



Asbestos & Lead Based Paint Assessment

City of Spartanburg
130 Duncan Street
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

June 24, 2019





Apex Project Number 0519-118

June 24, 2019

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

Reference: Asbestos and Lead-Based Paint Assessment Services
130 Duncan Street
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

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ASBESTOS AND LEAD BASED PAINT ASSESSMENT

**CITY OF SPARTANBURG
130 DUNCAN STREET
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:	6/24/2019	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:	130 Duncan Street Spartanburg, SC 29306		
Assessor:	Tom Oliver	Date of Assessment:	5/31/2019
Company:	Apex Environmental Management 7 Winchester Court Mauldin, SC 29662	Phone Number:	(864) 404-3210
Purpose of Assessment:	Demolition	Age of Structure:	Approximately 50 years
Building Type:	Residential	Number of Stories:	1
Foundation:	Slab-On Grade	Approximate Square Footage:	675 SF

EXTERIOR BUILDING MATERIALS

- Flat wooden framed roof with roll shingles, tar & felt.
- Tar on 2 chimneys & 4 vents – sampled.
- CMU block walls with no filler materials or water proofing.
- Wooden windows with glazing.
- No caulk on CMU block window & door casings.
- Debris pile of built-up roofing & roll roof shingles of the right of the front of the house
- A large portion of the house roof is missing.
- The remaining portion of the roof is damaged and appears to be unstable.

INTERIOR BUILDING MATERIALS

- Plaster walls with finish throughout with unfinished drywall & an unfinished hard white wall panel located beneath.
- 12" x 12" wooden ceiling tiles with no mastic on a grid system.
- Wooden pattern vinyl floor & mastic in the kitchen landing, bathroom, right big room under carpet & front door entry
- 9" x 9" tan floor tile & mastic in the kitchen landing.
- 9" x 9" black floor tile & mastic in the big left room under carpet.
- Large amounts of leaf litter on the floors & the roof/ceiling is either missing or collapsing.

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. Forty-two (42) 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. It should be noted that materials were identified to contain less than 1% asbestos and OSHA Construction Industry Asbestos Standards (29 CFR 1926.1101) will apply if those materials are disturbed during demolition activities.

The roof of the residence is either missing or is collapsed and the framing above the ceiling is exposed throughout. Portions of the roof/ceiling appear to be unstable. No roofing materials were observed within the residence. A large amount of leaf litter was observed throughout the floors of the residence. A full assessment and sampling was performed throughout the residence, however safety concerns may exist due to unstable roofing while performing abatement activities on the roof and inside the residence. Apex recommends that the building be demolished in place and materials be treated and disposed of as friable ACM.

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 400 SF of roll roof shingles (1 layer) with felt (1 layer) & tar on the house roof.
- Approximately 20 SF of tar on 2 chimneys and 4 roof vents.
- Approximately 10 SF of 9" x 9" tan floor tile (floor tile only) in the kitchen landing.
- Approximately 240 SF of 9" x 9" black floor tile (floor tile only) under carpet in the big left room.

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, 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 windows and window frames.
- Red wooden doors.

Interior:

- White wooden door frames.
- White porcelain toilet.

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. Demolish the residence with ACM in place and dispose of the waste stream as friable Regulated Asbestos Containing Materials (RACM) and delivered to an asbestos approved hazardous waste landfill for disposal.
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.

Please note that this document is not a specification for asbestos removal. It does not contain means and methods for asbestos abatement. If you are planning an asbestos 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. Quantities provided in this report are estimated. Contractors must verify material amounts prior to bidding or removal.

