



Asbestos & Lead Based Paint Assessment

City of Spartanburg
221 Herbert Street
Spartanburg, South Carolina

Prepared for:

The City of Spartanburg
440 South Church St., Suite B
Spartanburg, SC 29306-5234

Prepared by:

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

Project Number: 0815-163

January 3, 2017





Apex Project Number 0815-163

January 3, 2017

7 Winchester Court
Mauldin, SC 29662
864.404.3210 office
864.404.3213 fax
www.apex-ehs.com

Mr. Lynn Coggins
City of Spartanburg
440 South Church Street, Suite B
Spartanburg, SC 29306-5234

Reference: Asbestos and Lead-Based Paint Assessment Services
221 Herbert Street
Spartanburg, South Carolina

SERVICES

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

Dear Mr. Coggins:

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 'Ted Shultz'.

Ted Shultz
Project Manager

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

Tom Oliver
Director of Operations

Appendices

ASBESTOS AND LEAD BASED PAINT ASSESSMENT

**CITY OF SPARTANBURG
221 HERBERT STREET
SPARTANBURG, SOUTH CAROLINA**

APEX PROJECT NO. 0815-163

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SECTION I

Asbestos & Lead Evaluation Report

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

Date:	January 3, 2017	Page Number:	1 of 4
Client:	City of Spartanburg	Client Contact:	Mr. Lynn Coggins
Client Address:	440 South Church St, Suite B, Spartanburg, SC 29306-5234	Client Phone Number:	(864) 596-2914
Project:	Asbestos and Lead Evaluation		
Property Address:	221 Herbert Street Spartanburg, SC		
Assessor:	Ted Shultz	Date of Assessment:	11/21/2016
Company:	Apex Environmental Management 7 Winchester Court Mauldin, SC 29662	Phone Number:	(864) 404-3210
Purpose of Assessment:	Demolition	Age of Structure:	Approximately 50 years
Building Type:	Residential	Number of Stories:	1
Foundation:	Block	Approximate Square Footage:	780 SF

EXTERIOR BUILDING MATERIALS

- Wooden siding.
- Wooden windows with glazing and caulk.
- Pitched wooden roof with shingles and felt.
- One chimney with tar assumed positive.

INTERIOR BUILDING MATERIALS

- Wooden flooring.
- Drywall ceilings and walls with joint compound.
- Multiple types and layers of flooring with and without mastic.

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. Twenty (20) 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). Eleven (11) samples were analyzed using TEM.

Lead-Based Paint

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

RESULTS

Asbestos Results

The EPA defines an asbestos-containing material (ACM) as a material containing more than 1% asbestos. OSHA defines ACM as a material containing any amount of asbestos. Materials were analyzed to contain less than 1% asbestos and it should be noted that OSHA asbestos regulations will apply. A specific *PLM* and *TEM* 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 150 SF of multiple layers of vinyl flooring mastic in the kitchen.
- Approximately 2,150 SF of drywall system throughout the interior.

Lead Based Paint

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

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

No surfaces in the building tested positive for lead in excess of the regulatory definition.

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 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

Project Name: COS 221 Herbert Street ACM/LBP

Sampled By: Ted Shultz

Project Location: 221 Herbert Street, Spartanburg, SC

Project Manager: Ted Shultz

Project Number: 0815-163

Date: 11/21/2016

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
1	Kitchen	Three layers of flooring with mastics	PLM - 5% Chrysotile	Friable	Good	150 SF
2			TEM - 2.9% Chrysotile			
3						
4	Windows	Window glazing	PLM - NAD	Friable	Damaged	4 EA
5			TEM - NAD			
6						
7	Roof	Roofing shingles (2 layers) and felt	PLM - NAD	Non-Friable	Good	1,150 SF
8			TEM - NAD			
9						
10	Windows	Window caulk	PLM - NAD	Non-Friable	Good	3 EA
11			TEM - NAD			
12						
13	Bathroom	Tan roll vinyl flooring with no mastic	PLM - NAD	Non-Friable	Good	15 SF
14			TEM - NAD			
15						
16	Throughout	Drywall and joint compound	PLM - 2% Chrysotile	Friable	Good	2,150 SF
17						
18						
19						
20						
Assumed	Chimney Mastic Assumed Positive			Non-Friable	Good	6 LF

