



## **Asbestos & Lead Based Paint Assessment**

City of Spartanburg  
261 Arch Street  
Spartanburg, South Carolina

### ***Prepared for:***

The City of Spartanburg  
440 South Church Street, Suite B  
Spartanburg, South Carolina

### ***Prepared by:***

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

Project Number: 0815-163

February 8, 2017





Apex Project Number 0815-163

February 8, 2017

7 Winchester Court  
Mauldin, SC 29662  
864.404.3210 office  
864.404.3213 fax  
[www.apex-ehs.com](http://www.apex-ehs.com)

Mr. Martin Livingston  
City of Spartanburg  
440 South Church Street, Suite B  
Spartanburg, South Carolina 29306

Reference: Asbestos and Lead-Based Paint Assessment Services  
261 Arch Street  
Spartanburg, South Carolina

### SERVICES

- Indoor Air Quality
- Mold Remediation
- Asbestos & Lead
- Industrial Hygiene
- Worker Health & Safety
- Mold Consulting
- Moisture Management Plans
- Safety Assessment
- Environmental Site Assessments
- Hazard Communication

Dear Mr. Livingston:

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 'Ben Oliver'.

Ben Oliver  
Project Manager

A handwritten signature in blue ink, appearing to read 'Thomas H. Oliver'.

Thomas H. Oliver  
Director of Operations

Appendices

**ASBESTOS AND LEAD BASED PAINT ASSESSMENT**

**CITY OF SPARTANBURG  
261 ARCH STREET  
SPARTANBURG, SOUTH CAROLINA**

**APEX PROJECT NO. 0815-163**

**TABLE OF CONTENTS**

**SECTION**

- I Asbestos & Lead Evaluation Report
- II Asbestos & LBP Data Tables
- III Laboratory Analytical Results
- IV Photographic Log
- V SC DHEC Asbestos Inspector License

**SECTION I**

**Asbestos & Lead Evaluation Report**

<b>ASBESTOS/LEAD EVALUATION REPORT</b> <b>APEX PROJECT NUMBER: 0815-163</b>
--

Date:	2/8/2017	Page Number:	1 of 4
Client:	City of Spartanburg	Client Contact:	Mr. Martin Livingston
Client Address:	440 South Church St., Suite B Spartanburg, SC 29306	Client Phone Number:	(864) 596-2914
Project:	Asbestos and Lead Evaluation		
Property Address:	261 Arch Street Spartanburg, SC		
Assessor:	Tom Oliver	Date of Assessment:	1/17/2017
Company:	Apex Environmental Management 7 Winchester Court Mauldin, SC 29662	Phone Number:	(864) 404-3210
Purpose of Assessment:	Demolition	Age of Structure:	Approximately 65 years
Building Type:	Residential	Number of Stories:	1
Foundation:	CMU Block Crawlspace	Approximate Square Footage:	1,450 SF

**EXTERIOR BUILDING MATERIALS**

- Pitched wooden roof with shingles (2 layers) & tar and no felt.
- Wooden windows with and without glazing and no caulk.
- Vinyl siding over wooden composite shingle siding with felt backing over felt siding paper & wood.
- Exterior wooden door and metal door with no caulk
- Metal storm windows with no caulk.
- Exterior shed with wooden windows & glazing, wooden siding and roof shingles with no felt.
- One chimney with mastic assumed positive.

**INTERIOR BUILDING MATERIALS**

- Multiple types & layers of vinyl floor and floor tile with and without mastic.
- Finished and unfinished drywall throughout.
- Wooden floors with no felt throughout.
- Wooden composite ceiling tiles over wood with no mastic throughout.
- Wall panel mastic in bathroom under tile.

## 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 CEI Labs (CEI) as an NVLAP certified laboratory, their accreditation number is 101768-0.
- 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. Forty-four (44) bulk samples were collected during the survey and submitted to CEI in Cary, 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). CEI participates in the National Voluntary Laboratory Accreditation Program (NVLAP). Their NVLAP accreditation number is 101768-0. EPA regulations require that multiple samples of each homogeneous material be collected for laboratory analysis. In accordance with South Carolina 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). Twenty-five (25) 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 Containing Materials

The EPA defines an asbestos-containing material (ACM) as a material containing more than 1% asbestos. OSHA defines ACM as a material containing any amount of asbestos. The *Asbestos PLM & TEM Data Table* is provided in Appendix II.

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

- Approximately 1,475 SF of drywall system throughout the interior walls.
- Approximately 55 SF of wall panel mastic in the front right bathroom.
- Approximately 6 LF of chimney mastic on 1 chimney - assumed.

### 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, SCDHEC defines LBP as paint containing in excess of, or equal to,  $1.0 \text{ mg}/\text{cm}^3$ . The laboratory analytical results and chain-of-custody are included in the Lead Analysis Reports in Appendix A. The approximate locations of the paint samples collected and analytical results are presented in the Tables included with this report .

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

- Exterior light green wooden siding.
- Exterior yellow bead board ceilings.
- Interior white porcelain sink.

## **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 South Carolina Department of Health and Environmental Control (SCDHEC) define LBP as paint containing greater than 1.0 milligrams per square centimeter ( $\text{mg}/\text{cm}^2$ ) 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. The removed wastes would need to be containerized and further tested by Toxic Characteristic Leaching procedures (TCLP) to determine if the waste is classified as hazardous. The remaining building materials that are not painted with LBP may be disposed of in a construction and demolition landfill. 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  $0.1 \text{ mg}/\text{cm}^2$  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 RESULTS**

Project Name: COS 261 Arch Street. ACM/LBP

Sampled By: Tom Oliver

Project Location: 261 Arch Street, Spartanburg SC

Project Manager: Tom Oliver

Project Number: 0815-163

Date: 1/17/2017

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
1	Roof	Roof shingles(2 layers) with tar and no felt	PLM - NAD	Non-Friable	Good	1,465 SF
2			TEM - NAD			
3						
4	Exterior wooden windows	Window glazing	PLM - NAD	Non-Friable	Damaged	11 EA
5			TEM - NAD			
6						
7	Throughout exterior siding	Shingle siding with felt	PLM - NAD	Non-Friable	Good	1,860 SF
8			TEM - NAD			
9						
10	Throughout exterior siding	Siding felt over wood	PLM - NAD	Non-Friable	Good	1,860 SF
11			TEM - NAD			
12						
13	Exterior shed roof	Roof shingles(7 layers) with no felt	PLM - NAD	Non-Friable	Good	135 SF
14			TEM - NAD			
15						
16	Exterior shed windows	Window glazing	PLM - NAD	Non-Friable	Good	2 EA
17			TEM - NAD			
18						
19	Throughout interior walls	Drywall with joint compound and tape	PLM - 2% Chrysotile	Friable	Good	1,475 SF
20						
21						
22						
23						

