



Asbestos & Lead Based Paint Assessment

City of Spartanburg
780 Howard Street
Spartanburg, South Carolina 29303

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

August 14, 2018





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Apex Project Number 0118-14

August 14, 2018

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

Reference: Asbestos and Lead-Based Paint Assessment Services
780 Howard Street
Spartanburg, South Carolina 29303

Dear Mr. Tillerson:

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

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

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

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

Respectfully submitted,
APEX ENVIRONMENTAL MANAGEMENT, INC.

Tom Oliver
Director of Operations

Appendices

ASBESTOS AND LEAD BASED PAINT ASSESSMENT

**CITY OF SPARTANBURG
780 HOWARD STREET
SPARTANBURG, SOUTH CAROLINA 29303**

APEX PROJECT NO. 0118-14

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SECTION I

Asbestos & Lead Evaluation Report

**ASBESTOS EVALUATION REPORT
APEX PROJECT NUMBER: 0118-14**

Date:	8/14/2018	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:	780 Howard Street Spartanburg, SC 29303		
Assessor:	Ted Shultz	Date of Assessment:	1/27/2018
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:	Brick Crawlspace	Approximate Square Footage	1,550 SF

EXTERIOR BUILDING MATERIALS

- Pitched wooden roof with shingles & felt.
- Rubber membrane over roof shingles & felt on the laundry room roof.
- Cement board siding over felt paper.
- Wooden & metal windows with glazing.
- Wooden doors with no caulk.
- Black mastic/tar on 1 chimney – assumed positive.

INTERIOR BUILDING MATERIALS

- Plaster with finish walls & ceilings over unfinished drywall.
- Ceiling texture in the living room & dining room.
- Wooden wall panels with no mastic.
- Multiple types & layers of vinyl flooring with and without mastics.
- Wooden floors.

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. Thirty-two (32) bulk samples were collected during the survey and submitted to CEI in Cary, North Carolina for analysis using the EPA recommended method of Polarized Light Microscopy (PLM) coupled with dispersion staining (Method No. EPA 600/M4-82-020, Dec. 1982). CEI participates in the National Voluntary Laboratory Accreditation Program (NVLAP). Their NVLAP accreditation number is 101768-0. EPA regulations require that multiple samples of each homogeneous material be collected for laboratory analysis. In accordance with South Carolina Regulation 61-86.1, non-friable organically bound materials that are reported to be non-asbestos containing by PLM analysis must also be analyzed by Transmission Electron Microscopy (TEM). Seventeen (17) samples were analyzed using TEM.

Lead-Based Paint

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

RESULTS

Asbestos Results

The EPA defines an asbestos-containing material (ACM) as a material containing more than 1% asbestos. OSHA defines ACM as a material containing detectable amounts of asbestos. It should be noted that materials were identified to contain less than 1% asbestos and OSHA Construction Industry Asbestos Standards (29 CFR 1926.1101) will apply if those materials are disturbed during renovation or demolition activities. 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 35 SF of 12" x 12" tan floor tile & mastic over a 2nd layer of vinyl floor & mastic in the laundry room.
- Approximately 175 SF of tan vinyl floor & mastic in the kitchen, dining room & laundry room (located within 3 vinyl floor layers).
- Approximately 355 SF of dark brown floor tile over light brown floor tile & mastic in the living room.
- Approximately 40 SF of tan marble pattern roll vinyl floor & mastic in the bathroom (top layer).
- Approximately 12 windows with glazing.
- Approximately 4,200 SF of exterior cement board siding and felt paper.
- Approximately 6 LF of mastic/tar on 1 chimney – assumed positive.

Lead Based Paint

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

Currently, SCDHEC defines LBP as paint containing in excess of, or equal to, 1.0 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

- White wooden front porch ceiling.

Interior

- Tan drywall walls.
- Grey wooden door frames.

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/cm²) lead or in excess of, or equal to, 0.5 percent lead. Building materials identified as being painted with LBP should be segregated from the other building materials and recycled or disposed of in a municipal lined landfill. 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 mg/cm² or above to satisfy the OSHA requirements. If a baseline exposure lower than the OSHA Action Level of 30 micrograms per cubic meter (µg/m³) 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