NAD = No Asbestos Detected

LF = Linear Feet

EA = Each

Bold = Positive For Asbestos

SF = Square Feet

Chry = Chrysotile

**FIELD DATA SHEET
LBP ANALYSIS**

Project Name: COS 221 Herbert Street ACM/LBP

Sampled By: Ted Shultz

Project Location: 221 Herbert Street, Spartanburg, SC

Project Manager: Ted Shultz

Project Number: 0815-163

Date: 12/7/2016

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m³)
45	Outside	Siding	Red	Wood	0.05
46	Outside	Window frame	White	Wood	0.03
47	Outside	Door	White	Metal	0.00
48	Living room	Wall	White	Drywall	0.00
49	Living room	Door frame	Brown	Wood	0.05
50	Bedroom	Window seal	Brown	Wood	0.07
51	Kitchen	Cabinet	White	Wood	0.01

SECTION III

Laboratory Analytical Results



December 6, 2016

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: COS 221 Herbert St; 0815-163
CEI LAB CODE: A16-10094

Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on November 30, 2016. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

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

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

Kind Regards,

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

Tianbao Bai, Ph.D., CIH
Laboratory Director





ASBESTOS ANALYTICAL REPORT
By: Polarized Light Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: COS 221 Herbert St; 0815-163

CEI LAB CODE: A16-10094

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

REPORT DATE: 12/06/16

TOTAL SAMPLES ANALYZED: 11

SAMPLES >1% ASBESTOS: 2

TEL: 866-481-1412

www.ceilabs.com



Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS 221 Herbert St; 0815-163

CEI LAB CODE: A16-10094

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
1	Layer 1	A2273890A	Wood Pattern, Gray	Vinyl Flooring	None Detected
	Layer 2	A2273890A	Off-white	Mastic	None Detected
		A2273890B	Brown,Off-white	Floor Tile	None Detected
		A2273890C	Clear	Mastic	None Detected
		A2273890D	Brown	Floor Tile	Chrysotile 5%
A2273890E	Black	Mastic	None Detected		
2	Layer 1	A2273891A	Wood Pattern, Gray	Vinyl Flooring	None Detected
	Layer 2	A2273891A	Off-white	Mastic	None Detected
		A2273891B	Brown,Off-white	Floor Tile	None Detected
		A2273891C	Clear	Mastic	None Detected
		A2273891D			Sample Not Analyzed per COC
A2273891E	Black	Mastic	None Detected		
3		A2273892A		Sample Submitted for TEM Analysis	
		A2273892B		Sample Not Analyzed per COC	
		A2273892C		Sample Submitted for TEM Analysis	
4		A2273893	White	Window Glazing	None Detected
5		A2273894	White	Window Glazing	None Detected
6		A2273895		Sample Submitted for TEM Analysis	
7		A2273896A	Gray,Black	Shingle	None Detected
	Layer 1	A2273896B	Brown,Black	Shingle	None Detected
	Layer 2	A2273896B	Black	Felt Paper	None Detected
8		A2273897A	Gray,Black	Shingle	None Detected
	Layer 1	A2273897B	Brown,Black	Shingle	None Detected
	Layer 2	A2273897B	Black	Felt Paper	None Detected
9		A2273898		Sample Submitted for TEM Analysis	
10		A2273899	White	Window Caulking	None Detected
11		A2273900	White	Window Caulking	None Detected



Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS 221 Herbert St; 0815-163

CEI LAB CODE: A16-10094

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
12		A2273901		Sample Submitted for TEM Analysis	
13		A2273902	Tan,Gray	Vinyl Flooring	None Detected
14		A2273903	Tan,Gray	Vinyl Flooring	None Detected
15		A2273904		Sample Submitted for TEM Analysis	
16	Layer 1	A2273905	White	Joint Compound	Chrysotile 2%
	Layer 2	A2273905	Off-white	Drywall	None Detected
17		A2273906		Sample Not Analyzed per COC	
18		A2273907		Sample Not Analyzed per COC	
19		A2273908		Sample Not Analyzed per COC	
20		A2273909		Sample Not Analyzed per COC	



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: A16-10094
Date Received: 11-30-16
Date Analyzed: 12-06-16
Date Reported: 12-06-16

