



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

City of Spartanburg  
400 Kingston Street  
Spartanburg, South Carolina

### ***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: 0417-66

January 3, 2018





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Mauldin, SC 29662  
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### 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

### Apex Project Number 0417-66

January 3, 2018

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

Reference: Asbestos and Lead-Based Paint Assessment Services  
400 Kingston Street  
Spartanburg, South Carolina

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.**

Tom Oliver  
Director of Operations

Appendices

**ASBESTOS AND LEAD BASED PAINT ASSESSMENT**

**CITY OF SPARTANBURG  
400 KINGSTON STREET  
SPARTANBURG, SOUTH CAROLINA**

**APEX PROJECT NO. 0417-66**

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**SECTION I**

**Asbestos & Lead Evaluation Report**

<b>ASBESTOS EVALUATION REPORT</b> <b>APEX PROJECT NUMBER: 0417-66</b>
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Date:	1/3/2018	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:	400 Kingston Street Spartanburg, SC		
Assessor:	Ted Shultz	Date of Assessment:	12/1/2017
Company:	Apex Environmental Management 7 Winchester Court Mauldin, SC 29662	Phone Number:	(864) 404-3210
Purpose of Assessment:	Demolition	Age of Structure:	Approximately 75 years
Building Type:	Residential	Number of Stories:	1
Foundation:	Brick & CMU Block Crawlpace	Approximate Square Footage:	1,350 SF

**EXTERIOR BUILDING MATERIALS**

- Pitched wooden hipped roof with shingles & with & without felt.
- Roll roofing with tar on the back porch.
- Wooden doors with no caulk.
- Wooden window casings with caulk.
- Wooden windows with glazing & caulk.
- Wooden siding.
- Roof/chimney mastic on 2 chimneys – assumed positive.

**INTERIOR BUILDING MATERIALS**

- Plaster with finish walls & ceilings.
- Bead board walls & ceilings.
- Wooden panel ceilings.
- Wooden wall panels over bead board and plaster walls.
- Wooden wall panels over felt paper.
- 2' x 4' fiberglass ceiling tiles on a grid system with no mastic.
- Carpet over wooden floors.
- Multiple types & layers of vinyl flooring with and without mastics.
- A portion of the floors, walls & ceilings are collapsed.

## **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. Thirty-two (32) 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). Seventeen (17) 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 renovation or demolition activities. 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 305 SF of the brown stone pattern vinyl floor & mastic (2<sup>nd</sup> layer under wood) in the kitchen.
- Approximately 12 LF of chimney mastic/tar on 2 chimneys – assumed positive.

### 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  $\text{mg}/\text{cm}^2$ . The laboratory analytical results and chain-of-custody are included in the LBP Analysis Report in Appendix II. The approximate locations of the paint samples collected and analytical results are presented in the *LBP Data Table* included with this report.

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

- Exterior white wooden siding.
- Exterior white wooden doors and door frames.
- Exterior white wooden windows and window frames.
- Exterior white wooden front porch header beams and ceiling.
- Exterior white wooden soffit.
- Exterior white wooden back porch siding.
- Interior bead board walls with multiple colors throughout.
- Interior white wooden doors.

## **RECOMMENDATIONS AND DISCUSSION**

### Asbestos Containing Materials

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

APEX recommends the following:

1. Abate the asbestos containing materials in the structure prior to renovation or demolition.
2. Follow applicable asbestos regulations during renovation or demolition of the structure. You should be aware that stringent requirements are imposed upon anyone renovating or demolishing a structure in which ACM will be disturbed. This work must be performed in accordance with OSHA asbestos regulations, 29 CFR 1910 & 1926, and NESHAP asbestos regulations 40 CFR 61, subpart M. South Carolina regulations require the accreditation of personnel who work in the asbestos field and notification and permitting fees for asbestos

removal projects. There is a 10 working day notification period required prior to abatement of asbestos in a facility. Failure to take proper precautions and actions to protect human health and the environment can result in penalties, danger to personnel, and construction delays.

### Lead-Based Paint

Currently the 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 ANALYSIS**

Project Name: COS 400 Kingston Street ACM/LBP

Sampled By: Ted Shultz

Project Location: 400 Kingston Street, Spartanburg, South Carolina

Project Manager: Tom Oliver

Project Number: 0417-66

Date: 12/1/2017

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
1	Living room; kitchen; front & back bedrooms	Plaster with finish	PLM - NAD	Friable	Good	1,000 SF
2						
3						
4						
5						
6	Kitchen (top layer)	Tan square pattern vinyl floor & mastic	PLM - NAD	Non-Friable	Good	305 SF
7			TEM - NAD			
8	Kitchen (2nd layer under wood)	Brown stone pattern vinyl floor & mastic	PLM - 25% chrysotile (vinyl flooring) 3% chrysotile (mastic)	Non-Friable	Good	305 SF
9						
10						
11	Bathroom & back porch steps	Red pattern self-stick vinyl floor tile	PLM - NAD	Non-Friable	Good	40 SF
12			TEM - NAD			
13						
14	Kitchen (1 wall)	Felt paper under wooden wall panel	PLM - NAD	Non-Friable	Good	150 SF
15			TEM - NAD			
16						
17	Wooden window casings	Caulk	PLM - NAD	Non-Friable	Good	16 EA
18			TEM - NAD			
19						
20	Wooden windows	Glazing & caulk	PLM - NAD	Non-Friable	Good	9 EA
21			TEM - <1% chry (glazing); NAD (caulk)			
22						
23						

