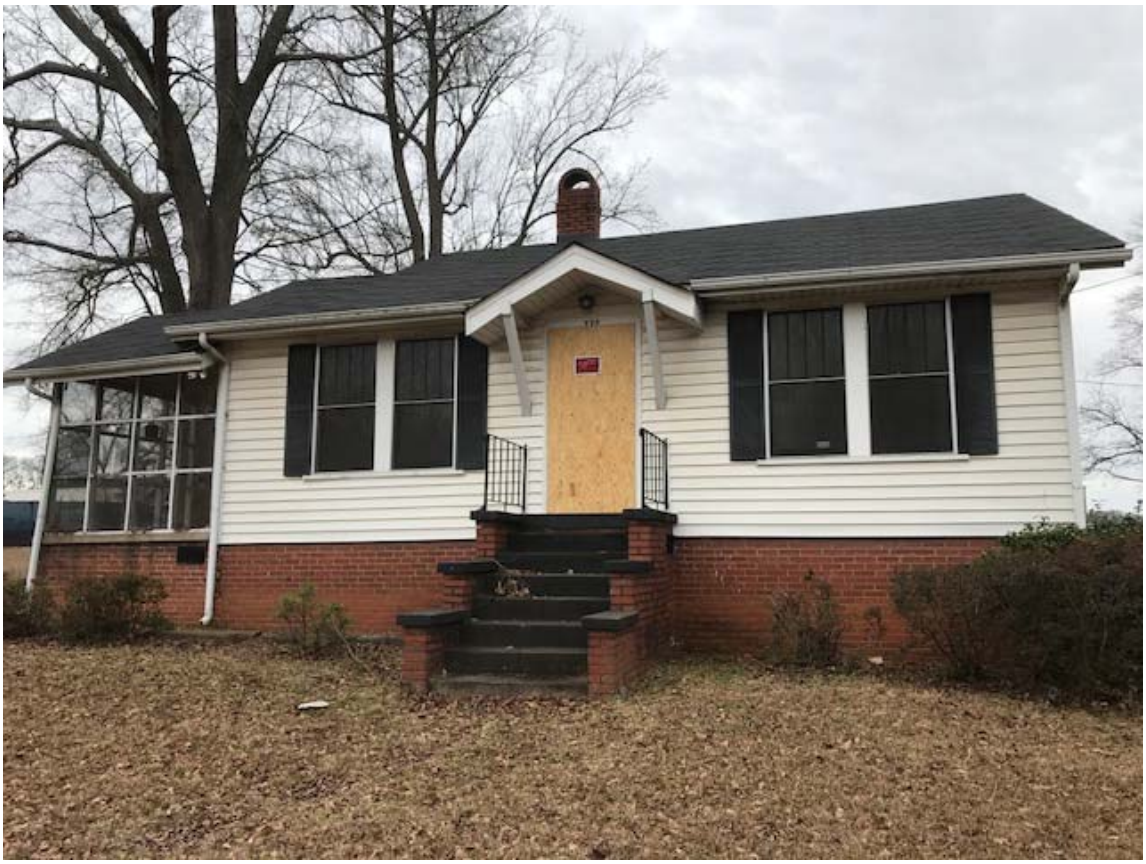

Asbestos & Lead Based Paint Assessment

City of Spartanburg
772 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

Environmental Management

Environmental Management

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

SERVICES

Indoor Air Quality

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Environmental Site Assessments

Hazard Communication

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
772 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
772 HOWARD STREET
SPARTANBURG, SOUTH CAROLINA 29303

APEX PROJECT NO. 0118-14

TABLE OF CONTENTS

SECTION

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:	772 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	1,400 SF

EXTERIOR BUILDING MATERIALS

- Pitched wooden roof with shingles & felt.
- Vinyl siding over wooden siding.
- Wooden windows with glazing.
- Wooden doors with no caulk.
- Black mastic/tar on 2 chimneys – assumed positive.

INTERIOR BUILDING MATERIALS

- Plaster with finish walls & ceilings over unfinished drywall.
- Plaster with finish ceilings.
- 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. Seventeen (17) 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). Nine (9) 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. 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 175 SF of brick pattern vinyl floor & mastic in the kitchen (floor tile exists under the brick pattern vinyl floor and mastic).
- Approximately 12 LF of mastic/tar on 2 chimneys – assumed positive.

Lead Based Paint

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

Interior

- White wooden walls and ceilings.

RECOMMENDATIONS AND DISCUSSION

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

Apex recommends the following:

1. Abate the asbestos containing materials in the structure prior to renovation or demolition.

2. Follow applicable asbestos regulations during renovation or demolition of the structure. You should be aware that stringent requirements are imposed upon anyone renovating or demolishing a structure in which ACM will be disturbed. This work must be performed in accordance with OSHA asbestos regulations, 29 CFR 1910 & 1926, and NESHAP asbestos regulations 40 CFR 61, subpart M. South Carolina regulations require the accreditation of personnel who work in the asbestos field and notification and permitting fees for asbestos removal projects. There is a 10 working day notification period required prior to abatement of asbestos in a facility. Failure to take proper precautions and actions to protect human health and the environment can result in penalties, danger to personnel, and construction delays.