Project: COS 221 Herbert St; 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
1 Layer 1 A2273890A	Vinyl Flooring	Heterogeneous	20%	Cellulose	50%	Vinyl	None Detected
		Wood Pattern, Gray Fibrous Bound	5%	Fiberglass	25%	Binder	
Layer 2 A2273890A	Mastic	Heterogeneous	8%	Cellulose	90%	Mastic	None Detected
		Off-white Fibrous Bound	2%	Fiberglass			
A2273890B	Floor Tile	Heterogeneous Brown, Off-white Non-fibrous Bound			100%	Vinyl	None Detected
A2273890C	Mastic	Homogeneous Clear Non-fibrous Bound			100%	Mastic	None Detected
A2273890D	Floor Tile	Homogeneous Brown Non-fibrous Bound			95%	Vinyl	5% Chrysotile
A2273890E	Mastic	Homogeneous Black Non-fibrous Bound			100%	Mastic	None Detected
2 Layer 1 A2273891A	Vinyl Flooring	Heterogeneous	20%	Cellulose	50%	Vinyl	None Detected
		Wood Pattern, Gray Fibrous Bound	5%	Fiberglass	25%	Binder	



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: A16-10094
Date Received: 11-30-16
Date Analyzed: 12-06-16
Date Reported: 12-06-16

Project: COS 221 Herbert St; 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS			ASBESTOS %
			Fibrous	Non-Fibrous		
Layer 2 A2273891A	Mastic	Heterogeneous Off-white Fibrous Bound	8% 2%	Cellulose Fiberglass	90% Mastic	None Detected
A2273891B	Floor Tile	Heterogeneous Brown,Off-white Non-fibrous Bound			100% Vinyl	None Detected
A2273891C	Mastic	Homogeneous Clear Non-fibrous Bound			100% Mastic	None Detected
A2273891D	Sample Not Analyzed per COC					
A2273891E	Mastic	Homogeneous Black Non-fibrous Bound			100% Mastic	None Detected
3 A2273892A	Sample Submitted for TEM Analysis					
A2273892B	Sample Not Analyzed per COC					
A2273892C	Sample Submitted for TEM Analysis					
4 A2273893	Window Glazing	Heterogeneous White Non-fibrous Bound	85% 10% 5%	Binder Calc Carb Paint		None Detected



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: A16-10094
Date Received: 11-30-16
Date Analyzed: 12-06-16
Date Reported: 12-06-16

Project: COS 221 Herbert St; 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
5 A2273894	Window Glazing	Heterogeneous	85%	Binder		None Detected	
		White	10%	Calc Carb			
		Non-fibrous	5%	Paint			
		Bound					
6 A2273895	Sample Submitted for TEM Analysis						
7 A2273896A	Shingle	Heterogeneous	25%	Fiberglass	40%	None Detected	
		Gray,Black			35%		Silicates
		Fibrous					
		Bound					
Layer 1 A2273896B	Shingle	Heterogeneous	25%	Fiberglass	40%	None Detected	
		Brown,Black			35%		Silicates
		Fibrous					
		Bound					
Layer 2 A2273896B	Felt Paper	Homogeneous	80%	Cellulose	20%	None Detected	
		Black					
		Fibrous					
		Bound					
8 A2273897A	Shingle	Heterogeneous	25%	Fiberglass	40%	None Detected	
		Gray,Black			35%		Silicates
		Fibrous					
		Bound					
Layer 1 A2273897B	Shingle	Heterogeneous	25%	Fiberglass	40%	None Detected	
		Brown,Black			35%		Silicates
		Fibrous					
		Bound					
Layer 2 A2273897B	Felt Paper	Homogeneous	80%	Cellulose	20%	None Detected	
		Black					
		Fibrous					
		Bound					



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

CEI Lab Code: A16-10094
Date Received: 11-30-16
Date Analyzed: 12-06-16
Date Reported: 12-06-16

