



# **PRE-DEMOLITION ASBESTOS & LEAD-BASED PAINT INSPECTION REPORT**

**F&R PROJECT NUMBER: 65U-0065**

Regarding:

SPARTANBURG AIRPORT ASBESTOS AND LEAD INSPECTIONS  
650 CALIFORNIA BOULEVARD, SPARTANBURG, SC 29304

Prepared for:

CITY OF SPARTANBURG  
PO Box 1749  
SPARTANBURG, SC 29304

Prepared by:

Froehling & Robertson Inc.  
18 Woods Lake Road  
Greenville, South Carolina 29607  
(864) 271-2840

Date of Inspection: May 26, 2016

Date of Report: June 10, 2016



## SIGNATURE PAGE

INSPECTOR NAME

Anthony J. Herrmann  
Terron Edwards

SC LICENSE No.

BI-01452  
BI-00576

EXP. DATE

August 2016  
March 2017

REPORT PREPARED BY:

A handwritten signature in cursive script that reads "Anthony Herrmann".

Anthony J. Herrmann, GIT  
Environmental Scientist

REPORT REVIEWED BY:

A handwritten signature in cursive script that reads "Jesse Phillips".

Jesse Phillips  
Senior Environmental Professional



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## **1.0 EXECUTIVE SUMMARY**

### **1.1 Asbestos and Lead-Based Paint Inspection**

Froehling & Robertson (F&R) conducted a pre-demolition asbestos and lead-based paint inspection for the City of Spartanburg (the **Client**) at 650 California Boulevard in Spartanburg County, South Carolina on May 26, 2016. The purpose of the inspection was to sample the suspect materials in the building for asbestos containing materials (ACMs) and lead-based paint prior to demolition. F&R understands that this inspection is for environmental risk purposes and for the purposes of demolition.

Mr. Anthony J. Herrmann, who holds South Carolina Asbestos Inspector License #BI-01452, and Mr. Terron Edwards, who holds South Carolina Asbestos Inspector License #BI-00576, conducted the inspection activities at the project site on May 26, 2016.

Suspect samples were shipped via overnight delivery under Chain of Custody to EMSL Analytical, Inc. (EMSL) in Charlotte, North Carolina for analysis. EMSL is accredited by the American Industrial Hygiene Association under their NVLAP quality control program for bulk asbestos analysis (Certificate 200841-0) and is accredited by the American Industrial Hygiene Association for analysis of bulk lead samples under their NLLAP quality control program (Certificate 102564).

Based on the analytical results of F&R's sampling of accessible suspect materials, asbestos containing materials were identified within the joint compound associated with drywall finishes within the structure as well as mastic on the chimney flashing.

### **1.2 Report Preparation**

This report was prepared by Mr. Anthony J. Herrmann to detail the findings of the inspection after analyses of the bulk asbestos and lead-based paint samples were completed by EMSL.

### **1.3 Building Description**

The building is located at 650 California Boulevard, Spartanburg County, South Carolina. According the Spartanburg County Assessor's office, the vacant residential structure is approximately 800 square feet in size and was built in 1960. The building is constructed of wooden framed walls on concrete footer foundation with exterior brick façades and a pitched asphalt shingle covered roof. The interior is finished with drywall ceilings and walls, tile and carpet floors, and wallpaper.



#### **1.4 Suspect Asbestos Containing Building Material Description**

The suspect material observed at the site includes black sealant applied to the chimney, black asphaltic roof shingles and associated felt paper, multi-colored floor tiles, drywall ceiling and walls and associated joint compound, wallpaper, and window pane glazing. A photo log is attached as Appendix I.

#### **1.5 Suspect Lead-based Paint Material Description**

Suspect lead-based paint includes exterior white paint on an electric panel.

### **2.0 GENERAL BACKGROUND INFORMATION**

#### **2.1 Asbestos Background & Regulatory Information**

The term “asbestos” refers to a group of naturally-occurring, fibrous minerals that are commercially mined throughout the world, primarily in Canada, Russia, and South Africa. Asbestos has been used in hundreds of products. Collectively, these products are referred to as asbestos-containing materials (ACMs). Asbestos gained wide use because it is plentiful, readily available, low in cost, and because of its unique properties - it does not burn, is strong, conducts heat and electricity poorly, and is resistant to chemical corrosion. As an insulator, asbestos received wide spread use for thermal insulation and condensation control. Asbestos is added to a variety of building materials to enhance strength. It is found in concrete and concrete-like products. Asbestos cement products are used as siding and roofing shingles, wallboard, as corrugated or flat sheets for roofing and partition walls, and as piping. Asbestos has also been added to asphalt, vinyl, and other materials to make products like roofing cements, felts and shingles, exterior siding materials, floor tiles, joint compounds, and mastics/adhesives. Asbestos also proved valuable as a component of acoustical plaster. This material was troweled on or sprayed on to ceilings or walls. As a decorative product, frequently referred to as textured ceiling or wall paint, asbestos was also mixed with other materials and sprayed on to walls and ceilings to produce a soft textured appearance. Asbestos is still mined commercially and used in many common products, including brake shoes, roofing materials, and flooring products. It is important to realize that commercially available products containing asbestos can still be purchased. It is a common misconception that asbestos is no longer used.

The three most commonly encountered types of asbestos are sometimes referred to by their predominant color: Chrysotile (white) is by far the most frequently used asbestos mineral, constituting approximately 95% of all commercial and industrial applications. Chrysotile fibers are long and flexible and can be spun or woven into cloth. Amosite (brown) and Crocidolite (blue) are used in approximately 4-5% of asbestos-containing products. Both types generally consist of shorter, more rigid fiber bundles that are highly resistant to heat, electricity, and chemicals. Three



other types of asbestos – anthophyllite, tremolite, and actinolite – are only rarely used for commercial purposes, but they occasionally occur in small quantities (naturally) along with other raw materials.

The U.S. Environmental Protection Agency promulgated the National Emission Standards for Hazardous Air Pollutants (NESHAP) [40 CFR Part 61], which addresses the application, removal, and disposal of asbestos-containing materials (ACM). Under NESHAP the following categories are defined for asbestos-containing materials:

Friable - When dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

Nonfriable - When dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Category I Nonfriable ACM - Packings, gaskets, resilient floor coverings, and asphalt roofing products containing more than 1% asbestos.

Category II Nonfriable ACM – Any material, excluding Category I Non-friable ACM, containing more than 1% asbestos.

Regulated Asbestos Containing Material (RACM) – One of the following:

1. Friable ACM
2. Category I Nonfriable ACM that has become friable.
3. Category I Nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading.
4. Category II Nonfriable ACM that has a high probability of becoming, or has become, friable by the forces expected to act on the material in the course of demolition or renovation operations.

Under NESHAP, the following actions are required:

1. Prior to the commencement of demolition or renovation activities, the building owner must inspect the affected facility or part of the facility where the demolition or renovation activities will occur for the presence of asbestos.
2. Remove all RACM from the facility, before any activity begins, that would break up, dislodge, or similarly disturb the material or preclude access for subsequent removal.
3. RACM need not be removed if:
  - a) It is Category I nonfriable ACM that is not in poor condition.
  - b) It is on a facility component that is encased in concrete or other similar material and is adequately wet whenever exposed.



- c) It was not accessible for testing and was therefore not discovered until after demolition began and because of the demolition the material cannot be safely removed.
- d) It is Category II nonfriable ACM and the probability is low that the material will become crumbled, pulverized, or reduced to powder during demolition.

The Occupational Safety and Health Administration (OSHA) has established three sets of regulatory standards pertaining to asbestos exposure:

29 CFR 1910.1001	General Industry
29 CFR 1926.1101	Construction Industry
29 CFR 1910.134	Respiratory Protection

The construction industry standard covers activities involving asbestos demolition, removal, alteration, repair, maintenance, installation, cleanup, transportation, disposal, and storage. The general industry standard covers other activities where asbestos exposure is possible.

Addressed under the OSHA standards are building owner/employer responsibilities regarding the identification of identified or presumed asbestos containing materials (PACM), notification to tenants/employees of the presence of asbestos, employee training, and work procedures.

## **2.2 Lead-Based Paint Background & Regulatory Information**

Lead was used extensively as an additive in residential paints until banned by legislation on January 1, 1978. Painted surfaces in structures constructed before that date are suspected to contain lead and must by federal regulation be tested prior to disturbances that occur during renovation, repair and painting, and demolition. Paint found by analysis to contain more than 0.5% lead by weight is a regulated material under a variety of federal laws and is identified as “lead-based paint”.

Lead, when ingested or inhaled, is a neurological poison which can cause a wide range of negative health effects in humans including, but not limited to, high blood pressure, learning disabilities, central nervous system damage, hearing loss and many others.

Dust from lead-based paint disturbed during renovation or demolition is the principal source of lead exposure.

The amount of lead (the dose) required to poison a person is based largely on body weight, thus children are especially vulnerable. The brain and central nervous system in children under the age of 6 years are still developing rapidly and thus exposure to lead during this part of their development is especially damaging and may cause irreversible health issues.



Lead is regulated by the EPA, primarily through the Renovation, Repair and Painting (RRP) regulation which is part of Title X, the Residential Lead-Based Paint Hazard Reduction Act of 1992, 42 U.S.C. § 4852d and by OSHA, primarily through 29 CFR 1926.62, which is known as the Lead in Construction Rule.

Demolition of structures containing lead-based paint must include work practices which addresses and prevents exposure to lead by workers and prevents the spread of lead dust to the soil or to areas in the near vicinity of the demolition project. These work practices are contained within the regulations previously mentioned.

If lead-based paint on exterior surfaces is found to be flaking, peeling or otherwise damaged, lead contamination to the soil beneath the painted surfaces should be evaluated.