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

Project Name: COS 261 Arch Street. ACM/LBP

Sampled By: Tom Oliver

Project Location: 261 Arch Street, Spartanburg SC

Project Manager: Tom Oliver

Project Number: 0815-163

Date: 1/17/2017

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
24	Front right bathroom	Wall panel mastic	PLM - Mastic - 2% Chrysotile	Non-Friable	Good	55 SF
25						
26						
27	Front right bedroom	Brown pattern vinyl floor with no mastic over wood	PLM - NAD	Non-Friable	Good	135 SF
28			TEM - NAD			
29						
30	Front right bathroom	Tan square pattern vinyl floor with mastic (top layer), yellow pattern vinyl floor with no mastic under wood (2nd layer)	PLM - NAD	Non-Friable	Good	25 SF
31			TEM - NAD			
32						
33	Rear bathroom	Brown and orange pattern vinyl floor with no mastic	PLM - NAD	Non-Friable	Good	33 SF
34			TEM - NAD			
35						
36	Kitchen (top layer)	12"x12" yellow pattern floor tile with mastic	PLM - NAD	Non-Friable	Good	155 SF
37			TEM - NAD			
38						
39	Mud porch (top layer)	Cream rectangle pattern vinyl floor with mastic	PLM - NAD	Non-Friable	Good	100 SF
40			TEM - NAD			
41						

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

Project Name: COS 261 Arch Street. ACM/LBP

Sampled By: Tom Oliver

Project Location: 261 Arch Street, Spartanburg SC

Project Manager: Tom Oliver

Project Number: 0815-163

Date: 1/17/2017

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
42	Kitchen and mud porch (bottom layer)	Brown small square pattern vinyl floor with mastic	PLM - NAD	Non-Friable	Good	255 SF
43			TEM - NAD			
44						
<b>Roof</b>		<b>Chimney mastic on 1 chimney</b>	<b>Assumed</b>	<b>Non-Friable</b>	<b>Good</b>	<b>10 LF</b>
NAD = No Asbestos Detected      LF = Linear Feet      EA = Each      Amos = Amosite <b>Bold = Positive For Asbestos</b> SF = Square Feet      Chry = Chrysotile						

**FIELD DATA SHEET  
LBP ANALYSIS**

Project Name: COS 261 Arch Street ACM/LBP

Sampled By: Tom Oliver

Project Location: 261 Arch Street Spartanburg SC

Project Manager: Tom Oliver

Project Number: 0815-163

Date: 1/26/2017

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/cm <sup>2</sup> )
104	House Exterior	Foundation	Blue	CMU Block	0.05
105	House Exterior	Porch floor	Blue	Concrete	0.00
106	House Exterior	Foundation	Blue	Brick	0.00
107	House Exterior	Porch support	Black	Metal	0.02
108	House Exterior	Siding	Light blue	Vinyl	0.00
<b>109</b>	<b>House Exterior</b>	<b>Siding</b>	<b>Light green</b>	<b>Wood</b>	<b>5.00</b>
110	House Exterior	Storm door	White	Metal	0.00
111	House Exterior	Door	White	Metal	0.00
112	House Exterior	Door frame	White	Metal	0.00
113	House Exterior	Porch Header	White	Metal	0.67
114	House Exterior	Porch ceiling	White	Vinyl	0.00
115	Exterior Shed	Siding	Blue	Wood	0.00
116	Exterior Shed	Window frame	White	Wood	0.00
117	Exterior Shed	Door frame	White	Wood	0.00
118	Exterior Shed	Window	White	Wood	0.00
119	House Exterior	Window	White	Wood	0.00
120	House Interior	Window frame	Brown	Wood	0.07
121	House Interior	Door frame	Brown	Wood	0.19
122	House Interior	Door frame	White	Wood	0.00
123	House Interior	Base board	Brown	Wood	0.01
124	House Interior	Wall	Tan	Drywall	0.08
125	House Interior	Wall	Tan	Bead board	0.33
<b>126</b>	<b>House Interior</b>	<b>Ceiling</b>	<b>Yellow</b>	<b>Bead board</b>	<b>4.52</b>
127	House Interior	Ceiling tile	Gray	Wood	0.46
128	House Interior	Floor	Brown	Wood	0.00
129	House Interior	Ceiling tile	White	Wood	0.00

**FIELD DATA SHEET  
LBP ANALYSIS**

Project Name: COS 261 Arch Street ACM/LBP

Sampled By: Tom Oliver

Project Location: 261 Arch Street Spartanburg SC

Project Manager: Tom Oliver

Project Number: 0815-163

Date: 1/26/2017

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/cm <sup>2</sup> )
130	House Interior	Wall panel	Pink	Wood	0.15
<b>131</b>	<b>House Interior</b>	<b>Sink</b>	<b>White</b>	<b>Porcelain</b>	<b>4.06</b>
132	House Interior	Toilet	White	Porcelain	0.02
133	House Interior	Wall	Turquoise	Drywall	0.00
134	House Interior	Base board	Turquoise	Wood	0.00
135		Calibration			1.04
136		Calibration			1.10
137		Calibration			1.07

**Bold is Lead Based Paint**

**SECTION III**

**Laboratory Analytical Results**



January 25, 2017

Apex Environmental Management  
7 Winchester Court  
Mauldin, SC 29662

**CLIENT PROJECT:** COS 261 Arch St. ACM/LBP; 0815-163  
**CEI LAB CODE:** A17-0865

Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on January 19, 2017. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% asbestos by weight as determined by visual estimation.

Thank you for your business and we look forward to continuing good relations. If you have any questions, please feel free to call our office at 919-481-1413.

Kind Regards,

A handwritten signature in black ink, appearing to read "Tianbao Bai".