Project: COS 221 Herbert St; 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous	Non-Fibrous			
9 A2273898	Sample Submitted for TEM Analysis						
10 A2273899	Window Caulking	Homogeneous White Non-fibrous Bound		100%	Binder		None Detected
11 A2273900	Window Caulking	Homogeneous White Non-fibrous Bound		100%	Binder		None Detected
12 A2273901	Sample Submitted for TEM Analysis						
13 A2273902	Vinyl Flooring	Heterogeneous Tan, Gray Fibrous Bound	20% 5%	Cellulose Fiberglass	50% 25%	Vinyl Binder	None Detected
14 A2273903	Vinyl Flooring	Heterogeneous Tan, Gray Fibrous Bound	20% 5%	Cellulose Fiberglass	50% 25%	Vinyl Binder	None Detected
15 A2273904	Sample Submitted for TEM Analysis						
16 Layer 1 A2273905	Joint Compound	Heterogeneous White Non-fibrous Bound	10%	Talc	58% 5% 25%	Calc Carb Silicates Paint	2% Chrysotile
Layer 2 A2273905	Drywall	Homogeneous Off-white Fibrous Bound	10% 5%	Cellulose Fiberglass	80% 5%	Gypsum Silicates	None Detected



ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Apex Environmental Management
7 Winchester Court
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CEI Lab Code: A16-10094
Date Received: 11-30-16
Date Analyzed: 12-06-16
Date Reported: 12-06-16

Project: COS 221 Herbert St; 0815-163

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
17 A2273906	Sample Not Analyzed per COC				
18 A2273907	Sample Not Analyzed per COC				
19 A2273908	Sample Not Analyzed per COC				
20 A2273909	Sample Not Analyzed per COC				



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

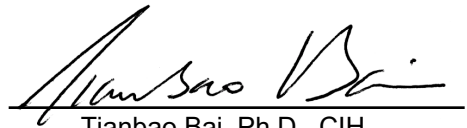
LIMIT OF DETECTION: <1% by visual estimation

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.

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. 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: 
Taylor B. Metcalf

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





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

CHAIN OF CUSTODY

(20) AIG-10.094
 A2273890-
 A2273909

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

COMPANY CONTACT INFORMATION	
Company: Apex Environmental Management	Client #:
Address: 7 Winchester Court	Job Contact: <i>TED Shultz</i>
Mauldin, SC 29662	Email: <i>tshultz@apex-ehs.com</i>
	Tel: 864-404-3210
Project Name: <i>COS 221 Herbert st</i>	Fax:
Project ID #: <i>0815-163</i>	P.O. #:

ASBESTOS	METHOD	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"/>
TEM BULK	CHATFIELD		<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 GRAVIMETRIC	EPA 600		<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"/>
OTHER:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

POSITIVE STOP ANALYSIS	<input checked="" type="checkbox"/>
SOUTH CAROLINA SAMPLES	<input checked="" type="checkbox"/>

TEM INSTRUCTIONS	
BEGIN TEM ANALYSIS AFTER NEGATIVE PLM	<input checked="" type="checkbox"/>
ANALYZE TEM SAMPLES SIMULTANEOUSLY WITH PLM	<input type="checkbox"/>

REMARKS: If needed, combine samples from the same group to achieve sufficient weight for TEM analysis.		<input checked="" type="checkbox"/> Accept Samples <input type="checkbox"/> Reject Samples	
Relinquished By:	Date/Time	Received By:	Date/Time
<i>T. Shultz</i>	11/28/2016 <i>11-28-16 11:00am</i>	<i>A</i>	<i>11 30 16</i>
			<i>9:40</i>

*Call to confirm RUSH analysis.

Samples will be disposed of 30 days after analysis



SAMPLING FORM

COMPANY CONTACT INFORMATION	
Company: Apex Env. Mgmt.	Job Contact: <u>Fred Schultz</u>
Project Name: <u>COS 221 Herbert St</u>	
Project ID #: <u>0815-163</u>	Tel: <u>803-348-4921</u>

SAMPLE ID#	DESCRIPTION / LOCATION	TEST	
		PLM	TEM
1	Kitchen 4 layers flooring	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	& mastic	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3		<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	windows window glaze	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5		<input checked="" type="checkbox"/>	<input type="checkbox"/>
6		<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Roof 2 shingles	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	1 felt	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9		<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	windows window caulk	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11		<input checked="" type="checkbox"/>	<input type="checkbox"/>
12		<input type="checkbox"/>	<input checked="" type="checkbox"/>
13	Bathroom tan roll vinyl flr	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14		<input checked="" type="checkbox"/>	<input type="checkbox"/>
15		<input type="checkbox"/>	<input checked="" type="checkbox"/>
16	Throughout drywall & JC	<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"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
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		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>



December 9, 2016

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: COS 221 Herbert St.; 0815-163
CEI LAB CODE: T16-1895

Dear Customer:

Enclosed are asbestos analysis results for TEM bulk samples received at our laboratory on December 2, 2016. The samples were analyzed for asbestos using transmission electron microscopy (TEM) per Chatfield Method.

