



Asbestos & Lead Based Paint Assessment

City of Spartanburg
431 Hunt Street
Spartanburg, South Carolina 29301

Prepared for:

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

Prepared by:

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

Project Number: 0118-14

May 17, 2017





Apex Project Number 0118-14

May 17, 2018

7 Winchester Court
Mauldin, SC 29662
864.404.3210 office
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Mr. Jeff Tillerson
City of Spartanburg
440 South Church Street, Suite B
Spartanburg, SC 29306

Reference: Asbestos and Lead-Based Paint Assessment Services
431 Hunt Street
Spartanburg, South Carolina 29301

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. Tillerson:

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

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

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

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

Respectfully submitted,
APEX ENVIRONMENTAL MANAGEMENT, INC.

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

Tom Oliver
Director of Operations

Appendices

ASBESTOS AND LEAD BASED PAINT ASSESSMENT

**CITY OF SPARTANBURG
431 HUNT STREET
SPARTANBURG, SOUTH CAROLINA 29301**

APEX PROJECT NO. 0118-14

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SECTION I

Asbestos & Lead Evaluation Report

ASBESTOS EVALUATION REPORT APEX PROJECT NUMBER: 0118-14
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Date:	5/17/2018	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:	431 Hunt Street Spartanburg, SC 29301		
Assessor:	Tom Oliver	Date of Assessment:	5/2/2018
Company:	Apex Environmental Management 7 Winchester Court Mauldin, SC 29662	Phone Number:	(864) 404-3210
Purpose of Assessment:	Demolition	Age of Structure:	Approximately 80 years
Building Type:	Residential	Number of Stories:	1
Foundation:	CMU Block Crawlspace	Approximate Square Footage:	1,000 SF

EXTERIOR BUILDING MATERIALS

- Pitched wooden roof with shingles & felt.
- Wooden siding.
- Wooden windows with glazing.
- Wooden doors with no caulk.
- Caulk on 2 chimneys & siding on the right side of the house.
- Black mastic/tar on 3 chimneys.

INTERIOR BUILDING MATERIALS

- Plaster with finish walls & ceilings.
- Brick pattern plaster with finish on lower ½ of bathroom walls.
- Wooden floors throughout with paper beneath.
- Multiple types & layers of vinyl flooring with and without mastics.
- Wooden walls & ceiling in the enclosed back porch.

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 Eurofins CEI Labs, Inc. (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-seven (47) 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 (20) 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. 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 75 LF of exterior caulk on 2 chimneys on the right side of the house and adjacent siding.
- Approximately 18 LF of mastic/tar on 3 chimneys.
- Approximately 100 SF of 9" x 9" brown speckled floor tile in kitchen.

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 mg/cm^2 . The laboratory analytical results and chain-of-custody are included in the Lead Analysis Reports 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.

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

Exterior

- Blue wooden siding, front porch headers, soffit & back porch walls.
- Light blue wooden front porch roof.
- White wooden front porch columns, window systems, corner trim, fascia, doors & back porch ceiling & door frames.
- Green wooden door frames.
- Grey wooden siding.

Interior

- Lower $\frac{1}{2}$ of the plaster wall in the bathroom.
- Brown wooden door frames.
- White wooden window systems, chair rails & base boards.

RECOMMENDATIONS AND DISCUSSION

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.

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

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

Lead-Based Paint

Currently the South Carolina Department of Health and Environmental Control (SCDHEC) define LBP as paint containing greater than 1.0 milligram per square centimeter (mg/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 431 Hunt Street ACM/LBP

Sampled By: Tom Oliver

Project Location: 431 Hunt Street, Spartanburg, SC 29301

Project Manager: Tom Oliver

Project Number: 0118-14

Date: 5/2/2018

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
1	Roof	Roof shingles (1 layer & felt (1 layer))	PLM - NAD	Non-Friable	Good	1,500 SF
2						
3			TEM - NAD			
4	Exterior siding & chimneys on the right	Exterior caulk on siding/chimneys	2% chrysotile	Non-Friable	Good	75 LF
5						
6						
7	3 Chimneys	Chimney mastic/tar	10% chrysotile	Non-Friable	Good	18 LF
8						
9						
10	Wooden windows	Window glazing	PLM - NAD	Non-Friable	Good	14 EA
11						
12			TEM - NAD			
13	Bathroom walls lower 1/2	Brick pattern plaster with finish	PLM - NAD	Friable	Good	125 SF
14						
15						
16	Throughout walls & ceilings	Plaster with finish	PLM - NAD	Friable	Good	2,500 SF
17						
18						
19						
20						
21	Kitchen	9" x 9" brown speckled floor tile & felt	PLM - 10% chry (floor tile)	Non-Friable	Good	100 SF
22			NAD (felt)			
23			TEM - <1% chry (felt)			

