MATERIALS

- Pitched wooden framed roof shingles & felt.
- Metal siding over wooden pressboard siding with a shingle layer.
- 3 chimneys with tar – sampled.
- Wooden windows with glazing.
- A portion of the windows are missing.
- Wooden doors with no caulk.
- Green front porch carpet with yellow adhesive beneath.

INTERIOR BUILDING MATERIALS

- Drywall with joint compound & tape throughout.
- Drywall exists beneath the wooden wall panels & 12” x 12” wooden ceiling tiles.
- Swirl pattern ceiling texture in living room.
- Wooden floors, walls & ceilings.
- Multiple types of vinyl flooring with & without mastics.
- Vinyl floor exists under wood in the bathroom.

SCOPE OF THE SURVEY

The objectives of the asbestos and lead assessment included the following:

- Identification of suspect asbestos-containing material (ACM) and lead based paints (LBP) in readily observable locations. Limited demolition of building finishes was conducted.
- Asbestos survey with sample collection by a South Carolina accredited inspector.
- Suspect ACM analysis by polarized light microscopy (PLM) utilizing EMSL Analytical, Inc. (EMSL) as an NVLAP certified laboratory, their accreditation number is 200841-0.
- Transmission electron microscopy (TEM) analysis of non-friable organically bound materials suspected to contain asbestos and testing negatively by PLM analysis.
- Lead inspection by a lead inspector certified by the Environmental Protection Agency and licensed to conduct LBP surveys in South Carolina.
- In situ analysis of suspected lead based paints by X-ray fluorescence (XRF).
- Presenting the results in a report identifying confirmed ACMs and LBPs.

METHODS

Asbestos Containing Materials

In order to determine if the suspect materials observed during the visual survey contained asbestos, representative bulk samples were collected and placed in sealed packages. Thirty-two (32) bulk samples were collected during the survey and submitted to EMSL Analytical, Inc. (EMSL) in Charlotte, North Carolina for analysis using the EPA recommended method of Polarized Light Microscopy (PLM) coupled with dispersion staining (Method No. EPA 600/M4-82-020, Dec. 1982). EMSL participates in the National Voluntary Laboratory Accreditation Program (NVLAP). Their NVLAP accreditation number is 200841-0. EPA regulations require that multiple samples of each homogeneous material be collected for laboratory analysis and are split into homogeneous layers and each layer is analyzed separately. Thirty-eight (38) samples were analyzed due to layering by PLM method and positive stop methods. In accordance with SC DHEC Regulation 61-86.1, non-friable organically bound materials that are reported to be non-asbestos containing by PLM analysis must also be analyzed by Transmission Electron Microscopy (TEM). Eleven (11) samples were analyzed using TEM.

Lead-Based Paint

Lead painted surfaces were analyzed in place using X-ray fluorescence. Painted surfaces were selected based on color of topcoat, underlying layers and substrate on which it was painted.

RESULTS

Asbestos Results

The EPA defines an asbestos-containing material (ACM) as a material containing more than 1% asbestos. OSHA defines ACM as a material containing detectable amounts of asbestos. Provided below is a general discussion of the asbestos containing materials identified in the residence. A specific *PLM and TEM Data Table* is located in Appendix II of this report and identifies positive materials and designates approximate quantities.

Suspect asbestos containing materials that were identified to be asbestos containing include:

- Approximately 2,850 SF of drywall wall & ceiling systems throughout. Drywall systems also exist beneath wooden wall panels & 12" x 12" wooden ceiling tiles on a grid system.
- Approximately 18 LF of tar on 3 chimneys.

Lead Based Paint

OSHA does not recognize a threshold level of lead for definition purposes, only the presence or absence of lead. The current OSHA regulations recognize an airborne action level of thirty micrograms per cubic meter ($30 \mu\text{g}/\text{m}^3$) during an eight-hour workday and a permissible exposure level of fifty micrograms per cubic meter ($50 \mu\text{g}/\text{m}^3$) for employees.