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

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

Kind Regards,

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

Tianbao Bai, Ph.D., CIH
Laboratory Director



ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: COS 221 Herbert St.; 0815-163

CEI LAB CODE: T16-1895

TEST METHOD: Bulk Chatfield
EPA 600 / R93 / 116

REPORT DATE: 12/09/16

TEL: 866-481-1412

www.ceilabs.com



ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

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

CEI Lab Code: T16-1895
Date Received: 12-02-16
Date Analyzed: 12-07-16
Date Reported: 12-09-16

Project: COS 221 Herbert St.; 0815-163

TEM BULK CHATFIELD / EPA 600 / R93 / 116

Client ID Lab ID	Material Description	Sample Weight (g)	Organic Material %	Acid Soluble Material %	Acid Insoluble Material %	Asbestos %
3 T55861	Wood pattern, Gray Vinyl Flooring	0.328	52.1	47	.9	None Detected
3 T55862	Off-white Mastic	0.289	37	45	18	<1% Chrysotile
3 T55863	Brown, Off-white Floor Tile	0.553	23.1	73.8	3.1	None Detected
3 T55864	Clear Mastic	0.088	70.5	22.7	6.8	<1% Chrysotile
Probable contamination from positive floor tile.						
3 T55865	Black Mastic	0.082	76.8	3.7	19.5	2.9% Chrysotile
Probable contamination from positive floor tile.						
6 T55866	White Window Glazing	0.755	8.6	84.8	6.6	None Detected
9 T55867	Gray, Black Shingle	0.398	24.6	58	17.4	None Detected
9 T55868	Brown, Black Shingle	0.473	24.5	39.1	36.4	None Detected
9 T55869	Black Felt Paper	0.485	93.6	6	.4	None Detected
12 T55870	White Window Caulking	0.557	33	64.5	2.5	None Detected
15 T55871	Tan, Gray Vinyl Floorirng	0.467	52	45.4	2.6	None Detected



LEGEND: None

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

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

REGULATORY LIMIT: >1% by weight

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

ANALYST:

Kamila Reichert

Kamila Reichert

APPROVED BY:

Tianbao Bai

Tianbao Bai, Ph.D., CIH
Laboratory Director



TL-1895
TSS861-871

(11)

(20) 116-10.094
A2273890-
A2273909

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

CHAIN OF CUSTODY

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

COMPANY CONTACT INFORMATION	
Company: Apex Environmental Management	Client #:
Address: 7 Winchester Court	Job Contact: TPO Shultz
Mauldin, SC 29662	Email: tshultz2@apex-ehs.com
	Tel: 864-404-3210
Project Name: COS 221 Herbert st	Fax:
Project ID #: 0815-163	P.O. #:

ASBESTOS	METHOD	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"/>
TEM BULK	CHATFIELD	<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 GRAVIMETRIC	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"/>
OTHER:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

POSITIVE STOP ANALYSIS	<input checked="" type="checkbox"/>
SOUTH CAROLINA SAMPLES	<input checked="" type="checkbox"/>

TEM INSTRUCTIONS	
BEGIN TEM ANALYSIS AFTER NEGATIVE PLM	<input checked="" type="checkbox"/>
ANALYZE TEM SAMPLES SIMULTANEOUSLY WITH PLM	<input type="checkbox"/>

REMARKS: If needed, combine samples from the same group to achieve sufficient weight for TEM analysis.