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

Project Name: COS 431 Hunt Street ACM/LBP

Sampled By: Tom Oliver

Project Location: 431 Hunt Street, Spartanburg, SC 29301

Project Manager: Tom Oliver

Project Number: 0118-14

Date: 5/2/2018

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
24	Bathroom	Beige square pattern vinyl floor with mastic over floor tile & felt	PLM - NAD	Non-Friable	Good	45 SF
25			TEM - NAD			
26						
27	Hallway	Brown wooden plank pattern vinyl floor with no mastic	PLM - NAD	Non-Friable	Good	20 SF
28			TEM - NAD			
29						
30	Hallway (2 layers) & front left bedroom (top layer)	Tan & brown digital pattern vinyl floor & mastic	PLM - NAD	Non-Friable	Good	190 SF
31			TEM - NAD			
32						
33	Back left bedroom under carpet	Tan & blue pattern vinyl floor with no mastic	PLM - NAD	Non-Friable	Good	130 SF
34			TEM - NAD			
35						
36	Back right bedroom & front right living room (top layers)	Green & yellow pattern vinyl floor with no mastic	PLM - NAD	Non-Friable	Good	325 SF
37			TEM - NAD			
38						
39	Back right bedroom (2nd & 3rd layers)	Rose pattern vinyl floor over floral pattern vinyl floor (no mastics)	PLM - NAD	Non-Friable	Good	130 SF
40			TEM - NAD			
41						
42	Front left bedroom (2nd & 3rd layers)	Pink flower pattern vinyl floor over red & black plant pattern vinyl floor (no mastics)	PLM - NAD	Non-Friable	Good	180 SF
43			TEM - NAD			
44						
45	Throughout	Paper under wooden flooring	PLM - NAD	Non-Friable	Good	1,000 SF
46						
47						

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 431 Hunt Street ACM/LBP

Sampled By: Tom Oliver

Project Location: 431 Hunt Street, Spartanburg, SC 29301

Project Manager Tom Oliver

Project Number: 0118-14

Date: 5/2/2018

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m ³)
1	Standardization Calibration				184.00
2	Calibration				1.25
3	Calibration				1.14
4	Calibration				1.20
5	Exterior front porch	Siding	Blue	Wood	2.96
6	Exterior front porch	Porch roof	Light blue	Wood	2.86
7	Exterior front porch	Porch header	Blue	Wood	3.65
8	Exterior front porch	Porch column	White	Wood	4.55
9	Exterior front porch	Window casing	White	Wood	2.83
10	Exterior front porch	Window sill	White	Wood	2.36
11	Exterior front porch	Porch floor	Green	Wood	0.00
12	Exterior front porch	Door frame	Green	Wood	2.54
13	Exterior front porch	Porch column base	White	Brick	0.37
14	Exterior front porch	Steps/floor	Green	Concrete/brick	0.00
15	Exterior front porch	Porch handrail	Light blue	Wood	0.02
16	Exterior	Corner trim	White	Wood	1.04
17	Exterior	Siding	Grey	Wood	3.36
18	Exterior	Soffit	Blue	Wood	3.68
19	Exterior	Fascia	White	Wood	1.39
20	Exterior	Door	White	Wood	5.00
21	Back porch	Ceiling	White	Wood	3.15
22	Back porch	Wall	Blue	Wood	2.58
23	Back porch	Door frame	White	Wood	5.00
24	Bathroom	Wall lower 1/2	White	Plaster	1.00

**FIELD DATA SHEET
LBP ANALYSIS**

Project Name: COS 431 Hunt Street ACM/LBP

Sampled By: Tom Oliver

Project Location: 431 Hunt Street, Spartanburg, SC 29301

Project Manager Tom Oliver

Project Number: 0118-14

Date: 5/2/2018

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m ³)
25	Bathroom	Door frame	Brown	Wood	4.82
26	Kitchen	Door	White	Wood	0.08
27	Kitchen	Window frame	White	Wood	1.12
28	Kitchen	Window	White	Wood	0.72
29	Kitchen	Chair rail	White	Wood	1.23
30	Kitchen	Wall	Blue	Plaster	0.54
31	Kitchen	Ceiling	Tan	Plaster	0.78
32	Kitchen	Base board	White	Wood	1.33
33	Back right bedroom	Wall	White	Plaster	0.00
34	Back right living room	Fireplace mantle	White	Wood	0.08
35	Back right living room	Ceiling	Grey	Plaster	0.03
36	Back left bedroom	Door	Brown	Wood	0.05
37	Back left bedroom	Fireplace mantle	Blue	Wood	0.00
38	Back left bedroom	Door frame	Blue	Wood	0.18
39	Calibration				1.12
40	Calibration				1.07
41	Calibration				1.11

Bold = LBP

SECTION III

Laboratory Analytical Results

May 10, 2018

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: COS 431 Hunt St. ACM/LBP; 0118-14
CEI LAB CODE: B18-3474

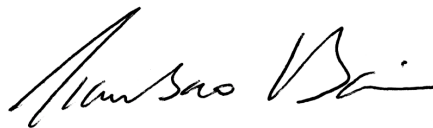
Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on May 4, 2018. 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,



Tianbao Bai, Ph.D., CIH
Laboratory Director



CEI

ASBESTOS ANALYTICAL REPORT

By: Polarized Light Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: COS 431 Hunt St. ACM/LBP; 0118-14

LAB CODE: B18-3474

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

REPORT DATE: 05/10/18

TOTAL SAMPLES ANALYZED: 33

SAMPLES >1% ASBESTOS: 3

TEL: 866-481-1412

www.ceilabs.com



CEI

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS 431 Hunt St. ACM/LBP; 0118-14