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

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

Lead-Based Paint

Currently the South Carolina Department of Health and Environmental Control (SCDHEC) define LBP as paint containing greater than 1.0 milligram per square centimeter (mg/cm^2) lead or in excess of, or equal to, 0.5 percent lead. Building materials identified as being painted with LBP should be segregated from the other building materials and recycled or disposed of in a municipal lined landfill. The removed wastes would need to be containerized and further tested by Toxic Characteristic Leaching procedures (TCLP) to determine if the waste is classified as hazardous. The remaining building materials that are not painted with LBP may be disposed of in a construction and demolition landfill. However, the landfills should be contacted to determine their specific disposal requirements.

Occupational Safety and Health Administration Lead Regulations apply to actions initiated on lead containing materials. This regulation applies to lead concentrations greater than the analytical limit of detection. This regulation sets exposure levels on airborne lead and does not reference the percent lead in paint. Therefore, initial personal air monitoring should be conducted on workers performing work on surfaces which have a lead concentration of 0.1 mg/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 ($\mu g/m^3$) is established, personal air monitoring may be terminated. The full OSHA lead standard should be referenced for compliance.

A copy of this report must be submitted to SCDHEC at least ten (10) working days prior to demolition when applying for a demolition permit.

SECTION II

Asbestos & LBP Data Tables

ASBESTOS SURVEY FIELD DATA SHEET
PLM & TEM ANALYSIS

Project Name: COS 772 Howard Street ACM/LBP

Sampled By: Ted Shultz

Project Location: 772 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
1	**Kitchen - 2 layers**	**Brick pattern roll vinyl & mastic over 9" x 9" tan floor tile & mastic**	**PLM - 25% chry (brick pattern vinyl floor); 3% chry (brick pattern floor mastic)**; NAD (bottom layer FT & mastic)	**Non-Friable**	**Good**	**175 SF**
2						
3			TEM - NAD (bottom layer FT & mastic)			
4	Bathroom - 3 layers	Black/grey self-stick floor tile & mastic over 9" x 9" yellow floor tile & mastic & wooden pattern self-stick floor tile & mastic	PLM - NAD	Non-Friable	Good	50 SF
5						
6			TEM - NAD			
7	Throughout walls & ceilings	Plaster with finish over unfinished drywall	PLM - NAD	Friable	Good	3,850 SF
8						
9						
10						
11						
12	Roof	Roof shingles (1 layer) & felt (1 layer)	PLM - NAD	Non-Friable	Good	2,100 SF
13						
14			TEM - NAD			
15	Wooden windows	Window glazing	PLM - NAD	Non-Friable	Good	18 EA
16						
17			TEM - NAD			
Assumed	**Roof/chimneys**	**Mastic/tar on 2 chimneys**	**Assumed**	**Non-Friable**	**Good**	**12 LF**

NAD = No Asbestos Detected

Bold = Positive For Asbestos

LF = Linear Feet

SF = Square Feet

EA = Each

Chry = Chrysotile

Amos = Amosite

FIELD DATA SHEET
LBP ANALYSIS

Project Name: COS 772 Howard Street ACM/LBP

Sampled By: Ted Shultz

Project Location: 772 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)
51	Exterior	Siding	White	Wood	0.00
52	Exterior	Window	Black	Wood	0.53
53	**Exterior**	**Porch ceiling**	**White**	**Wood**	**2.68**
54	**Exterior**	**Porch framing**	**White**	**Wood**	**2.20**
55	**Exterior**	**Window frame**	**White**	**Metal**	**1.18**
56	Exterior	Window	Black	Wood	0.17
57	**Exterior**	**Front door frame**	**White**	**Metal**	**2.00**
58	Exterior	Front porch floor	Black	Concrete	0.00
59	Exterior	Front porch hand rail	Black	Metal	0.14
60	**Laundry room**	**Wall**	**White**	**Wood**	**3.17**
61	**Laundry room**	**Ceiling**	**White**	**Wood**	**2.68**
62	Laundry room	Window	White	Wood	0.21
63	Laundry room	Window sill	White	Wood	0.34
64	Laundry room	Door frame	White	Wood	0.27
65	Kitchen	Window	Brown	Wood	0.04
66	Kitchen	Window frame	Brown	Wood	0.05
67	Kitchen	Cabinet	White	Wood	0.05
68	Kitchen	Sink	White	Metal	0.02
69	Dining room	Buse	Brown	Wood	0.11
70	Dining room	Wall	White	Plaster	0.30
71	Living room	Fireplace mantle	White	Wood	0.13
72	Living room	Fireplace mantle	White	Brick	0.06
73	Living room	Door frame	Brown	Wood	0.05
74	Living room	Door frame	Brown	Wood	0.04

FIELD DATA SHEET
LBP ANALYSIS

Project Name: COS 772 Howard Street ACM/LBP

Sampled By: Ted Shultz

Project Location: 772 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)
75	Bathroom	Wall tile	Yellow	Ceramic tile	0.36

Bold = LBP

SECTION III

Laboratory Analytical Results

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February 6, 2018

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: COS ACM 772 Howard; 0118-15
CEI LAB CODE: A18-1611

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

NVLAP® TESTING
NVLAP LAB CODE 101768-0

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ASBESTOS ANALYTICAL REPORT
By: Polarized Light Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: COS ACM 772 Howard; 0118-15

LAB CODE: A18-1611

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

REPORT DATE: 02/06/18

TOTAL SAMPLES ANALYZED: 14

SAMPLES >1% ASBESTOS: 2

TEL: 866-481-1412

www.ceilabs.com

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS ACM 772 Howard; 0118-15 **LAB CODE:** A18-1611