Accept Samples
 Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
TPO Shultz	11/28/2016 11-25-16	A	11 30 16
			9:40

*Call to confirm RUSH analysis. Samples will be disposed of 30 days after analysis

[Signature] 12-2-16 9:30am



SAMPLING FORM

T16-1865

COMPANY CONTACT INFORMATION	
Company: Apex Env. Mgmt.	Job Contact: <i>Ted Swift</i>
Project Name: <i>COS 221 Herbert St</i>	
Project ID #: <i>0815-163</i>	Tel: <i>803-348-4921</i>

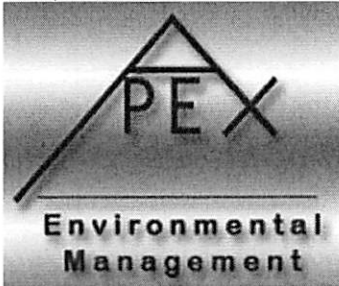
SAMPLE ID#	DESCRIPTION / LOCATION	TEST
1	<i>Kitchen 4 layers flooring</i>	PLM <input checked="" type="checkbox"/> TEM <input type="checkbox"/>
2	<i> & mastic</i>	PLM <input checked="" type="checkbox"/> TEM <input type="checkbox"/>
3	<i> </i>	PLM <input type="checkbox"/> TEM <input checked="" type="checkbox"/>
4	<i>windows window glaze</i>	PLM <input checked="" type="checkbox"/> TEM <input type="checkbox"/>
5	<i> </i>	PLM <input checked="" type="checkbox"/> TEM <input type="checkbox"/>
6	<i> </i>	PLM <input type="checkbox"/> TEM <input checked="" type="checkbox"/>
7	<i>Roof 2 shingles</i>	PLM <input checked="" type="checkbox"/> TEM <input type="checkbox"/>
8	<i> 1 felt</i>	PLM <input checked="" type="checkbox"/> TEM <input type="checkbox"/>
9	<i> </i>	PLM <input type="checkbox"/> TEM <input checked="" type="checkbox"/>
10	<i>windows window caulk</i>	PLM <input checked="" type="checkbox"/> TEM <input type="checkbox"/>
11	<i> </i>	PLM <input checked="" type="checkbox"/> TEM <input type="checkbox"/>
12	<i> </i>	PLM <input type="checkbox"/> TEM <input checked="" type="checkbox"/>
13	<i>Bathroom tan roll vinyl flr</i>	PLM <input checked="" type="checkbox"/> TEM <input type="checkbox"/>
14	<i> </i>	PLM <input checked="" type="checkbox"/> TEM <input type="checkbox"/>
15	<i> </i>	PLM <input type="checkbox"/> TEM <input checked="" type="checkbox"/>
16	<i>Throughout drywall & jc</i>	PLM <input checked="" type="checkbox"/> TEM <input type="checkbox"/>
17	<i> </i>	PLM <input checked="" type="checkbox"/> TEM <input type="checkbox"/>
18	<i> </i>	PLM <input checked="" type="checkbox"/> TEM <input type="checkbox"/>
19	<i> </i>	PLM <input checked="" type="checkbox"/> TEM <input type="checkbox"/>
20	<i> </i>	PLM <input checked="" type="checkbox"/> TEM <input type="checkbox"/>
		PLM <input type="checkbox"/> TEM <input type="checkbox"/>
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		PLM <input type="checkbox"/> TEM <input type="checkbox"/>

RE: Insufficient Samples in Project: "COS 221 Herbert St.; 0815-163" and "COS 116 Owens St.; 0815-163"
From: Ted Shultz
Sent: Tue, Dec 6, 2016 at 9:25 am
To: abigail@ceilabs.com

image002.jpg (11.7 KB) image003.jpg (11.7 KB) - Download all

Holding the samples for just those two addresses will work just fine.

Sincerely,
Ted Shultz
Project Manager
Apex Environmental Management, Inc.
7 Winchester Court
Mauldin, South Carolina 29662
Office: (864) 404-3210
Mobile: (803) 348-4921
www.apex-ehs.com



From: abigail@ceilabs.com [mailto:abigail@ceilabs.com]
Sent: Tuesday, December 06, 2016 9:18 AM
To: Ted Shultz
Subject: RE: Insufficient Samples in Project: "COS 221 Herbert St.; 0815-163" and "COS 116 Owens St.; 0815-163"

Great! If you would like the other results we can send them out as soon as they are available and then amend the report to add the additional samples. If not, we can hold the entire project e

Thank you for the quick response.