### **3.0 PROCEDURES**

#### **3.1 Asbestos Sample Collection**

F&R personnel collected a total of thirty-six (36) bulk samples of suspect asbestos containing materials (ACM) from the following materials:

- Floor tile in the kitchen, dining room, bedrooms, and hallway/bathroom,
- Drywall and joint compound in all rooms of the house,
- Window glazing
- Chimney mastic, and
- Asphaltic shingles and associated felt paper

Accordingly, the suspect ACM samples collected for analysis were submitted to EMSL Analytical, Inc. an NVLAP accredited and North Carolina licensed asbestos laboratory, in Greensboro, North Carolina for analysis by Polarized Light Microscopy (PLM) following EPA Method 600/R-93/116 and Method 600/M4-82-020. In addition, as required by South Carolina asbestos regulations, each non-friable organically bound (NOB) sample, which tested negative or non-detect by PLM was also analyzed via Transmission Electron Microscopy (TEM) using the EPA/600/R-93/116 Section 2.5.5.1 method. Eight (8) samples were analyzed by TEM.

The sample number, type of suspect ACM, detection of asbestos (1% or higher), number of layers analyzed, locations for each sample collected, the condition for each sample collected, and description of friability is shown in Table 1 below. Additional information on the sampling effort is found in Sections 3 and 4 of this report.





**TABLE 1 – SUMMARY OF ACM SAMPLES**

<b>SAMPLE NOS.</b>	<b>TYPE OF SUSPECT ACM</b>	<b>ASBESTOS DETECTED ABOVE 1%</b>	<b>Estimated Area (Square Feet)</b>	<b>LOCATION</b>	<b>Condition</b>	<b>Friable/Non-Friable</b>
FT-1	Floor Tile	No	150	Kitchen/Dining Room	G	NF
FT-2	Floor Tile	No	150	Kitchen/Dining Room	G	NF
FT-3	Floor Tile	No	150	Kitchen/Dining Room	G	NF
FT-4	Floor Tile	No	150	Living Room	G	NF
FT-5	Floor Tile	No	150	Living Room	G	NF
FT-6	Floor Tile	No	150	Living Room	G	NF
FT-7-Flooring	Floor Tile	No	150	Bedroom	G	NF
FT-7-Mastic	Floor Tile	No	150	Bedroom	G	NF
FT-7-Felt	Floor Tile	No	150	Bedroom	G	NF
FT-8-Flooring	Floor Tile	No	150	Bedroom	G	NF
FT-8-Felt	Floor Tile	No	150	Bedroom	G	NF
FT-9	Floor Tile	No	150	Bedroom	G	NF
FT-10	Floor Tile	No	150	Hallway/Bathroom	G	NF
FT-11	Floor Tile	No	150	Hallway/Bathroom	G	NF
FT-12	Floor Tile	No	150	Hallway/Bathroom	G	NF
DW-1-Drywall	Drywall	No	2200	Dining Room-Walls & Ceiling	G	NF



SAMPLE NOS.	TYPE OF SUSPECT ACM	ASBESTOS DETECTED ABOVE 1%	Estimated Area (Square Feet)	LOCATION	Condition	Friable/Non-Friable
DW-1-Joint Compound	Joint Compound	2% Chrysotile	2200	Dining Room-Walls & Ceiling	G	F
DW-2-Drywall	Drywall	No	2200	Dining Room-Walls & Ceiling	G	F
DW-2-Joint Compound	Joint Compound	Positive Stop	2200	Kitchen Walls & Ceiling	G	F
DW-3-Drywall	Drywall	No	2200	Kitchen Walls & Ceiling	G	F
DW-3-Joint Compound	Joint Compound	Positive Stop	2200	Hallway Walls & Ceiling	G	F
DW-4-Drywall	Drywall	No	2200	Hallway Walls & Ceiling	G	F
DW-4-Joint Compound	Joint Compound	Positive Stop	2200	Bedroom Walls & Ceiling	G	F
DW-5-Drywall	Drywall	No	2200	Bedroom Walls & Ceiling	G	F
DW-5-Joint Compound	Joint Compound	Positive Stop	2200	Bedroom Walls & Ceiling	G	F
WG-4	Window Glazing	No	25 Linear feet	Outside	G	NF
WG-5	Window Glazing	No	25 Linear feet	Outside	G	NF
WG-6	Window Glazing	No	25 Linear feet	Outside	G	NF
WP-1-Wallpaper	Wallpaper	No	500	Bedroom	G	NF
WP-1-Drywall	Drywall	No	500	Bedroom	G	F



SAMPLE NOS.	TYPE OF SUSPECT ACM	ASBESTOS DETECTED ABOVE 1%	Estimated Area (Square Feet)	LOCATION	Condition	Friable/Non-Friable
WP-2-Wallpaper	Wallpaper	No	500	Bedroom	G	NF
WP-2-Drywall	Drywall	No	500	Bedroom	G	F
CM-1	Chimney Mastic	<b>3% Chrysotile</b>	5	Chimney	G	NF
CM-2	Chimney Mastic	Positive Stop	5	Chimney	G	NF
CM-3	Chimney Mastic	Positive Stop	5	Chimney	G	NF
RS-1 shingle	Roofing	No	1200	Roof	G	NF
RS-1 felt paper	Roofing	No	1200	Roof	G	NF
RS-2 shingle	Roofing	No	1200	Roof	G	NF
RS-2 Felt paper	Roofing	No	1200	Roof	G	NF
R-3 shingle	Roofing	No	1200	Roof	G	NF
R-3 felt paper	Roofing	No	1200	Roof	G	NF
CR-1	Roofing	No	400	Roof	G	NF
CR-2	Roofing	No	400	Roof	G	NF
CR-3	Roofing	No	400	Roof	G	NF

### 3.2 Lead-Based Paint Chip Sample Collection

F&R personnel collected one sample of suspect lead based paint from the electrical panel on the eastern side of the house.



## 4.0 FINDINGS

### 4.1 Asbestos Containing Materials – Findings

Based on the analytical results of F&R's sampling, asbestos containing materials were identified in the drywall joint compound and the chimney mastic.

The Analytical results and chain of custody forms from the PLM and TEM analysis are found in Appendix II.

### 4.2 Lead in Paint

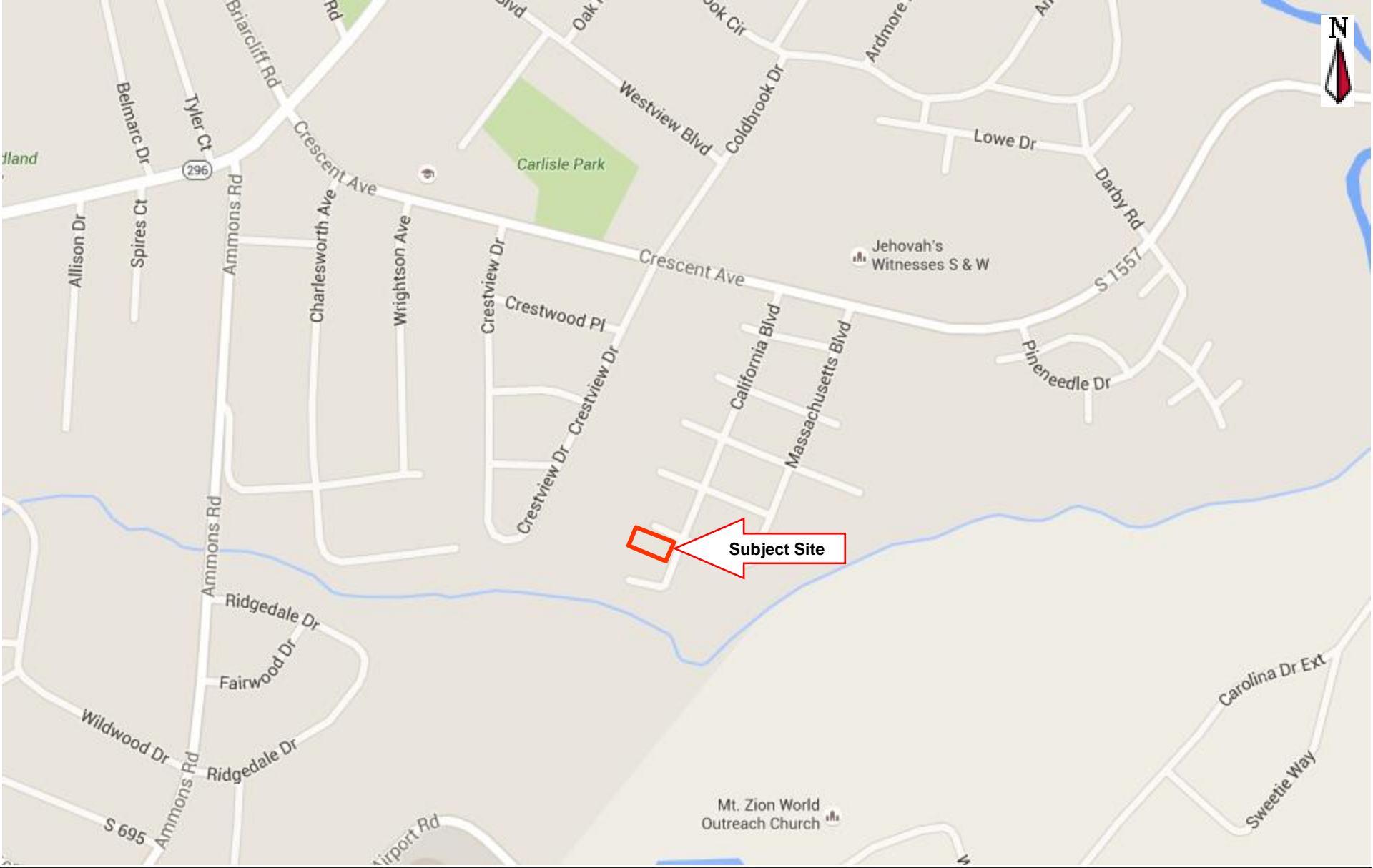
F&R personnel collected one sample from the electrical panel on the eastern side of the house. . Laboratory results indicate lead was detected at 0.26% by weight in the samples. This concentration does not constitute Lead-Based Paint; however, it can be considered lead-containing. The analytical report is included in Appendix II.