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
1	Layer 1	A2610576A	Red,Brown	Rolled Vinyl	Chrysotile 25%
	Layer 2	A2610576A	Brown	Mastic	Chrysotile 3%
	Layer 1	A2610576B	Tan	Rolled Vinyl	None Detected
	Layer 2	A2610576B	Black	Mastic	None Detected
2		A2610577A		Sample Not Analyzed per COC	
	Layer 1	A2610577B	Tan	Rolled Vinyl	None Detected
	Layer 2	A2610577B	Black	Mastic	None Detected
3	Layer 1	A2610578A		Sample Not Analyzed per COC	
	Layer 2	A2610578A		Sample Not Analyzed per COC	
	Layer 1	A2610578B		Sample Submitted for TEM Analysis	
	Layer 2	A2610578B		Sample Submitted for TEM Analysis	
4		A2610579A	Black,White	Floor Tile	None Detected
		A2610579B	Yellow	Mastic	None Detected
		A2610579C	Brown	Floor Tile	None Detected
		A2610579D	Yellow	Mastic	None Detected
		A2610579E	Green	Floor Tile	None Detected
		A2610579F	Black	Mastic	None Detected
5		A2610580A	Black,White	Floor Tile	None Detected
		A2610580B	Yellow	Mastic	None Detected
		A2610580C	Brown	Floor Tile	None Detected
		A2610580D	Yellow	Mastic	None Detected
		A2610580E	Green	Floor Tile	None Detected
		A2610580F	Black	Mastic	None Detected
6		A2610581A		Sample Submitted for TEM Analysis	
		A2610581B		Sample Submitted for TEM Analysis	
		A2610581C		Sample Submitted for TEM Analysis	
		A2610581D		Sample Submitted for TEM Analysis	

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: COS ACM 772 Howard; 0118-15 **LAB CODE:** A18-1611

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

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
		A2610581E		Sample Submitted for TEM Analysis	
		A2610581F		Sample Submitted for TEM Analysis	
7	Layer 1	A2610582A	White	Plaster Skim Coat	None Detected
	Layer 2	A2610582A	Tan	Plaster Base Coat	None Detected
		A2610582B	White	Drywall	None Detected
8	Layer 1	A2610583A	White	Plaster Skim Coat	None Detected
	Layer 2	A2610583A	Tan	Plaster Base Coat	None Detected
		A2610583B	White	Drywall	None Detected
9	Layer 1	A2610584A	White	Plaster Skim Coat	None Detected
	Layer 2	A2610584A	Tan	Plaster Base Coat	None Detected
		A2610584B	White	Drywall	None Detected
10	Layer 1	A2610585A	White	Plaster Skim Coat	None Detected
	Layer 2	A2610585A	Tan	Plaster Base Coat	None Detected
		A2610585B	White	Drywall	None Detected
11	Layer 1	A2610586A	White	Plaster Skim Coat	None Detected
	Layer 2	A2610586A	Tan	Plaster Base Coat	None Detected
		A2610586B	White	Drywall	None Detected
12	Layer 1	A2610587	Black	Shingle	None Detected
	Layer 2	A2610587	Black	Felt Paper	None Detected
13	Layer 1	A2610588	Black	Shingle	None Detected
	Layer 2	A2610588	Black	Felt Paper	None Detected
14	Layer 1	A2610589	Black	Shingle	None Detected
	Layer 2	A2610589	Black	Felt Paper	None Detected
15		A2610590	White	Window Glazing	None Detected
16		A2610591	White	Window Glazing	None Detected
17		A2610592		Sample Submitted for TEM Analysis	

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

eurofins | CEI

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

Lab Code: A18-1611
Date Received: 01-30-18
Date Analyzed: 02-05-18
Date Reported: 02-06-18

Project: COS ACM 772 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
1 Layer 1 A2610576A	Rolled Vinyl	Heterogeneous Red,Brown Fibrous Bound			50% 25%	Vinyl Binder	**25% Chrysotile**
Layer 2 A2610576A	Mastic	Heterogeneous Brown Fibrous Bound			97%	Mastic	**3% Chrysotile**
Lab Notes: Analysis opinion: Contamination from layer 1.							
Layer 1 A2610576B	Rolled Vinyl	Heterogeneous Tan Fibrous Bound	20%	Cellulose	80%	Vinyl	None Detected
Layer 2 A2610576B	Mastic	Heterogeneous Black Fibrous Bound	65%	Cellulose	35%	Tar	None Detected
2 A2610577A	Sample Not Analyzed per COC						
Layer 1 A2610577B	Rolled Vinyl	Heterogeneous Tan Fibrous Bound	20%	Cellulose	80%	Vinyl	None Detected
Layer 2 A2610577B	Mastic	Heterogeneous Black Fibrous Bound	65%	Cellulose	35%	Tar	None Detected
3 Layer 1 A2610578A	Sample Not Analyzed per COC						