Project Name: COS 780 Howard Street ACM/LBP

Project Location: 780 Howard Street, Spartanburg, SC 29303

Project Number: 0118-14

Sampled By: Ted Shultz

Project Manager: Ted Shultz

Date: 1/27/2018

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
1	Laundry room 2 layers	12" x 12" tan floor tile & mastic over 2nd layer of vinyl floor & mastic	PLM - 2% chry (tan FT); 25% chry (2nd layer of VF); 5% chry (2nd layer VF mastic); NAD (tan FT mastic)	Non-Friable	Good	35 SF
2						
3			TEM - 3.5% chrysotile			
4	Kitchen dining room & laundry room 3 layers	Brown, tan & tan speckled vinyl floors with & without mastics	PLM - NAD (brown VF & mastic & tan speckled VF); 25% chry (tan VF); 5% chry (tan VF mastic)	Non-Friable	Good	175 SF
5						
6			TEM - <1% chry (brown VF); NAD (brown VF mastic & tan speckled VF)			
7	Living room 2 layers	9" x 9" dark brown floor tile & mastic & tarpaper over 9" x 9" light brown floor tile & mastic & tarpaper	PLM - 5% chry (dark brown & light brown FT); NAD (mastics & tarpapers)	Non-Friable	Good	355 SF
8						
9			TEM - 1.2% chry (light brown FT mastic); <1% chry (dark brown FT mastic & tarpaper); NAD (light brown FT tarpaper)			
10	Bathroom 2 layers	Tan marble pattern roll vinyl floor & mastic over 9" x 9" blue floor tile & mastic	PLM - 25% chry (tan marble VF); 5% chry (tan marble VF mastic); NAD (blue FT & mastic)	Non-Friable	Good	40 SF
11						
12			TEM - NAD (blue FT); <1% chry (blue FT mastic)			
13	Living room & dining room	Ceiling texture	PLM - NAD	Friable	Good	475 SF
14						
15						
16	Throughout	Plaster with finish over unfinished drywall	PLM - NAD	Friable	Good	4,200 SF
17						
18						
19						
20						

ASBESTOS SURVEY FIELD DATA SHEET

PLM & TEM ANALYSIS

Project Name: COS 780 Howard Street ACM/LBP

Sampled By: Ted Shultz

Project Location: 780 Howard Street, Spartanburg, SC 29303

Project Manager: Ted Shultz

Project Number: 0118-14

Date: 1/27/2018

Sample No.	Location	Sample Description	Analytical Results	Friable/Non Friable	Condition	Quantity
21	Windows	Window glazing	PLM - 2% chrysotile	Non-Friable	Good	12 EA
22						
23						
24	Exterior siding	Cement board siding & felt	PLM - 3% chrysotile	Non-Friable	Good	4,200 SF
25						
26						
27	Roof	Roof shingles (2 layers) & felt (2 layers)	PLM - NAD	Non-Friable	Good	2,100 SF
28			TEM - NAD			
29						
30	Laundry room roof	Rubber membrane over shingles (1 layer) & felt (1 layer)	PLM - NAD	Non-Friable	Good	60 SF
31			TEM - NAD			
32						
Assumed	Roof/chimney	Mastic/tar on 1 chimneys	Assumed	Non-Friable	Good	6 LF

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 780 Howard Street ACM/LBP

Sampled By: Ted Shultz

Project Location: 780 Howard Street, Spartanburg, SC 29303

Project Manager: Ted Shultz

Project Number: 0118-14

Date: 1/27/2018

Sample No.	Sample Location	Component	Color	Substrate	Analytical Result (mg/m ³)
30	Exterior	Siding	Tan	Vinyl	0.00
31	Exterior	Siding	Tan	Cement board	0.00
32	Exterior	Window frame	White	Wood	0.35
33	Exterior	Back door frame	Grey	Wood	0.46
34	Exterior	Doors	White	Wood	0.00
35	Exterior	Back hand rail	Black	Metal	0.00
36	Exterior	Awning ceiling	White	Metal	0.00
37	Exterior	Window frame	White	Wood	0.46
38	Front porch	Ceiling	White	Wood	1.56
39	Front porch	Floor	Grey	Concrete	0.01
40	Laundry room	Cabinet	White	Wood	0.05
41	Laundry room	Wall	White	Wood	0.17
42	Laundry room	Window frame	White	Wood	0.08
43	Laundry room	Window frame	White	Wood	0.05
44	Kitchen	Wall	Tan	Drywall	1.14
45	Kitchen	Base board	Tan	Wood	0.69
46	Kitchen	Door frame	Tan	Wood	0.06
47	Kitchen	Door	Brown	Wood	0.05
48	Bedroom	Wall panels	White	Wood	0.00
49	Bathroom	Tile	White	Ceramic tile	0.08
50	Kitchen	Door frame	Grey	Wood	2.28

Bold = LBP

SECTION III

Laboratory Analytical Results

February 6, 2018

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: COS ACM 780 Howard; 0118-15
CEI LAB CODE: A18-1610

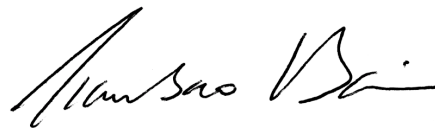
Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on January 30, 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

ASBESTOS ANALYTICAL REPORT

By: Polarized Light Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: COS ACM 780 Howard; 0118-15