Currently, the EPA defines LBP as paint containing in excess of, or equal to, $1.0 \text{ mg}/\text{cm}^2$. The laboratory analytical results are included in the LBP Analysis Report in Appendix II of this report. The approximate locations of the paint samples collected and analytical results are presented in the *LBP Data Table* included in Appendix II of this report.

Several surfaces in the building tested positive for lead in excess of the regulatory definition:

Exterior:

- White wooden ceiling on the front porch
- White wooden windows, window frames & roof overhang
- Brown wooden siding

Interior:

- White wooden doors

RECOMMENDATIONS AND DISCUSSION

Asbestos Containing Materials

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

Apex recommends the following:

1. Abate the asbestos containing materials in the structure prior to renovation or demolition.
2. Follow applicable asbestos regulations during renovation or demolition of the structure. You should be aware that stringent requirements are imposed upon anyone renovating or demolishing a structure in which ACM will be disturbed. This work must be performed in accordance with OSHA asbestos regulations, 29 CFR 1910 & 1926, and NESHAP asbestos regulations 40 CFR 61, subpart M. South Carolina regulations require the accreditation of personnel who work in the asbestos field and notification and permitting fees for asbestos removal projects. There is a 10 working day notification period required prior to abatement of asbestos in a facility. Failure to take proper precautions and actions to protect human

health and the environment can result in penalties, danger to personnel, and construction delays.

Lead-Based Paint

Currently the EPA defines LBP as paint containing greater than 1.0 milligrams per square centimeter (mg/cm²) lead or in excess of, or equal to, 0.5 percent lead. Building materials identified as being painted with LBP should be segregated from the other building materials and recycled or disposed of in a municipal lined landfill.

Changes to SC DHEC and federal regulations have changed the disposal options for LBP waste and LBP residue. LBP waste is defined as material such as wood, brick, metal, etc. that is coated with LBP. LBP residue is defined as residue that is generated from the removal (scraped, chipped, sandblasted, chemical means, etc.) of LBP from a structure. The regulations allow LBP waste from residential and commercial structures to be disposed of in Class 2 (construction and demolition debris) and Class 3 (municipal solid waste or industrial) landfills in South Carolina. The management of LBP residue is based on the source and lead concentration characterized by Toxic Characteristic Leaching Procedures (TCLP) to determine if the waste is classified as hazardous or non-hazardous. LBP residues that have TCLP sample results less than 5 milligrams per liter (mg/L) lead may be disposed of in a Class 3 landfill and is considered to be non-hazardous. LBP residues that have TCLP sample results equal to or greater than 5 mg/L lead should be disposed of in a Subtitle C landfill and is considered to be hazardous. However, the landfills should be contacted to determine their specific disposal requirements.

Occupational Safety and Health Administration Lead Regulations apply to actions initiated on lead containing materials. This regulation applies to lead concentrations greater than the analytical limit of detection. This regulation sets exposure levels on airborne lead and does not reference the percent lead in paint. Therefore, initial personal air monitoring should be conducted on workers performing work on surfaces which have a lead concentration of 0.1 mg/cm² or above to satisfy the OSHA requirements. If a baseline exposure lower than the OSHA Action Level of 30 micrograms per cubic meter (µg/m³) is established, personal air monitoring may be terminated. The full OSHA lead standard should be referenced for compliance.

A copy of this report must be submitted to SCDHEC at least ten (10) working days prior to demolition when applying for a demolition permit.