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1611
Date Received: 01-30-18
Date Analyzed: 02-05-18
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Project: COS ACM 772 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
Layer 2 A2610578A	Sample Not Analyzed per COC						
Layer 1 A2610578B	Sample Submitted for TEM Analysis						
Layer 2 A2610578B	Sample Submitted for TEM Analysis						
4 A2610579A	Floor Tile	Homogeneous Black,White Non-fibrous Bound			100%	Vinyl	None Detected
A2610579B	Mastic	Heterogeneous Yellow Fibrous Bound	5%	Cellulose	95%	Mastic	None Detected
A2610579C	Floor Tile	Homogeneous Brown Non-fibrous Bound			100%	Vinyl	None Detected
A2610579D	Mastic	Heterogeneous Yellow Fibrous Bound	5%	Cellulose	95%	Mastic	None Detected
A2610579E	Floor Tile	Heterogeneous Green Fibrous Bound			95% 5%	Vinyl Binder	None Detected
A2610579F	Mastic	Heterogeneous Black Fibrous Bound	75%	Cellulose	25%	Tar	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1611
Date Received: 01-30-18
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Date Reported: 02-06-18

Project: COS ACM 772 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
5 A2610580A	Floor Tile	Homogeneous Black,White Non-fibrous Bound			100%	Vinyl	None Detected
A2610580B	Mastic	Heterogeneous Yellow Fibrous Bound	5%	Cellulose	95%	Mastic	None Detected
A2610580C	Floor Tile	Homogeneous Brown Non-fibrous Bound			100%	Vinyl	None Detected
A2610580D	Mastic	Heterogeneous Yellow Fibrous Bound	5%	Cellulose	95%	Mastic	None Detected
A2610580E	Floor Tile	Heterogeneous Green Fibrous Bound			95% 5%	Vinyl Binder	None Detected
A2610580F	Mastic	Heterogeneous Black Fibrous Bound	75%	Cellulose	25%	Tar	None Detected
6 A2610581A	Sample Submitted for TEM Analysis						
A2610581B	Sample Submitted for TEM Analysis						
A2610581C	Sample Submitted for TEM Analysis						

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1611
Date Received: 01-30-18
Date Analyzed: 02-05-18
Date Reported: 02-06-18

Project: COS ACM 772 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
A2610581D	Sample Submitted for TEM Analysis						
A2610581E	Sample Submitted for TEM Analysis						
A2610581F	Sample Submitted for TEM Analysis						
7 Layer 1 A2610582A	Plaster Skim Coat	Heterogeneous White Non-fibrous Bound			10% 45% 45%	Paint Binder Calc Carb	None Detected
Layer 2 A2610582A	Plaster Base Coat	Heterogeneous Tan Fibrous Bound	5% <1%	Cellulose Hair	65% 30%	Silicates Binder	None Detected
A2610582B	Drywall	Heterogeneous White Fibrous Bound	20%	Cellulose	80%	Gypsum	None Detected
8 Layer 1 A2610583A	Plaster Skim Coat	Heterogeneous White Non-fibrous Bound			10% 45% 45%	Paint Binder Calc Carb	None Detected
Layer 2 A2610583A	Plaster Base Coat	Heterogeneous Tan Fibrous Bound	5% <1%	Cellulose Hair	65% 30%	Silicates Binder	None Detected
A2610583B	Drywall	Heterogeneous White Fibrous Bound	20%	Cellulose	80%	Gypsum	None Detected

ASBESTOS BULK ANALYSIS

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Client: Apex Environmental Management
7 Winchester Court
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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
9 Layer 1 A2610584A	Plaster Skim Coat	Heterogeneous White Non-fibrous Bound			10% 45% 45%	Paint Binder Calc Carb	None Detected
Layer 2 A2610584A	Plaster Base Coat	Heterogeneous Tan Fibrous Bound	5% <1%	Cellulose Hair	65% 30%	Silicates Binder	None Detected
A2610584B	Drywall	Heterogeneous White Fibrous Bound	20%	Cellulose	80%	Gypsum	None Detected
10 Layer 1 A2610585A	Plaster Skim Coat	Heterogeneous White Non-fibrous Bound			10% 45% 45%	Paint Binder Calc Carb	None Detected
Layer 2 A2610585A	Plaster Base Coat	Heterogeneous Tan Fibrous Bound	5% <1%	Cellulose Hair	65% 30%	Silicates Binder	None Detected
A2610585B	Drywall	Heterogeneous White Fibrous Bound	20%	Cellulose	80%	Gypsum	None Detected
11 Layer 1 A2610586A	Plaster Skim Coat	Heterogeneous White Non-fibrous Bound			10% 45% 45%	Paint Binder Calc Carb	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1611
Date Received: 01-30-18
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Project: COS ACM 772 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
Layer 2 A2610586A	Plaster Base Coat	Heterogeneous Tan Fibrous Bound	5% <1%	Cellulose Hair	65% 30%	Silicates Binder	None Detected
A2610586B	Drywall	Heterogeneous White Fibrous Bound	20%	Cellulose	80%	Gypsum	None Detected
12 Layer 1 A2610587	Shingle	Heterogeneous Black Fibrous Bound	25%	Fiberglass	10% 45% 20%	Gravel Tar Silicates	None Detected
Layer 2 A2610587	Felt Paper	Heterogeneous Black Fibrous Bound	75%	Cellulose	25%	Tar	None Detected
13 Layer 1 A2610588	Shingle	Heterogeneous Black Fibrous Bound	25%	Fiberglass	10% 45% 20%	Gravel Tar Silicates	None Detected
Layer 2 A2610588	Felt Paper	Heterogeneous Black Fibrous Bound	75%	Cellulose	25%	Tar	None Detected
14 Layer 1 A2610589	Shingle	Heterogeneous Black Fibrous Bound	25%	Fiberglass	10% 45% 20%	Gravel Tar Silicates	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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

Lab Code: A18-1611
Date Received: 01-30-18
Date Analyzed: 02-05-18
Date Reported: 02-06-18

Project: COS ACM 772 Howard; 0118-15

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
Layer 2 A2610589	Felt Paper	Heterogeneous Black Fibrous Bound	75%	Cellulose	25%	Tar	None Detected
15 A2610590	Window Glazing	Heterogeneous White Non-fibrous Bound	3%	Talc	2% 25% 70%	Paint Calc Carb Binder	None Detected
16 A2610591	Window Glazing	Heterogeneous White Non-fibrous Bound	3%	Talc	2% 25% 70%	Paint Calc Carb Binder	None Detected
17 A2610592	Sample Submitted for TEM Analysis						

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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.