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

Lead-Based Paint

Currently 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 ($\mu\text{g}/\text{m}^3$) 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 130 Duncan Street ACM/LBP

Sampled By: Tom Oliver

Project Location: 130 Duncan Street, Spartanburg, SC 29306

Project Manager: Tom Oliver

Project Number: 0519-118

Date: 5/31/2019

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
1	Roof	Roll roof shingles (1 layer) with felt (1 layer) & tar	PLM - 2% chrysotile (tar); NAD (shingles & felt)	Friable	Significantly Damaged	400 SF
2						
3				TEM - NAD (shingles & felt)		
4	Wooden windows	Window glazing	PLM - NAD	Non-Friable	Good	12 EA
5			TEM - NAD			
6						
7	Debris pile on right side of building	Built-up roofing with roll shingles	PLM - NAD	Friable	Significantly Damaged	100 SF
8			TEM - NAD			
9						
10	2 chimneys & 4 vents	Tar on chimneys & vents	PLM - 6% chrysotile	Non-Friable	Good	20 SF
11						
12						
13	Throughout walls	Plaster with finish	PLM - NAD	Friable	Significantly Damaged	1,100 SF
14						
15						
16						
17						
18	Throughout walls	Unfinished drywall under plaster	PLM - NAD	Friable	Significantly Damaged	1,100 SF
19						
20						
21	Throughout walls	Unfinished hard white wall panels under plaster	PLM - NAD	Friable	Significantly Damaged	1,100 SF
22						
23						
24	Kitchen landing	9" x 9" tan floor tile & black mastic	PLM - 6% chrysotile (floor tile); NAD (mastic)	Non-Friable	Good	10 SF
25						
26			TEM - 0.80% chrysotile			

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

Project Name: COS 130 Duncan Street ACM/LBP

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Project Manager: Tom Oliver

Project Number: 0519-118

Date: 5/31/2019

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
27	Left big room under carpet	9" x 9" black floor tile & black mastic	PLM - 8% chrysotile (floor tile); NAD (mastic)	Non-Friable	Good	240 SF
28			TEM - 0.43% chrysotile			
29						
30	Kitchen landing, bathroom, right big room under carpet & front door entry	Wooden plank pattern vinyl floor & mastic	PLM - NAD	Non-Friable	Good	450 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 130 Duncan Street ACM/LBP

Sampled By: Tom Oliver

Project Location: 130 Duncan Street, Spartanburg, SC 29306

Project Manager: Tom Oliver

Project Number: 0519-118

Date: 5/31/2019

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m ³)
1	Standardization				184.00
2	Calibration				1.25
3	Calibration				1.16
4	Calibration				1.12
5	Exterior	Wall	Gray	CMU Block	0.00
6	Exterior	Window	Off-White	Wood	0.90
7	Exterior	Window frame	Off-White	Wood	0.77
8	Exterior	Fascia	White	Wood	0.95
9	Exterior	Soffit	White	Wood	0.78
10	Exterior	Window	White	Wood	1.27
11	Exterior	Window frame	White	Wood	1.15
12	Exterior	Door	Red	Wood	4.98
13	Exterior	Door frame	White	Wood	0.57
14	Interior	Cabinets	White	Wood	0.00
15	Interior	Window	White	Wood	0.00
16	Interior	Window frame	White	Wood	0.00
17	Interior	Door frame	White	Wood	0.00
18	Interior	Door	White	Wood	0.41
19	Interior	Wall	Beige	Plaster	0.00
20	Interior	Window	Off-White	Wood	0.03
21	Interior	Wall	White	CMU Block	0.00
22	Interior	Chimney	White	Brick	0.00
23	Interior	Crown molding	White	Wood	0.00
24	Interior	Base board	White	Wood	0.00
25	Interior	Door	White	Wood	0.20

**FIELD DATA SHEET
XRF LBP ANALYSIS**

Project Name: COS 130 Duncan Street ACM/LBP

Sampled By: Tom Oliver

Project Location: 130 Duncan Street, Spartanburg, SC 29306

Project Manager: Tom Oliver

Project Number: 0519-118

Date: 5/31/2019

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m ³)
26	Interior	Door frame	White	Wood	1.38
27	Interior	Toilet	White	Porcelain	1.00
28	Interior	Wall	White	Plaster	0.06
29		Calibration			1.08
30		Calibration			1.21
31		Calibration			1.09