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

Project Name: COS 400 Kingston Street ACM/LBP

Sampled By: Ted Shultz

Project Location: 400 Kingston Street, Spartanburg, South Carolina

Project Manager: Tom Oliver

Project Number: 0417-66

Date: 12/1/2017

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
24	Roof - front & sides	Roof shingles (3 layers) and felt (1 layer)	PLM - NAD	Non-Friable	Damaged	1,350 SF
25			TEM - NAD			
26						
27	Roof - back porch	Roll roofing with mastic	PLM - NAD	Non-Friable	Damaged	200 SF
28			TEM - NAD			
29						
30	Roof - back	Roof shingles (3 layers) and no felt	PLM - NAD	Non-Friable	Damaged	450 SF
31			TEM - NAD			
32						
<b>Assumed</b>	<b>Chimney/roof</b>	<b>Chimney mastic on 2 chimneys</b>	<b>Assumed</b>	<b>Non-Friable</b>	<b>Good</b>	<b>12 LF</b>

NAD = No Asbestos Detected

LF = Linear Feet

EA = Each

Amos = Amosite

**Bold = Positive For Asbestos**

SF = Square Feet

Chry = Chrysotile

**FIELD DATA SHEET  
LBP ANALYSIS**

Project Name: COS 400 Kingston Street ACM/LBP

Sampled By: Tom Oliver

Project Location: 400 Kingston Street, Spartanburg, South Carolina

Project Manager: Tom Oliver

Project Number: 0417-66

Date: 12/1/2017

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m <sup>3</sup> )
1		Standardization			182.00
2		Calibration			1.13
3		Calibration			1.13
4		Calibration			1.19
<b>5</b>	<b>Exterior</b>	<b>Siding</b>	<b>White</b>	<b>Wood</b>	<b>5.00</b>
<b>6</b>	<b>Exterior</b>	<b>Door frame</b>	<b>White</b>	<b>Wood</b>	<b>5.00</b>
<b>7</b>	<b>Exterior</b>	<b>Door</b>	<b>White</b>	<b>Wood</b>	<b>1.11</b>
<b>8</b>	<b>Exterior</b>	<b>Window frame</b>	<b>White</b>	<b>Wood</b>	<b>3.12</b>
<b>9</b>	<b>Exterior</b>	<b>Window</b>	<b>White</b>	<b>Wood</b>	<b>3.23</b>
10	Exterior	Handrail	White	Wood	0.00
<b>11</b>	<b>Exterior</b>	<b>Front porch header beam</b>	<b>White</b>	<b>Wood</b>	<b>2.46</b>
<b>12</b>	<b>Exterior</b>	<b>Front porch ceiling</b>	<b>Green</b>	<b>Wood</b>	<b>1.67</b>
<b>13</b>	<b>Exterior</b>	<b>Soffit</b>	<b>White</b>	<b>Wood</b>	<b>2.56</b>
14	Exterior	Front porch floor	Grey	Concrete	0.00
15	Exterior	Foundation	Grey	CMU block	0.07
16	Exterior	Foundation	Grey	Brick	0.02
<b>17</b>	<b>Exterior</b>	<b>Back porch siding</b>	<b>White</b>	<b>Wood</b>	<b>1.05</b>
18	Exterior	Back porch ceiling	White	Wood	0.00
<b>19</b>	<b>Interior</b>	<b>Wall</b>	<b>Grey</b>	<b>Bead board</b>	<b>3.79</b>
20	Interior	Wall panel	White	Wood	0.62
21	Interior	Window	Tan	Wood	0.04
22	Interior	Window sill	Tan	Wood	0.01
23	Interior	Door frame	Tan	Wood	0.03
<b>24</b>	<b>Interior</b>	<b>Door</b>	<b>White</b>	<b>Wood</b>	<b>1.61</b>
25	Interior	Baseboard	Tan	Wood	0.06
26	Interior	Floor	White	Wood	0.04

**FIELD DATA SHEET  
LBP ANALYSIS**

Project Name: COS 400 Kingston Street ACM/LBP

Sampled By: Tom Oliver

Project Location: 400 Kingston Street, Spartanburg, South Carolina

Project Manager: Tom Oliver

Project Number: 0417-66

Date: 12/1/2017

<b>Sample No.</b>	<b>Sample Location</b>	<b>Component</b>	<b>Color</b>	<b>Substrate</b>	<b>Analytical Result (mg/m<sup>3</sup>)</b>
27	Interior	Window frame	Tan	Wood	0.96
28	Interior	Wall	White	Plaster	0.04
29	Interior	Fire place mantle	Tan	Wood	0.02