LAB CODE: A18-1610

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

REPORT DATE: 02/06/18

TOTAL SAMPLES ANALYZED: 22

SAMPLES >1% ASBESTOS: 11

TEL: 866-481-1412

www.ceilabs.com

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS ACM 780 Howard; 0118-15

LAB CODE: A18-1610

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
1		A2610544A	Tan	Tile	Chrysotile 2%
		A2610544B	Black	Mastic	None Detected
	Layer 1	A2610544C	Tan,Red	Linoleum	Chrysotile 25%
	Layer 2	A2610544C	Yellow	Mastic	Chrysotile 5%
2		A2610545A		Sample Not Analyzed per COC	
		A2610545B	Black	Mastic	None Detected
		A2610545C		Sample Not Analyzed per COC	
3		A2610546A		Sample Not Analyzed per COC	
		A2610546B		Sample Submitted for TEM Analysis	
	Layer 1	A2610546C		Sample Not Analyzed per COC	
	Layer 2	A2610546C		Sample Not Analyzed per COC	
4	Layer 1	A2610547A	Brown	Vinyl Floor	None Detected
	Layer 2	A2610547A	White	Mastic	None Detected
	Layer 1	A2610547B	Tan	Vinyl Floor	Chrysotile 25%
	Layer 2	A2610547B	Yellow	Mastic	Chrysotile 5%
		A2610547C	Tan,Speckled	Vinyl Floor	None Detected
5	Layer 1	A2610548A	Brown	Vinyl Floor	None Detected
	Layer 2	A2610548A	White	Mastic	None Detected
	Layer 1	A2610548B		Sample Not Analyzed per COC	
	Layer 2	A2610548B		Sample Not Analyzed per COC	
		A2610548C	Tan,Speckled	Vinyl Floor	None Detected
6	Layer 1	A2610549A		Sample Submitted for TEM Analysis	
	Layer 2	A2610549A		Sample Submitted for TEM Analysis	
	Layer 1	A2610549B		Sample Not Analyzed per COC	
	Layer 2	A2610549B		Sample Not Analyzed per COC	
		A2610549C		Sample Submitted for TEM Analysis	
7		A2610550A	Dark Brown	Floor Tile	Chrysotile 5%
	Layer 1	A2610550B	Brown	Mastic	None Detected

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS ACM 780 Howard; 0118-15

LAB CODE: A18-1610

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
8	Layer 2	A2610550B	Black	Tarpaper	None Detected
		A2610550C	Light Brown	Floor Tile	Chrysotile 5%
	Layer 1	A2610550D	Brown	Mastic	None Detected
	Layer 2	A2610550D	Black	Tarpaper	None Detected
		A2610551A		Sample Not Analyzed per COC	
	Layer 1	A2610551B	Brown	Mastic	None Detected
	Layer 2	A2610551B	Black	Tarpaper	None Detected
		A2610551C		Sample Not Analyzed per COC	
	Layer 1	A2610551D	Brown	Mastic	None Detected
	Layer 2	A2610551D	Black	Tarpaper	None Detected
		A2610552A		Sample Not Analyzed per COC	
	Layer 1	A2610552B		Sample Submitted for TEM Analysis	
9	Layer 2	A2610552B		Sample Submitted for TEM Analysis	
		A2610552C		Sample Not Analyzed per COC	
	Layer 1	A2610552D		Sample Submitted for TEM Analysis	
	Layer 2	A2610552D		Sample Submitted for TEM Analysis	
	Layer 1	A2610553A	Tan	Roll Vinyl	Chrysotile 25%
	Layer 2	A2610553A	Yellow	Mastic	Chrysotile 5%
10	Layer 1	A2610553B	Blue	Tile (linoleum)	None Detected
	Layer 2	A2610553B	Brown	Mastic	None Detected
	Layer 1	A2610554A		Sample Not Analyzed per COC	
	Layer 2	A2610554A		Sample Not Analyzed per COC	
	Layer 1	A2610554B	Blue	Tile (linoleum)	None Detected
	Layer 2	A2610554B	Brown	Mastic	None Detected
11	Layer 1	A2610555A		Sample Not Analyzed per COC	
	Layer 2	A2610555A		Sample Not Analyzed per COC	
	Layer 1	A2610555B		Sample Submitted for TEM Analysis	

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS ACM 780 Howard; 0118-15

LAB CODE: A18-1610

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
	Layer 2	A2610555B		Sample Submitted for TEM Analysis	
13		A2610556	White	Ceiling Texture	None Detected
14		A2610557	White	Ceiling Texture	None Detected
15		A2610558	White	Ceiling Texture	None Detected
16	Layer 1	A2610559A	White	Plaster Skim Coat	None Detected
	Layer 2	A2610559A	Gray	Plaster Base Coat	None Detected
		A2610559B	Gray	Drywall	None Detected
17	Layer 1	A2610560A	White	Plaster Skim Coat	None Detected
	Layer 2	A2610560A	Gray	Plaster Base Coat	None Detected
		A2610560B	Gray	Drywall	None Detected
18	Layer 1	A2610561A	White	Plaster Skim Coat	None Detected
	Layer 2	A2610561A	Gray	Plaster Base Coat	None Detected
		A2610561B	Gray	Drywall	None Detected
19	Layer 1	A2610562A	White	Plaster Skim Coat	None Detected
	Layer 2	A2610562A	Gray	Plaster Base Coat	None Detected
		A2610562B	Gray	Drywall	None Detected
20	Layer 1	A2610563A	White	Plaster Skim Coat	None Detected
	Layer 2	A2610563A	Gray	Plaster Base Coat	None Detected
		A2610563B	Gray	Drywall	None Detected
21		A2610564	Gray	Window Glazing	Chrysotile 2%
22		A2610565		Sample Not Analyzed per COC	
23		A2610566		Sample Not Analyzed per COC	
24	Layer 1	A2610567	Gray,White	Mud	None Detected
	Layer 2	A2610567	Gray	Cement Siding	None Detected
	Layer 3	A2610567	Gray	Cementitious Material	Chrysotile 3%
	Layer 4	A2610567	Black	Felt Paper	None Detected
25		A2610568		Sample Not Analyzed per COC	
26		A2610569		Sample Not Analyzed per COC	
27	Layer 1	A2610570A	Gray	Shingle	None Detected
	Layer 2	A2610570A	Black	Felt Paper	None Detected