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: 411905479

Customer ID: AXEM25

Customer PO:

Project ID: City of Spartanburg

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

Phone: (864) 640-5274

Fax:

Received Date: 06/05/2019 9:05 AM

Analysis Date: 06/10/2019

Collected Date: 05/31/2019

Project: 0119-09 COS 130 Duncan Street (City of Spartanburg)

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-Tar 411905479-0001	Roll Roof Shingles (1 Layer) w/ Tar & Felt (1 Layer)	Black Non-Fibrous Homogeneous		5% Ca Carbonate 93% Non-fibrous (Other)	2% Chrysotile
1-Shingle 411905479-0001A	Roll Roof Shingles (1 Layer) w/ Tar & Felt (1 Layer)	Black Fibrous Homogeneous	5% Glass	5% Quartz 20% Ca Carbonate 70% Non-fibrous (Other)	None Detected
1-Felt 411905479-0001B	Roll Roof Shingles (1 Layer) w/ Tar & Felt (1 Layer)	Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
2-Tar 411905479-0002	Roll Roof Shingles (1 Layer) w/ Tar & Felt (1 Layer)				Positive Stop (Not Analyzed)
2-Shingle 411905479-0002A	Roll Roof Shingles (1 Layer) w/ Tar & Felt (1 Layer)	Black Fibrous Heterogeneous	5% Glass	15% Quartz 15% Ca Carbonate 65% Non-fibrous (Other)	None Detected
2-Felt 411905479-0002B	Roll Roof Shingles (1 Layer) w/ Tar & Felt (1 Layer)	Black Non-Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
4 411905479-0003	Window Glazing	White Non-Fibrous Homogeneous		25% Ca Carbonate 75% Non-fibrous (Other)	None Detected
5 411905479-0004	Window Glazing	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
7-Shingle 411905479-0005	Built Up Roofing w/ Roll Roof Shingles	Gray/Black Fibrous Homogeneous	15% Cellulose	10% Quartz 10% Ca Carbonate 65% Non-fibrous (Other)	None Detected
7-Tar 411905479-0005A	Built Up Roofing w/ Roll Roof Shingles	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-Glass Layer 411905479-0005B	Built Up Roofing w/ Roll Roof Shingles	Black Fibrous Homogeneous	10% Glass	90% Non-fibrous (Other)	None Detected
7-Cellulose Layer 411905479-0005C	Built Up Roofing w/ Roll Roof Shingles	Black Fibrous Homogeneous	40% Cellulose	60% Non-fibrous (Other)	None Detected
8-Shingle 411905479-0006	Built Up Roofing w/ Roll Roof Shingles	Gray/Black Fibrous Heterogeneous	5% Glass	15% Quartz 15% Ca Carbonate 65% Non-fibrous (Other)	None Detected
8-Tar 411905479-0006A	Built Up Roofing w/ Roll Roof Shingles	Black Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
8-Glass Layer 411905479-0006B	Built Up Roofing w/ Roll Roof Shingles	Black Non-Fibrous Homogeneous	10% Glass	90% Non-fibrous (Other)	None Detected
8-Cellulose Layer 411905479-0006C	Built Up Roofing w/ Roll Roof Shingles	Black Non-Fibrous Homogeneous	45% Cellulose	55% Non-fibrous (Other)	None Detected

Initial report from: 06/11/2019 08:06:17



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: 411905479
Customer ID: AXEM25
Customer PO:
Project ID: City of Spartanburg