Tianbao Bai, Ph.D., CIH  
Laboratory Director







---

**ASBESTOS ANALYTICAL REPORT**  
**By: Polarized Light Microscopy**

Prepared for

**Apex Environmental Management**

---

CLIENT PROJECT: COS 261 Arch St. ACM/LBP; 0815-163

CEI LAB CODE: A17-0865

TEST METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORT DATE: 01/25/17

TOTAL SAMPLES ANALYZED: 26

# SAMPLES >1% ASBESTOS: 2

**TEL: 866-481-1412**

*[www.ceilabs.com](http://www.ceilabs.com)*



# Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS 261 Arch St. ACM/LBP; 0815-163

CEI LAB CODE: A17-0865

**METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020**

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
1	Layer 1	A2304504	Black	Shingle	None Detected
	Layer 2	A2304504	Black,White	Shingle	None Detected
2	Layer 1	A2304505	Black	Shingle	None Detected
	Layer 2	A2304505	Black,White	Shingle	None Detected
3	Layer 1	A2304506		Sample Submitted for TEM Analysis	
	Layer 2	A2304506		Sample Submitted for TEM Analysis	
4		A2304507	White	Window Glazing	None Detected
5		A2304508	White	Window Glazing	None Detected
6		A2304509		Sample Submitted for TEM Analysis	
7	Layer 1	A2304510	Black,Tan	Siding Shingles	None Detected
	Layer 2	A2304510	Tan	Felt Backing	None Detected
8	Layer 1	A2304511	Black,Tan	Siding Shingles	None Detected
	Layer 2	A2304511	Tan	Felt Backing	None Detected
9	Layer 1	A2304512		Sample Submitted for TEM Analysis	
	Layer 2	A2304512		Sample Submitted for TEM Analysis	
10		A2304513	Black	Siding Felt	None Detected
11		A2304514	Black	Siding Felt	None Detected
12		A2304515		Sample Submitted for TEM Analysis	
13	Layer 1	A2304516A	Green	Shingle	None Detected
	Layer 2	A2304516A	Green,Black	Shingle	None Detected
		A2304516B	White,Black	Shingle	None Detected
		A2304516C	White,Black	Shingle	None Detected
		A2304516D	Gray,Black	Shingle	None Detected
		A2304516E	Black	Shingle	None Detected
		A2304516F	Black,Clear	Membrane	None Detected
14	Layer 1	A2304517A	Green	Shingle	None Detected
	Layer 2	A2304517A	Green,Black	Shingle	None Detected



# Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS 261 Arch St. ACM/LBP; 0815-163

CEI LAB CODE: A17-0865

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
		A2304517B	White,Black	Shingle	None Detected
		A2304517C	White,Black	Shingle	None Detected
		A2304517D	Gray,Black	Shingle	None Detected
		A2304517E	Black	Shingle	None Detected
		A2304517F	Black,Clear	Membrane	None Detected
15		A2304518		Sample Submitted for TEM Analysis	
16		A2304519	White	Window Glazing	None Detected
17		A2304520	White	Window Glazing	None Detected
18		A2304521		Sample Submitted for TEM Analysis	
19	Layer 1	A2304522	White	Texture	None Detected
	Layer 2	A2304522	Tan	Tape	None Detected
	Layer 3	A2304522	White	Joint Compund	None Detected
	Layer 4	A2304522	Tan	Joint Compund	Chrysotile 2%
	Layer 5	A2304522	Tan,White	Drywall	None Detected
20		A2304523		Sample Not Analyzed per COC	
21		A2304524		Sample Not Analyzed per COC	
22		A2304525		Sample Not Analyzed per COC	
23		A2304526		Sample Not Analyzed per COC	
24	Layer 1	A2304527	Gray	Wall Panel Mastic	Chrysotile 2%
	Layer 2	A2304527	White	Grout	None Detected
25		A2304528		Sample Not Analyzed per COC	
26		A2304529		Sample Not Analyzed per COC	
27		A2304530	Tan,Black	Vinyl Flooring	None Detected
28		A2304531	Tan,Black	Vinyl Flooring	None Detected
29		A2304532		Sample Submitted for TEM Analysis	
30	Layer 1	A2304533A	Tan	Vinyl Flooring	None Detected
	Layer 2	A2304533A	Black,Brown	Mastic	None Detected
		A2304533B	Brown,Yellow	Vinyl Flooring	None Detected
31	Layer 1	A2304534A	Tan	Vinyl Flooring	None Detected



# Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS 261 Arch St. ACM/LBP; 0815-163

CEI LAB CODE: A17-0865

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
	Layer 2	A2304534A	Black,Brown	Mastic	None Detected
		A2304534B	Brown,Yellow	Vinyl Flooring	None Detected
32	Layer 1	A2304535A		Sample Submitted for TEM Analysis	
	Layer 2	A2304535A		Sample Submitted for TEM Analysis	
		A2304535B		Sample Submitted for TEM Analysis	
33		A2304536	Brown,Orange	Vinyl Flooring	None Detected
34		A2304537	Brown,Orange	Vinyl Flooring	None Detected
35		A2304538		Sample Submitted for TEM Analysis	
36		A2304539A	Yellow	Floor Tile	None Detected
		A2304539B	Tan	Mastic	None Detected
37		A2304540A	Yellow	Floor Tile	None Detected
		A2304540B	Tan	Mastic	None Detected
38		A2304541A		Sample Submitted for TEM Analysis	
		A2304541B		Sample Submitted for TEM Analysis	
39	Layer 1	A2304542	Cream	Vinyl Flooring	None Detected
	Layer 2	A2304542	Yellow	Mastic	None Detected
40	Layer 1	A2304543	Cream	Vinyl Flooring	None Detected
	Layer 2	A2304543	Yellow	Mastic	None Detected
41	Layer 1	A2304544		Sample Submitted for TEM Analysis	
	Layer 2	A2304544		Sample Submitted for TEM Analysis	
42	Layer 1	A2304545	Yellow	Mastic	None Detected
	Layer 2	A2304545	Tan	Vinyl Flooring	None Detected
43	Layer 1	A2304546	Tan	Vinyl Flooring	None Detected
	Layer 2	A2304546	Yellow	Mastic	None Detected



# Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

**PROJECT:** COS 261 Arch St. ACM/LBP; 0815-163

**CEI LAB CODE:** A17-0865

---

---

**METHOD:** EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
44	Layer 1	A2304547		Sample Submitted for TEM Analysis	
	Layer 2	A2304547		Sample Submitted for TEM Analysis	