## 5.0 LIMITATIONS

This report has been prepared for the exclusive use of The City of Spartanburg. This report has been prepared in accordance with generally accepted environmental practices. No other warranty, expressed or implied, is made. Our observations are based upon conditions readily visible at the time of our site visit. We have not verified the completeness or accuracy of the information provided by others.

During the site visit, accessible areas within the proposed demolition areas were visually surveyed for the presence of suspect asbestos containing materials (ACM) and lead-based paint. Areas inspected were those designated by the scope of services. As with any similar survey of this nature, actual conditions exist only at the precise locations from which bulk samples were collected. Certain inferences are based on the results of this sampling and related testing to form a professional opinion of conditions in areas beyond those from which the samples were collected. No other warranty, expressed or implied, is made.

F&R, by virtue of providing the services described in this report, does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies nay conditions at the site that may present a potential danger to public health, safety, or the environment. It is the client's responsibility to notify the appropriate local, state, or federal public agencies as required by law, or otherwise to disclose, in a timely manner, any information that may be necessary to prevent any danger to public health, safety, or the environment. The contents of this report should not be construed in any way as a recommendation to purchase, sell, or further develop the project site.

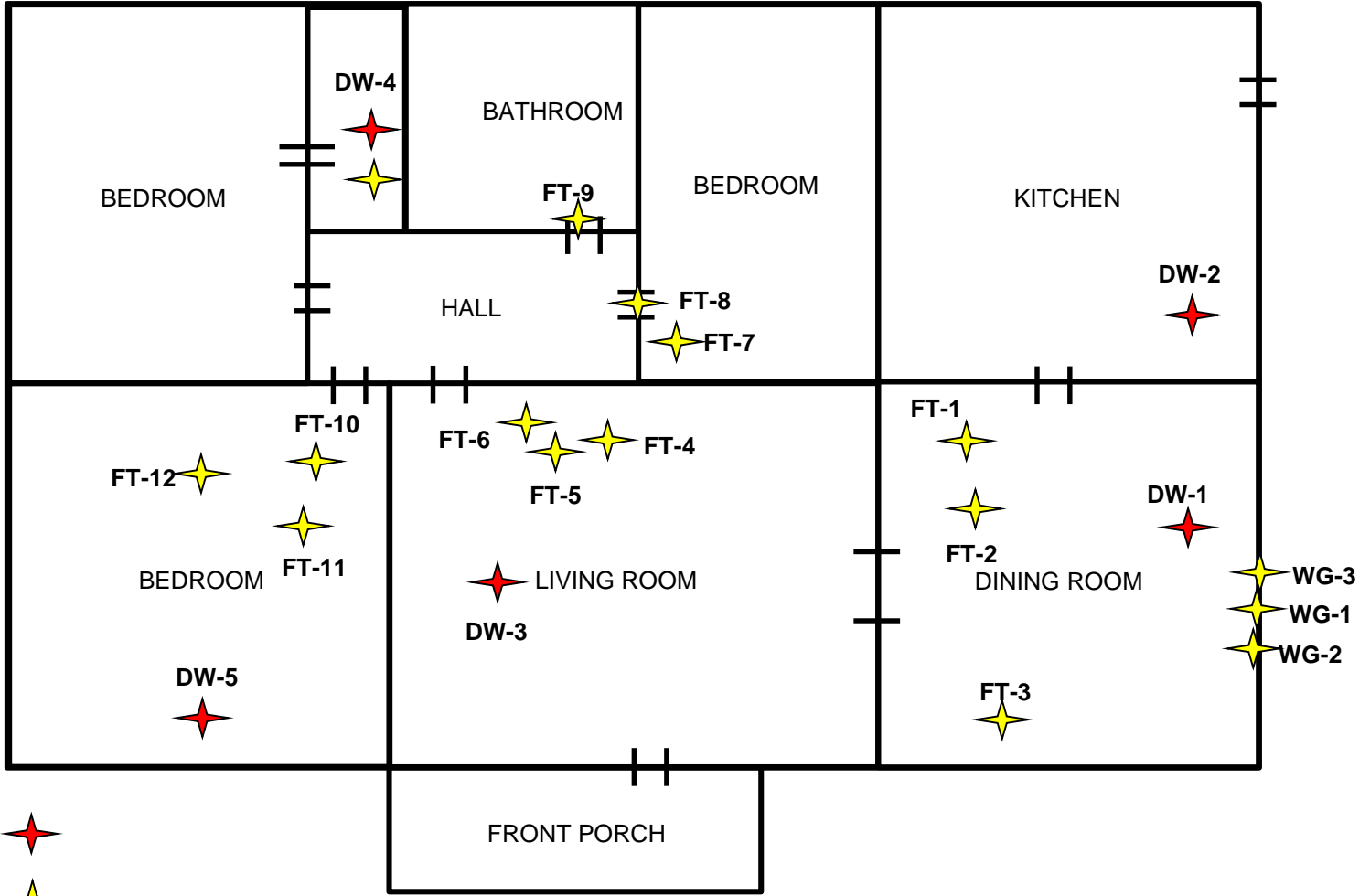




### SITE VICINTY MAP

**FROEHLING & ROBERTSON, INC.**  
 ENGINEERING • ENVIRONMENTAL • GEOTECHNICAL  
 18 Woods Lake Road  
 Greenville, South Carolina 29607 | USA  
 T 864.271.2840 | F 864.271.8124

Client:	City of Spartanburg
Project:	650 California Boulevard ACM & LBP Inspection
Location:	Spartanburg, South Carolina
F&R Project No:	65U-0065
Source:	Google Maps
Date: June 9, 2016	Scale: Not Shown





>1% Asbestos   
 Non-Detect 

### SUSPECT ACM SAMPLE LOCATIONS





**FROEHLING & ROBERTSON, INC.**  
 ENGINEERING • ENVIRONMENTAL • GEOTECHNICAL  
 18 Woods Lake Road  
 Greenville, South Carolina 29607 | USA  
 T 864.271.2840 | F 864.271.8124

Client:	City of Spartanburg	
Project:	650 California Boulevard ACM & LBP Inspection	
Location:	Spartanburg, South Carolina	
F&R Project No:	65U-0065	
Source:	F&R	
Date: June 9, 2016	Scale: Not Shown	Figure 2





>1% Asbestos 

Non-Detect 

### SUSPECT ACM ROOFING SAMPLE LOCATIONS



**FROEHLING & ROBERTSON, INC.**  
ENGINEERING • ENVIRONMENTAL • GEOTECHNICAL  
18 Woods Lake Road  
Greenville, South Carolina 29607 | USA  
T 864.271.2840 | F 864.271.8124

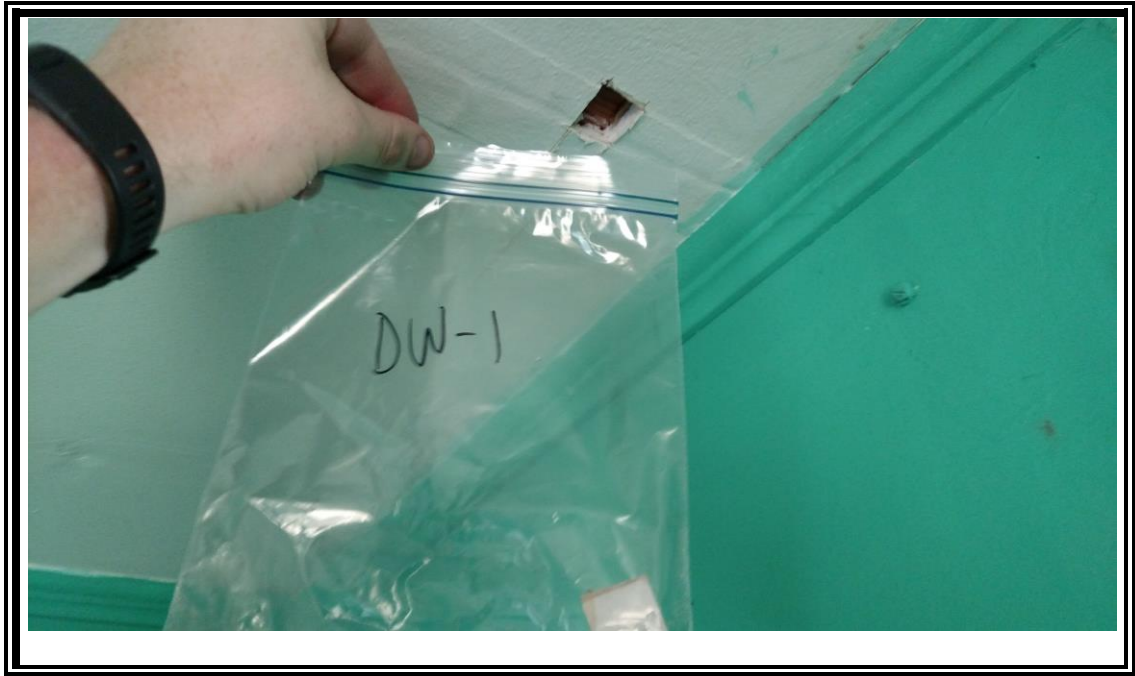
Client:	City of Spartanburg
Project:	650 California Boulevard ACM & LBP Inspection
Location:	Spartanburg, South Carolina
F&R Project No:	65U-0065
Source:	Spartanburg County GIS System
Date: June 9, 2016	Scale: Not Shown
	Figure 3