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS ACM 780 Howard; 0118-15

LAB CODE: A18-1610

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
		A2610570B	Black	Shingle	None Detected
		A2610570C	Black	Felt Paper	None Detected
28	Layer 1	A2610571A	Gray	Shingle	None Detected
	Layer 2	A2610571A	Black	Felt Paper	None Detected
		A2610571B	Black	Shingle	None Detected
		A2610571C	Black	Felt Paper	None Detected
29		A2610572		Sample Submitted for TEM Analysis	
30	Layer 1	A2610573A	Black	Rubber Membrane	None Detected
	Layer 2	A2610573A	Brown	Shingle	None Detected
		A2610573B	Black	Felt Paper	None Detected
31	Layer 1	A2610574A	Black	Rubber Membrane	None Detected
	Layer 2	A2610574A	Brown	Shingle	None Detected
		A2610574B	Black	Felt Paper	None Detected
32		A2610575		Sample Submitted for TEM Analysis	

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1610
Date Received: 01-30-18
Date Analyzed: 02-05-18
Date Reported: 02-06-18

Project: COS ACM 780 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID	Lab	Lab	NON-ASBESTOS COMPONENTS				ASBESTOS
Lab ID	Description	Attributes	Fibrous		Non-Fibrous		%
1	Tile	Heterogeneous			60%	Vinyl	2% Chrysotile
A2610544A		Tan			30%	Calc Carb	
		Fibrous			8%	Binder	
		Bound					
A2610544B	Mastic	Heterogeneous	2%	Cellulose	98%	Tar	None Detected
		Black					
		Fibrous					
		Bound					
Layer 1	Linoleum	Heterogeneous			50%	Vinyl	25% Chrysotile
A2610544C		Tan,Red			25%	Binder	
		Fibrous					
		Bound					
Layer 2	Mastic	Heterogeneous			95%	Mastic	5% Chrysotile
A2610544C		Yellow					
		Fibrous					
		Bound					
Lab Notes: Analyst opinion: mastic contaminated by linoleum backing							
2	Sample Not Analyzed per COC						
A2610545A							
A2610545B	Mastic	Heterogeneous	2%	Cellulose	98%	Tar	None Detected
		Black					
		Fibrous					
		Bound					
A2610545C	Sample Not Analyzed per COC						
3	Sample Not Analyzed per COC						
A2610546A							
A2610546B	Sample Submitted for TEM Analysis						

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1610
Date Received: 01-30-18
Date Analyzed: 02-05-18
Date Reported: 02-06-18

Project: COS ACM 780 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
Layer 1 A2610546C	Sample Not Analyzed per COC						
Layer 2 A2610546C	Sample Not Analyzed per COC						
4 Layer 1 A2610547A	Vinyl Floor	Heterogeneous Brown Fibrous Bound	25%	Cellulose	50% 25%	Vinyl Binder	None Detected
Layer 2 A2610547A	Mastic	Heterogeneous White Fibrous Bound	5%	Cellulose	95%	Binder	None Detected
Layer 1 A2610547B	Vinyl Floor	Heterogeneous Tan Fibrous Bound			50% 25%	Vinyl Binder	25% Chrysotile
Layer 2 A2610547B	Mastic	Heterogeneous Yellow Fibrous Bound			95%	Mastic	5% Chrysotile
Lab Notes: Analyst opinion: mastic contaminated by linoleum backing							
A2610547C	Vinyl Floor	Heterogeneous Tan,Speckled Fibrous Bound	25%	Cellulose	50% 25%	Vinyl Binder	None Detected
5 Layer 1 A2610548A	Vinyl Floor	Heterogeneous Brown Fibrous Bound	25%	Cellulose	50% 25%	Vinyl Binder	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1610
Date Received: 01-30-18
Date Analyzed: 02-05-18
Date Reported: 02-06-18

Project: COS ACM 780 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
Layer 2 A2610548A	Mastic	Heterogeneous White Fibrous Bound	5%	Cellulose	95%	Binder	None Detected
Layer 1 A2610548B	Sample Not Analyzed per COC						
Layer 2 A2610548B	Sample Not Analyzed per COC						
A2610548C	Vinyl Floor	Heterogeneous Tan,Speckled Fibrous Bound	25%	Cellulose	50% 25%	Vinyl Binder	None Detected
6 Layer 1 A2610549A	Sample Submitted for TEM Analysis						
Layer 2 A2610549A	Sample Submitted for TEM Analysis						
Layer 1 A2610549B	Sample Not Analyzed per COC						
Layer 2 A2610549B	Sample Not Analyzed per COC						
A2610549C	Sample Submitted for TEM Analysis						
7 A2610550A	Floor Tile	Heterogeneous Dark Brown Fibrous Bound			60% 30% 5%	Vinyl Calc Carb Binder	5% Chrysotile