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ANALYST: Mikaela Batta

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

NVLAP® TESTING
NVLAP LAB CODE 101768-0

ASBESTOS CHAIN OF CUSTODY

(17) A18-1611
A2610576
A2610592

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

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

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: Ted Schultz
Company: APEX Env. Mgt.	Email / Tel: tschultz@apex-ehs.com
Address: 7 Winchester Ct	Project Name: COS ACM 772 Howard
Mauldin, SC 29662	Project ID#: 0118-15
Email: tschultz@apex-ehs.com	PO #:
Tel: 803-348-4921 Fax:	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	☐	☐	☐	☐	☐	☑
PLM POINT COUNT (400)	EPA 600	☐	☐	☐	☐	☐	☐
PLM POINT COUNT (1000)	EPA 600	☐	☐	☐	☐	☐	☐
PLM GRAV w POINT COUNT	EPA 600		☐	☐	☐	☐	☐
PLM BULK	CARB 435		☐	☐	☐	☐	☐
PCM AIR	NIOSH 7400	☐	☐	☐	☐	☐	☐
TEM AIR	EPA AHERA	☐	☐	☐	☐	☐	☐
TEM AIR	NIOSH 7402	☐	☐	☐	☐	☐	☐
TEM AIR	ISO 10312	☐	☐	☐	☐	☐	☐
TEM AIR	ASTM 6281-09	☐	☐	☐	☐	☐	☐
TEM BULK	CHATFIELD		☐	☐	☐	☐	☑
TEM DUST WIPE	ASTM D6480-05 (2010)	☐	☐	☐	☐	☐	☐
TEM DUST MICROVAC	ASTM D5755-09 (2014)	☐	☐	☐	☐	☐	☐
TEM SOIL	ASTM D7521-13			☐	☐	☐	☐
TEM VERMICULITE	CINCINNATI METHOD			☐	☐	☐	☐
OTHER:		☐	☐	☐	☐	☐	☐

REMARKS / SPECIAL INSTRUCTIONS:

Posite stop.

☑ Accept Samples
☐ Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	5:00pm 1-29-18	AD	9:10 11-30-18

Samples will be disposed of 30 days after analysis

Page 1 *of* 2

Ag.1611

ASBESTOS SAMPLING FORM

CEI LABS

COMPANY CONTACT INFORMATION	
Company: Apex	Job Contact: Ted Shultz
Project Name: 772 Howard COS	
Project ID #:	Tel: 803-348-4921

SAMPLE ID#	DESCRIPTION / LOCATION	VOLUME/ AREA	TEST	
1	brick patter roll vinyl		PLM ☐1	TEM ☐
2	floor, tan 9x9 tile		PLM ☐1	TEM ☐
3	+ mastic		PLM ☐	TEM ☐1
4	black/grey self stick tile		PLM ☐1	TEM ☐
5	flr, wood pattern self-stick		PLM ☐1	TEM ☐
6	tile floor + yellow 9+9 tile + mastic		PLM ☐	TEM ☐1
7	plaster w/finish		PLM ☐1	TEM ☐
8	+ unfinished		PLM ☐1	TEM ☐
9	drywall		PLM ☐1	TEM ☐
10			PLM ☐1	TEM ☐
11			PLM ☐1	TEM ☐
12	1 shingle + 1 felt		PLM ☐1	TEM ☐
13			PLM ☐1	TEM ☐
14			PLM ☐1	TEM ☐
15	window glaze		PLM ☐1	TEM ☐
16			PLM ☐1	TEM ☐
17			PLM ☐	TEM ☐1
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐
			PLM ☐	TEM ☐

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February 12, 2018

Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662

CLIENT PROJECT: COS ACM 772 Howard; 0118-15
LAB CODE: T18-0214

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

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ASBESTOS ANALYTICAL REPORT
By: Transmission Electron Microscopy

Prepared for

Apex Environmental Management

CLIENT PROJECT: COS ACM 772 Howard; 0118-15

LAB CODE: T18-0214

TEST METHOD: Bulk Chatfield
EPA 600 / R93 / 116

REPORT DATE: 02/12/18

TEL: 866-481-1412

www.ceilabs.com

ASBESTOS BULK ANALYSIS

By: TRANSMISSION ELECTRON MICROSCOPY

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

Lab Code: T18-0214
Date Received: 02-06-18
Date Analyzed: 02-07-18
Date Reported: 02-12-18