LAB CODE: B18-3474

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
1	Layer 1	B28791	Gray,Black	Roof Shingle	None Detected
	Layer 2	B28791	Black	Felt	None Detected
2	Layer 1	B28792	Gray,Black	Roof Shingle	None Detected
	Layer 2	B28792	Black	Felt	None Detected
3		B28793		Sample Submitted for TEM Analysis	
4	Layer 1	B28794	Gray	Exterior Caulk	None Detected
	Layer 2	B28794	White	Exterior Caulk	Chrysotile 2%
5		B28795		Sample Not Analyzed per COC	
6		B28796		Sample Not Analyzed per COC	
7	Layer 1	B28797	Black	Chimney Mastic/tar	None Detected
	Layer 2	B28797	Gray	Chimney Mastic/tar	Chrysotile 10%
8		B28798		Sample Not Analyzed per COC	
9		B28799		Sample Not Analyzed per COC	
10		B28800	Tan,Black	Window Glazing	None Detected
11		B28801	Tan,Black	Window Glazing	None Detected
12		B28802		Sample Submitted for TEM Analysis	
13	Layer 1	B28803	White	Plaster Skim Coat	None Detected
	Layer 2	B28803	Gray	Plaster Base Coat	None Detected
14	Layer 1	B28804	White	Plaster Skim Coat	None Detected
	Layer 2	B28804	Gray	Plaster Base Coat	None Detected
15	Layer 1	B28805	White	Plaster Skim Coat	None Detected
	Layer 2	B28805	Gray	Plaster Base Coat	None Detected
16	Layer 1	B28806	White	Plaster Skim Coat	None Detected
	Layer 2	B28806	Gray	Plaster Base Coat	None Detected
17	Layer 1	B28807	White	Plaster Skim Coat	None Detected
	Layer 2	B28807	Gray	Plaster Base Coat	None Detected
18	Layer 1	B28808	White	Plaster Skim Coat	None Detected
	Layer 2	B28808	Gray	Plaster Base Coat	None Detected
19	Layer 1	B28809	White	Plaster Skim Coat	None Detected
	Layer 2	B28809	Gray	Plaster Base Coat	None Detected



CEI

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS 431 Hunt St. ACM/LBP; 0118-14

LAB CODE: B18-3474

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
20	Layer 1	B28810	White	Plaster Skim Coat	None Detected
	Layer 2	B28810	Gray	Plaster Base Coat	None Detected
21		B28811A	Brown,Speckled	Floor Tile	Chrysotile 10%
		B28811B	Black	Felt	None Detected
22		B28812A		Sample Not Analyzed per COC	
		B28812B	Black	Felt	None Detected
23		B28813A		Sample Not Analyzed per COC	
		B28813B		Sample Submitted for TEM Analysis	
24		B28814A	Beige,Square Pattern	Floor Tile	None Detected
		B28814B	Clear	Mastic	None Detected
		B28814C	Green	Floor Tile	None Detected
		B28814D	Black,White	Felt	None Detected
25		B28815A	Beige,Square Pattern	Floor Tile	None Detected
		B28815B	Clear	Mastic	None Detected
		B28815C	Green	Floor Tile	None Detected
		B28815D	Black,White	Felt	None Detected
26		B28816		Sample Submitted for TEM Analysis	
27		B28817	Brown,Wooden Pattern	Vinyl Flooring	None Detected
28		B28818	Brown,Wooden Pattern	Vinyl Flooring	None Detected
29		B28819		Sample Submitted for TEM Analysis	
30	Layer 1	B28820A	Tan,Brown	Vinyl Flooring	None Detected
	Layer 2	B28820A	Black	Mastic	None Detected
	Layer 1	B28820B	Tan,Brown	Vinyl Flooring	None Detected
	Layer 2	B28820B	Black	Mastic	None Detected
31	Layer 1	B28821A	Tan,Brown	Vinyl Flooring	None Detected
	Layer 2	B28821A	Black	Mastic	None Detected



CEI

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS 431 Hunt St. ACM/LBP; 0118-14

LAB CODE: B18-3474

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
	Layer 1	B28821B	Tan,Brown	Vinyl Flooring	None Detected
	Layer 2	B28821B	Black	Mastic	None Detected
32		B28822A		Sample Submitted for TEM Analysis	
		B28822B		Sample Submitted for TEM Analysis	
33		B28823	Tan,Blue	Vinyl Flooring	None Detected
34		B28824	Tan,Blue	Vinyl Flooring	None Detected
35		B28825		Sample Submitted for TEM Analysis	
36		B28826	Tan,Yellow	Vinyl Flooring	None Detected
37		B28827	Tan,Yellow	Vinyl Flooring	None Detected
38		B28828		Sample Submitted for TEM Analysis	
39		B28829A	Rose Pattern	Vinyl Flooring	None Detected
		B28829B	Floral Pattern	Vinyl Flooring	None Detected
40		B28830A	Rose Pattern	Vinyl Flooring	None Detected
		B28830B	Floral Pattern	Vinyl Flooring	None Detected
41		B28831A		Sample Submitted for TEM Analysis	
		B28831B		Sample Submitted for TEM Analysis	
42		B28832A	Pink,Flower Pattern	Vinyl Flooring	None Detected
		B28832B	Red,Black	Vinyl Flooring	None Detected
43		B28833A	Pink,Flower Pattern	Vinyl Flooring	None Detected
		B28833B	Red,Black	Vinyl Flooring	None Detected
44		B28834A		Sample Submitted for TEM Analysis	
		B28834B		Sample Submitted for TEM Analysis	
45		B28835	Pink,Beige	Paper	None Detected
46		B28836	Pink,Beige	Paper	None Detected



CEI

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS 431 Hunt St. ACM/LBP; 0118-14