**Bold = LBP**

**SECTION III**

**Laboratory Analytical Results**



December 7, 2017

Apex Environmental Management  
7 Winchester Court  
Mauldin, SC 29662

**CLIENT PROJECT:** COS 400 Kingston St. Spartanburg  
**CEI LAB CODE:** A17-18172

Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on December 5, 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





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

Prepared for

**Apex Environmental Management**

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CLIENT PROJECT: COS 400 Kingston St. Spartanburg

CEI LAB CODE: A17-18172

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

REPORT DATE: 12/07/17

TOTAL SAMPLES ANALYZED: 22

# SAMPLES >1% ASBESTOS: 2

**TEL: 866-481-1412**

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



# Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS 400 Kingston St. Spartanburg

CEI LAB CODE: A17-18172

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
1	Layer 1	A2563155	Yellow	Finish Texture	None Detected
	Layer 2	A2563155	Tan	Plaster	None Detected
2	Layer 1	A2563156	Yellow	Finish Texture	None Detected
	Layer 2	A2563156	Tan	Plaster	None Detected
3	Layer 1	A2563157	Yellow	Finish Texture	None Detected
	Layer 2	A2563157	Tan	Plaster	None Detected
4	Layer 1	A2563158	Yellow	Finish Texture	None Detected
	Layer 2	A2563158	Tan	Plaster	None Detected
5	Layer 1	A2563159	Yellow	Finish Texture	None Detected
	Layer 2	A2563159	Tan	Plaster	None Detected
6	Layer 1	A2563160	Beige,Gray	Floor Tile (linoleum)	None Detected
	Layer 2	A2563160	Yellow	Mastic	None Detected
7	Layer 1	A2563161	Beige,Gray	Floor Tile (linoleum)	None Detected
	Layer 2	A2563161	Yellow	Mastic	None Detected
8		A2563162		Sample Submitted for TEM Analysis	
9	Layer 1	A2563163	Green,Gray	Floor Tile (linoleum)	<b>Chrysotile 25%</b>
	Layer 2	A2563163	Yellow	Mastic	<b>Chrysotile 3%</b>
10		A2563164		Sample Not Analyzed per COC	
11		A2563165		Sample Not Analyzed per COC	
12		A2563166A	Brown,Beige	Floor Tile	None Detected
		A2563166B	Yellow,Clear	Mastic	None Detected
13		A2563167A	Brown,Beige	Floor Tile	None Detected
		A2563167B	Yellow,Clear	Mastic	None Detected
14		A2563168		Sample Submitted for TEM Analysis	
15		A2563169	Black,Brown	Felt Paper	None Detected
16		A2563170	Black,Brown	Felt Paper	None Detected
17		A2563171		Sample Submitted for TEM Analysis	
18		A2563172	Tan,Off-white	Window Casing Caulk	None Detected
19		A2563173	Tan,Off-white	Window Casing Caulk	None Detected



# Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS 400 Kingston St. Spartanburg

CEI LAB CODE: A17-18172

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
20		A2563174		Sample Submitted for TEM Analysis	
21	Layer 1	A2563175	Tan,Off-white	Window Glazing	None Detected
	Layer 2	A2563175	White	Window Caulking	None Detected
22		A2563176	Tan,Off-white	Window Glazing	None Detected
23		A2563177		Sample Submitted for TEM Analysis	
24	Layer 1	A2563178A	Black,Gray	Shingle (type 1)	None Detected
	Layer 2	A2563178A	Black,Gray	Shingle (type 2)	None Detected
	Layer 3	A2563178A	Black,Gray	Shingle (type 3)	None Detected
		A2563178B	Black,Brown	Felt Paper	None Detected
25	Layer 1	A2563179A	Black,Gray	Shingle (type 1)	None Detected
	Layer 2	A2563179A	Black,Gray	Shingle (type 2)	None Detected
	Layer 3	A2563179A	Black,Gray	Shingle (type 3)	None Detected
		A2563179B	Black,Brown	Felt Paper	None Detected
26		A2563180		Sample Submitted for TEM Analysis	
27	Layer 1	A2563181	Black,Silver	Surface Tar	None Detected
	Layer 2	A2563181	Black,Gray	Roll Shingle	None Detected
28	Layer 1	A2563182	Black,Silver	Surface Tar	None Detected
	Layer 2	A2563182	Black,Gray	Roll Shingle	None Detected
29		A2563183		Sample Submitted for TEM Analysis	
30	Layer 1	A2563184	Black,Gray	Shingle (type 1)	None Detected
	Layer 2	A2563184	Black,Gray	Shingle (type 2)	None Detected
	Layer 3	A2563184	Black,Red	Shingle (type 3)	None Detected
31	Layer 1	A2563185	Black,Gray	Shingle (type 1)	None Detected
	Layer 2	A2563185	Black,Gray	Shingle (type 2)	None Detected
	Layer 3	A2563185	Black,Red	Shingle (type 3)	None Detected
32		A2563186		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:** A17-18172  
**Date Received:** 12-05-17  
**Date Analyzed:** 12-07-17  
**Date Reported:** 12-07-17