SECTION II

Asbestos & LBP Data Tables

**ASBESTOS SURVEY FIELD DATA SHEET
PLM & TEM ANALYSIS**

Project Name: COS 158 Bomar Avenue ACM/LBP

Sampled By: Tom Oliver

Project Location: 158 Bomar Avenue, Spartanburg, South Carolina 29306

Project Manager: Tom Oliver

Project Number: 0519-118

Date: 7/4/2019

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
1	Roof	Roof shingles (2 layers) & felt (1 layer)	PLM - NAD	Non-Friable	Good	1,500 SF
2						
3			TEM - NAD			
4	3 Chimneys	Chimney tar	5% chrysotile	Non-Friable	Good	18 LF
5						
6						
7	Wooden windows	Window glazing	PLM - NAD	Non-Friable	Good	11 EA
8						
9			TEM - NAD			
10	Exterior siding under metal & back mud room	Pressboard siding with shingle layer	PLM - NAD	Non-Friable	Good	1,500 SF
11						
12			TEM - NAD			
13	Front porch	Adhesive under green carpet	PLM - NAD	Non-Friable	Good	100 SF
14						
15			TEM - NAD			
16	Living room	Swirl pattern ceiling texture	PLM - NAD	Friable	Good	195 SF
17						
18						
19	Throughout walls & ceilings	Drywall with joint compound & tape	3% chrysotile	Friable	Good	2,850 SF
20						
21						
22						
23						

**ASBESTOS SURVEY FIELD DATA SHEET
PLM & TEM ANALYSIS**

Project Name: COS 158 Bomar Avenue ACM/LBP

Sampled By: Tom Oliver

Project Location: 158 Bomar Avenue, Spartanburg, South Carolina 29306

Project Manager: Tom Oliver

Project Number: 0519-118

Date: 7/4/2019

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
24	Kitchen	Tan square pattern vinyl floor with no mastic	PLM - NAD	Non-Friable	Good	125 SF
25			TEM - NAD			
26						
27	Bathroom	Tan square & blue flower pattern vinyl floor & mastic	PLM - NAD	Non-Friable	Good	45 SF
28			TEM - NAD			
29						
30	Bathroom under wood	White floor tiles & mastic under wooden floor	PLM - NAD	Non-Friable	Good	45 SF
31			TEM - NAD			
32						

NAD = No Asbestos Detected

LF = Linear Feet

EA = Each

Amos = Amosite

Bold = Positive For Asbestos

SF = Square Feet

Chry = Chrysotile

FT3 = Cubic Feet

FIELD DATA SHEET XRF LBP ANALYSIS

Project Name: COS 158 Bomar Avenue ACM/LBP

Sampled By: Tom Oliver

Project Location: 158 Bomar Avenue Spartanburg, SC 29306

Project Manager: Tom Oliver

Project Number: 0519-118

Date: 7/4/2019

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m ³)
1	Calibration				1.16
2	Calibration				1.09
3	Calibration				1.05
4	Exterior front porch	Ceiling	White	Wood	1.25
5	Exterior front porch	Column	Black	Metal	0.18
6	Exterior front porch	Window	White	Wood	2.21
7	Exterior front porch	Window frame	White	Wood	1.26
8	Exterior front porch	Door frame	White	Wood	0.01
9	Exterior front porch	Door	Gray	Wood	0.00
10	Exterior front porch	Awning	White	Metal	0.00
11	Exterior	Foundation	Blue	Brick	0.03
12	Exterior	Chimney	Blue	Brick	0.02
13	Exterior	Siding	Brown	Wood	2.25
14	Exterior	Siding	White	Metal	0.00
15	Exterior front porch	Floor	Blue	Concrete	0.02
16	Exterior	Roof overhang	White	Wood	1.50
17	Interior	Fireplace mantle	White	Wood	0.11
18	Interior	Fireplace	White	Brick	0.00
19	Interior	Crown molding	White	Wood	0.04
20	Interior	Window	White	Wood	0.11
21	Interior	Window frame	White	Wood	0.04
22	Interior	Wall	Blue	Drywall	0.00
23	Interior	Window	Gold	Wood	0.07
24	Interior	Base board	Gold	Wood	0.06
25	Interior	Wall	Pink	Drywall	0.10

FIELD DATA SHEET XRF LBP ANALYSIS

Project Name: COS 158 Bomar Avenue ACM/LBP

Sampled By: Tom Oliver

Project Location: 158 Bomar Avenue Spartanburg, SC 29306

Project Manager: Tom Oliver

Project Number: 0519-118

Date: 7/4/2019

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m ³)
26	Interior	Cabinet	White	Wood	0.00
27	Interior	Door	Gold	Wood	0.14
28	Interior	Wall	White	Drywall	0.06
29	Interior	Door frame	White	Wood	0.18
30	Interior	Door	White	Wood	1.39
31	Interior	Ceiling	White	Wood	0.00
32	Calibration				1.09
33	Calibration				1.09
34	Calibration				1.17

Bold = LBP

FFM = Factory Finish Metal

FFM = Factory Finish Vinyl

SECTION III

Laboratory Analytical Results & Chain of Custody



EMSL Analytical, Inc.