## **APPENDIX I**

### **Photo Log**

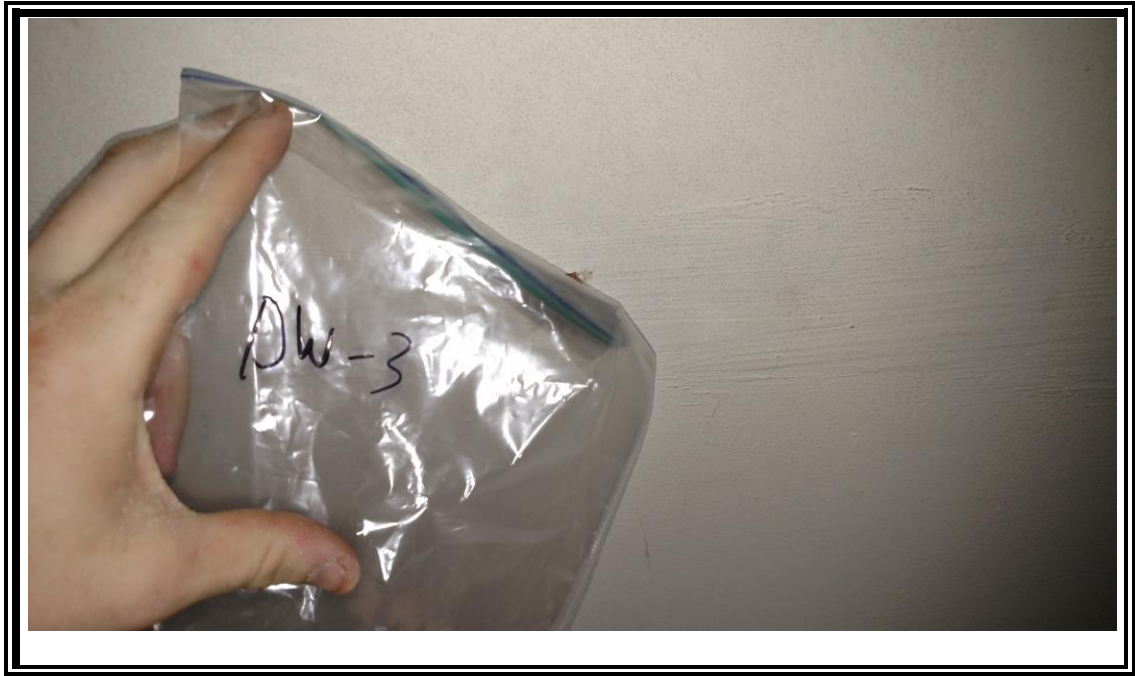




1. View of the drywall sample in dining room at 650 California Blvd.



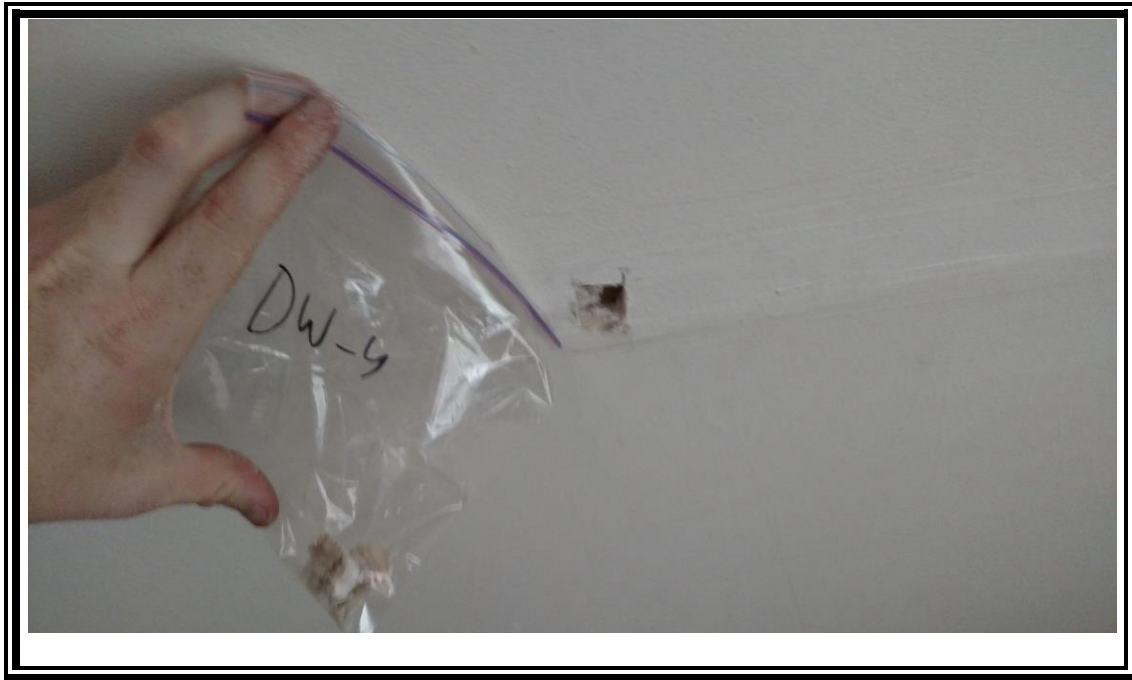
2. View of the drywall sample in kitchen at 650 California Blvd.



3. View of the drywall sample in living room at 650 California Blvd.



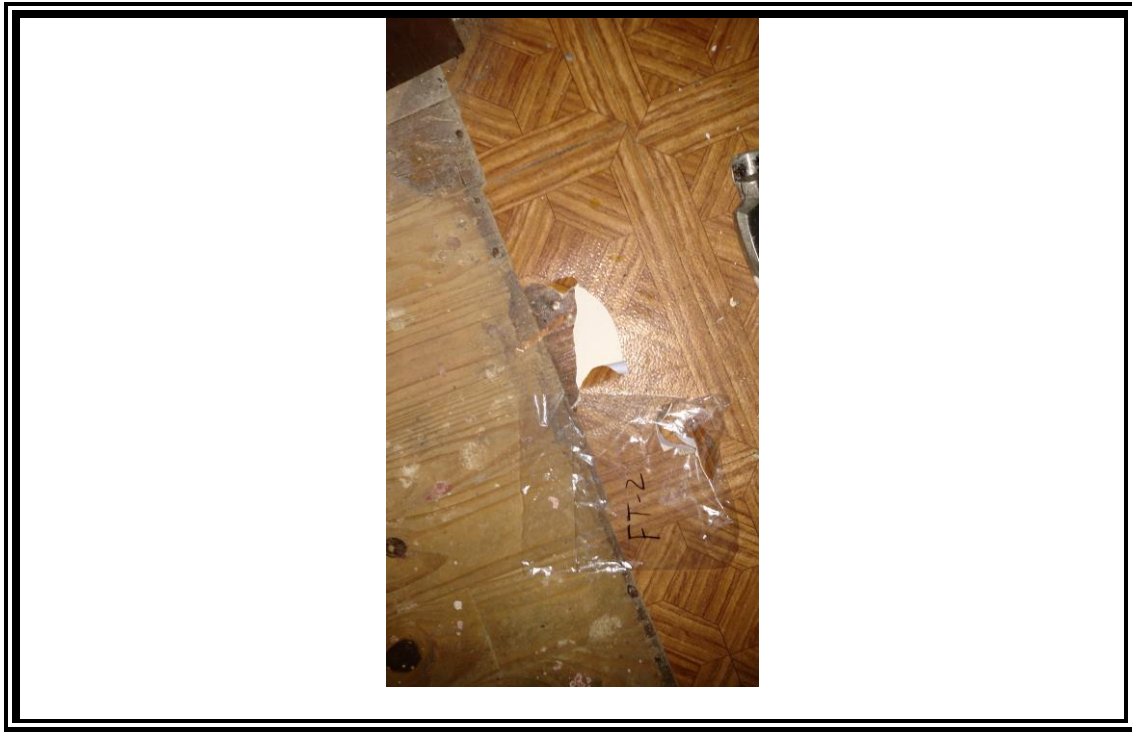
4. View of the drywall sample in the bedroom at 650 California Blvd.



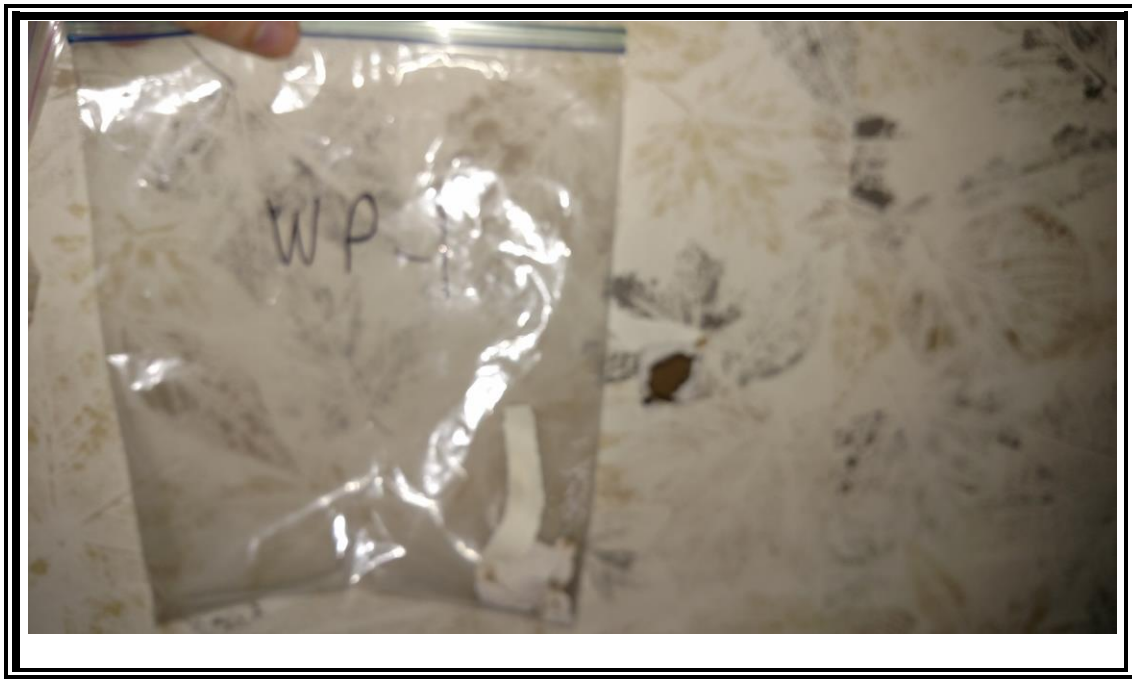
5. View of the drywall sample in the bedroom at 650 California Blvd.