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
10 <small>411905479-0007</small>	Tar on Chimneys & Vents	Black Non-Fibrous Homogeneous		15% Ca Carbonate 79% Non-fibrous (Other)	6% Chrysotile
11 <small>411905479-0008</small>	Tar on Chimneys & Vents				Positive Stop (Not Analyzed)
13-Skim Coat <small>411905479-0009</small>	Plaster w/ Finish	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
13-Rough Coat <small>411905479-0009A</small>	Plaster w/ Finish	Gray Non-Fibrous Homogeneous	1% Cellulose	25% Quartz 5% Ca Carbonate 69% Non-fibrous (Other)	None Detected
14-Skim Coat <small>411905479-0010</small>	Plaster w/ Finish	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
14-Rough Coat <small>411905479-0010A</small>	Plaster w/ Finish	Gray Non-Fibrous Homogeneous		25% Quartz 5% Ca Carbonate 70% Non-fibrous (Other)	None Detected
15-Skim Coat <small>411905479-0011</small>	Plaster w/ Finish	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
15-Rough Coat <small>411905479-0011A</small>	Plaster w/ Finish	Gray Non-Fibrous Homogeneous	1% Cellulose	25% Quartz 5% Ca Carbonate 69% Non-fibrous (Other)	None Detected
16-Skim Coat <small>411905479-0012</small>	Plaster w/ Finish	White Non-Fibrous Homogeneous	1% Cellulose	35% Quartz 8% Ca Carbonate 56% Non-fibrous (Other)	None Detected
16-Rough Coat <small>411905479-0012A</small>	Plaster w/ Finish	Gray Non-Fibrous Homogeneous		30% Quartz 8% Ca Carbonate 62% Non-fibrous (Other)	None Detected
17-Skim Coat <small>411905479-0013</small>	Plaster w/ Finish	White Non-Fibrous Homogeneous		8% Ca Carbonate 92% Non-fibrous (Other)	None Detected
17-Rough Coat <small>411905479-0013A</small>	Plaster w/ Finish	Gray Non-Fibrous Homogeneous		30% Quartz 8% Ca Carbonate 62% Non-fibrous (Other)	None Detected
18 <small>411905479-0014</small>	Unfinished Drywall under Plaster	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
19 <small>411905479-0015</small>	Unfinished Drywall under Plaster	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
20 <small>411905479-0016</small>	Unfinished Drywall under Plaster	Gray Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
21 <small>411905479-0017</small>	Hard White Wall Paneling under Plaster	White Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
22 <small>411905479-0018</small>	Hard White Wall Paneling under Plaster	White Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
23 <small>411905479-0019</small>	Hard White Wall Paneling under Plaster	White Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
24-Floor Tile <small>411905479-0020</small>	9"x9" Tan Floor Tile & Black Mastic	Tan Non-Fibrous Homogeneous		30% Ca Carbonate 64% Non-fibrous (Other)	6% Chrysotile

Initial report from: 06/11/2019 08:06:17



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EMSL Order: 411905479
Customer ID: AXEM25
Customer PO:
Project ID: City of Spartanburg

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
24-Mastic <small>411905479-0020A</small>	9"x9" Tan Floor Tile & Black Mastic	Black Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
25-Floor Tile <small>411905479-0021</small>	9"x9" Tan Floor Tile & Black Mastic				Positive Stop (Not Analyzed)
25-Mastic <small>411905479-0021A</small>	9"x9" Tan Floor Tile & Black Mastic	Black Non-Fibrous Homogeneous	1% Cellulose	99% Non-fibrous (Other)	None Detected
27-Floor Tile <small>411905479-0022</small>	9"x9" Black Floor Tile & Black Mastic	Brown/Black Non-Fibrous Homogeneous		25% Ca Carbonate 67% Non-fibrous (Other)	8% Chrysotile
27-Mastic <small>411905479-0022A</small>	9"x9" Black Floor Tile & Black Mastic	Black Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
28-Floor Tile <small>411905479-0023</small>	9"x9" Black Floor Tile & Black Mastic				Positive Stop (Not Analyzed)
28-Mastic <small>411905479-0023A</small>	9"x9" Black Floor Tile & Black Mastic	Black Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
30-Flooring <small>411905479-0024</small>	Wooden Plank Pattern Vinyl Floor w/ Mastic	Brown/Tan Non-Fibrous Homogeneous	20% Cellulose	20% Ca Carbonate 60% Non-fibrous (Other)	None Detected
30-Mastic <small>411905479-0024A</small>	Wooden Plank Pattern Vinyl Floor w/ Mastic	Tan/Black Non-Fibrous Homogeneous	1% Cellulose	5% Ca Carbonate 94% Non-fibrous (Other)	None Detected
31-Flooring <small>411905479-0025</small>	Wooden Plank Pattern Vinyl Floor w/ Mastic	Gray/Tan Fibrous Heterogeneous	10% Cellulose 1% Glass	89% Non-fibrous (Other)	None Detected
31-Mastic <small>411905479-0025A</small>	Wooden Plank Pattern Vinyl Floor w/ Mastic	Tan/Black Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected

Analyst(s) _____

Eric Loomis (17)

Katherine Sluder (25)

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. Pineville, NC NVLAP Lab Code 200841-0, VA 3333 00312

Initial report from: 06/11/2019 08:06:17



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: 411905479

Customer ID: AXEM25

Customer PO:

Project ID: City of Spartanburg

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

Phone: (864) 640-5274

Fax:

Received Date: 06/05/2019 9:05 AM

Analysis Date: 06/15/2019

Collected Date: 05/31/2019

Project: 0119-09 COS 130 Duncan Street (City of Spartanburg)

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 411905479-0026	Roll Roof Shingles (1 Layer) w/ Tar & Felt (1 Layer)	Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
3-Felt 411905479-0027	Roll Roof Shingles (1 Layer) w/ Tar & Felt (1 Layer)	Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
6 411905479-0028	Window Glazing	White Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
9-Shingle 411905479-0029	Built Up Roofing w/ Roll Roof Shingles	Gray/Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
9-Tar 411905479-0030	Built Up Roofing w/ Roll Roof Shingles	Black Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
9-Glass Layer 411905479-0031	Built Up Roofing w/ Roll Roof Shingles	Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
9-Cellulose Layer 411905479-0032	Built Up Roofing w/ Roll Roof Shingles	Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
26-Mastic 411905479-0033	9"x9" Tan Floor Tile & Black Mastic	Black Non-Fibrous Homogeneous	100.0 Other	None	<0.80% Chrysotile
29-Mastic 411905479-0034	9"x9" Black Floor Tile & Black Mastic	Black Non-Fibrous Homogeneous	100.0 Other	None	<0.43% Chrysotile
32-Flooring 411905479-0035	Wooden Plank Pattern Vinyl Floor w/ Mastic	Brown Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
32-Mastic 411905479-0036	Wooden Plank Pattern Vinyl Floor w/ Mastic	Gray 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. Pineville, NC

Initial report from: 06/17/2019 08:41:46



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: 411905479
Customer ID: AXEM25
Customer PO:
Project ID: City of Spartanburg

Attention: Tom Oliver
Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662
Phone: (864) 640-5274
Fax:
Received Date: 06/05/2019 9:05 AM
Analysis Date: 06/15/2019
Collected Date: 05/31/2019
Project: 0119-09 COS 130 Duncan Street (City of Spartanburg)

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)

Aaron Hartley (11)

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. Pineville, NC

Initial report from: 06/17/2019 08:41:46



Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

411905479

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

EMSL ANALYTICAL, INC.
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Company : Apex Environmental Management, Inc.		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments**</small>	
Street: 7 Winchester Court		<i>Third Party Billing requires written authorization from third party</i>	
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: 0119-09 COS 307 College Street		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email <input type="checkbox"/> Mail	
U.S. State Samples Taken: SC 130 Duncan Street		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.