**Project:** COS 400 Kingston St. Spartanburg

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
1 Layer 1 A2563155	Finish Texture	Heterogeneous	<1%	Cellulose	75%	Calc Carb	None Detected
		Yellow			10%	Binder	
		Fibrous			15%	Paint	
		Loosely Bound					
Layer 2 A2563155	Plaster	Heterogeneous	2%	Cellulose	40%	Calc Carb	None Detected
		Tan	<1%	Hair	48%	Silicates	
		Fibrous			10%	Binder	
		Bound					
2 Layer 1 A2563156	Finish Texture	Heterogeneous	<1%	Cellulose	75%	Calc Carb	None Detected
		Yellow			10%	Binder	
		Fibrous			15%	Paint	
		Loosely Bound					
Layer 2 A2563156	Plaster	Heterogeneous	2%	Cellulose	40%	Calc Carb	None Detected
		Tan	<1%	Hair	48%	Silicates	
		Fibrous			10%	Binder	
		Bound					
3 Layer 1 A2563157	Finish Texture	Heterogeneous	<1%	Cellulose	75%	Calc Carb	None Detected
		Yellow			10%	Binder	
		Fibrous			15%	Paint	
		Loosely Bound					
Layer 2 A2563157	Plaster	Heterogeneous	2%	Cellulose	40%	Calc Carb	None Detected
		Tan	<1%	Hair	48%	Silicates	
		Fibrous			10%	Binder	
		Bound					
4 Layer 1 A2563158	Finish Texture	Heterogeneous	<1%	Cellulose	75%	Calc Carb	None Detected
		Yellow			10%	Binder	
		Fibrous			15%	Paint	
		Loosely Bound					



# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

**CEI Lab Code:** A17-18172  
**Date Received:** 12-05-17  
**Date Analyzed:** 12-07-17  
**Date Reported:** 12-07-17

**Project:** COS 400 Kingston St. Spartanburg

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
Layer 2 A2563158	Plaster	Heterogeneous Tan Fibrous Bound	2% <1%	Cellulose Hair	40% 48% 10%	Calc Carb Silicates Binder	None Detected
<b>5</b> Layer 1 A2563159	Finish Texture	Heterogeneous Yellow Fibrous Loosely Bound	<1%	Cellulose	75% 10% 15%	Calc Carb Binder Paint	None Detected
Layer 2 A2563159	Plaster	Heterogeneous Tan Fibrous Bound	2% <1%	Cellulose Hair	40% 48% 10%	Calc Carb Silicates Binder	None Detected
<b>6</b> Layer 1 A2563160	Floor Tile (linoleum)	Heterogeneous Beige, Gray Fibrous Bound	20% 5%	Cellulose Fiberglass	50% 25%	Vinyl Binder	None Detected
Layer 2 A2563160	Mastic	Heterogeneous Yellow Fibrous Bound	3%	Cellulose	97%	Mastic	None Detected
<b>7</b> Layer 1 A2563161	Floor Tile (linoleum)	Heterogeneous Beige, Gray Fibrous Bound	20% 5%	Cellulose Fiberglass	50% 25%	Vinyl Binder	None Detected
Layer 2 A2563161	Mastic	Heterogeneous Yellow Fibrous Bound	3%	Cellulose	97%	Mastic	None Detected
<b>8</b> A2563162	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:** A17-18172  
**Date Received:** 12-05-17  
**Date Analyzed:** 12-07-17  
**Date Reported:** 12-07-17

**Project:** COS 400 Kingston St. Spartanburg

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
<b>9</b> Layer 1 A2563163	Floor Tile (linoleum)	Heterogeneous Green,Gray Fibrous Bound	10%	Cellulose	50%	Vinyl	<b>25% Chrysotile</b>
					15%	Binder	
<b>9</b> Layer 2 A2563163	Mastic	Heterogeneous Yellow Fibrous Bound	2%	Cellulose	95%	Mastic	<b>3% Chrysotile</b>
Lab Notes: Possible contamination from adjacent positive fibrous backing layer.							
<b>10</b> A2563164	Sample Not Analyzed per COC						
<b>11</b> A2563165	Sample Not Analyzed per COC						
<b>12</b> A2563166A	Floor Tile	Heterogeneous Brown,Beige Fibrous Tightly Bound	<1%	Cellulose	90%	Vinyl	None Detected
					10%	Calc Carb	
<b>12</b> A2563166B	Mastic	Heterogeneous Yellow,Clear Fibrous Bound	3%	Cellulose	97%	Mastic	None Detected
<b>13</b> A2563167A	Floor Tile	Heterogeneous Brown,Beige Fibrous Tightly Bound	<1%	Cellulose	90%	Vinyl	None Detected
					10%	Calc Carb	
<b>13</b> A2563167B	Mastic	Heterogeneous Yellow,Clear Fibrous Bound	3%	Cellulose	97%	Mastic	None Detected



# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

**CEI Lab Code:** A17-18172  
**Date Received:** 12-05-17  
**Date Analyzed:** 12-07-17  
**Date Reported:** 12-07-17

**Project:** COS 400 Kingston St. Spartanburg

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
<b>14</b> A2563168	Sample Submitted for TEM Analysis						
<b>15</b> A2563169	Felt Paper	Heterogeneous Black,Brown Fibrous Bound	55%	Cellulose	35%	Tar 10% Binder	None Detected
<b>16</b> A2563170	Felt Paper	Heterogeneous Black,Brown Fibrous Bound	55%	Cellulose	35%	Tar 10% Binder	None Detected
<b>17</b> A2563171	Sample Submitted for TEM Analysis						
<b>18</b> A2563172	Window Casing Caulk	Heterogeneous Tan,Off-white Fibrous Bound	<1% 2%	Cellulose Talc	85% 13%	Caulk Paint	None Detected
<b>19</b> A2563173	Window Casing Caulk	Heterogeneous Tan,Off-white Fibrous Bound	<1% 2%	Cellulose Talc	85% 13%	Caulk Paint	None Detected
<b>20</b> A2563174	Sample Submitted for TEM Analysis						
<b>21</b> Layer 1 A2563175	Window Glazing	Heterogeneous Tan,Off-white Fibrous Bound	<1% 2%	Cellulose Talc	85% 13%	Caulk Paint	None Detected
Layer 2 A2563175	Window Caulking	Heterogeneous White Fibrous Bound	<1%	Cellulose	90% 10%	Caulk Paint	None Detected



# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

**CEI Lab Code:** A17-18172  
**Date Received:** 12-05-17  
**Date Analyzed:** 12-07-17  
**Date Reported:** 12-07-17

**Project:** COS 400 Kingston St. Spartanburg

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
<b>22</b> A2563176	Window Glazing	Heterogeneous	<1%	Cellulose	85%	Caulk	None Detected
		Tan,Off-white Fibrous Bound	2%	Talc	13%	Paint	
Lab Notes: No caulking present.							
<b>23</b> A2563177	Sample Submitted for TEM Analysis						
<b>24</b> Layer 1 A2563178A	Shingle (type 1)	Heterogeneous	25%	Fiberglass	25%	Tar	None Detected
		Black,Gray Fibrous Bound			40%	Gravel Silicates	
Layer 2 A2563178A	Shingle (type 2)	Heterogeneous	25%	Fiberglass	25%	Tar	None Detected
		Black,Gray Fibrous Bound			40%	Gravel Silicates	
Layer 3 A2563178A	Shingle (type 3)	Heterogeneous	25%	Fiberglass	25%	Tar	None Detected
		Black,Gray Fibrous Bound			40%	Gravel Silicates	
A2563178B	Felt Paper	Heterogeneous	55%	Cellulose	35%	Tar	None Detected
		Black,Brown Fibrous Bound			10%	Binder	
<b>25</b> Layer 1 A2563179A	Shingle (type 1)	Heterogeneous	25%	Fiberglass	25%	Tar	None Detected
		Black,Gray Fibrous Bound			40%	Gravel Silicates	
Layer 2 A2563179A	Shingle (type 2)	Heterogeneous	25%	Fiberglass	25%	Tar	None Detected
		Black,Gray Fibrous Bound			40%	Gravel Silicates	



# ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

**CEI Lab Code:** A17-18172  
**Date Received:** 12-05-17  
**Date Analyzed:** 12-07-17  
**Date Reported:** 12-07-17

**Project:** COS 400 Kingston St. Spartanburg

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
Layer 3 A2563179A	Shingle (type 3)	Heterogeneous Black,Gray Fibrous Bound	25%	Fiberglass	25%	Tar	None Detected
A2563179B	Felt Paper	Heterogeneous Black,Brown Fibrous Bound	55%	Cellulose	35%	Tar	None Detected
<b>26</b> A2563180	Sample Submitted for TEM Analysis						
Layer 1 A2563181	Surface Tar	Heterogeneous Black,Silver Fibrous Bound	10%	Cellulose	50%	Tar	None Detected
Layer 2 A2563181	Roll Shingle	Heterogeneous Black,Gray Fibrous Bound	25%	Fiberglass	25%	Tar	None Detected
Layer 1 A2563182	Surface Tar	Heterogeneous Black,Silver Fibrous Bound	10%	Cellulose	50%	Tar	None Detected
Layer 2 A2563182	Roll Shingle	Heterogeneous Black,Gray Fibrous Bound	25%	Fiberglass	25%	Tar	None Detected
<b>29</b> A2563183	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:** A17-18172  
**Date Received:** 12-05-17  
**Date Analyzed:** 12-07-17  
**Date Reported:** 12-07-17