6. View of the floor tile sample in the living room at 650 California Blvd.



7. View of the floor tile sample in the bedroom at 650 California Blvd.



8. View of the wallpaper sample in the hallway at 650 California Blvd.



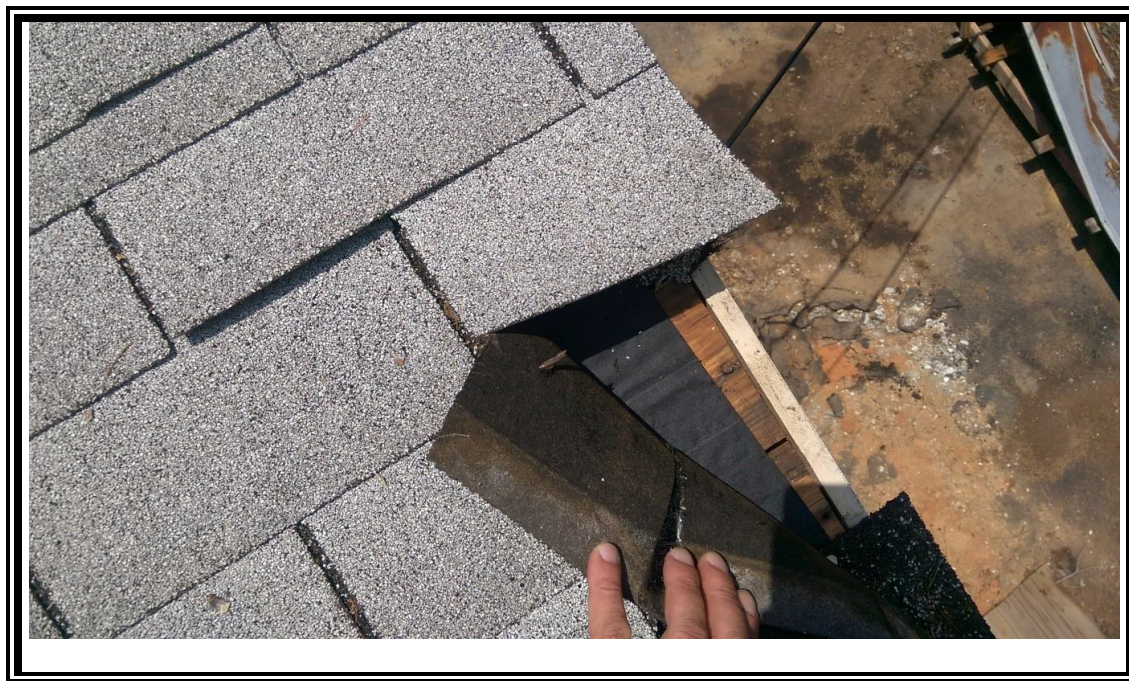


9. View of the wallpaper sample in the bedroom at 650 California Blvd.



10. View of the lead-paint outside of 650 California Blvd.





11. View of the roofing layers at 650 California Blvd.



12. View of the chimney mastic at 650 California Blvd.



## **APPENDIX II**

### **Analytical Results and Chain of Custody**



# EMSL Analytical, Inc.

376 Crompton Street Charlotte, NC 28273  
Tel/Fax: (704) 525-2205 / (704) 525-2382  
<http://www.EMSL.com> / [charlottelab@emsl.com](mailto:charlottelab@emsl.com)

EMSL Order: 411604359  
Customer ID: FROE22  
Customer PO:  
Project ID:

**Attention:** Anthony Herrmann  
Froehling & Robertson  
18 Woods Lake Road  
Greenville, SC 29607  
**Project:** 65U-0065  
**Phone:** (864) 271-2840  
**Fax:** (864) 271-8124  
**Received Date:** 05/31/2016 8:45 AM  
**Analysis Date:** 06/03/2016  
**Collected Date:** 05/26/2016

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
FT-1 411604359-0001	650 Cali. Blvd. - Kitchen/ Dining Room - Floor Tile	Gray/White/Green Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
FT-2 411604359-0002	650 Cali. Blvd. - Kitchen/ Dining Room - Floor Tile	Gray/White/Green Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
FT-4 411604359-0003	650 Cali. Blvd. - Living Room - Floor Tile	Gray/Black Fibrous Homogeneous	35% Cellulose	5% Ca Carbonate 60% Non-fibrous (Other)	None Detected
FT-5 411604359-0004	650 Cali. Blvd. - Living Room - Floor Tile	Gray/Black Fibrous Homogeneous	35% Cellulose	5% Ca Carbonate 60% Non-fibrous (Other)	None Detected
FT-7-Flooring 411604359-0005	650 Cali. Blvd. - Bedroom Room - Floor Tile	Brown/Tan/White Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
FT-7-Mastic 411604359-0005A	650 Cali. Blvd. - Bedroom Room - Floor Tile	Tan/Black Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
FT-7-Felt 411604359-0005B	650 Cali. Blvd. - Bedroom Room - Floor Tile	Black Fibrous Homogeneous	55% Cellulose	45% Non-fibrous (Other)	None Detected
FT-8-Flooring 411604359-0006	650 Cali. Blvd. - Bedroom Room - Floor Tile	Brown/White Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
FT-8-Mastic 411604359-0006A	650 Cali. Blvd. - Bedroom Room - Floor Tile	Tan/Black Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
FT-8-Felt 411604359-0006B	650 Cali. Blvd. - Bedroom Room - Floor Tile	Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
FT-10 411604359-0007	650 Cali. Blvd. - Hallway/ Bathroom Room - Floor Tile	Brown/White Non-Fibrous Homogeneous		35% Ca Carbonate 65% Non-fibrous (Other)	None Detected
FT-11 411604359-0008	650 Cali. Blvd. - Hallway/ Bathroom Room - Floor Tile	Brown/White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
DW-1-Drywall 411604359-0009	650 Cali. Blvd. - Dining Room Ceiling - Drywall & Joint Compound	Brown/Gray Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
DW-1-Joint Compound 411604359-0009A	650 Cali. Blvd. - Dining Room Ceiling - Drywall & Joint Compound	Beige Non-Fibrous Homogeneous		15% Ca Carbonate 83% Non-fibrous (Other)	2% Chrysotile
DW-2-Drywall 411604359-0010	650 Cali. Blvd. - Kitchen Ceiling - Drywall & Joint Compound	Brown/Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected





# EMSL Analytical, Inc.

376 Crompton Street Charlotte, NC 28273  
Tel/Fax: (704) 525-2205 / (704) 525-2382  
<http://www.EMSL.com> / [charlottelab@emsl.com](mailto:charlottelab@emsl.com)

EMSL Order: 411604359  
Customer ID: FROE22  
Customer PO:  
Project ID:

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
DW-2-Joint Compound 411604359-0010A	650 Cali. Blvd. - Kitchen Ceiling - Drywall & Joint Compound				Positive Stop (Not Analyzed)
DW-3-Drywall 411604359-0011	650 Cali. Blvd. - Hallway Ceiling - Drywall & Joint Compound	Brown/Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
DW-3-Joint Compound 411604359-0011A	650 Cali. Blvd. - Hallway Ceiling - Drywall & Joint Compound				Positive Stop (Not Analyzed)
DW-4-Drywall 411604359-0012	650 Cali. Blvd. - Bedroom Room Ceiling - Drywall & Joint Compound	Brown/Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
DW-4-Joint Compound 411604359-0012A	650 Cali. Blvd. - Bedroom Room Ceiling - Drywall & Joint Compound				Positive Stop (Not Analyzed)
DW-5-Drywall 411604359-0013	650 Cali. Blvd. - Bedroom Room Ceiling - Drywall & Joint Compound	Brown/Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
DW-5-Joint Compound 411604359-0013A	650 Cali. Blvd. - Bedroom Room Ceiling - Drywall & Joint Compound				Positive Stop (Not Analyzed)
WG-4 411604359-0014	650 Cali. Blvd. - Outside Window - Window Glazing	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
WG-5 411604359-0015	650 Cali. Blvd. - Outside Window - Window Glazing	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
WP-1-Wallpaper 411604359-0016	650 Cali. Blvd. - Bedroom - Wallpaper & Drywall	Gray/Beige Fibrous Homogeneous	55% Cellulose	45% Non-fibrous (Other)	None Detected
WP-1-Drywall 411604359-0016A	650 Cali. Blvd. - Bedroom - Wallpaper & Drywall	Brown/Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
WP-2-Wallpaper 411604359-0017	650 Cali. Blvd. - Bedroom - Wallpaper & Drywall	Gray Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
WP-2-Drywall 411604359-0017A	650 Cali. Blvd. - Bedroom - Wallpaper & Drywall	Brown/Gray Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
CT-1-Drywall 411604359-0018	880 Cali. Blvd. - Ceiling - Ceiling Texture	Brown/Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
CT-1-Tape 411604359-0018A	880 Cali. Blvd. - Ceiling - Ceiling Texture	Tan Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
CT-1-Texture 411604359-0018B	880 Cali. Blvd. - Ceiling - Ceiling Texture	Tan Non-Fibrous Homogeneous		8% Ca Carbonate 90% Non-fibrous (Other)	2% Chrysotile
CT-2-Drywall 411604359-0019	880 Cali. Blvd. - Ceiling - Ceiling Texture	Brown/Gray Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected

Initial Report From: 06/06/2016 10:42:30



# EMSL Analytical, Inc.

376 Crompton Street Charlotte, NC 28273  
Tel/Fax: (704) 525-2205 / (704) 525-2382  
<http://www.EMSL.com> / [charlottelab@emsl.com](mailto:charlottelab@emsl.com)

EMSL Order: 411604359  
Customer ID: FROE22  
Customer PO:  
Project ID:

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
CT-2-Texture <i>411604359-0019A</i>	880 Cali. Blvd. - Ceiling - Ceiling Texture				Positive Stop (Not Analyzed)
CT-3-Drywall <i>411604359-0020</i>	880 Cali. Blvd. - Ceiling - Ceiling Texture	Brown/Gray Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
CT-3-Texture <i>411604359-0020A</i>	880 Cali. Blvd. - Ceiling - Ceiling Texture				Positive Stop (Not Analyzed)
DWJC-1-Drywall <i>411604359-0021</i>	880 Cali. Blvd. - Bedroom - Drywall & Joint Compound	Brown/Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
DWJC-1-Joint Compound <i>411604359-0021A</i>	880 Cali. Blvd. - Bedroom - Drywall & Joint Compound	White Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
DWJC-2-Drywall <i>411604359-0022</i> <i>No joint compound present</i>	880 Cali. Blvd. - Bedroom - Drywall & Joint Compound	Brown/Gray Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
DWJC-3-Drywall <i>411604359-0023</i> <i>No Joint Compound Present</i>	880 Cali. Blvd. - Bedroom - Drywall & Joint Compound	Brown/Gray Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
KF-1 <i>411604359-0024</i>	880 Cali. Blvd. - Kitchen - Floor Tile	Gray/White/Beige Fibrous Homogeneous	2% Glass	5% Ca Carbonate 93% Non-fibrous (Other)	None Detected
KF-2 <i>411604359-0025</i>	880 Cali. Blvd. - Kitchen - Floor Tile	Gray/White/Beige Fibrous Homogeneous	2% Glass	5% Ca Carbonate 93% Non-fibrous (Other)	None Detected
BF-1-Flooring <i>411604359-0026</i>	880 Cali. Blvd. - Bathroom - Floor Tile	Gray/White/Beige Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
BF-1-Mastic <i>411604359-0026A</i>	880 Cali. Blvd. - Bathroom - Floor Tile	Tan Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
BF-2-Flooring <i>411604359-0027</i>	880 Cali. Blvd. - Bathroom - Floor Tile	Gray/White/Beige Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
BF-2-Mastic <i>411604359-0027A</i>	880 Cali. Blvd. - Bathroom - Floor Tile	Tan Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
S-1 <i>411604359-0028</i>	880 Cali. Blvd. - Side of House - Transite Paneling	Gray/White Fibrous Homogeneous		5% Ca Carbonate 85% Non-fibrous (Other)	10% Chrysotile
S-2 <i>411604359-0029</i>	880 Cali. Blvd. - Side of House - Transite Paneling				Positive Stop (Not Analyzed)
S-3 <i>411604359-0030</i>	880 Cali. Blvd. - Side of House - Transite Paneling				Positive Stop (Not Analyzed)
R-1-Shingle <i>411604359-0031</i>	880 Cali. Blvd. - Roof - Asphalt Roof	Gray/Tan/Black Fibrous Homogeneous	5% Glass	8% Quartz 8% Ca Carbonate 79% Non-fibrous (Other)	None Detected
R-1-Felt <i>411604359-0031A</i>	880 Cali. Blvd. - Roof - Asphalt Roof	Black Fibrous Homogeneous	65% Cellulose	35% Non-fibrous (Other)	None Detected

Initial Report From: 06/06/2016 10:42:30



# EMSL Analytical, Inc.

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EMSL Order: 411604359  
Customer ID: FROE22  
Customer PO:  
Project ID:

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
R-2-Shingle <small>411604359-0032</small>	880 Cali. Blvd. - Roof - Asphalt Roof	Gray/Tan/Black Fibrous Homogeneous	5% Glass	8% Quartz 8% Ca Carbonate 79% Non-fibrous (Other)	None Detected
R-2-Felt <small>411604359-0032A</small>	880 Cali. Blvd. - Roof - Asphalt Roof	Black Fibrous Homogeneous	65% Cellulose	35% Non-fibrous (Other)	None Detected
WG-1 <small>411604359-0033</small>	880 Cali. Blvd. - Outside Windows - Window Glazing	Gray/White Non-Fibrous Homogeneous	<1% Fibrous (Other)	35% Ca Carbonate 65% Non-fibrous (Other)	None Detected
WG-2 <small>411604359-0034</small>	880 Cali. Blvd. - Outside Windows - Window Glazing	Gray/White Non-Fibrous Homogeneous	<1% Fibrous (Other)	30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
CM-1 <small>411604359-0035</small>	880 Cali. Blvd. - Roof - Mastic	Black Non-Fibrous Homogeneous	8% Cellulose	92% Non-fibrous (Other)	None Detected
CM-2 <small>411604359-0036</small>	880 Cali. Blvd. - Roof - Mastic	Black Non-Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
BC-1-Brown Flooring <small>411604359-0037</small>	880 Cali. Blvd. - Kitchen Entrance - Linoleum	Brown/Gray Non-Fibrous Homogeneous	2% Cellulose	35% Ca Carbonate 63% Non-fibrous (Other)	None Detected
BC-1-Gray Flooring <small>411604359-0037A</small>	880 Cali. Blvd. - Kitchen Entrance - Linoleum	Gray Non-Fibrous Homogeneous	<1% Cellulose	30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
BC-2-Brown Flooring <small>411604359-0038</small>	880 Cali. Blvd. - Kitchen Entrance - Linoleum	Brown/Gray Non-Fibrous Homogeneous	3% Cellulose	30% Ca Carbonate 67% Non-fibrous (Other)	None Detected
BC-2-Gray Flooring <small>411604359-0038A</small>	880 Cali. Blvd. - Kitchen Entrance - Linoleum	Gray Non-Fibrous Homogeneous	<1% Cellulose	30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
I-1 <small>411604359-0039</small>	880 Cali. Blvd. - Ceiling - Insulation	Gray Fibrous Homogeneous	<1% Cellulose 98% Min. Wool	2% Non-fibrous (Other)	None Detected
I-2 <small>411604359-0040</small>	880 Cali. Blvd. - Ceiling - Insulation	Gray Fibrous Homogeneous	<1% Cellulose 98% Min. Wool	2% Non-fibrous (Other)	None Detected
I-3 <small>411604359-0041</small>	880 Cali. Blvd. - Ceiling - Insulation	Gray Fibrous Homogeneous	<1% Cellulose 98% Min. Wool	2% Non-fibrous (Other)	None Detected

Analyst(s)  
Erin Guzowski (32)  
Lyterra Barrow (23)

Lee Plumley, Laboratory Manager  
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Charlotte, NC NVLAP Lab Code 200841-0, VA 3333 00312

Initial Report From: 06/06/2016 10:42:30

**EMSL Analytical, Inc.**

376 Crompton Street, Charlotte, NC 28273  
 Phone/Fax: (704) 525-2205 / (704) 525-2382  
<http://www.EMSL.com> [charlottelab@emsl.com](mailto:charlottelab@emsl.com)

EMSL Order: 411604359  
 CustomerID: FROE22  
 CustomerPO:  
 ProjectID:

Attn: **Anthony Herrmann  
 Froehling & Robertson  
 18 Woods Lake Road  
 Greenville, SC 29607**

Phone: (864) 271-2840  
 Fax: (864) 271-8124  
 Received: 06/06/16 11:30 AM  
 Analysis Date: 6/7/2016  
 Collected: 5/26/2016

Project: **65U-0065**

**Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM  
 via EPA/600/R-93/116 Section 2.5.5.1**

SAMPLE ID	DESCRIPTION	APPEARANCE	% MATRIX MATERIAL	% NON-ASBESTOS FIBERS	ASBESTOS TYPES
FT-3 411604359-0042	650 Cali. Blvd. - Kitchen/ Dining Room - Floor Tile	Gray/White/Green Non-Fibrous Homogeneous	100	None	No Asbestos Detected
FT-6 411604359-0043	650 Cali. Blvd. - Living Room - Floor Tile	Gray/White/Black Fibrous Heterogeneous	100	None	No Asbestos Detected
FT-9-Flooring 411604359-0044	650 Cali. Blvd. - Bedroom Room - Floor Tile	Tan/White Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
FT-9-Mastic 411604359-0045	650 Cali. Blvd. - Bedroom Room - Floor Tile	Black Non-Fibrous Homogeneous	100	None	No Asbestos Detected
FT-9-Felt 411604359-0046	650 Cali. Blvd. - Bedroom Room - Floor Tile	Black Fibrous Homogeneous	100	None	No Asbestos Detected
FT-12 411604359-0047	650 Cali. Blvd. - Hallway/ Bathroom Room - Floor Tile	Brown/Gray Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
WG-6 411604359-0048	650 Cali. Blvd. - Outside Window - Window Glazing	White Non-Fibrous Homogeneous	100	None	No Asbestos Detected
KF-3 411604359-0049	880 Cali. Blvd. - Kitchen - Floor Tile	Gray/White Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
BF-3-Flooring 411604359-0050	880 Cali. Blvd. - Bathroom - Floor Tile	Tan/White Fibrous Heterogeneous	100	None	No Asbestos Detected
BF-3-Mastic 411604359-0051	880 Cali. Blvd. - Bathroom - Floor Tile	Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected

Analyst(s)  
 Derrick Young (16)

Lee Plumley, Laboratory Manager  
 or other approved signatory

This laboratory is not responsible for % asbestos in total sample when the residue only is submitted for analysis. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.  
 Samples analyzed by EMSL Analytical, Inc. Charlotte, NC

Initial report from 06/07/2016 16:04:05





EMSL ANALYTICAL, INC.  
LABORATORY • PRODUCTS • TRAINING

## Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

411604359

Charlotte, NC 28273  
PHONE: (704) 525-2205  
FAX: (704) 525 2382

Company: Froehling & Robertson		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments**</small>	
Street: 18 Woods Lake Road		<i>Third Party Billing requires written authorization from third party</i>	
City: Greenville	State/Province: SC	Zip/Postal Code: 29607	Country: US
Report To (Name): Anthony Herrmann		Telephone #: 864.271.2840	
Email Address: aherrmann@fandr.com		Fax #: 864.271.8124	Purchase Order:
Project Name/Number: 65U-0065		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email <input type="checkbox"/> Mail	
U.S. State Samples Taken: SC		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	

**Turnaround Time (TAT) Options\* - Please Check**

3 Hour   
  6 Hour   
  24 Hour   
  48 Hour   
  72 Hour   
  96 Hour   
  1 Week   
  2 Week

\*For TEM Air 3 hr through 6 hr, please call ahead to schedule. \*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

PLM - Bulk (reporting limit)	TEM - Bulk
<input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%)	<input checked="" type="checkbox"/> TEM EPA NOB - EPA 600/R-93/116 Section 2.5.5.1
<input type="checkbox"/> PLM EPA NOB (<1%)	<input type="checkbox"/> NY ELAP Method 198.4 (TEM)
Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)	<input type="checkbox"/> Chatfield Protocol (semi-quantitative)
Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)	<input type="checkbox"/> TEM % by Mass - EPA 600/R-93/116 Section 2.5.5.2
<input type="checkbox"/> NIOSH 9002 (<1%)	<input type="checkbox"/> TEM Qualitative via Filtration Prep Technique
<input type="checkbox"/> NY ELAP Method 198.1 (friable in NY)	<input type="checkbox"/> TEM Qualitative via Drop Mount Prep Technique
<input type="checkbox"/> NY ELAP Method 198.6 NOB (non-friable-NY)	<b>Other</b>
<input type="checkbox"/> OSHA ID-191 Modified	<input type="checkbox"/>
<input type="checkbox"/> Standard Addition Method	

Check For Positive Stop - Clearly Identify Homogenous Group      Date Sampled: 05/26/2016

Samplers Name: **Anthony Herrmann**      Samplers Signature: *Anthony Herrmann*

Sample #	HA #	Sample Location	Material Description
FT-1		650 Cali. Blvd. - Kitchen/Dining Room	Floor Tile
FT-2		650 Cali. Blvd. - Kitchen/Dining Room	Floor Tile
TEM FT-3		650 Cali. Blvd. - Kitchen/Dining Room	Floor Tile
FT-4		650 Cali. Blvd. - Living Room	Floor Tile
FT-5		650 Cali. Blvd. - Living Room	Floor Tile
TEM FT-6		650 Cali. Blvd. - Living Room	Floor Tile
FT-7		650 Cali. Blvd. - Bedroom Room	Floor Tile
FT-8		650 Cali. Blvd. - Bedroom Room	Floor Tile
TEM FT-9		650 Cali. Blvd. - Bedroom Room	Floor Tile
FT-10		650 Cali. Blvd. - Hallway/Bathroom Room	Floor Tile

Client Sample # (s): FT-1 - BC-3	Total # of Samples: 19
Relinquished (Client): Anthony Herrmann      Date: 5/27/2016	Time: 09:22
Received (Lab): Kyle Nelson      Date: 5/31/16	Time: 8:45am EMSL FX
Comments/Special Instructions:	7950 9502 2184





EMSL ANALYTICAL, INC.  
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### Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

411604359

Charlotte, NC 28273  
PHONE: (704) 525-2205  
FAX: (704) 525 2382

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
TEM FT-11		650 Cali. Blvd. - Hallway/Bathroom Room	Floor Tile
TEM FT-12		650 Cali. Blvd. - Hallway/Bathroom Room	Floor Tile
DW-1		650 Cali. Blvd. - Dining Room Ceiling	Drywall & Joint Compound
DW-2		650 Cali. Blvd. - Kitchen Ceiling	Drywall & Joint Compound
DW-3		650 Cali. Blvd. - Hallway Ceiling	Drywall & Joint Compound
DW-4		650 Cali. Blvd. - Bedroom Room Ceiling	Drywall & Joint Compound
DW-5		650 Cali. Blvd. - Bedroom Room Ceiling	Drywall & Joint Compound
TEM WG-4		650 Cali. Blvd. - Outside Window	Window Glazing
TEM WG-5		650 Cali. Blvd. - Outside Window	Window Glazing
TEM WG-6		650 Cali. Blvd. - Outside Window	Window Glazing
WP-1		650 Cali. Blvd. - Bedroom	Wallpaper & Drywall
WP-2		650 Cali. Blvd. - Bedroom	Wallpaper & Drywall
CT-1		880 Cali. Blvd. - Ceiling	Ceiling Texture
CT-2		880 Cali. Blvd. - Ceiling	Ceiling Texture
CT-3		880 Cali. Blvd. - Ceiling	Ceiling Texture
DWJC-1		880 Cali. Blvd. - Bedroom	Drywall & Joint Compound
DWJC-2		880 Cali. Blvd. - Bedroom	Drywall & Joint Compound
DWJC-3		880 Cali. Blvd. - Bedroom	Drywall & Joint Compound
TEM KF-1		880 Cali. Blvd. - Kitchen	Floor Tile
TEM KF-2		880 Cali. Blvd. - Kitchen	Floor Tile
TEM KF-3		880 Cali. Blvd. - Kitchen	Floor Tile
BF-1		880 Cali. Blvd. - Bathroom	Floor Tile
BF-2		880 Cali. Blvd. - Bathroom	Floor Tile
TEM BF-3		880 Cali. Blvd. - Bathroom	Floor Tile
*Comments/Special Instructions:			





EMSL ANALYTICAL, INC.  
LABORATORY PRODUCTS TRAINING

### Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

411604359

Charlotte, NC 28273

PHONE: (704) 525-2205

FAX: (704) 525 2382

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
S-1		880 Cali. Blvd - Side of House	Transite Paneling
S-2		880 Cali. Blvd - Side of House	Transite Paneling
S-3		880 Cali. Blvd - Side of House	Transite Paneling
R-1		880 Cali. Blvd - Roof	Asphalt Roof
R-2		880 Cali. Blvd - Roof	Asphalt Roof
TEM R-3		880 Cali. Blvd - Roof	Asphalt Roof
WG-1		880 Cali. Blvd - Outside Windows	Window Glazing
WG-2		880 Cali. Blvd - Outside Windows	Window Glazing
TEM WG-3		880 Cali. Blvd - Outside Windows	Window Glazing
CM-1		880 Cali. Blvd - Roof	Mastic
CM-2		880 Cali. Blvd - Roof	Mastic
TEM CM-3		880 Cali. Blvd - Roof	Mastic
BC-1		880 Cali. Blvd - Kitchen Entrance	Linoleum
BC-2		880 Cali. Blvd - Kitchen Entrance	Linoleum
TEM BC-3		880 Cali. Blvd - Kitchen Entrance	Linoleum
*Comments/Special Instructions:			



# EMSL Analytical, Inc.

376 Crompton Street Charlotte, NC 28273  
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<http://www.EMSL.com/charlottelab@emsl.com>

EMSL Order: 411604585  
Customer ID: FROE22  
Customer PO:  
Project ID:

**Attention:** Anthony Hermann  
Froehling & Robertson  
18 Woods Lake Road  
Greenville, SC 29607  
**Phone:** (864) 271-2840  
**Fax:** (864) 271-8124  
**Received Date:** 06/08/2016 10:00 AM  
**Analysis Date:** 06/08/2016  
**Collected Date:**  
**Project:** 65U0065

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
RS-1-Gray Shingle <small>411604585-0001</small>	Roof - Shingle and Felt	Gray/Black Fibrous Homogeneous	5% Glass	5% Quartz 10% Ca Carbonate 80% Non-fibrous (Other)	None Detected
RS-1-Black Shingle <small>411604585-0001A</small>	Roof - Shingle and Felt	Black Fibrous Homogeneous	5% Glass	8% Quartz 8% Ca Carbonate 79% Non-fibrous (Other)	None Detected
RS-1-Felt <small>411604585-0001B</small>	Roof - Shingle and Felt	Black Fibrous Homogeneous	65% Cellulose	35% Non-fibrous (Other)	None Detected
RS-2-Gray Shingle <small>411604585-0002</small>	Roof - Shingle and Felt	Gray/Black Fibrous Homogeneous	10% Glass	8% Quartz 8% Ca Carbonate 74% Non-fibrous (Other)	None Detected
RS-2-Black Shingle <small>411604585-0002A</small>	Roof - Shingle and Felt	Black Fibrous Homogeneous	5% Glass	5% Quartz 8% Ca Carbonate 82% Non-fibrous (Other)	None Detected
RS-2-Felt <small>411604585-0002B</small>	Roof - Shingle and Felt	Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
CM-1 <small>411604585-0003</small>	Roof - Chimney Mastic	Black Fibrous Homogeneous		10% Ca Carbonate 87% Non-fibrous (Other)	3% Chrysotile
CM-2 <small>411604585-0004</small>	Roof - Chimney Mastic				Positive Stop (Not Analyzed)
CR-1 <small>411604585-0005</small>	NE Side of House - Corrugated Roofing Material	Gray/Green Fibrous Homogeneous	55% Glass	45% Non-fibrous (Other)	None Detected
CR-2 <small>411604585-0006</small>	NE Side of House - Corrugated Roofing Material	Green Fibrous Homogeneous	40% Glass	60% Non-fibrous (Other)	None Detected