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1610
Date Received: 01-30-18
Date Analyzed: 02-05-18
Date Reported: 02-06-18

Project: COS ACM 780 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
Layer 1 A2610550B	Mastic	Heterogeneous Brown Fibrous Bound	2%	Cellulose	98%	Mastic	None Detected
Layer 2 A2610550B	Tarpaper	Heterogeneous Black Fibrous Bound	60%	Cellulose	40%	Tar	None Detected
A2610550C	Floor Tile	Heterogeneous Light Brown Fibrous Bound			60% 30% 5%	Vinyl Calc Carb Binder	5% Chrysotile
Layer 1 A2610550D	Mastic	Heterogeneous Brown Fibrous Bound	2%	Cellulose	98%	Mastic	None Detected
Layer 2 A2610550D	Tarpaper	Heterogeneous Black Fibrous Bound	60%	Cellulose	40%	Tar	None Detected
8 A2610551A	Sample Not Analyzed per COC						
Layer 1 A2610551B	Mastic	Heterogeneous Brown Fibrous Bound	2%	Cellulose	98%	Mastic	None Detected
Layer 2 A2610551B	Tarpaper	Heterogeneous Black Fibrous Bound	60%	Cellulose	40%	Tar	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1610
Date Received: 01-30-18
Date Analyzed: 02-05-18
Date Reported: 02-06-18

Project: COS ACM 780 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
A2610551C	Sample Not Analyzed per COC						
Layer 1 A2610551D	Mastic	Heterogeneous Brown Fibrous Bound	2%	Cellulose	98%	Mastic	None Detected
Layer 2 A2610551D	Tarpaper	Heterogeneous Black Fibrous Bound	60%	Cellulose	40%	Tar	None Detected
9 A2610552A	Sample Not Analyzed per COC						
Layer 1 A2610552B	Sample Submitted for TEM Analysis						
Layer 2 A2610552B	Sample Submitted for TEM Analysis						
A2610552C	Sample Not Analyzed per COC						
Layer 1 A2610552D	Sample Submitted for TEM Analysis						
Layer 2 A2610552D	Sample Submitted for TEM Analysis						
10 Layer 1 A2610553A	Roll Vinyl	Heterogeneous Tan Fibrous Bound		50%	Vinyl		25% Chrysotile
				25%	Binder		

Lab Code: A18-1610
Date Received: 01-30-18
Date Analyzed: 02-05-18
Date Reported: 02-06-18

ASBESTOS BULK PLM, EPA 600 METHOD

Page 6 of 13

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1610
Date Received: 01-30-18
Date Analyzed: 02-05-18
Date Reported: 02-06-18

Project: COS ACM 780 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID	Lab	Lab	NON-ASBESTOS COMPONENTS				ASBESTOS
Lab ID	Description	Attributes	Fibrous		Non-Fibrous		%
Layer 2 A2610555A	Sample Not Analyzed per COC						
Layer 1 A2610555B	Sample Submitted for TEM Analysis						
Layer 2 A2610555B	Sample Submitted for TEM Analysis						
13 A2610556	Ceiling Texture	Heterogeneous White Fibrous Loosely Bound	2%	Cellulose	70% 20% 8%	Calc Carb Vermiculite Paint	None Detected
14 A2610557	Ceiling Texture	Heterogeneous White Fibrous Loosely Bound	2%	Cellulose	70% 20% 8%	Calc Carb Vermiculite Paint	None Detected
15 A2610558	Ceiling Texture	Heterogeneous White Fibrous Loosely Bound	2%	Cellulose	70% 20% 8%	Calc Carb Vermiculite Paint	None Detected
16 Layer 1 A2610559A	Plaster Skim Coat	Heterogeneous White Non-fibrous Bound			50% 45% 5%	Calc Carb Binder Paint	None Detected
Layer 2 A2610559A	Plaster Base Coat	Heterogeneous Gray Fibrous Bound	<1% <1%	Cellulose Hair	60% 30% 10%	Silicates Calc Carb Binder	None Detected
A2610559B	Drywall	Heterogeneous Gray Fibrous Bound	10%	Cellulose	80% 10%	Gypsum Binder	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1610
Date Received: 01-30-18
Date Analyzed: 02-05-18
Date Reported: 02-06-18