**Project:** COS 400 Kingston St. Spartanburg

## ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous	Cellulose	Non-Fibrous		
<b>30</b> Layer 1 A2563184	Shingle (type 1)	Heterogeneous	30%	Cellulose	25%	Tar	None Detected
		Black,Gray			40%	Gravel	
		Fibrous			5%	Mica	
		Bound					
Layer 2 A2563184	Shingle (type 2)	Heterogeneous	30%	Cellulose	25%	Tar	None Detected
		Black,Gray			40%	Gravel	
		Fibrous			5%	Mica	
		Bound					
Layer 3 A2563184	Shingle (type 3)	Heterogeneous	30%	Cellulose	25%	Tar	None Detected
		Black,Red			40%	Gravel	
		Fibrous			5%	Mica	
		Bound					
<b>31</b> Layer 1 A2563185	Shingle (type 1)	Heterogeneous	30%	Cellulose	25%	Tar	None Detected
		Black,Gray			40%	Gravel	
		Fibrous			5%	Mica	
		Bound					
Layer 2 A2563185	Shingle (type 2)	Heterogeneous	30%	Cellulose	25%	Tar	None Detected
		Black,Gray			40%	Gravel	
		Fibrous			5%	Mica	
		Bound					
Layer 3 A2563185	Shingle (type 3)	Heterogeneous	30%	Cellulose	25%	Tar	None Detected
		Black,Red			40%	Gravel	
		Fibrous			5%	Mica	
		Bound					
<b>32</b> A2563186	Sample Submitted for TEM Analysis						



**LEGEND:** Non-Anth = Non-Asbestiform Anthophyllite  
Non-Trem = Non-Asbestiform Tremolite  
Calc Carb = Calcium Carbonate

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

**REPORTING LIMIT:** <1% by visual estimation

**REPORTING LIMIT FOR POINT COUNTS:** 0.25% by 400 Points or 0.1% by 1,000 Points

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

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. Estimated measurement of uncertainty is available on request.

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. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

**ANALYST:**

Scott Minyard

**APPROVED BY:**

Tianbao Bai, Ph.D., CIH  
Laboratory Director





730 SE Maynard Road, Cary, NC 27511  
 Tel: 866-481-1412; Fax: 919-481-1442

(32) A17-18172  
 A2563155  
 A2563186

# ASBESTOS CHAIN OF CUSTODY

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

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: <i>Ted Shultz</i>
Company: Apex Environmental Management, Inc.	Email / Tel: <i>tshultz2@apex-ehs.com</i>
Address: 7 Winchester Ct. Mauldin, South Carolina 29662	Project Name: <i>COS 400 Kingston St. Spartanburg</i>
Email:	Project ID#:
Tel: (864) 404-3210      Fax:	PO #:
	STATE SAMPLES COLLECTED IN: <i>SC</i>

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 checked="" type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (400)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>				
PLM POINT COUNT (1000)	EPA 600	<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"/>
PLM BULK	CARB 435		<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"/>				
TEM AIR	EPA AHERA	<input type="checkbox"/>	<input type="checkbox"/>				
TEM AIR	NIOSH 7402	<input type="checkbox"/>	<input type="checkbox"/>				
TEM AIR	ISO 10312	<input type="checkbox"/>	<input type="checkbox"/>				
TEM AIR	ASTM 6281-09	<input type="checkbox"/>	<input type="checkbox"/>				
TEM BULK	CHATFIELD		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
TEM DUST WIPE	ASTM D6480-05	<input type="checkbox"/>	<input type="checkbox"/>				
TEM DUST MICROVAC	ASTM D5755-09	<input type="checkbox"/>	<input type="checkbox"/>				
TEM SOIL	ASTM D7521-13			<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"/>
OTHER:		<input type="checkbox"/>	<input type="checkbox"/>				

REMARKS / SPECIAL INSTRUCTIONS: <i>positive stop.</i>		<input checked="" type="checkbox"/> Accept Samples <input type="checkbox"/> Reject Samples	
Relinquished By:	Date/Time	Received By:	Date/Time
<i>John K. Miller</i>	<i>12-4-17</i>	<i>MR</i>	<i>12/5/17 10:20 am</i>

Samples will be disposed of 30 days after analysis

Page 1 of 3

# ASBESTOS SAMPLING FORM



COMPANY CONTACT INFORMATION	
Company: <u>Apex</u>	Job Contact: <u>Tea</u>
Project Name: <u>Cos 400 Kingston st</u>	
Project ID #:	Tel: <u>803-348-4921</u>

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST			
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
1	Plaster w/ finish		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
2			PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
3	<del>up</del>		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
4			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
5			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
6	Tan <del>stone</del> Square		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
7	Pattern Flr tile w/		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
8	mastic <u>↓</u>		PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
9	Brown stone pattern		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
10	flr tile w/ mastic		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
11	<u>↓</u>		PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
12	Red self-stick		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
13	Flr tile <u>↓</u>		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
14	<u>↓</u>		PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
15	felt paper under		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
16	wood wall panel		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
17	<u>↓</u>		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
18	window casing		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
19	caulk <u>↓</u>		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
20	<u>↓</u>		PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
21	Window glazing		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
22	w/ caulk		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
23	<u>↓</u>		PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
24	3 Shingles		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
25	1 felt <u>↓</u>		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
26	<u>↓</u>		PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
	Over		PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>





December 12, 2017

Apex Environmental Management  
7 Winchester Court  
Mauldin, SC 29662

**CLIENT PROJECT:** COS 400 Kingston St. Spartanburg  
**CEI LAB CODE:** T17-2512

Dear Customer:

Enclosed are asbestos analysis results for TEM bulk samples received at our laboratory on December 7, 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".