LAB CODE: B18-3474

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
47		B28837	Pink,Beige	Paper	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: B18-3474
Date Received: 05-04-18
Date Analyzed: 05-09-18
Date Reported: 05-10-18

Project: COS 431 Hunt St. ACM/LBP; 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
1 Layer 1 B28791	Roof Shingle	Heterogeneous Gray,Black Fibrous Bound	40%	Fiberglass	40%	Tar	None Detected
					20%	Gravel	
Layer 2 B28791	Felt	Homogeneous Black Fibrous Bound	70%	Cellulose	30%	Tar	None Detected
2 Layer 1 B28792	Roof Shingle	Heterogeneous Gray,Black Fibrous Bound	40%	Fiberglass	40%	Tar	None Detected
					20%	Gravel	
Layer 2 B28792	Felt	Homogeneous Black Fibrous Bound	70%	Cellulose	30%	Tar	None Detected
3 B28793	Sample Submitted for TEM Analysis						
4 Layer 1 B28794	Exterior Caulk	Heterogeneous Gray Non-fibrous Bound			100%	Binder	None Detected
Layer 2 B28794	Exterior Caulk	Heterogeneous White Non-fibrous Bound			2%	Paint	2% Chrysotile
					96%	Binder	
5 B28795	Sample Not Analyzed per COC						
6 B28796	Sample Not Analyzed per COC						

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: B18-3474
Date Received: 05-04-18
Date Analyzed: 05-09-18
Date Reported: 05-10-18

Project: COS 431 Hunt St. ACM/LBP; 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
7 Layer 1 B28797	Chimney Mastic/tar	Heterogeneous Black Fibrous Bound	40%	Cellulose	60%	Tar	None Detected
Layer 2 B28797	Chimney Mastic/tar	Heterogeneous Gray Fibrous Bound			85%	Tar	10% Chrysotile
8 B28798	Sample Not Analyzed per COC						
9 B28799	Sample Not Analyzed per COC						
10 B28800	Window Glazing	Heterogeneous Tan,Black Non-fibrous Bound			100%	Binder	None Detected
11 B28801	Window Glazing	Heterogeneous Tan,Black Non-fibrous Bound			100%	Binder	None Detected
12 B28802	Sample Submitted for TEM Analysis						
13 Layer 1 B28803	Plaster Skim Coat	Heterogeneous White Non-fibrous Bound			10%	Binder	None Detected
					10%	Paint	
					80%	Calc Carb	
Layer 2 B28803	Plaster Base Coat	Heterogeneous Gray Fibrous Bound	2%	Cellulose	70%	Silicates	None Detected
					28%	Binder	

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: B18-3474
Date Received: 05-04-18
Date Analyzed: 05-09-18
Date Reported: 05-10-18

Project: COS 431 Hunt St. ACM/LBP; 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
14 Layer 1 B28804	Plaster Skim Coat	Heterogeneous	10%	Binder	None Detected
		White	10%	Paint	
		Non-fibrous Bound	80%	Calc Carb	
Layer 2 B28804	Plaster Base Coat	Heterogeneous	2%	Cellulose	None Detected
		Gray	70%	Silicates	
		Fibrous Bound	28%	Binder	
15 Layer 1 B28805	Plaster Skim Coat	Heterogeneous	10%	Binder	None Detected
		White	10%	Paint	
		Non-fibrous Bound	80%	Calc Carb	
Layer 2 B28805	Plaster Base Coat	Heterogeneous	2%	Cellulose	None Detected
		Gray	70%	Silicates	
		Fibrous Bound	28%	Binder	
16 Layer 1 B28806	Plaster Skim Coat	Heterogeneous	30%	Silicates	None Detected
		White	10%	Paint	
		Non-fibrous Bound	60%	Calc Carb	
Layer 2 B28806	Plaster Base Coat	Heterogeneous	2%	Cellulose	None Detected
		Gray	70%	Silicates	
		Fibrous Bound	28%	Binder	
17 Layer 1 B28807	Plaster Skim Coat	Heterogeneous	30%	Silicates	None Detected
		White	10%	Paint	
		Non-fibrous Bound	60%	Calc Carb	

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: B18-3474
Date Received: 05-04-18
Date Analyzed: 05-09-18
Date Reported: 05-10-18

Project: COS 431 Hunt St. ACM/LBP; 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID	Lab	Lab	NON-ASBESTOS COMPONENTS				ASBESTOS
Lab ID	Description	Attributes	Fibrous	Non-Fibrous		%	
Layer 2 B28807	Plaster Base Coat	Heterogeneous Gray Fibrous Bound	2%	Cellulose	70%	Silicates	None Detected
18 Layer 1 B28808	Plaster Skim Coat	Heterogeneous White Non-fibrous Bound			30%	Silicates	None Detected
					10%	Paint	
					60%	Calc Carb	
Layer 2 B28808	Plaster Base Coat	Heterogeneous Gray Fibrous Bound	2%	Cellulose	70%	Silicates	None Detected
					28%	Binder	
19 Layer 1 B28809	Plaster Skim Coat	Heterogeneous White Non-fibrous Bound			30%	Silicates	None Detected
					10%	Paint	
					60%	Calc Carb	
Layer 2 B28809	Plaster Base Coat	Heterogeneous Gray Fibrous Bound	2%	Cellulose	70%	Silicates	None Detected
					28%	Binder	
20 Layer 1 B28810	Plaster Skim Coat	Heterogeneous White Non-fibrous Bound			30%	Silicates	None Detected
					10%	Paint	
					60%	Calc Carb	
Layer 2 B28810	Plaster Base Coat	Heterogeneous Gray Fibrous Bound	2%	Cellulose	70%	Silicates	None Detected
					28%	Binder	