Project: COS ACM 772 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 T73513	Tan Rolled Vinyl	0.299	62.5	24.1	13.4	**None Detected**
3 T73514	Black Mastic	0.245	95.9	3.7	.4	**None Detected**
6 T73515	Black, White Floor Tile	0.632	31.8	65	3.2	**None Detected**
6 T73516	Yellow Mastic	0.11	74.5	13.6	11.9	**None Detected**
6 T73517	Brown Floor Tile	0.401	31.7	61.8	6.5	**None Detected**
6 T73518	Yellow Mastic	0.132	78	13.6	8.4	**None Detected**
6 T73519	Green Floor Tile	0.347	32.6	34.3	33.1	**None Detected**
6 T73520	Black Mastic	0.189	82	4.8	13.2	**None Detected**
17 T73521	White Window Glazing	0.37	5.7	87.3	7	**None Detected**

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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

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ANALYST: Amanda Rucinski

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

T18-0214
T73513-521
(9)

ASBESTOS CHAIN OF CUSTODY

(17) A18-1611
A2610576
A2610592

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

LAB USE ONLY:
CEI Lab Code:
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COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: Ted Shultz
Company: APEX Env. Mgt.	Email / Tel: tshultz@apex-ehs.com
Address: 7 Winchester Ct	Project Name: COS ACM 772 Howard
Mauldin, SC 29662	Project ID#: 0118-15
Email: tshultz@apex-ehs.com	PO #:
Tel: 803-348-4921 Fax:	STATE SAMPLES COLLECTED IN: SC

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ASBESTOS	METHOD	TURN AROUND TIME					
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PLM POINT COUNT (400)	EPA 600	☐	☐	☐	☐	☐	☐
PLM POINT COUNT (1000)	EPA 600	☐	☐	☐	☐	☐	☐
PLM GRAV w POINT COUNT	EPA 600		☐	☐	☐	☐	☐
PLM BULK	CARB 435		☐	☐	☐	☐	☐
PCM AIR	NIOSH 7400	☐	☐	☐	☐	☐	☐
TEM AIR	EPA AHERA	☐	☐	☐	☐	☐	☐
TEM AIR	NIOSH 7402	☐	☐	☐	☐	☐	☐
TEM AIR	ISO 10312	☐	☐	☐	☐	☐	☐
TEM AIR	ASTM 6281-09	☐	☐	☐	☐	☐	☐
TEM BULK	CHATFIELD		☐	☐	☐	☐	☑
TEM DUST WIPE	ASTM D6480-05 (2010)	☐	☐	☐	☐	☐	☐
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TEM SOIL	ASTM D7521-13			☐	☐	☐	☐
TEM VERMICULITE	CINCINNATI METHOD			☐	☐	☐	☐
OTHER:		☐	☐	☐	☐	☐	☐

REMARKS / SPECIAL INSTRUCTIONS:

Posite stop.

☑ Accept Samples
☐ Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	5:00pm 1-29-18	AD	9:10 1-30-18
[signature]	8:45Am 2-6-18		