Tianbao Bai, Ph.D., CIH  
Laboratory Director



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

Prepared for

**Apex Environmental Management**

---

CLIENT PROJECT: COS 400 Kingston St. Spartanburg

CEI LAB CODE: T17-2512

TEST METHOD: Bulk Chatfield  
EPA 600 / R93 / 116

REPORT DATE: 12/12/17

**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:** T17-2512  
**Date Received:** 12-07-17  
**Date Analyzed:** 12-08-17  
**Date Reported:** 12-12-17

**Project:** COS 400 Kingston St. Spartanburg

## 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 %
8 T71318	Beige, Gray Floor Tile (linoleum)	0.34	51.2	45.6	3.2	None Detected
8 T71319	Yellow Mastic	0.156	64.7	17.9	17.4	None Detected
14 T71320	Brown, Beige Floor Tile	0.799	19.9	78	2.1	None Detected
14 T71321	Yellow, Clear Mastic	0.105	84.8	12.4	2.8	None Detected
17 T71322	Black, Brown Felt Paper	0.703	98.2	1	.8	None Detected
20 T71323	Tan, Off-white Window Casing Caulk	0.349	31.2	43.8	25	None Detected
23 T71324	Tan, Off-white Window Glazing	0.458	14	84.5	1.5	<1% Chrysotile
23 T71325	White Window Glazing	0.441	30.2	65.1	4.7	None Detected
26 T71326	Black, Gray Shingle (type 1)	0.496	18.3	44.8	36.9	None Detected
26 T71327	Black, Gray Shingle (type 2)	0.394	24.6	29.4	46	None Detected
26 T71328	Black, Gray Shingle (type 3)	0.556	19.1	43.5	37.4	None Detected
26 T71329	Black, Brown Felt Paper	0.572	96.3	2.4	1.3	None Detected



# ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

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

**CEI Lab Code:** T17-2512  
**Date Received:** 12-07-17  
**Date Analyzed:** 12-08-17  
**Date Reported:** 12-12-17

**Project:** COS 400 Kingston St. Spartanburg

## 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 %
29 T71330	Black, Silver Surface Tar	0.469	25.8	23.9	50.3	<b>None Detected</b>
29 T71331	Black, Gray Roll Shingle	0.385	36.9	24.9	38.2	<b>None Detected</b>
32 T71332	Black, Gray Shingle (type 1)	0.54	53.7	22.6	23.7	<b>None Detected</b>
32 T71333	Black, Gray Shingle (type 2)	0.296	45.6	49	5.4	<b>None Detected</b>
32 T71334	Black, Red Shingle (type 3)	0.434	61.1	3.2	35.7	<b>None Detected</b>



---

---

**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. Estimated measurement of uncertainty is available on request. Samples were received in acceptable condition unless otherwise noted.

**ANALYST:**

*Kamila Reichert*

Kamila Reichert

**APPROVED BY:**

*Tianbao Bai*

Tianbao Bai, Ph.D., CIH  
Laboratory Director

T17-2512  
T71318-334

(32) A17-18172  
A2563155  
A2563186



730 SE Maynard Road, Cary, NC 27511  
Tel: 866-481-1412; Fax: 919-481-1442

17

**ASBESTOS CHAIN OF CUSTODY**

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

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: <i>Ted Shultz</i>
Company: Apex Environmental Management, Inc.	Email / Tel: <i>tshultz@apex-ehs.com</i>
Address: 7 Winchester Ct. Mauldin, South Carolina 29662	Project Name: <i>COS 400 Kingston St. Spartan</i>
Email:	Project ID#:
Tel: (864) 404-3210 Fax:	PO #:
	STATE SAMPLES COLLECTED IN: <i>SC</i>