---



# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Apex Environmental Management  
 7 Winchester Court  
 Mauldin, SC 29662

**CEI Lab Code:** A17-0865  
**Date Received:** 01-19-17  
**Date Analyzed:** 01-25-17  
**Date Reported:** 01-25-17

**Project:** COS 261 Arch St. ACM/LBP; 0815-163

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
1 Layer 1 A2304504	Shingle	Heterogeneous Black Fibrous Bound	35%	Fiberglass	40%	Tar	None Detected
					25%	Silicates	
Layer 2 A2304504	Shingle	Heterogeneous Black,White Fibrous Bound	35%	Fiberglass	40%	Tar	None Detected
					25%	Silicates	
2 Layer 1 A2304505	Shingle	Heterogeneous Black Fibrous Bound	35%	Fiberglass	40%	Tar	None Detected
					25%	Silicates	
Layer 2 A2304505	Shingle	Heterogeneous Black,White Fibrous Bound	35%	Fiberglass	40%	Tar	None Detected
					25%	Silicates	
3 Layer 1 A2304506	Sample Submitted for TEM Analysis						
Layer 2 A2304506	Sample Submitted for TEM Analysis						
4 A2304507	Window Glazing	Heterogeneous White Non-fibrous Bound			25%	Binder	None Detected
					65%	Calc Carb	
					10%	Paint	
5 A2304508	Window Glazing	Heterogeneous White Non-fibrous Bound			25%	Binder	None Detected
					65%	Calc Carb	
					10%	Paint	



# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Apex Environmental Management  
 7 Winchester Court  
 Mauldin, SC 29662

**CEI Lab Code:** A17-0865  
**Date Received:** 01-19-17  
**Date Analyzed:** 01-25-17  
**Date Reported:** 01-25-17

**Project:** COS 261 Arch St. ACM/LBP; 0815-163

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
<b>6</b> A2304509	Sample Submitted for TEM Analysis						
<b>7</b> Layer 1 A2304510	Siding Shingles	Heterogeneous Black, Tan Fibrous Bound	15%	Cellulose	60%	Tar Silicates	None Detected
Layer 2 A2304510	Felt Backing	Heterogeneous Tan Fibrous Bound	65%	Cellulose	35%	Tar	None Detected
<b>8</b> Layer 1 A2304511	Siding Shingles	Heterogeneous Black, Tan Fibrous Bound	15%	Cellulose	60%	Tar Silicates	None Detected
Layer 2 A2304511	Felt Backing	Heterogeneous Tan Fibrous Bound	65%	Cellulose	35%	Tar	None Detected
<b>9</b> Layer 1 A2304512	Sample Submitted for TEM Analysis						
Layer 2 A2304512	Sample Submitted for TEM Analysis						
<b>10</b> A2304513	Siding Felt	Heterogeneous Black Fibrous Bound	65%	Cellulose	35%	Tar	None Detected



# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Apex Environmental Management  
 7 Winchester Court  
 Mauldin, SC 29662

**CEI Lab Code:** A17-0865  
**Date Received:** 01-19-17  
**Date Analyzed:** 01-25-17  
**Date Reported:** 01-25-17

**Project:** COS 261 Arch St. ACM/LBP; 0815-163

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
11 A2304514	Siding Felt	Heterogeneous Black Fibrous Bound	65%	Cellulose	35%	Tar	None Detected
12 A2304515	Sample Submitted for TEM Analysis						
13 Layer 1 A2304516A	Shingle	Heterogeneous Green Fibrous Bound	35%	Fiberglass	40%	Tar Silicates	None Detected
Layer 2 A2304516A	Shingle	Heterogeneous Green,Black Fibrous Bound	35%	Fiberglass	40%	Tar Silicates	None Detected
A2304516B	Shingle	Heterogeneous White,Black Fibrous Bound	35%	Cellulose	40%	Tar Silicates	None Detected
A2304516C	Shingle	Heterogeneous White,Black Fibrous Bound	35%	Cellulose	40%	Tar Silicates	None Detected
A2304516D	Shingle	Heterogeneous Gray,Black Fibrous Bound	35%	Cellulose	40%	Tar Silicates	None Detected
A2304516E	Shingle	Heterogeneous Black Fibrous Bound	20% 15%	Cellulose Fiberglass	40% 25%	Tar Silicates	None Detected





# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Apex Environmental Management  
 7 Winchester Court  
 Mauldin, SC 29662

**CEI Lab Code:** A17-0865  
**Date Received:** 01-19-17  
**Date Analyzed:** 01-25-17  
**Date Reported:** 01-25-17

**Project:** COS 261 Arch St. ACM/LBP; 0815-163

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS			ASBESTOS %	
			Fibrous	Non-Fibrous			
A2304516F	Membrane	Heterogeneous Black,Clear Fibrous Bound	25%	Synthetic Fiber	75%	Binder	None Detected
<b>14</b> Layer 1 A2304517A	Shingle	Heterogeneous Green Fibrous Bound	35%	Fiberglass	40%	Tar 25% Silicates	None Detected
Layer 2 A2304517A	Shingle	Heterogeneous Green,Black Fibrous Bound	35%	Fiberglass	40%	Tar 25% Silicates	None Detected
A2304517B	Shingle	Heterogeneous White,Black Fibrous Bound	35%	Cellulose	40%	Tar 25% Silicates	None Detected
A2304517C	Shingle	Heterogeneous White,Black Fibrous Bound	35%	Cellulose	40%	Tar 25% Silicates	None Detected
A2304517D	Shingle	Heterogeneous Gray,Black Fibrous Bound	35%	Cellulose	40%	Tar 25% Silicates	None Detected
A2304517E	Shingle	Heterogeneous Black Fibrous Bound	20% 15%	Cellulose Fiberglass	40% 25%	Tar Silicates	None Detected



# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Apex Environmental Management  
 7 Winchester Court  
 Mauldin, SC 29662