10801 Southern Loop Blvd Pineville, NC 28134

Tel/Fax: (704) 525-2205 / (704) 525-2382

<http://www.EMSL.com> / charlottelab@emsl.com

EMSL Order: 411906853

Customer ID: AXEM25

Customer PO:

Project ID:

Attention: Tom Oliver
Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

Phone: (864) 640-5274

Fax:

Received Date: 07/09/2019 9:20 AM

Analysis Date: 07/12/2019 - 07/13/2019

Collected Date: 07/04/2019

Project: 0519-118 COS158 Bomer Ave

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1-Shingle 1 <small>411906853-0001</small>	Roof Shingles & Felt (2 Shingles & 1 Felt)	Black Fibrous Heterogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
1-Shingle 2 <small>411906853-0001A</small>	Roof Shingles & Felt (2 Shingles & 1 Felt)	Gray/Black Fibrous Heterogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
1-Felt <small>411906853-0001B</small>	Roof Shingles & Felt (2 Shingles & 1 Felt)	Black Fibrous Heterogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
2-Shingle 1 <small>411906853-0002</small>	Roof Shingles & Felt (2 Shingles & 1 Felt)	Black Fibrous Heterogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
2-Shingle 2 <small>411906853-0002A</small>	Roof Shingles & Felt (2 Shingles & 1 Felt)	Gray/Black Fibrous Heterogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
2-Felt <small>411906853-0002B</small>	Roof Shingles & Felt (2 Shingles & 1 Felt)	Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
4 <small>411906853-0003</small>	Chimney Tar	Gray/Black Fibrous Heterogeneous		95% Non-fibrous (Other)	5% Chrysotile
5 <small>411906853-0004</small>	Chimney Tar				Positive Stop (Not Analyzed)
7 <small>411906853-0005</small>	Window Glazing	White/Beige Non-Fibrous Heterogeneous		20% Ca Carbonate 80% Non-fibrous (Other)	None Detected
8 <small>411906853-0006</small>	Window Glazing	Gray/White/Beige Non-Fibrous Homogeneous	<1% Cellulose	10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
10 <small>411906853-0007</small>	Pressboard Siding w/ Shingles	Black/Green Fibrous Heterogeneous	45% Cellulose	55% Non-fibrous (Other)	None Detected
11 <small>411906853-0008</small>	Pressboard Siding w/ Shingles	Tan/Black/Green Fibrous Heterogeneous	55% Cellulose	45% Non-fibrous (Other)	None Detected
13 <small>411906853-0009</small>	Adhesive Under Green Carpet	Gray/Tan Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected
14 <small>411906853-0010</small>	Adhesive Under Green Carpet	Gray/Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
16 <small>411906853-0011</small>	Swirl Pattern Ceiling Texture	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
17 <small>411906853-0012</small>	Swirl Pattern Ceiling Texture	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected

Initial report from: 07/15/2019 09:07:14



EMSL Analytical, Inc.