Project: COS ACM 780 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
17 Layer 1 A2610560A	Plaster Skim Coat	Heterogeneous			50%	Calc Carb	None Detected
		White			45%	Binder	
		Non-fibrous			5%	Paint	
		Bound					
Layer 2 A2610560A	Plaster Base Coat	Heterogeneous	<1%	Cellulose	60%	Silicates	None Detected
		Gray	<1%	Hair	30%	Calc Carb	
		Fibrous			10%	Binder	
		Bound					
A2610560B	Drywall	Heterogeneous	10%	Cellulose	80%	Gypsum	None Detected
		Gray			10%	Binder	
		Fibrous					
		Bound					
18 Layer 1 A2610561A	Plaster Skim Coat	Heterogeneous			50%	Calc Carb	None Detected
		White			45%	Binder	
		Non-fibrous			5%	Paint	
		Bound					
Layer 2 A2610561A	Plaster Base Coat	Heterogeneous	<1%	Cellulose	60%	Silicates	None Detected
		Gray	<1%	Hair	30%	Calc Carb	
		Fibrous			10%	Binder	
		Bound					
A2610561B	Drywall	Heterogeneous	10%	Cellulose	80%	Gypsum	None Detected
		Gray			10%	Binder	
		Fibrous					
		Bound					
19 Layer 1 A2610562A	Plaster Skim Coat	Heterogeneous			50%	Calc Carb	None Detected
		White			45%	Binder	
		Non-fibrous			5%	Paint	
		Bound					

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1610
Date Received: 01-30-18
Date Analyzed: 02-05-18
Date Reported: 02-06-18

Project: COS ACM 780 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
Layer 2 A2610562A	Plaster Base Coat	Heterogeneous	<1%	Cellulose	60%	Silicates	None Detected
		Gray	<1%	Hair	30%	Calc Carb	
		Fibrous			10%	Binder	
		Bound					
A2610562B	Drywall	Heterogeneous	10%	Cellulose	80%	Gypsum	None Detected
		Gray			10%	Binder	
		Fibrous					
		Bound					
20 Layer 1 A2610563A	Plaster Skim Coat	Heterogeneous			50%	Calc Carb	None Detected
		White			45%	Binder	
		Non-fibrous			5%	Paint	
		Bound					
Layer 2 A2610563A	Plaster Base Coat	Heterogeneous	<1%	Cellulose	60%	Silicates	None Detected
		Gray	<1%	Hair	30%	Calc Carb	
		Fibrous			10%	Binder	
		Bound					
A2610563B	Drywall	Heterogeneous	10%	Cellulose	80%	Gypsum	None Detected
		Gray			10%	Binder	
		Fibrous					
		Bound					
21 A2610564	Window Glazing	Heterogeneous			70%	Calc Carb	2% Chrysotile
		Gray			20%	Binder	
		Fibrous			8%	Paint	
		Bound					
22 A2610565	Sample Not Analyzed per COC						
23 A2610566	Sample Not Analyzed per COC						

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1610
Date Received: 01-30-18
Date Analyzed: 02-05-18
Date Reported: 02-06-18

Project: COS ACM 780 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
24 Layer 1 A2610567	Mud	Heterogeneous Gray,White Fibrous Bound	5%	Wollastonite	60%	Calc Carb 20% Paint 15% Binder	None Detected
Layer 2 A2610567	Cement Siding	Heterogeneous Gray Fibrous Bound	15%	Cellulose	60%	Binder 25% Calc Carb	None Detected
Layer 3 A2610567	Cementitious Material	Heterogeneous Gray Fibrous Bound			97%	Binder	3% Chrysotile
Layer 4 A2610567	Felt Paper	Heterogeneous Black Fibrous Bound	60%	Cellulose	40%	Tar	None Detected
25 A2610568	Sample Not Analyzed per COC						
26 A2610569	Sample Not Analyzed per COC						
27 Layer 1 A2610570A	Shingle	Heterogeneous Gray Fibrous Bound	20%	Fiberglass	40%	Tar 30% Gravel 10% Binder	None Detected
Layer 2 A2610570A	Felt Paper	Heterogeneous Black Fibrous Bound	60%	Cellulose	40%	Tar	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1610
Date Received: 01-30-18
Date Analyzed: 02-05-18
Date Reported: 02-06-18

Project: COS ACM 780 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
A2610570B	Shingle	Heterogeneous Black Fibrous Bound	20%	Fiberglass	40%	Tar Gravel Binder	None Detected
A2610570C	Felt Paper	Heterogeneous Black Fibrous Bound	60%	Cellulose	40%	Tar	None Detected
28 Layer 1 A2610571A	Shingle	Heterogeneous Gray Fibrous Bound	20%	Fiberglass	40%	Tar Gravel Binder	None Detected
Layer 2 A2610571A	Felt Paper	Heterogeneous Black Fibrous Bound	60%	Cellulose	40%	Tar	None Detected
A2610571B	Shingle	Heterogeneous Black Fibrous Bound	20%	Fiberglass	40%	Tar Gravel Binder	None Detected
A2610571C	Felt Paper	Heterogeneous Black Fibrous Bound	60%	Cellulose	40%	Tar	None Detected
29 A2610572	Sample Submitted for TEM Analysis						
30 Layer 1 A2610573A	Rubber Membrane	Heterogeneous Black Non-fibrous Bound			100%	Rubber	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1610
Date Received: 01-30-18
Date Analyzed: 02-05-18
Date Reported: 02-06-18