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 checked="" type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (400)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>				
PLM POINT COUNT (1000)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>				
PLM GRAV w POINT COUNT	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>				
PLM BULK	CARB 435	<input type="checkbox"/>	<input type="checkbox"/>				
PCM AIR	NIOSH 7400	<input type="checkbox"/>	<input type="checkbox"/>				
TEM AIR	EPA AHERA	<input type="checkbox"/>	<input type="checkbox"/>				
TEM AIR	NIOSH 7402	<input type="checkbox"/>	<input type="checkbox"/>				
TEM AIR	ISO 10312	<input type="checkbox"/>	<input type="checkbox"/>				
TEM AIR	ASTM 6281-09	<input type="checkbox"/>	<input type="checkbox"/>				
TEM BULK	CHATFIELD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
TEM DUST WIPE	ASTM D6480-05	<input type="checkbox"/>	<input type="checkbox"/>				
TEM DUST MICROVAC	ASTM D5755-09	<input type="checkbox"/>	<input type="checkbox"/>				
TEM SOIL	ASTM D7521-13	<input type="checkbox"/>	<input type="checkbox"/>				
TEM VERMICULITE	CINCINNATI METHOD	<input type="checkbox"/>	<input type="checkbox"/>				
OTHER:		<input type="checkbox"/>	<input type="checkbox"/>				

REMARKS / SPECIAL INSTRUCTIONS:  
*positive stop.*

Accept Samples  
 Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	<i>12-4-17</i>	<i>MR</i>	<i>12/5/17 10:20 am</i>
<i>[Signature]</i>	<i>12-7-17 11:35 am</i>		

Samples will be disposed of 30 days after analysis



# ASBESTOS SAMPLING FORM

T17-2512

### COMPANY CONTACT INFORMATION

Company: <u>Apex</u>	Job Contact: <u>TEU</u>
Project Name: <u>Cos 400 Kingston st</u>	
Project ID #:	Tel: <u>803-348-4921</u>

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST	
			PLM	TEM
1	Plaster w/ finish		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2			<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	<del>water</del>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
4			<input type="checkbox"/>	<input type="checkbox"/>
5			<input type="checkbox"/>	<input type="checkbox"/>
6	Tan <del>stone</del> square		<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	pattern Flr tile w/		<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	mastic ↓		<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Brown stone pattern		<input checked="" type="checkbox"/>	<input type="checkbox"/>
10	flr tile w/ mastic		<input checked="" type="checkbox"/>	<input type="checkbox"/>
11	↓		<input type="checkbox"/>	<input checked="" type="checkbox"/>
12	Red self-stick		<input checked="" type="checkbox"/>	<input type="checkbox"/>
13	Flr tile ↓		<input checked="" type="checkbox"/>	<input type="checkbox"/>
14	↓		<input type="checkbox"/>	<input checked="" type="checkbox"/>
15	felt paper under		<input checked="" type="checkbox"/>	<input type="checkbox"/>
16	wood wall panel		<input checked="" type="checkbox"/>	<input type="checkbox"/>
17	↓		<input checked="" type="checkbox"/>	<input type="checkbox"/>
18	window casing		<input checked="" type="checkbox"/>	<input type="checkbox"/>
19	caulk ↓		<input checked="" type="checkbox"/>	<input type="checkbox"/>
20	↓		<input type="checkbox"/>	<input checked="" type="checkbox"/>
21	Window glazing		<input checked="" type="checkbox"/>	<input type="checkbox"/>
22	w/ caulk		<input checked="" type="checkbox"/>	<input type="checkbox"/>
23	↓		<input type="checkbox"/>	<input checked="" type="checkbox"/>
24	3 shingles		<input checked="" type="checkbox"/>	<input type="checkbox"/>
25	1 felt ↓		<input checked="" type="checkbox"/>	<input type="checkbox"/>
26	↓		<input type="checkbox"/>	<input checked="" type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
	Over		<input type="checkbox"/>	<input type="checkbox"/>



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

Asbestos & Lead Assessment  
City of Spartanburg  
400 Kingston Street  
Spartanburg, South Carolina



Photo 1 – 400 Kingston Street in Spartanburg, South Carolina.



Photo 2 – Plaster with finish.



Photo 3 – Tan square pattern vinyl flooring & mastic (top layer & brown stone pattern vinyl flooring & mastic (2<sup>nd</sup> layer) in the kitchen.



Photo 4 – Red brick patter self-stick vinyl floor tile in the bathroom.



Photo 5 – Red brick patter self-stick vinyl floor tile on the back porch steps.



Photo 6 – Felt paper under wooden wall panel in the kitchen.



Photo 7 – Caulk on wooden window casings.



Photo 8 – Glazing & caulk on wooden windows.



Photo 9 – Front & side roofs with shingles & felt.



Photo 10 – Back roof with shingles & no felt. 2 Chimneys with mastic – assumed positive.



Photo 11 – Roll roofing with tar on back porch.

**SECTION V**

**SC DHEC Asbestos Inspector License**

**SCDHEC ISSUED**  
Asbestos ID Card

**Tedman K Shultz**

Expiration Date



**AIR SAMPLER AS-00355 02/24/18**  
**CONSULTBI BI-00971 01/18/18**

**North Carolina  
Asbestos Accreditation**



EXPIRATION			
02-28-2018			
DOB	SEX	HT	WT
03-16-1972	M	5'10"	275
CLASS	#	EXP	
AIR MONITOR	80864	02-18	
INSPECTOR	12900	01-18	

Tedman K Shultz  
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Greenville, SC 29607

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