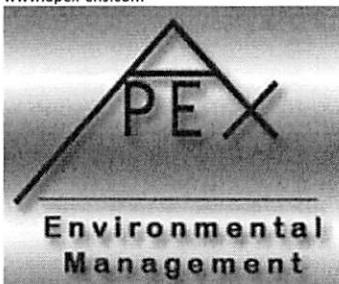
Best,
Abigail

-----Original Message-----

From: "Ted Shultz" <tshultz@apex-ehs.com>
Sent: Tuesday, December 6, 2016 9:17am
To: abigail@ceilabs.com
Subject: RE: Insufficient Samples in Project: "COS 221 Herbert St.; 0815-163" and "COS 116 Owens St.; 0815-163"

I will be back by those jobs this week. Hold the samples and I will pull and send you additional materials.

Sincerely,
Ted Shultz
Project Manager
Apex Environmental Management, Inc.
7 Winchester Court
Mauldin, South Carolina 29662
Office: (864) 404-3210
Mobile: (803) 348-4921
www.apex-ehs.com



From: abigail@ceilabs.com [mailto:abigail@ceilabs.com]
Sent: Monday, December 05, 2016 3:05 PM
To: tshultz@apex-ehs.com
Cc: Kamila Reichert
Subject: Insufficient Samples in Project: "COS 221 Herbert St.; 0815-163" and "COS 116 Owens St.; 0815-163"

Good Afternoon Ted,

I hope this email finds you well!

Unfortunately while prepping these two projects for TEM analysis, I discovered that there will not be enough material to test three of the mastics. In the Herbert St. project, the clear mastic at mastic in sample 15 ("Bathroom - Burg 12x12 vinyl tile; wht roll vinyl; green 12x12 self stick; brown roll vinyl") is insufficient. I did try to combine with the other two samples in each homogen

Unless you would like to submit more of the mastics, the reports will show "insufficient sample for analysis" for these samples and will display results for the remaining samples.

Please do not hesitate to contact me with any questions or concerns you have about these projects.

Best,
Abigail
TEM Technician
919-481-1413

SECTION IV
Photographic Log

Asbestos & Lead Assessment
City of Spartanburg
221 Herbert Street
Spartanburg, South Carolina



Photo 1 – 221 Herbert Street.



Photo 2 – Flooring under roll wood pattern vinyl and layer of sub-floor in kitchen.

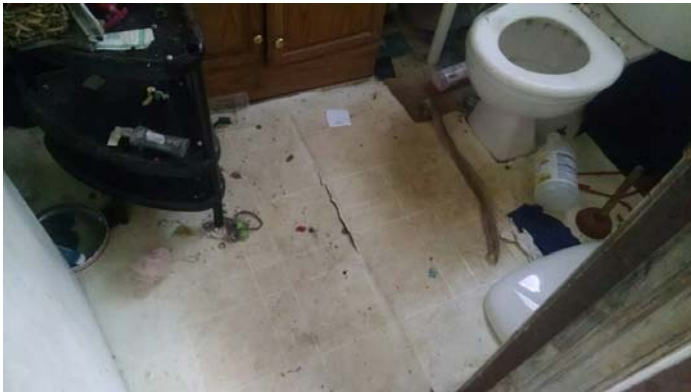


Photo 3 – Tan roll vinyl in the bathroom.



Photo 4 – Wood flooring.



Photo 5 – One chimney with tar assumed. Two layers of roofing shingles and one layer of felt on the roof.



Photo 6 – Drywall and joint compound throughout ceilings and walls.

SECTION V

SC DHEC Asbestos Inspector License

**North Carolina
Asbestos Accreditation**



Tedman K Shultz
201 Cannon Circle
Greenville, SC 29607

110723

EXPIRATION			
02-28-2017			
DOB	SEX	HT	WT
03-16-1972	M	5'10"	270
CLASS	#	EXP	
AIR MONITOR	80864	02-17	
INSPECTOR	12900	01-17	

SCDHEC ISSUED
Asbestos ID Card

Tedman K Shultz

Expiration Date



AIR SAMPLER AS-00355 02/02/17
CONSULT BI-00971 01/20/17