**CEI Lab Code:** A17-0865  
**Date Received:** 01-19-17  
**Date Analyzed:** 01-25-17  
**Date Reported:** 01-25-17

**Project:** COS 261 Arch St. ACM/LBP; 0815-163

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
A2304517F	Membrane	Heterogeneous Black, Clear Fibrous Bound	25%	Synthetic Fiber 75%	Binder None Detected
<b>15</b> A2304518	Sample Submitted for TEM Analysis				
<b>16</b> A2304519	Window Glazing	Heterogeneous White Non-fibrous Bound	25%	Binder 10% Paint 65% Calc Carb	None Detected
<b>17</b> A2304520	Window Glazing	Heterogeneous White Non-fibrous Bound	25%	Binder 10% Paint 65% Calc Carb	None Detected
<b>18</b> A2304521	Sample Submitted for TEM Analysis				
<b>19</b> Layer 1 A2304522	Texture	Heterogeneous White Non-fibrous Bound	25%	Binder 10% Paint 65% Calc Carb	None Detected
Layer 2 A2304522	Tape	Heterogeneous Tan Fibrous Bound	100%	Cellulose	None Detected
Layer 3 A2304522	Joint Compound	Heterogeneous White Non-fibrous Bound	35%	Binder 65% Calc Carb	None Detected



# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Apex Environmental Management  
 7 Winchester Court  
 Mauldin, SC 29662

**CEI Lab Code:** A17-0865  
**Date Received:** 01-19-17  
**Date Analyzed:** 01-25-17  
**Date Reported:** 01-25-17

**Project:** COS 261 Arch St. ACM/LBP; 0815-163

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
Layer 4 A2304522	Joint Compund	Heterogeneous	33%	Binder	<b>2% Chrysotile</b>
		Tan Fibrous Bound	65%	Calc Carb	
Layer 5 A2304522	Drywall	Heterogeneous	15%	Cellulose	None Detected
		Tan,White Fibrous Bound	20%	Binder Gypsum	
<b>20</b> A2304523	Sample Not Analyzed per COC				
<b>21</b> A2304524	Sample Not Analyzed per COC				
<b>22</b> A2304525	Sample Not Analyzed per COC				
<b>23</b> A2304526	Sample Not Analyzed per COC				
<b>24</b> Layer 1 A2304527	Wall Panel Mastic	Heterogeneous	98%	Binder	<b>2% Chrysotile</b>
		Gray Fibrous Bound			
Layer 2 A2304527	Grout	Heterogeneous	35%	Binder	None Detected
		White Non-fibrous Bound	65%	Calc Carb	
<b>25</b> A2304528	Sample Not Analyzed per COC				
<b>26</b> A2304529	Sample Not Analyzed per COC				



# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Apex Environmental Management  
 7 Winchester Court  
 Mauldin, SC 29662

**CEI Lab Code:** A17-0865  
**Date Received:** 01-19-17  
**Date Analyzed:** 01-25-17  
**Date Reported:** 01-25-17

**Project:** COS 261 Arch St. ACM/LBP; 0815-163

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
<b>27</b> A2304530	Vinyl Flooring	Heterogeneous Tan,Black Fibrous Bound	35%	Cellulose	15%	Tar Vinyl	None Detected
<b>28</b> A2304531	Vinyl Flooring	Heterogeneous Tan,Black Fibrous Bound	35%	Cellulose	15%	Tar Vinyl	None Detected
<b>29</b> A2304532	Sample Submitted for TEM Analysis						
<b>30</b> Layer 1 A2304533A	Vinyl Flooring	Heterogeneous Tan Fibrous Bound	25% 15%	Cellulose Fiberglass	10% 50%	Binder Vinyl	None Detected
Layer 2 A2304533A	Mastic	Heterogeneous Black,Brown Fibrous Bound	15%	Cellulose	85%	Binder	None Detected
A2304533B	Vinyl Flooring	Heterogeneous Brown,Yellow Fibrous Bound	25% 15%	Cellulose Fiberglass	10% 50%	Binder Vinyl	None Detected
Lab Notes: No mastic present.							
<b>31</b> Layer 1 A2304534A	Vinyl Flooring	Heterogeneous Tan Fibrous Bound	25% 15%	Cellulose Fiberglass	10% 50%	Binder Vinyl	None Detected
Layer 2 A2304534A	Mastic	Heterogeneous Black,Brown Fibrous Bound	15%	Cellulose	85%	Binder	None Detected



# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Apex Environmental Management  
 7 Winchester Court  
 Mauldin, SC 29662

**CEI Lab Code:** A17-0865  
**Date Received:** 01-19-17  
**Date Analyzed:** 01-25-17  
**Date Reported:** 01-25-17

**Project:** COS 261 Arch St. ACM/LBP; 0815-163

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
A2304534B	Vinyl Flooring	Heterogeneous Brown, Yellow Fibrous Bound	25%	Cellulose	10%	Binder	None Detected
			15%	Fiberglass	50%	Vinyl	
Lab Notes: No mastic present.							
<b>32</b> Layer 1 A2304535A	Sample Submitted for TEM Analysis						
Layer 2 A2304535A	Sample Submitted for TEM Analysis						
A2304535B	Sample Submitted for TEM Analysis						
<b>33</b> A2304536	Vinyl Flooring	Heterogeneous Brown, Orange Fibrous Bound	25%	Cellulose	10%	Binder	None Detected
			15%	Fiberglass	50%	Vinyl	
Lab Notes: No mastic present.							
<b>34</b> A2304537	Vinyl Flooring	Heterogeneous Brown, Orange Fibrous Bound	25%	Cellulose	10%	Binder	None Detected
			15%	Fiberglass	50%	Vinyl	
Lab Notes: No mastic present.							
<b>35</b> A2304538	Sample Submitted for TEM Analysis						
<b>36</b> A2304539A	Floor Tile	Heterogeneous Yellow Non-fibrous Bound			25%	Binder	None Detected
					75%	Vinyl	



# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Apex Environmental Management  
 7 Winchester Court  
 Mauldin, SC 29662

**CEI Lab Code:** A17-0865  
**Date Received:** 01-19-17  
**Date Analyzed:** 01-25-17  
**Date Reported:** 01-25-17

**Project:** COS 261 Arch St. ACM/LBP; 0815-163

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
A2304539B	Mastic	Heterogeneous Tan Non-fibrous Bound	100%		Binder		None Detected
<b>37</b> A2304540A	Floor Tile	Heterogeneous Yellow Non-fibrous Bound	25%		Binder		None Detected
A2304540B	Mastic	Heterogeneous Tan Non-fibrous Bound	100%		Binder		None Detected
<b>38</b> A2304541A	Sample Submitted for TEM Analysis						
A2304541B	Sample Submitted for TEM Analysis						
<b>39</b> Layer 1 A2304542	Vinyl Flooring	Heterogeneous Cream Fibrous Bound	25%	Cellulose 15%	10% Synthetic Fiber 50%	Binder Vinyl	None Detected
Layer 2 A2304542	Mastic	Heterogeneous Yellow Non-fibrous Bound	100%		Binder		None Detected
<b>40</b> Layer 1 A2304543	Vinyl Flooring	Heterogeneous Cream Fibrous Bound	25%	Cellulose 15%	10% Synthetic Fiber 50%	Binder Vinyl	None Detected



# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

**Client:** Apex Environmental Management  
 7 Winchester Court  
 Mauldin, SC 29662

**CEI Lab Code:** A17-0865  
**Date Received:** 01-19-17  
**Date Analyzed:** 01-25-17  
**Date Reported:** 01-25-17

**Project:** COS 261 Arch St. ACM/LBP; 0815-163

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
Layer 2 A2304543	Mastic	Heterogeneous Yellow Non-fibrous Bound	100%		Binder		None Detected
<b>41</b> Layer 1 A2304544	Sample Submitted for TEM Analysis						
Layer 2 A2304544	Sample Submitted for TEM Analysis						
<b>42</b> Layer 1 A2304545	Mastic	Heterogeneous Yellow Non-fibrous Bound	100%		Binder		None Detected
Layer 2 A2304545	Vinyl Flooring	Heterogeneous Tan Fibrous Bound	35%	Cellulose	15%	Binder Vinyl	None Detected
<b>43</b> Layer 1 A2304546	Vinyl Flooring	Heterogeneous Tan Fibrous Bound	5%	Cellulose	45%	Binder Vinyl	None Detected
Layer 2 A2304546	Mastic	Heterogeneous Yellow Fibrous Bound	5%	Synthetic Fiber	95%	Binder	None Detected
<b>44</b> Layer 1 A2304547	Sample Submitted for TEM Analysis						
Layer 2 A2304547	Sample Submitted for TEM Analysis						





44 A17-0865  
 A 2304504-  
 A 2304547



107 New Edition Court, Cary, NC 27511  
 Tel: 866-481-1412; Fax: 919-481-1442

# ASBESTOS CHAIN OF CUSTODY

LAB USE ONLY:
CEI Lab Code:
CEI Lab I.D. Range:

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: Ben Oliver
Company: Apex Environmental Management, Inc.	Email / Tel: boliver@apex-ehs.com
Address: 7 Winchester Court	Project Name: COS 261 Arch St. ACM/LBP
Mauldin, South Carolina 29662	Project ID# 0815-163
Email: boliver@apex-ehs.com	PO #:
Tel: 864-404-3210 Fax: 864-404-3213	STATE SAMPLES COLLECTED IN: South Carolina

GENERAL INSTRUCTIONS		
POSITIVE STOP ANALYSIS	<input checked="" type="checkbox"/>	PLM DUE DATE: / /
ANALYZE NOB'S BY TEM	<input type="checkbox"/>	TEM DUE DATE: / /

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	24 HR	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
PLM POINT COUNT (400)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (1000)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM GRAV w POINT COUNT	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PCM AIR	NIOSH 7400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR AHERA	EPA AHERA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR NIOSH	NIOSH 7402	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM BULK	CHATFIELD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
TEM DUST WIPE	ASTM D6480-05	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST MICROVAC	ASTM D5755-09	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM SOIL	ASTM D7521-13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM VERMICULITE	CINCINNATI METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REMARKS: Utilize Positive Stop During Analysis	<input checked="" type="checkbox"/> Accept Samples
	<input type="checkbox"/> Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
Ben Oliver	1-18-2017	A	1/19/17 9:10
<i>[Signature]</i>			

Samples will be disposed of 30 days after analysis

# ASBESTOS SAMPLING FORM



COMPANY CONTACT INFORMATION	
Company: Apex Environmental Management, Inc.	Job Contact: Ben Oliver
Project Name: COS 261 Arch St. ACM/LBP	
Project ID #: 0815-163	Tel: 864-640-1147

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST	
			PLM	TEM
1	Roofing shingles with tar (2) layers		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2			<input checked="" type="checkbox"/>	<input type="checkbox"/>
3			<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Window glazing		<input checked="" type="checkbox"/>	<input type="checkbox"/>
5			<input checked="" type="checkbox"/>	<input type="checkbox"/>
6			<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Siding shingles with felt backing		<input checked="" type="checkbox"/>	<input type="checkbox"/>
8			<input checked="" type="checkbox"/>	<input type="checkbox"/>
9			<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Siding felt over wood		<input checked="" type="checkbox"/>	<input type="checkbox"/>
11			<input checked="" type="checkbox"/>	<input type="checkbox"/>
12			<input type="checkbox"/>	<input checked="" type="checkbox"/>
13	Roofing shingles (7 layers) and no felt on shed roof.		<input checked="" type="checkbox"/>	<input type="checkbox"/>
14			<input checked="" type="checkbox"/>	<input type="checkbox"/>
15			<input type="checkbox"/>	<input checked="" type="checkbox"/>
16	Window glazing on ext. shed windows.		<input checked="" type="checkbox"/>	<input type="checkbox"/>
17			<input checked="" type="checkbox"/>	<input type="checkbox"/>
18			<input type="checkbox"/>	<input checked="" type="checkbox"/>
19	Drywall with joint compound and tape throughout walls		<input checked="" type="checkbox"/>	<input type="checkbox"/>
20			<input checked="" type="checkbox"/>	<input type="checkbox"/>
21			<input checked="" type="checkbox"/>	<input type="checkbox"/>
22			<input checked="" type="checkbox"/>	<input type="checkbox"/>
23	Wall panel mastic in front right bathroom		<input checked="" type="checkbox"/>	<input type="checkbox"/>
24			<input checked="" type="checkbox"/>	<input type="checkbox"/>
25			<input type="checkbox"/>	<input checked="" type="checkbox"/>
26	Brown pattern vinyl floor with no mastic		<input checked="" type="checkbox"/>	<input type="checkbox"/>
27			<input checked="" type="checkbox"/>	<input type="checkbox"/>
28			<input type="checkbox"/>	<input checked="" type="checkbox"/>
29	Tan square pattern vinyl floor		<input checked="" type="checkbox"/>	<input type="checkbox"/>
30			<input checked="" type="checkbox"/>	<input type="checkbox"/>







February 1, 2017

Apex Environmental Management  
7 Winchester Court  
Mauldin, SC 29662

**CLIENT PROJECT:** COS 261 Arch St. aCM/LBP; 0815-163  
**CEI LAB CODE:** T17-0173

Dear Customer:

Enclosed are asbestos analysis results for TEM bulk samples received at our laboratory on January 26, 2017. The samples were analyzed for asbestos using transmission electron microscopy (TEM) per Chatfield Method.