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: B18-3474
Date Received: 05-04-18
Date Analyzed: 05-09-18
Date Reported: 05-10-18

Project: COS 431 Hunt St. ACM/LBP; 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
21 B28811A	Floor Tile	Homogeneous	60%	Vinyl		10% Chrysotile	
		Brown, Speckled	20%	Calc Carb			
		Non-fibrous	10%	Binder			
		Tightly Bound					
B28811B	Felt	Homogeneous Black Fibrous Bound	70%	Cellulose	30%	Tar	None Detected
Lab Notes: No mastic present							
22 B28812A	Sample Not Analyzed per COC						
B28812B	Felt	Homogeneous Black Fibrous Bound	70%	Cellulose	30%	Tar	None Detected
Lab Notes: No mastic present							
23 B28813A	Sample Not Analyzed per COC						
B28813B	Sample Submitted for TEM Analysis						
24 B28814A	Floor Tile	Homogeneous	70%	Vinyl		None Detected	
		Beige, Square Pattern	20%	Calc Carb			
		Non-fibrous	10%	Binder			
		Tightly Bound					
B28814B	Mastic	Homogeneous Clear Non-fibrous Bound	100%	Mastic		None Detected	

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: B18-3474
Date Received: 05-04-18
Date Analyzed: 05-09-18
Date Reported: 05-10-18

Project: COS 431 Hunt St. ACM/LBP; 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
B28814C	Floor Tile	Homogeneous Green Non-fibrous Tightly Bound	80%	Vinyl	20%	Binder	None Detected
Lab Notes: No mastic present							
B28814D	Felt	Heterogeneous Black,White Fibrous Bound	70%	Cellulose	25%	Tar	None Detected
			5%		5%	Calc Carb	
25 B28815A	Floor Tile	Homogeneous Beige,Square Pattern Non-fibrous Tightly Bound	70%	Cellulose	20%	Vinyl Calc Carb	None Detected
			10%		10%	Binder	
B28815B	Mastic	Homogeneous Clear Non-fibrous Bound	100%	Mastic			None Detected
B28815C	Floor Tile	Homogeneous Green Non-fibrous Tightly Bound	80%	Vinyl	20%	Binder	None Detected
Lab Notes: No mastic present							
B28815D	Felt	Heterogeneous Black,White Fibrous Bound	70%	Cellulose	25%	Tar	None Detected
			5%		5%	Calc Carb	
26 B28816	Sample Submitted for TEM Analysis						

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: B18-3474
Date Received: 05-04-18
Date Analyzed: 05-09-18
Date Reported: 05-10-18

Project: COS 431 Hunt St. ACM/LBP; 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
27 B28817	Vinyl Flooring	Heterogeneous Brown,Wooden Pattern Fibrous Bound	30%	Cellulose	50%	Vinyl	None Detected
					20%	Tar	
28 B28818	Vinyl Flooring	Heterogeneous Brown,Wooden Pattern Fibrous Bound	30%	Cellulose	50%	Vinyl	None Detected
					20%	Tar	
29 B28819	Sample Submitted for TEM Analysis						
30 Layer 1 B28820A	Vinyl Flooring	Heterogeneous Tan,Brown Fibrous Bound	30%	Cellulose	50%	Vinyl	None Detected
					20%	Tar	
Layer 2 B28820A	Mastic	Heterogeneous Black Fibrous Bound	5%	Cellulose	95%	Mastic	None Detected
Layer 1 B28820B	Vinyl Flooring	Heterogeneous Tan,Brown Fibrous Bound	30%	Cellulose	50%	Vinyl	None Detected
					20%	Tar	
Layer 2 B28820B	Mastic	Heterogeneous Black Fibrous Bound	5%	Cellulose	95%	Mastic	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: B18-3474
Date Received: 05-04-18
Date Analyzed: 05-09-18
Date Reported: 05-10-18

Project: COS 431 Hunt St. ACM/LBP; 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
31 Layer 1 B28821A	Vinyl Flooring	Heterogeneous Tan,Brown Fibrous Bound	30%	Cellulose	50%	Vinyl	None Detected
					20%	Tar	
Layer 2 B28821A	Mastic	Heterogeneous Black Fibrous Bound	5%	Cellulose	95%	Mastic	None Detected
Layer 1 B28821B	Vinyl Flooring	Heterogeneous Tan,Brown Fibrous Bound	30%	Cellulose	50%	Vinyl	None Detected
					20%	Tar	
Layer 2 B28821B	Mastic	Heterogeneous Black Fibrous Bound	5%	Cellulose	95%	Mastic	None Detected
32 B28822A	Sample Submitted for TEM Analysis						
B28822B	Sample Submitted for TEM Analysis						
33 B28823	Vinyl Flooring	Heterogeneous Tan,Blue Fibrous Bound	30%	Cellulose	50%	Vinyl	None Detected
					20%	Tar	
34 B28824	Vinyl Flooring	Heterogeneous Tan,Blue Fibrous Bound	30%	Cellulose	50%	Vinyl	None Detected
					20%	Tar	
35 B28825	Sample Submitted for TEM Analysis						