Project: COS ACM 780 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
Layer 2 A2610573A	Shingle	Heterogeneous Brown Fibrous Bound	20%	Fiberglass	40%	Tar Gravel Binder	None Detected
A2610573B	Felt Paper	Heterogeneous Black Fibrous Bound	60%	Cellulose	40%	Tar	None Detected
31 Layer 1 A2610574A	Rubber Membrane	Heterogeneous Black Non-fibrous Bound			100%	Rubber	None Detected
Layer 2 A2610574A	Shingle	Heterogeneous Brown Fibrous Bound	20%	Fiberglass	40%	Tar Gravel Binder	None Detected
A2610574B	Felt Paper	Heterogeneous Black Fibrous Bound	60%	Cellulose	40%	Tar	None Detected
32 A2610575	Sample Submitted for TEM Analysis						

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

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

REPORTING LIMIT: <1% by visual estimation

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

REGULATORY LIMIT: >1% by weight

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

This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by 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: Sarah Talley
 Sarah Talley

APPROVED BY: Tianbao Bai
 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

(32) A8-1610
A260544
A0610575

LAB USE ONLY:

CEI Lab Code:

CEI Lab I.D. Range:

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: Ted Shultz
Company: APEX Env. Mgt.	Email / Tel: tshultz@apex-ehs.com
Address: 7 Winchester Ct Mauldin SC 29662	Project Name: COS Acum 780 Howard
Email: tshultz@apex-ehs.com	Project ID#: 0118-15
Tel: 803-3484921 Fax:	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"/>	<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 (2010)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST MICROVAC	ASTM D5755-09 (2014)	<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
	5:00pm 1-29-18	AD	9:10 1-30-18

Samples will be disposed of 30 days after analysis

Page 1 of 3



ASBESTOS SAMPLING FORM

AS-1610

COMPANY CONTACT INFORMATION

Company: <u>APEX Env. Mgt.</u>	Job Contact: <u>Ted Shultz</u>
Project Name: <u>COS ACM 780 Howard St</u>	
Project ID #:	Tel: <u>803-348-4921</u>

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST	
1	<u>tan 12x12 tile</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
2	<u>& mastic</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
3	<u>1</u>		PLM <input type="checkbox"/>	TEM <input checked="" type="checkbox"/>
4	<u>brown vinyl floor.</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
5	<u>tan vinyl floor & tan</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
6	<u>Speckled vinyl floor</u>		PLM <input type="checkbox"/>	TEM <input checked="" type="checkbox"/>
7	<u>dark brown 9x9 floor</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
8	<u>tile & mastic & light</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
9	<u>brown 9x9 tile floor & mastic</u>		PLM <input checked="" type="checkbox"/> <u>NO</u>	TEM <input checked="" type="checkbox"/>
10	<u>tan marble roll vinyl &</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
11	<u>blue 9x9 tile & mastic</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
12	<u>1</u>		PLM <input type="checkbox"/>	TEM <input checked="" type="checkbox"/>
13	<u>ceiling texture</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
14	<u>1</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
15	<u>1</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
16	<u>plaster w/ finish</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
17	<u>& unfinished</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
18	<u>dry wall</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
19	<u>1</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
20	<u>1</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
21	<u>window glaze</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
22	<u>1</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
23	<u>1</u>		PLM <input type="checkbox"/>	TEM <input checked="" type="checkbox"/>
24	<u>cement siding</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
25	<u>& felt</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
26	<u>1</u>		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
			PLM <input type="checkbox"/>	TEM <input type="checkbox"/>
			PLM <input type="checkbox"/>	TEM <input type="checkbox"/>

As. 1610

[illegible]

February 13, 2018

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: COS ACM 780 Howard; 0118-15
LAB CODE: T18-0215

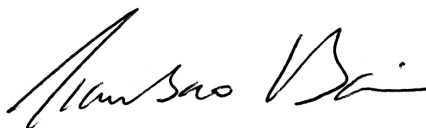
Dear Customer:

Enclosed are asbestos analysis results for TEM bulk samples received at our laboratory on February 6, 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

ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: COS ACM 780 Howard; 0118-15

LAB CODE: T18-0215

TEST METHOD: Bulk Chatfield
EPA 600 / R93 / 116

REPORT DATE: 02/13/18

TEL: 866-481-1412

www.ceilabs.com

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

Lab Code: T18-0215
Date Received: 02-06-18
Date Analyzed: 02-08-18
Date Reported: 02-13-18