Sample results containing > 1% asbestos are considered asbestos-containing materials (ACMs) per the EPA regulatory requirements. The detection limit for the TEM Chatfield method is <1% depending on the processed weight and constituents of the sample.

Thank you for your business and we look forward to continuing good relations. If you have any questions, please feel free to call our office at 919-481-1413.

Kind Regards,

A handwritten signature in black ink, appearing to read 'Tianbao Bai', is written in a cursive style.

Tianbao Bai, Ph.D., CIH  
Laboratory Director



---

**ASBESTOS ANALYTICAL REPORT**  
**By: Transmission Electron Microscopy**

Prepared for

**Apex Environmental Management**

---

CLIENT PROJECT: COS 261 Arch St. aCM/LBP; 0815-163

CEI LAB CODE: T17-0173

TEST METHOD: Bulk Chatfield  
EPA 600 / R93 / 116

REPORT DATE: 02/01/17

**TEL: 866-481-1412**

*[www.ceilabs.com](http://www.ceilabs.com)*



# ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

**Client:** Apex Environmental Management  
 7 Winchester Court  
 Mauldin, SC 29662

**CEI Lab Code:** T17-0173  
**Date Received:** 01-26-17  
**Date Analyzed:** 01-31-17  
**Date Reported:** 02-01-17

**Project:** COS 261 Arch St. aCM/LBP; 0815-163

## TEM BULK CHATFIELD / EPA 600 / R93 / 116

Client ID Lab ID	Material Description	Sample Weight (g)	Organic Material %	Acid Soluble Material %	Acid Insoluble Material %	Asbestos %
3 T57971	Black Shingle	0.28	25.7	25.7	48.6	None Detected
3 T57972	Black, White Shingle	0.322	33.2	53.4	13.4	None Detected
6 T57973	Window Glazing	0.37	5.7	88.1	6.2	None Detected
9 T57974	Siding Shingles	0.662	43.5	24.8	31.7	None Detected
9 T57975	Felt Backing	0.231	94.8	2.6	2.6	None Detected
12 T57976	Siding Felt	0.391	98.7	1	.3	None Detected
15 T57977	Green Shingle	0.412	24.5	44.4	31.1	None Detected
15 T57978	Green, Black Shingle	0.203	24.6	39.4	36	None Detected
15 T57979	White, Black Shingle	0.298	51.7	31.9	16.4	None Detected
15 T57980	White, Black Shingle	0.264	48.1	9.5	42.4	None Detected
15 T57981	Gray, Black Shingle	0.387	49.9	9.3	40.8	None Detected
15 T57982	Black Shingle	0.896	72.8	9.2	18	None Detected



# ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

**Client:** Apex Environmental Management  
 7 Winchester Court  
 Mauldin, SC 29662

**CEI Lab Code:** T17-0173  
**Date Received:** 01-26-17  
**Date Analyzed:** 01-31-17  
**Date Reported:** 02-01-17

**Project:** COS 261 Arch St. aCM/LBP; 0815-163

## TEM BULK CHATFIELD / EPA 600 / R93 / 116

Client ID Lab ID	Material Description	Sample Weight (g)	Organic Material %	Acid Soluble Material %	Acid Insoluble Material %	Asbestos %
15 T57983	Black, Clear Membrane	0.167	97.6	.6	1.8	None Detected
18 T57984	Window Glazing	0.587	6.3	88.1	5.6	None Detected
29 T57985	Tan, Black Vinyl Flooring	0.403	75.4	20.6	4	None Detected
32 T57986	Tan Vinyl Flooring	0.275	68.7	16.4	14.9	None Detected
32 T57987	Black, Brown Mastic	0.201	50.2	9	40.8	None Detected
32 T57988	Brown, Yellow Vinyl Flooring	0.247	61.1	19	19.9	None Detected
35 T57989	Brown, Orange Vinyl Flooring	0.242	59.1	12.4	28.5	None Detected
38 T57990	Floor Tile	0.244	18.4	80.3	1.3	None Detected
38 T57991	Mastic	0.096	91.7	7.3	1	None Detected
41 T57992	Cream Vinyl Flooring	0.234	67.9	9.8	22.3	None Detected
41 T57993	Yellow Mastic	0.106	49.1	0	50.9	None Detected
44 T57994	Tan Vinyl Flooring	0.37	73.5	18.9	7.6	None Detected



# ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

**Client:** Apex Environmental Management  
7 Winchester Court  
Mauldin, SC 29662

**CEI Lab Code:** T17-0173  
**Date Received:** 01-26-17  
**Date Analyzed:** 01-31-17  
**Date Reported:** 02-01-17

**Project:** COS 261 Arch St. aCM/LBP; 0815-163

## TEM BULK CHATFIELD / EPA 600 / R93 / 116

Client ID Lab ID	Material Description	Sample Weight (g)	Organic Material %	Acid Soluble Material %	Acid Insoluble Material %	Asbestos %
44 T57995	Yellow Mastic	0.166	51.2	3	45.8	None Detected





---

---

**LEGEND:** None

---

**METHOD:** CHATFIELD & EPA/600/R-93/116

---

**LIMIT OF DETECTION:** Varies with the weight and constituents of the sample (<1%)

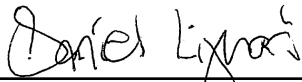
---

**REGULATORY LIMIT:** >1% by weight


---

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by CEI Labs, Inc. CEI Labs makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. Samples were received in acceptable condition unless otherwise noted.