10801 Southern Loop Blvd Pineville, NC 28134

Tel/Fax: (704) 525-2205 / (704) 525-2382

<http://www.EMSL.com> / charlottelab@emsl.com

EMSL Order: 411906853
Customer ID: AXEM25
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
18 411906853-0013	Swirl Pattern Ceiling Texture	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
19-Drywall 411906853-0014	Drywall w/ JC & Tape	Brown/Gray Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
19-Joint Compound 411906853-0014A	Drywall w/ JC & Tape	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
19-Tape 411906853-0014B	Drywall w/ JC & Tape	Beige Fibrous Homogeneous	100% Cellulose		None Detected
20-Drywall 411906853-0015	Drywall w/ JC & Tape	Brown/Gray Fibrous Heterogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
20-Joint Compound 411906853-0015A	Drywall w/ JC & Tape	Beige Non-Fibrous Homogeneous		30% Ca Carbonate 67% Non-fibrous (Other)	3% Chrysotile
20-Tape 411906853-0015B	Drywall w/ JC & Tape	Beige Fibrous Homogeneous	100% Cellulose		None Detected
21-Drywall 411906853-0016	Drywall w/ JC & Tape	Brown/Gray Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
21-Joint Compound 411906853-0016A	Drywall w/ JC & Tape				Positive Stop (Not Analyzed)
21-Tape 411906853-0016B	Drywall w/ JC & Tape	Beige Fibrous Homogeneous	100% Cellulose		None Detected
22-Drywall 411906853-0017	Drywall w/ JC & Tape	Brown/Gray Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
22-Joint Compound 411906853-0017A	Drywall w/ JC & Tape				Positive Stop (Not Analyzed)
22-Tape 411906853-0017B	Drywall w/ JC & Tape	Beige Fibrous Homogeneous	100% Cellulose		None Detected
23-Drywall 411906853-0018	Drywall w/ JC & Tape	Brown/Gray Fibrous Heterogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
23-Joint Compound 411906853-0018A	Drywall w/ JC & Tape				Positive Stop (Not Analyzed)
23-Tape 411906853-0018B	Drywall w/ JC & Tape	Beige Fibrous Homogeneous	100% Cellulose		None Detected
24 411906853-0019	Tan Square Pattern VF no Mastic	Tan Fibrous Heterogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
25 411906853-0020	Tan Square Pattern VF no Mastic	Gray/Tan Fibrous Heterogeneous	20% Cellulose 1% Glass	79% Non-fibrous (Other)	None Detected
27-Flooring 411906853-0021	Tan Square Blue Flower Pattern VF & Mastic	Tan Fibrous Heterogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected

Initial report from: 07/15/2019 09:07:14



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EMSL Order: 411906853
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Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
27-Mastic <i>411906853-0021A</i>	Tan Square Blue Flower Pattern VF & Mastic	Yellow Non-Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
28-Flooring <i>411906853-0022</i>	Tan Square Blue Flower Pattern VF & Mastic	Tan/Beige Fibrous Heterogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
28-Mastic <i>411906853-0022A</i>	Tan Square Blue Flower Pattern VF & Mastic	Beige Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
30-Floor Tile <i>411906853-0023</i>	White Floor Tile w/ Mastic Under Wood	Beige Non-Fibrous Heterogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
30-Mastic <i>411906853-0023A</i>	White Floor Tile w/ Mastic Under Wood	Brown Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
31-Floor Tile <i>411906853-0024</i>	White Floor Tile w/ Mastic Under Wood	Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
31-Mastic <i>411906853-0024A</i>	White Floor Tile w/ Mastic Under Wood	Brown/Beige Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected

Analyst(s) _____

James Cole (20)
Nicole Shutts (18)

Lee Plumley, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method"), but augmented with procedures outlined in the 1993 ("final") version of the method. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. All samples received in acceptable condition unless otherwise noted. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Kernersville, NC NVLAP Lab Code 102104-0, CA ELAP 2689, Virginia 3333-000228, West Virginia LT000321

Initial report from: 07/15/2019 09:07:14



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EMSL Order: 411906853

Customer ID: AXEM25

Customer PO:

Project ID:

Attention: Tom Oliver
Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

Phone: (864) 640-5274

Fax:

Received Date: 07/09/2019 9:20 AM

Analysis Date: 07/16/2019 - 07/17/2019

Collected Date: 07/04/2019

Project: 0519-118 COS158 Bomer Ave

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
3-Shingle 1 411906853-0025	Roof Shingles & Felt (2 Shingles & 1 Felt)	Gray/Black Fibrous Heterogeneous	100.0 Other	None	No Asbestos Detected
3-Shingle 2 411906853-0026	Roof Shingles & Felt (2 Shingles & 1 Felt)	Black Fibrous Heterogeneous	100.0 Other	None	No Asbestos Detected
3-Felt 411906853-0027	Roof Shingles & Felt (2 Shingles & 1 Felt)	Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
9 411906853-0028	Window Glazing	Gray/Beige Non-Fibrous Heterogeneous	100.0 Other	None	No Asbestos Detected
12 411906853-0029	Pressboard Siding w/ Shingles	Brown/Black/Green Fibrous Heterogeneous	100.0 Other	None	No Asbestos Detected
15 411906853-0030	Adhesive Under Green Carpet	Gray/Tan Non-Fibrous Heterogeneous	100.0 Other	None	No Asbestos Detected
26 411906853-0031	Tan Square Pattern VF no Mastic	Brown/Tan/Beige Fibrous Heterogeneous	100.0 Other	None	No Asbestos Detected
29-Flooring 411906853-0032	Tan Square Blue Flower Pattern VF & Mastic	Brown/Beige Fibrous Heterogeneous	100.0 Other	None	No Asbestos Detected
29-Mastic 411906853-0033	Tan Square Blue Flower Pattern VF & Mastic	Tan Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
32-Floor Tile 411906853-0034	White Floor Tile w/ Mastic Under Wood	Gray/Beige Non-Fibrous Homogeneous	99.03 Other	0.97 Fibrous_Other	No Asbestos Detected
32-Mastic 411906853-0035	White Floor Tile w/ Mastic Under Wood	Black Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected

This laboratory is not responsible for % asbestos in total sample when the residue only is submitted for analysis. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Kernersville, NC

Initial report from: 07/17/2019 14:16:01



EMSL Analytical, Inc.

10801 Southern Loop Blvd Pineville, NC 28134

Tel/Fax: (704) 525-2205 / (704) 525-2382

<http://www.EMSL.com> / charlottelab@emsl.com

EMSL Order: 411906853 Customer ID: AXEM25 Customer PO: Project ID:

Attention: Tom Oliver Apex Environmental Management 7 Winchester Court Mauldin, SC 29662 Project: 0519-118 COS158 Bomer Ave	Phone: (864) 640-5274 Fax: Received Date: 07/09/2019 9:20 AM Analysis Date: 07/16/2019 - 07/17/2019 Collected Date: 07/04/2019
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Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
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Analyst(s)

Scott Combs (3)
Stephen Bennett (8)



Lee Plumley, Laboratory Manager
or other approved signatory

This laboratory is not responsible for % asbestos in total sample when the residue only is submitted for analysis. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Kernersville, NC

Initial report from: 07/17/2019 14:16:01



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

411906853

Pineville, NC 28134
PHONE: (704) 525-2205
FAX: (704) 525-2382

Company: Apex Environmental Management, Inc.		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments**	
Street: 7 Winchester Court		Third Party Billing requires written authorization from third party	
City: Mauldin	State/Province: SC	Zip/Postal Code: 29662	Country: US
Report To (Name): Tom Oliver		Telephone #: 864-404-3210	
Email Address: tolover@apex-ehs.com		Fax #: 864-404-3213	Purchase Order:
Project Name/Number: 0519-118 COS 558 High Street		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email <input type="checkbox"/> Mail	
U.S. State Samples Taken: SC		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	

Turnaround Time (TAT) Options* - Please Check

3 Hour 6 Hour 24 Hour 48 Hour 72 Hour 96 Hour 1 Week 2 Week

*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

PLM - Bulk (reporting limit)		TEM - Bulk	
<input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) 96 Hour TAT	<input checked="" type="checkbox"/> TEM EPA NOB - EPA 600/R-93/116 Section 2.5.5.1 1 week TAT	<input type="checkbox"/> NY ELAP Method 198.4 (TEM)	
<input type="checkbox"/> PLM EPA NOB (<1%)	<input type="checkbox"/> Chatfield Protocol (semi-quantitative)	<input type="checkbox"/> TEM % by Mass - EPA 600/R-93/116 Section 2.5.5.2	
Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)	<input type="checkbox"/> TEM Qualitative via Filtration Prep Technique	<input type="checkbox"/> TEM Qualitative via Drop Mount Prep Technique	
Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)	Other		
<input type="checkbox"/> NIOSH 9002 (<1%)	<input type="checkbox"/>		
<input type="checkbox"/> NY ELAP Method 198.1 (friable in NY)			
<input type="checkbox"/> NY ELAP Method 198.6 NOB (non-friable-NY)			
<input type="checkbox"/> OSHA ID-191 Modified			
<input type="checkbox"/> Standard Addition Method			