Samples will be disposed of 30 days after analysis

SECTION IV

Photographic Log

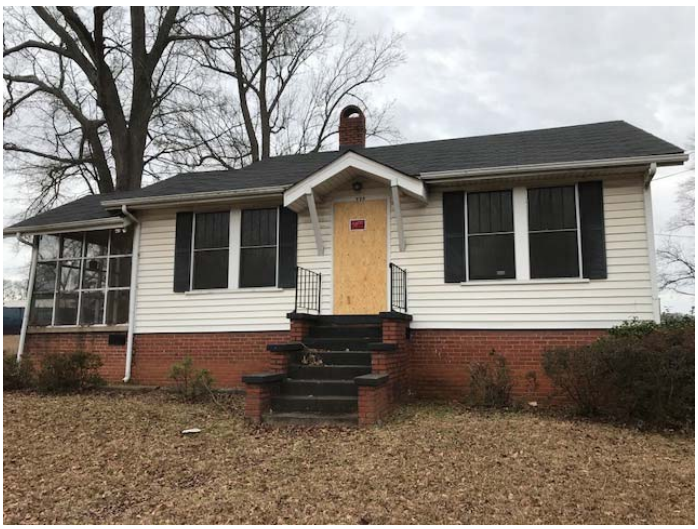


Photo 1 – 772 Howard Street in Spartanburg, South Carolina

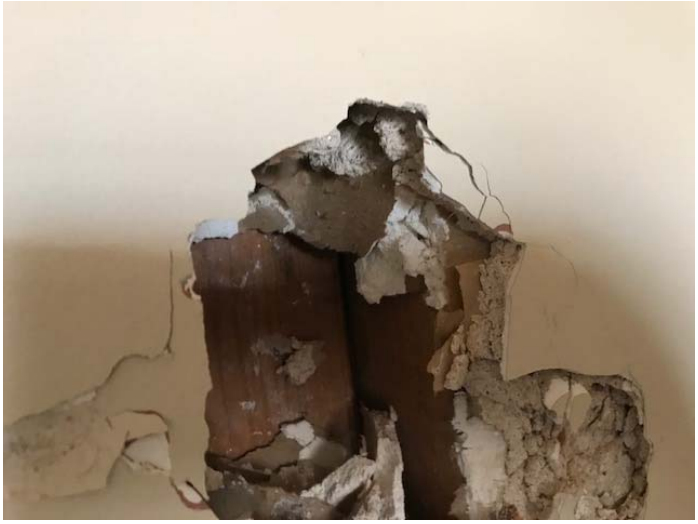


Photo 2 – Plaster with finish over unfinished drywall throughout

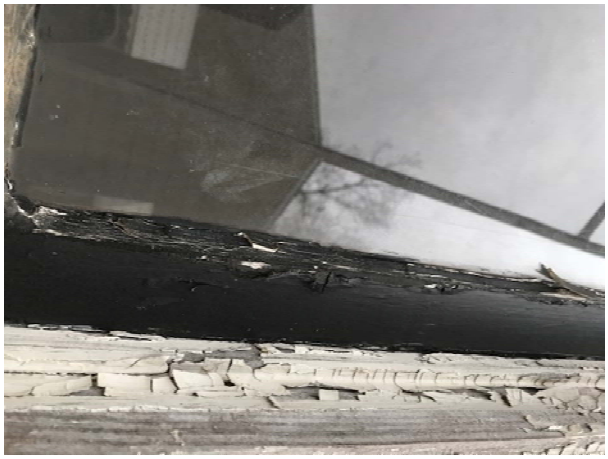


Photo 3 –Wooden window glazing

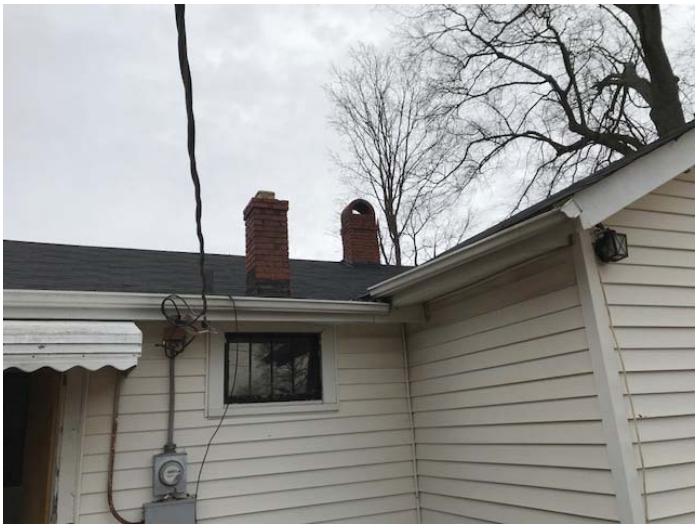


Photo 4 – 2 chimneys with mastic/tar – assumed positive & roof shingles & felt

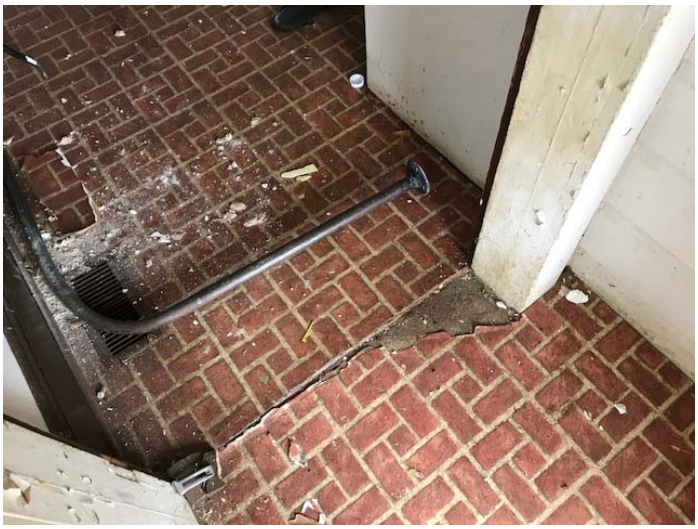


Photo 5 – Brick pattern roll vinyl & mastic over 9" x 9" tan floor tile & mastic in the kitchen

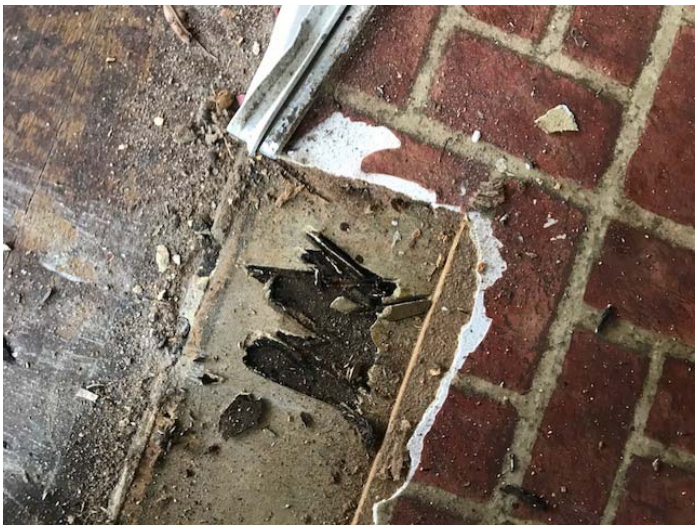


Photo 6 – Brick pattern roll vinyl & mastic over 9" x 9" tan floor tile & mastic in the kitchen