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: B18-3474
Date Received: 05-04-18
Date Analyzed: 05-09-18
Date Reported: 05-10-18

Project: COS 431 Hunt St. ACM/LBP; 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous	Cellulose	Non-Fibrous		
36 B28826	Vinyl Flooring	Heterogeneous Tan, Yellow Fibrous Bound	30%	Cellulose	50% 20%	Vinyl Tar	None Detected
Lab Notes: Color appears to be tan instead of green							
37 B28827	Vinyl Flooring	Heterogeneous Tan, Yellow Fibrous Bound	30%	Cellulose	50% 20%	Vinyl Tar	None Detected
Lab Notes: Color appears to be tan instead of green							
38 B28828	Sample Submitted for TEM Analysis						
39 B28829A	Vinyl Flooring	Heterogeneous Rose Pattern Fibrous Bound	30%	Cellulose	50% 20%	Vinyl Tar	None Detected
B28829B	Vinyl Flooring	Heterogeneous Floral Pattern Fibrous Bound	30%	Cellulose	50% 20%	Vinyl Tar	None Detected
40 B28830A	Vinyl Flooring	Heterogeneous Rose Pattern Fibrous Bound	30%	Cellulose	50% 20%	Vinyl Tar	None Detected
B28830B	Vinyl Flooring	Heterogeneous Floral Pattern Fibrous Bound	30%	Cellulose	50% 20%	Vinyl Tar	None Detected
41 B28831A	Sample Submitted for TEM Analysis						

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: B18-3474
Date Received: 05-04-18
Date Analyzed: 05-09-18
Date Reported: 05-10-18

Project: COS 431 Hunt St. ACM/LBP; 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
B28831B	Sample Submitted for TEM Analysis						
42 B28832A	Vinyl Flooring	Heterogeneous Pink, Flower Pattern Fibrous Bound	30%	Cellulose	50%	Vinyl Tar	None Detected
B28832B	Vinyl Flooring	Heterogeneous Red, Black Fibrous Bound	30%	Cellulose	50%	Vinyl Tar	None Detected
43 B28833A	Vinyl Flooring	Heterogeneous Pink, Flower Pattern Fibrous Bound	30%	Cellulose	50%	Vinyl Tar	None Detected
B28833B	Vinyl Flooring	Heterogeneous Red, Black Fibrous Bound	30%	Cellulose	50%	Vinyl Tar	None Detected
44 B28834A	Sample Submitted for TEM Analysis						
B28834B	Sample Submitted for TEM Analysis						
45 B28835	Paper	Homogeneous Pink, Beige Fibrous Bound	100%	Cellulose			None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: B18-3474
Date Received: 05-04-18
Date Analyzed: 05-09-18
Date Reported: 05-10-18

Project: COS 431 Hunt St. ACM/LBP; 0118-14

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID	Lab	Lab	NON-ASBESTOS COMPONENTS		ASBESTOS
Lab ID	Description	Attributes	Fibrous	Non-Fibrous	%
46 B28836	Paper	Homogeneous Pink,Beige Fibrous Bound	100%	Cellulose	None Detected
47 B28837	Paper	Homogeneous Pink,Beige Fibrous Bound	100%	Cellulose	None Detected

Lab Notes: No NOB present

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

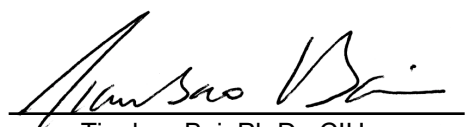
REPORTING LIMIT FOR POINT COUNTS: 0.25% by 400 Points or 0.1% by 1,000 Points

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 Eurofins CEI. Eurofins CEI 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: 
Adriana de la Nuez

APPROVED BY: 
Tianbao Bai, Ph.D., CIH
Laboratory Director



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

ASBESTOS CHAIN OF CUSTODY

LAB USE ONLY:	
CEI Lab Code:	B18-3474 (47)
CEI Lab I.D. Range:	B28791-B28837

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: Tom Oliver
Company: Apex Environmental Management, Inc.	Email / Tel: tolivereapex-ehs.com
Address: 7 Winchester Ct. Mauldin, South Carolina 29662	Project Name: COS 431 Hunt St. Army/LBP
Email: tolivereapex-ehs.com	Project ID#: 0118-14
Tel: (864) 404-3210 Fax: 864-404-3213	PO #:
	STATE SAMPLES COLLECTED IN: SC

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"/>
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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	EPA AHERA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	NIOSH 7402	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	ISO 10312	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	ASTM 6281-09	<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 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"/>
TEM VERMICULITE	CINCINNATI METHOD			<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 / SPECIAL INSTRUCTIONS: Positive Stop		<input checked="" type="checkbox"/> Accept Samples <input type="checkbox"/> Reject Samples	
Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	5-3-18 4:30 pm	<i>[Signature]</i>	5/4 9:00

Samples will be disposed of 30 days after analysis

B18-3474

ASBESTOS SAMPLING FORM



COMPANY CONTACT INFORMATION	
Company: <u>Apex Environmental Management</u>	Job Contact: <u>Tom Oliver</u>
Project Name: <u>COS 431 Hunt St. ALM/LBO</u>	
Project ID #: <u>0118-14</u>	Tel: <u>864-640-5127</u>