Project: COS ACM 780 Howard; 0118-15

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 T73522	Black Mastic	0.056	50	33.9	16.1	3.5% Chrysotile
*Probable contamination from positive samples *Sample weight lower than what is recommended for TEM analysis						
6 T73523	Brown Vinyl Flooring	0.143	99.3	0	.7	<1% Chrysotile
*Probable contamination from positive sample						
6 T73524	White Mastic	0.355	77.7	5.1	17.2	None Detected
6 T73525	Tan Spec Vinyl Floor	0.267	78.3	18.7	3	None Detected
9 T73526	Brown Mastic	0.125	73.6	13.6	12.8	<1% Chrysotile
*Probable contamination from positive dark brown floor tile.						
9 T73527	Black Tarpaper	0.267	92.5	3.7	3.8	<1% Chrysotile
*Probable contamination from positive dark brown floor tile						
9 T73528	Brown Mastic	0.171	57.3	9.9	32.8	1.2% Chrysotile
**Probable contamination from positive light brown floor tile.						
9 T73529	Black Tarpaper	0.326	91.4	4.9	3.7	None Detected
12 T73530	Blue Tile (linoleum)	0.331	70.7	26.3	3	None Detected
12 T73531	Brown Mastic	0.171	60.2	14.6	25.2	<1% Chrysotile
*Probable contamination from positive tan roll vinyl						

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

Lab Code: T18-0215
Date Received: 02-06-18
Date Analyzed: 02-08-18
Date Reported: 02-13-18

Project: COS ACM 780 Howard; 0118-15

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 %
30 T73532	Gray Shingle	0.656	21.2	41.9	36.9	None Detected
30 T73533	Black Felt Paper	0.57	96.7	1.8	1.5	None Detected
30 T73534	Black Shingle	0.746	17.8	39.4	42.8	None Detected
30 T73535	Black Felt Paper	0.658	95.7	3.6	.7	None Detected
32 T73536	Black Rubber Membrane	0.185	93	4.3	2.7	None Detected
32 T73537	Brown Shingle	0.676	18.2	59.8	22	None Detected
32 T73538	Black Felt Paper	0.713	96.5	2.2	1.3	None Detected

LEGEND: None

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

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

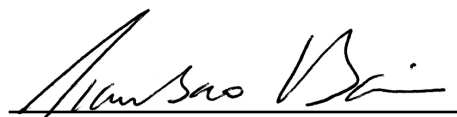
REGULATORY LIMIT: >1% by weight

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



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

T18-0215
T73522-538

(17)

ASBESTOS (32) A8-1610 CHAIN OF CUSTODY A2610544 A0610575

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

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: Ted Shultz
Company: APEX Env. Mgt.	Email / Tel: tshultz@apex-ehs.com
Address: 7 Winchester Ct Mauldin SC 29662	Project Name: ACOS ACM 780 Howard
Email: tshultz@apex-ehs.com	Project ID#: 0118-15
Tel: 803-3484921 Fax:	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"/>	<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 (2010)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST MICROVAC	ASTM D5755-09 (2014)	<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		<input checked="" type="checkbox"/> Accept Samples <input type="checkbox"/> Reject Samples	
Relinquished By: Sarah Valley	Date/Time: 5:00pm 1-29-18 2-6-18 10am	Received By: AD	Date/Time: 9:10 / 1-30-18

Samples will be disposed of 30 days after analysis

Page 1 of 3



ASBESTOS SAMPLING FORM

AS-160

T18-0215

COMPANY CONTACT INFORMATION

Company: <u>APEX Env. Mgt.</u>	Job Contact: <u>Ted Shultz</u>
Project Name: <u>COS ACM 780 Howard St</u>	
Project ID #:	Tel: <u>803-348-4921</u>

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST	
1	tan 12x12 tile		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
2	& mastic		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
3			PLM <input type="checkbox"/>	TEM <input checked="" type="checkbox"/>
4	brown vinyl floor		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
5	tan vinyl floor & tan		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
6	Speckled vinyl floor		PLM <input type="checkbox"/>	TEM <input checked="" type="checkbox"/>
7	dark brown 9x9 floor		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
8	tile & mastic & light		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
9	brown 9x9 tile floor & mastic		PLM <input checked="" type="checkbox"/>	TEM <input checked="" type="checkbox"/>
10	tan marble roll vinyl &		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
11	blue 9x9 tile & mastic		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
12			PLM <input type="checkbox"/>	TEM <input checked="" type="checkbox"/>
13	ceiling texture		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	& unfinished		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
18	dry wall		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	window glaze		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	cement siding		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
25	& felt		PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
26			PLM <input checked="" type="checkbox"/>	TEM <input type="checkbox"/>
			PLM <input type="checkbox"/>	TEM <input type="checkbox"/>
			PLM <input type="checkbox"/>	TEM <input type="checkbox"/>

Page 2 of 2

SECTION IV
Photographic Log



Photo 1 – 780 Howard Street Spartanburg, South Carolina.



Photo 2 – Transite siding and window glaze.



Photo 3 – Two layers of flooring and mastic in utility room.



Photo 4 – Kitchen 3 layers of flooring, 3rd under layer of wood.



Photo 5 – Plaster over unfinished drywall walls.



Photo 6 – Two colors of vinyl tile and mastic under carpet in living room.



Photo 7 – Bathroom roll vinyl over wood over vinyl tile with mastic.



Photo 8 – Ceiling texture in living room and dining room.

SECTION V

SC DHEC Asbestos Inspector License

SCDHEC ISSUED

Asbestos ID Card

Tedman K Shultz



**CONSULTBI
AIRSAMPLER**

**BI-00971
AS-00355**

Expiration Date:

01/17/19

02/23/19