Check For Positive Stop - Clearly Identify Homogenous Group Date Sampled: 7-4-19

Samplers Name: Tom Oliver Samplers Signature: *[Signature]*

Sample #	HA #	Sample Location	Material Description
1		Roof shingles + felt	PLM
2		(2 shingles + 1 felt)	↓
3		↓	TEM
4		Chimney tar	PLM
5		↓	↓
6		↓	TEM
7		Window glazing	PLM
8		↓	PLM
9		↓	TEM

Client Sample # (s): 1-32 Total # of Samples: 32

Relinquished (Client): *[Signature]* Date: 7-5-19 Time: 5:30

Received (Lab): *[Signature]* Date: 7/9/19 Time: 9:20 AM Fk

Comments/Special Instructions: Positive stop on all analysis. Please bill according to special pricing for City of Spartanburg. Ask Jason McDonald for details. 7957 4064 3880



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

**Asbestos Bulk Building Material
Chain of Custody**

EMSL Order Number (Lab Use Only):

411906853

Pineville, NC 28134
PHONE: (704) 525-2205
FAX: (704) 525-2382

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
10		pressboard siding	PLM
11		↓ w/ shingles	↓
12		↓	TEM
13		adhesive under	PLM
14		green carpet	↓
15		↓	TEM
16		swirl pattern	PLM
17		ceiling texture	↓
18		↓	↓
19		dry wall w/ joint tape	PLM
20		↓	↓
21		↓	↓
22		↓	↓
23		↓	↓
24		tan square pattern	PLM
25		↓ v.f. no mastic	↓
26		↓	TEM
27		tan square blue flower	PLM
28		pattern v.f. + mastic	↓
29		↓	TEM
30		white floor tile	PLM
31		w/ mastic under wood	↓
32		↓	TEM

***Comments/Special Instructions:**

Positive stop on all analysis. Please bill according to special pricing for City of Spartanburg. Ask Jason McDonald for details.

SECTION IV
Photographic Log



Photo 1 – 158 Bomar Avenue in Spartanburg, South Carolina



Photo 2 – Roof shingles & felt



Photo 3 – Chimney with tar



Photo 4 – Wooden window glazing



Photo 5 – Pressboard siding with shingle layer under metal



Photo 6 – Adhesive under green carpet on front porch



Photo 7 – Swirl pattern ceiling texture in the living room



Photo 8 – Drywall with joint compound & tape under wooden wall panels



Photo 9 – Drywall with joint compound & tape



Photo 10 – Drywall with joint compound & tape under 12" x 12" wooden ceiling tiles



Photo 11 – Tan square pattern vinyl floor with no mastic in the kitchen



Photo 12 – Tan square & blue flower pattern vinyl floor & mastic in the bathroom



Photo 13 – White floor tiles & mastic in the bathroom under wooden flooring

SECTION V

SC DHEC Asbestos Inspector License

SCDHEC ISSUED

Asbestos ID Card

Thomas H Oliver



CONSULTBI BI-00680
AIRSAMPLER AS-00202

Expiration Date:

01/18/20

05/08/20

This card is nontransferable and shall be invalid if loaned or given to another person for identification. This card will also be invalid if altered or defaced. This card is property of SCDHEC. It must be returned to the department if the holder's accreditation is revoked or if this card is invalidated. Any person performing regulated asbestos activities without current accreditation shall be subject to legal sanction. This card must be returned upon expiration and/or issuance of a new card.

YOU MUST HAVE THIS IDENTIFICATION CARD WITH YOU ON THE JOB.

For information of corrections contact: SCDHEC – Asbestos Section
2600 Bull Street
Columbia, SC 29201
(803) 898-4289