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST			
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
1	Roof shingles (1 layer) + felt (1 layer) with tar		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
2			PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
3			PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
4	Exterior Caulk		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
5			PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
6			PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
7	Chimney mastic/tar		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
8			PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
9			PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
10	Window glazing		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
11			PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
12			PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
13	Brick pattern plaster w/ finish		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
14			PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
15			PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
16	Plaster w/ finish		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
17			PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
18			PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
19			PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
20			PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
21	9" x 9" brown speckled floor tile + mastic + felt		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
22			PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
23			PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
24	Beige square pattern vinyl floor + mastic over floor tile w/ mastic + felt		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
25			PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
26			PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>

B18-3474

ASBESTOS SAMPLING FORM



COMPANY CONTACT INFORMATION	
Company: <u>Apex Environmental Management</u>	Job Contact: <u>Tom Oliver</u>
Project Name: <u>COS 431 Hunt St. ACM/LBP</u>	
Project ID #: <u>0118-14</u>	Tel: <u>864-640-5127</u>

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST			
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
27	Brown wooden plank		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
28	pattern vinyl floor w/ no mastic		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
29			PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
30	Tan & brown digital pattern		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
31	vinyl floor & mastic on		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
32	I of 2 layers		PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
33	Tan & blue pattern		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
34	vinyl floor - w/ no mastic		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
35			PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
36	Green & yellow pattern		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
37	vinyl floor w/ no mastic		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
38			PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
38 39	Rose pattern vinyl floor		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
40	over floral pattern vinyl		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
41	floor - no mastics		PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
42	Pink flower pattern vinyl		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
43	over red & black plants		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
44	pattern vinyl floor - no mastics		PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
45	Paper beneath wooden		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
46	flooring		PLM	<input checked="" type="checkbox"/>	TEM	<input type="checkbox"/>
47			PLM	<input type="checkbox"/>	TEM	<input checked="" type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>
			PLM	<input type="checkbox"/>	TEM	<input type="checkbox"/>

May 16, 2018

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: COS 431 Hunt St. ACM/LBP; 0118-14
LAB CODE: T18-0927

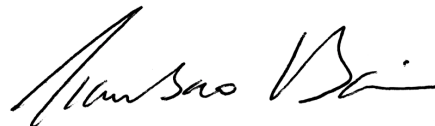
Dear Customer:

Enclosed are asbestos analysis results for TEM bulk samples received at our laboratory on May 9, 2018. 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,



Tianbao Bai, Ph.D., CIH
Laboratory Director



CEI

ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: COS 431 Hunt St. ACM/LBP; 0118-14

LAB CODE: T18-0927

TEST METHOD: Bulk Chatfield
EPA 600 / R93 / 116

REPORT DATE: 05/16/18

TEL: 866-481-1412

www.ceilabs.com

ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

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

Lab Code: T18-0927
Date Received: 05-09-18
Date Analyzed: 05-15-18
Date Reported: 05-16-18

Project: COS 431 Hunt St. ACM/LBP; 0118-14

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 T77426	Gray,Black Roof Shingle	0.41	23.4	31.7	44.9	None Detected
3 T77427	Black Felt	0.571	94.9	2.1	3	None Detected
12 T77428	Tan,Black Window Glazing	0.346	11.8	87	1.2	None Detected
23 T77429	Black Felt	0.271	87.8	5.9	6.3	<1% Chrysotile
*Probable contamination from positive floor tile						
26 T77430	Beige,Square,Pattern Floor Tile	0.551	27.4	49.2	23.4	None Detected
26 T77431	Clear Mastic	0.097	62.9	25.8	11.3	None Detected
26 T77432	Green Floor Tile	0.373	31.6	37.5	30.9	None Detected
26 T77433	Black,White Felt	0.626	81.9	6.5	11.6	None Detected
26 T77445	Black Floor Tile	0.406	34	25.6	40.4	None Detected
*Layer not present in samples 24 & 25						
29 T77434	Brown ,Wooden Pattern Vinyl Flooring	0.417	79.6	16.5	3.9	None Detected
32 T77435	Tan ,Brown Vinyl Flooring	0.418	73.9	22.5	3.6	None Detected
32 T77436	Black Mastic	0.117	70.9	16.2	12.9	None Detected



CEI

ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

Client: Apex Environmental Management
7 Winchester Court
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Lab Code: T18-0927
Date Received: 05-09-18
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Project: COS 431 Hunt St. ACM/LBP; 0118-14

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 %
32 T77437	Tan ,Brown Vinyl Flooring	0.259	75.3	23.2	1.5	None Detected
32 T77438	Black Mastic	0.112	64.3	24.1	11.6	None Detected
35 T77439	Tan ,Blue Vinyl Flooring	0.286	75.5	23.8	.7	None Detected
38 T77440	Tan, Yellow Vinyl Flooring	0.299	72.9	14	13.1	None Detected
41 T77441	Rose Pattern Vinyl Flooring	0.629	69	24.3	6.7	None Detected
41 T77442	Floral Pattern Vinyl Flooring	0.346	80.6	9.5	9.9	None Detected
44 T77443	Pink Flower Pattern Vinyl Flooring	0.325	72	26.8	1.2	None Detected
44 T77444	Red,Black Vinyl Flooring	0.272	66.5	8.1	25.4	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 Eurofins CEI. Eurofins CEI 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:


Amanda Rucinski

APPROVED BY:


Tianbao Bai, Ph.D., CIH
Laboratory Director

T18-0927

(19) T 77426-444



730 SE Maynard Road, Cary, NC 27511

Tel: 866-481-1412; Fax: 919-481-1442

ASBESTOS CHAIN OF CUSTODY

LAB USE ONLY:
 CEI Lab Code: **B18-3474 (47)**
 CEI Lab I.D. Range: **B28791-B28837**

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: Tom Oliver
Company: Apex Environmental Management, Inc.	Email / Tel: toliver@apex-ehs.com
Address: 7 Winchester Ct.	Project Name: COS 431 Hunt St. ACM/LBO
Mauldin, South Carolina 29662	Project ID#: 0118-14
Email: toliver@apex-ehs.com	PO #:
Tel: (864) 404-3210 Fax: 864-404-3213	STATE SAMPLES COLLECTED IN: SC

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"/>
PLM BULK	CARB 435	<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	EPA AHERA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	NIOSH 7402	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	ISO 10312	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	ASTM 6281-09	<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 / SPECIAL INSTRUCTIONS: **Positive Stop**

Accept Samples
 Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
[Signature]	5-3-18 4:30 pm	[Signature]	5/4 9:00
AD	5-9-18 3:25 pm		

Samples will be disposed of 30 days after analysis

T18-0927

B18-3474



ASBESTOS SAMPLING FORM

COMPANY CONTACT INFORMATION	
Company: <i>Apex Environmental Management</i>	Job Contact: <i>Tom Oliver</i>
Project Name: <i>COS 431 Hunt St. ALM/LBN</i>	
Project ID #: <i>011B-14</i>	Tel: <i>864-640-5127</i>

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST	
			PLM	TEM
1	Roof shingles (1 layer) & felt (1 layer) with tar		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2			<input checked="" type="checkbox"/>	<input type="checkbox"/>
3			<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Exterior Caulk		<input checked="" type="checkbox"/>	<input type="checkbox"/>
5			<input checked="" type="checkbox"/>	<input type="checkbox"/>
6			<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Chimney mastic/tar		<input checked="" type="checkbox"/>	<input type="checkbox"/>
8			<input checked="" type="checkbox"/>	<input type="checkbox"/>
9			<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Window glazing		<input checked="" type="checkbox"/>	<input type="checkbox"/>
11			<input checked="" type="checkbox"/>	<input type="checkbox"/>
12			<input type="checkbox"/>	<input checked="" type="checkbox"/>
13	Brick pattern plaster w/ finish		<input checked="" type="checkbox"/>	<input type="checkbox"/>
14			<input checked="" type="checkbox"/>	<input type="checkbox"/>
15			<input checked="" type="checkbox"/>	<input type="checkbox"/>
16	Plaster w/ finish		<input checked="" type="checkbox"/>	<input type="checkbox"/>
17			<input checked="" type="checkbox"/>	<input type="checkbox"/>
18			<input checked="" type="checkbox"/>	<input type="checkbox"/>
19			<input checked="" type="checkbox"/>	<input type="checkbox"/>
20			<input checked="" type="checkbox"/>	<input type="checkbox"/>
21	9" x 9" brown speckled floor tile & mastic & felt		<input checked="" type="checkbox"/>	<input type="checkbox"/>
22			<input checked="" type="checkbox"/>	<input type="checkbox"/>
23			<input type="checkbox"/>	<input checked="" type="checkbox"/>
24	Beige square pattern vinyl floor & mastic over floor tile w/ mastic & felt		<input checked="" type="checkbox"/>	<input type="checkbox"/>
25			<input checked="" type="checkbox"/>	<input type="checkbox"/>
26			<input type="checkbox"/>	<input checked="" type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>

SECTION IV
Photographic Log



Photo 1 – 431 Hunt Street in Spartanburg, South Carolina



Photo 2 – Roof shingles and felt



Photo 3 – 1 chimney with mastic/tar in middle of roof



Photo 4 – 3 chimneys with mastic/tar & caulk on the right side of house



Photo 5 – mastic/tar on chimney



Photo 6 – caulk on 2 chimneys & adjacent siding on the right side of the house



Photo 7 – Wooden window glazing



Photo 8 – Brick pattern plaster with finish in the bathroom lower 1/2 of walls



Photo 9 – Plaster with finish throughout



Photo 10 – 9" x 9" brown speckled floor tile & felt in the kitchen



Photo 11 – Beige square pattern vinyl floor with mastic over floor tile & felt in the bathroom



Photo 12 – Brown wooden plank pattern vinyl floor with no mastic in the hallway



Photo 13 – Tan & brown digital pattern vinyl floor & mastic in the hallway (2 layers) & front left bedroom (top layer)



Photo 14 – Tan & blue pattern vinyl floor with no mastic in the back left bedroom under carpet



Photo 15 – Green & yellow pattern vinyl floor with no mastic in the back right bedroom & front right living room (top layers)



Photo 16 – Rose pattern vinyl floor over floral pattern vinyl floor (no mastics) in the back right bedroom (2nd & 3rd layers)



Photo 17 – Pink flower pattern vinyl floor over red & black plant pattern vinyl floor (no mastics) in the Front left bedroom (2nd & 3rd layers)



Photo 18 – Paper under wooden flooring throughout

SECTION V

SC DHEC Asbestos Inspector License

SCDHEC ISSUED
Asbestos ID Card

Thomas H Oliver



CONSULTBI BI-00680
AIRSAMPLER AS-00202

Expiration Date:
01/18/19
04/04/19

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