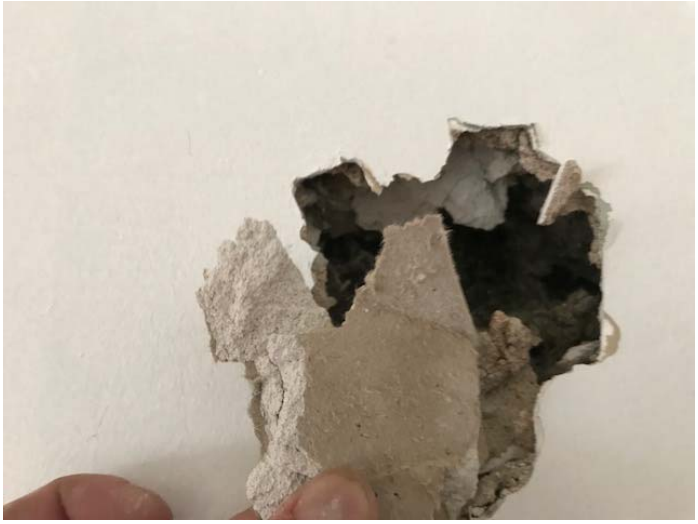


Photo 7 – Plaster with finish over unfinished drywall throughout

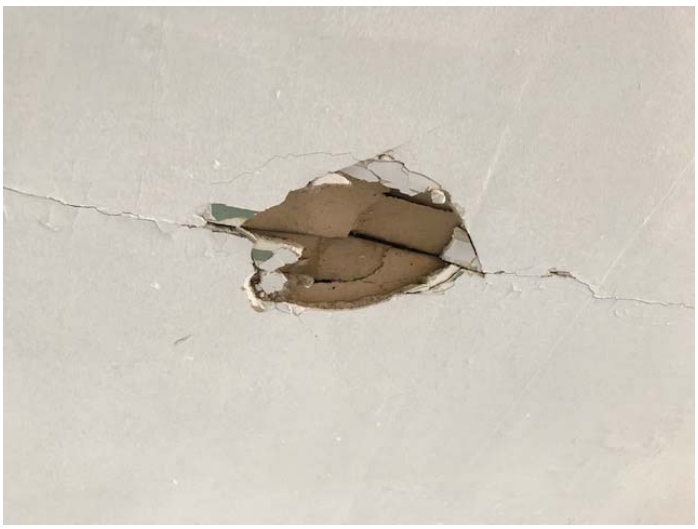


Photo 8 – Plaster with finish over unfinished drywall throughout

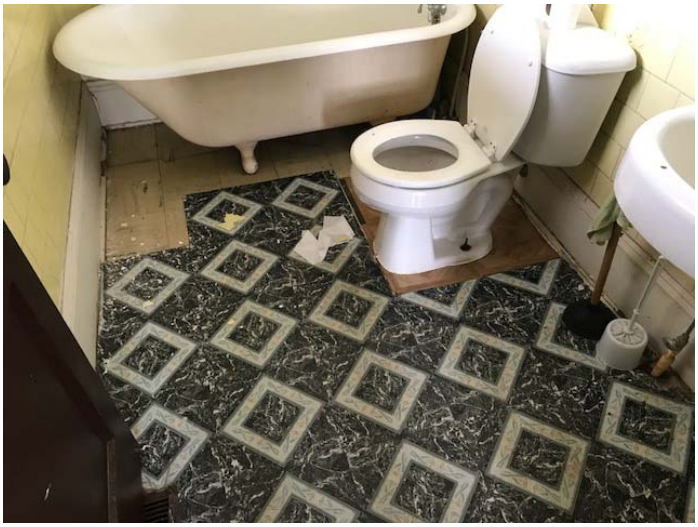


Photo 9 – Black/grey self-stick floor tile & mastic over 9" x 9" yellow floor tile & mastic & wooden pattern self-stick floor tile & mastic in the bathroom

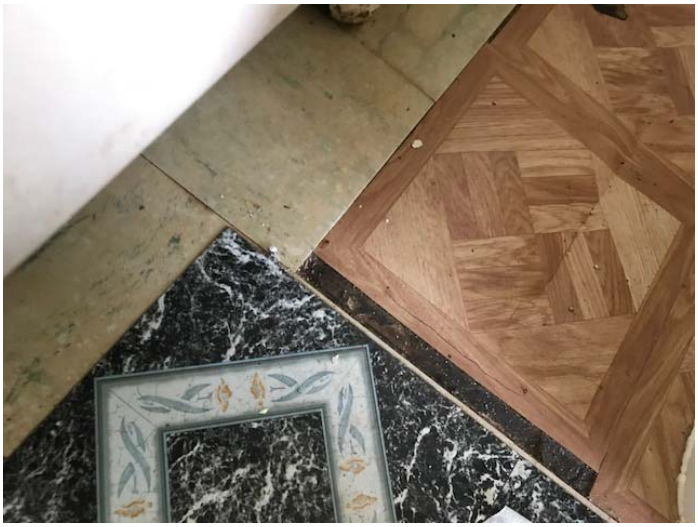


Photo 10 – Black/grey self-stick floor tile & mastic over 9" x 9" yellow floor tile & mastic & wooden pattern self-stick floor tile & mastic in the bathroom

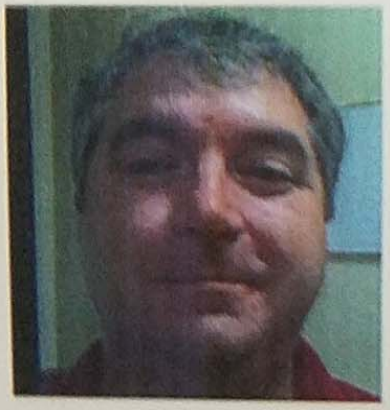
SECTION V

SC DHEC Asbestos Inspector License

SCDHEC ISSUED

Asbestos ID Card

Tedman K Shultz



		Expiration Date:
CONSULTBI	BI-00971	01/17/19
AIRSAMPLER	AS-00355	02/23/19