<p>PLM - Bulk (reporting limit)</p> <p><input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) 96 Hour TAT</p> <p><input type="checkbox"/> PLM EPA NOB (<1%)</p> <p>Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)</p> <p>Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)</p> <p><input type="checkbox"/> NIOSH 9002 (<1%)</p> <p><input type="checkbox"/> NY ELAP Method 198.1 (friable in NY)</p> <p><input type="checkbox"/> NY ELAP Method 198.6 NOB (non-friable-NY)</p> <p><input type="checkbox"/> OSHA ID-191 Modified</p> <p><input type="checkbox"/> Standard Addition Method</p>	<p>TEM - Bulk</p> <p><input checked="" type="checkbox"/> TEM EPA NOB - EPA 600/R-93/116 Section 2.5.5.1 1 Week TAT</p> <p><input type="checkbox"/> NY ELAP Method 198.4 (TEM)</p> <p><input type="checkbox"/> Chatfield Protocol (semi-quantitative)</p> <p><input type="checkbox"/> TEM % by Mass - EPA 600/R-93/116 Section 2.5.5.2</p> <p><input type="checkbox"/> TEM Qualitative via Filtration Prep Technique</p> <p><input type="checkbox"/> TEM Qualitative via Drop Mount Prep Technique</p> <p style="text-align: center;">Other</p> <p><input type="checkbox"/></p>
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Check For Positive Stop - Clearly Identify Homogenous Group Date Sampled: 5/31/2019

Samplers Name: Tom Oliver Samplers Signature:

Sample #	HA #	Sample Location	Material Description
1		Roll roof shingles (1 layer) w/	PLM
2		tar + felt (1 layer)	
3			TEM
4		Window glazing	PLM
5			
6			TEM
7		Built up roofing w/ roll roof	PLM
8		shingles	
9			TEM

Client Sample # (s): 1-32	Total # of Samples: 32
Relinquished (Client): Date: 6-4-19	Time: 12:30 PM
Received (Lab): Date: 6/5/19	Time: 9:05 AM Fx
Comments/Special Instructions: <small>Positive stop on all analysis. If joint compound is positive then positive stop on drywall and tape layers. Use City of Spartanburg Project special pricing. Ask Jason McDonald for details.</small>	

7957 2039 3565



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Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

411905479

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		Tar on chimneys + vents	PLM
11			
12		—	TEM
13		Plaster w/ finish	PLM
14			
15			
16			
17		—	—
18		Unfinished drywall under plaster	PLM
19			
20		—	—
21		Hard white wall paneling under plaster	PLM
22			
23		—	—
24		9" x 9" tan floor tile + black mastic	PLM
25			
26		—	TEM
27		9" x 9" black floor tile + black mastic	PLM
28			
29		—	TEM
30		Wooden plank pattern vinyl floor w/ mastic	PLM
31			
32		—	TEM
<p>*Comments/Special Instructions: Positive stop on all analysis. If joint compound is positive then positive stop on drywall and tape layers. Use City of Spartanburg Project special pricing. Ask Jason McDonald for details.</p>			

SECTION IV
Photographic Log



Photo 1 – 130 Duncan Street in Spartanburg, South Carolina



Photo 2 – Roll roof shingles with felt & tar on the house roof



Photo 3 – Tar on 2 chimney's & 4 vents & roll roof shingles with felt & tar on the house roof



Photo 4 – Tar on 2 chimney's & 4 vents & roll roof shingles with felt & tar on the house roof



Photo 5 – Wooden window glazing



Photo 6 – Roll roof shingles & built-up roofing debris pile on the ground to the right side of the front of the house



Photo 7 – Plaster & finish throughout on the walls



Photo 8 – Unfinished drywall beneath the plaster walls throughout



Photo 9 – Unfinished hard white wall beneath the plaster walls throughout



Photo 10 – 9" x 9" tan floor tile & black mastic in the kitchen landing



Photo 11 – 9" x 9" black floor tile & black mastic in the left big room under carpet



Photo 12 – Wooden plank pattern vinyl floor & mastic in the kitchen landing, bathroom, right big room under carpet & front door entry



Photo 13 – View of right room with the damaged ceiling & missing lining/roof



Photo 14 – View of right room with the damaged ceiling & missing lining/roof & large amount of leaf litter on floor



Photo 15 – View of the left room with the damaged & collapsed ceiling/roof & large amount of leaf litter on floor

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