**ANALYST:**

  
Daniel Liguori

**APPROVED BY:**

  
Tianbao Bai, Ph.D., CIH  
Laboratory Director

44 A17-0865  
 A 2304504-  
 A 2304547



107 New Edition Court, Cary, NC 27511  
 Tel: 866-481-1412; Fax: 919-481-1442

TV7-0173  
 T57971-995 (25)

# ASBESTOS CHAIN OF CUSTODY

LAB USE ONLY:
CEI Lab Code:
CEI Lab I.D. Range:

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: Ben Oliver
Company: Apex Environmental Management, Inc.	Email / Tel: boliver@apex-ehs.com
Address: 7 Winchester Court Mauldin, South Carolina 29662	Project Name: COS 261 Arch St. ACM/LBP
Email: boliver@apex-ehs.com	Project ID# 0815-163
Tel: 864-404-3210 Fax: 864-404-3213	PO #:
STATE SAMPLES COLLECTED IN: South Carolina	

GENERAL INSTRUCTIONS		
POSITIVE STOP ANALYSIS	<input checked="" type="checkbox"/>	PLM DUE DATE: / /
ANALYZE NOB'S BY TEM	<input type="checkbox"/>	TEM DUE DATE: / /

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	24 HR	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
PLM POINT COUNT (400)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (1000)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM GRAV w POINT COUNT	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PCM AIR	NIOSH 7400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR AHERA	EPA AHERA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR NIOSH	NIOSH 7402	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM BULK	CHATFIELD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
TEM DUST WIPE	ASTM D6480-05	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST MICROVAC	ASTM D5755-09	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM SOIL	ASTM D7521-13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM VERMICULITE	CINCINNATI METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REMARKS: Utilize Positive Stop During Analysis			<input checked="" type="checkbox"/> Accept Samples
			<input type="checkbox"/> Reject Samples
Relinquished By:	Date/Time	Received By:	Date/Time
Ben Oliver	1-18-2017	A)	1/19/17 9:10
<i>[Signature]</i>			

Samples will be disposed of 30 days after analysis

*Megan Ruler* 1/25/17 4:09pm

A17-0865

# ASBESTOS SAMPLING FORM



COMPANY CONTACT INFORMATION	
Company: Apex Environmental Management, Inc.	Job Contact: Ben Oliver
Project Name: COS 261 Arch St. ACM/LBP	
Project ID #: 0815-163	Tel: 864-640-1147

SAMPLE ID#	DESCRIPTION/LOCATION	VOLUME/ AREA	TEST	
			PLM	TEM
1	Roofing shingles with tar		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	(2) layers		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3			<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Window glazing		<input checked="" type="checkbox"/>	<input type="checkbox"/>
5			<input checked="" type="checkbox"/>	<input type="checkbox"/>
6			<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Siding shingles with		<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	felt backing		<input checked="" type="checkbox"/>	<input type="checkbox"/>
9			<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Siding felt over wood		<input checked="" type="checkbox"/>	<input type="checkbox"/>
11			<input checked="" type="checkbox"/>	<input type="checkbox"/>
12			<input type="checkbox"/>	<input checked="" type="checkbox"/>
13	Roofing shingles (7 layers)		<input checked="" type="checkbox"/>	<input type="checkbox"/>
14	and no felt on shed roof.		<input checked="" type="checkbox"/>	<input type="checkbox"/>
15			<input type="checkbox"/>	<input checked="" type="checkbox"/>
16	Window glazing on ext.		<input checked="" type="checkbox"/>	<input type="checkbox"/>
17	shed windows.		<input checked="" type="checkbox"/>	<input type="checkbox"/>
18			<input type="checkbox"/>	<input checked="" type="checkbox"/>
19	Drywall with joint		<input checked="" type="checkbox"/>	<input type="checkbox"/>
20	compound and tape throughout		<input checked="" type="checkbox"/>	<input type="checkbox"/>
21	walls		<input checked="" type="checkbox"/>	<input type="checkbox"/>
22			<input checked="" type="checkbox"/>	<input type="checkbox"/>
23			<input checked="" type="checkbox"/>	<input type="checkbox"/>
24	Wall panel mastic in		<input checked="" type="checkbox"/>	<input type="checkbox"/>
25	front right bathroom		<input checked="" type="checkbox"/>	<input type="checkbox"/>
26			<input type="checkbox"/>	<input checked="" type="checkbox"/>
27	Brown pattern vinyl floor with		<input checked="" type="checkbox"/>	<input type="checkbox"/>
28	no mastic		<input checked="" type="checkbox"/>	<input type="checkbox"/>
29			<input type="checkbox"/>	<input checked="" type="checkbox"/>
30	Tan square pattern vinyl floor		<input checked="" type="checkbox"/>	<input type="checkbox"/>

Page 2 of 3



**SECTION IV**  
**Photographic Log**



*Asbestos & LBP Assessment  
City of Spartanburg  
261 Arch Street  
Spartanburg, South Carolina*



Photo 1 -- 261 Arch Street in Spartanburg, SC.



Photo 2 – Roof shingles (2 layers) with tar and no felt.



Photo 3 – One chimney with tar assumed positive.



Photo 4 – Wooden window glazing.



Photo 5 – Shingle siding with felt backing.



Photo 6 – Siding felt over wood.





Photo 7 – Exterior shed.



Photo 8 – Roofing shingles (7 layers) and no felt on shed roof.



Photo 9 – Window glazing on shed windows.



Photo 10 – Drywall with joint compound and tape throughout walls.



Photo 11 – Wall panel mastic in front right bathroom.



Photo 12 – Brown pattern vinyl floor with no mastic over wood in front right bedroom.





Photo 13 – Tan square pattern vinyl floor with mastic in front right bathroom (top layer).



Photo 14 – Yellow pattern vinyl floor with mastic under wood (2<sup>nd</sup> layer).



Photo 15 – Brown and orange pattern vinyl floor with mastic in rear bathroom.



Photo 16 – 12"x12" yellow pattern floor tile with mastic in kitchen (top layer).



Photo 17 – Cream rectangle pattern vinyl floor with mastic in mud porch (top layer).



Photo 18 – Brown small square pattern vinyl floor with mastic in kitchen and mud porch (bottom layer).



**SECTION V**

**SC DHEC Asbestos Inspector License**

**SCDHEC ISSUED**  
**Asbestos ID Card**

**Thomas H Oliver**

Expiration Date



**CONSULTBI BI-00680 01/20/17**  
**AIRSAMPLER AS-00202 02/02/17**

This card is nontransferable and considered 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 or corrections contact: SCDHEC - Asbestos Section  
2600 Bull Street  
Columbia, SC 29201  
(803) 898-4289