Analyst(s)  
Aaron Hartley (4)  
Erin Guzowski (5)

Lee Plumley, Laboratory Manager  
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Charlotte, NC NVLAP Lab Code 200841-0, VA 3333 00312

Initial Report From: 06/09/2016 08:26:56





**EMSL Analytical, Inc.**

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<http://www.EMSL.com> [charlottelab@emsl.com](mailto:charlottelab@emsl.com)

EMSL Order: 411604585  
CustomerID: FROE22  
CustomerPO:  
ProjectID:

Attn: **Anthony Hermann  
Froehling & Robertson  
18 Woods Lake Road  
Greenville, SC 29607**

Phone: (864) 271-2840  
Fax: (864) 271-8124  
Received: 06/09/16 8:30 AM  
Analysis Date: 6/9/2016  
Collected:

Project: **65U0065**

**Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM  
via EPA/600/R-93/116 Section 2.5.5.1**

SAMPLE ID	DESCRIPTION	APPEARANCE	% MATRIX MATERIAL	% NON-ASBESTOS FIBERS	ASBESTOS TYPES
RS-2-Gray Shingle <i>411604585-0007</i>	Roof - Shingle and Felt	Gray/Black Fibrous Heterogeneous	100	None	No Asbestos Detected
RS-3-Black Shingle <i>411604585-0008</i>	Roof - Shingle and Felt	Black Fibrous Heterogeneous	100	None	No Asbestos Detected
RS-3-Felt <i>411604585-0009</i>	Roof - Shingle and Felt	Black Fibrous Homogeneous	100	None	No Asbestos Detected
CR-3 <i>411604585-0010</i>	NE Side of House - Corrugated Roofing Material	Gray/Green Fibrous Heterogeneous	100	None	No Asbestos Detected

Analyst(s)  
Derrick Young (4)

Lee Plumley, Laboratory Manager  
or other approved signatory

This laboratory is not responsible for % asbestos in total sample when the residue only is submitted for analysis. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.  
Samples analyzed by EMSL Analytical, Inc. Charlotte, NC

Initial report from 06/09/2016 18:09:14



EMSL ANALYTICAL, INC.  
LABORATORY PRODUCTS TRAINING

### Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

411604585

Charlotte, NC 28273  
PHONE: (704) 525-2205  
FAX: (704) 525 2382

Company: Froehling & Robertson		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments**	
Street: 18 Woods Lake Road		Third Party Billing requires written authorization from third party	
City: Greenville	State/Province: SC	Zip/Postal Code: 29607	Country: US
Report To (Name): Anthony Herrmann		Telephone #: 864.271.2840	
Email Address: aherrmann@fandr.com		Fax #: 864.271.8124	Purchase Order:
Project Name/Number: 65U0065		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email <input type="checkbox"/> Mail	
U.S. State Samples Taken: SC		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	

Turnaround Time (TAT) Options\* - Please Check

- 3 Hour   
 6 Hour   
 24 Hour   
 48 Hour   
 72 Hour   
 96 Hour   
 1 Week   
 2 Week

\*For TEM Air 3 hr through 6 hr, please call ahead to schedule. \*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

<b>PLM - Bulk (reporting limit)</b>		<b>TEM - Bulk</b>	
<input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%)	<input checked="" type="checkbox"/> TEM EPA NOB - EPA 600/R-93/116 Section 2.5.5.1	<input type="checkbox"/> NY ELAP Method 198.4 (TEM)	<input type="checkbox"/> Chatfield Protocol (semi-quantitative)
<input type="checkbox"/> PLM EPA NOB (<1%)	Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)	<input type="checkbox"/> TEM % by Mass - EPA 600/R-93/116 Section 2.5.5.2	<input type="checkbox"/> TEM Qualitative via Filtration Prep Technique
Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%)	<input type="checkbox"/> NIOSH 9002 (<1%)	<input type="checkbox"/> TEM Qualitative via Drop Mount Prep Technique	<b>Other</b>
<input type="checkbox"/> NY ELAP Method 198.1 (friable in NY)	<input type="checkbox"/> OSHA ID-191 Modified	<input type="checkbox"/>	
<input type="checkbox"/> NY ELAP Method 198.6 NOB (non-friable-NY)	<input type="checkbox"/> Standard Addition Method		

Check For Positive Stop - Clearly Identify Homogenous Group    Date Sampled: ~~6/1/2016~~ ~~6/1/2016~~ 6/7/2016

Samplers Name: Anthony Herrmann    Samplers Signature: *Anthony Herrmann*

Sample #	HA #	Sample Location	Material Description
RS-1		Roof	Shingle and Felt
RS-2		Roof	Shingle and Felt
RS-3		Roof	Shingle and Felt
CM-1		Roof	Chimney Mastic
CM-2		Roof	Chimney Mastic
CM-3		Roof	Chimney Mastic
CR-1		NE Side of House	Corrugated Roofing Material
CR-2		NE Side of House	Corrugated Roofing Material
CR-3		NE Side of House	Corrugated Roofing Material

TEM  
TEM  
TEM

Client Sample # (s): RS-1 - CR-3    Total # of Samples: 9

Relinquished (Client): *Anthony Herrmann*    Date: ~~6/1/2016~~ 6/7/2016    Time: 14:09

Received (Lab): *[Signature]*    Date: 6-8-16    Time: 10:00 AM

Comments/Special Instructions: *[Signature]*    EMSL - FDI/EX  
795095022427



**EMSL Analytical, Inc.**

706 Gralin Street, Kernersville, NC 27284  
Phone/Fax: (336) 992-1025 / (336) 992-4175  
<http://www.EMSL.com> [greensborolab@emsl.com](mailto:greensborolab@emsl.com)

EMSL Order: 021603575  
CustomerID: FROE22  
CustomerPO: 65U0065  
ProjectID:

Attn: **Anthony Hermann**  
**Froehling & Robertson**  
**18 Woods Lake Road**  
**Greenville, SC 29607**

Phone: (864) 271-2840  
Fax: (864) 271-8124  
Received: 06/03/16 10:30 AM  
Collected: 5/26/2016

Project: **65U0065**

**Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)\***

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
LP-1	021603575-0001	5/26/2016	6/8/2016	0.26 % wt
LP-2	021603575-0002	5/26/2016	6/8/2016	<0.010 % wt
LP-3	021603575-0003	5/26/2016	6/8/2016	<0.010 % wt
LP-4	021603575-0004	5/26/2016	6/8/2016	<0.010 % wt

James Cole, Laboratory Manager  
or other approved signatory

\*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise.  
Samples analyzed by EMSL Analytical, Inc. Kernersville, NC EMSL Lab ID 102564 is accredited by the AIHA Laboratory Accreditation Program (AIHA-LAP), LLC in the Environmental Lead accreditation program for Lead in Paint Chips.

Initial report from 06/09/2016 08:09:14



EMSL ANALYTICAL, INC.  
LABORATORY-PRODUCTS-TRAINING

### Lead (Pb) Chain of Custody

EMSL Order ID (Lab Use Only):

3575

Kernersville, NC 27284  
PHONE: (336) 992-1025  
FAX: (336) 992-4175

Company: Froehling & Robertson		EMSL-Bill to: <input type="checkbox"/> Different <input checked="" type="checkbox"/> Same <small>If Bill to is Different note instructions in Comments**</small>	
Street: 18 Woods Lake Road		<i>Third Party Billing requires written authorization from third party</i>	
City: Greenville	State/Province: SC	Zip/Postal Code: 29607	Country: US
Report To (Name): Anthony Herrmann		Telephone #: 864.271.2840	
Email Address: aherrmann@fandr.com		Fax #: 864.271.8124	Purchase Order:
Project Name/Number: 65U0065		Please Provide Results: <input type="checkbox"/> FAX <input checked="" type="checkbox"/> E-mail <input type="checkbox"/> Mail	
U.S. State Samples Taken: SC		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	

**Turnaround Time (TAT) Options\* - Please Check**

3 Hour   
  6 Hour   
  24 Hour   
  48 Hour   
  72 Hour   
  96 Hour   
  1 Week   
  2 Week

\*Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide

Matrix	Method	Instrument	Reporting Limit	Check
Chips <input checked="" type="checkbox"/> % by wt. <input type="checkbox"/> mg/cm <sup>2</sup> <input type="checkbox"/> ppm	SW846-7000B	Flame Atomic Absorption	0.01%	<input checked="" type="checkbox"/>
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	<input type="checkbox"/>
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	<input type="checkbox"/>
	NIOSH 7300 modified	ICP-AES/ICP-MS	0.5 µg/filter	<input type="checkbox"/>
Wipe* <span style="float: right;">ASTM <input type="checkbox"/> non ASTM <input type="checkbox"/></span> <small>*if no box is checked, non-ASTM Wipe is assumed</small>	SW846-7000B	Flame Atomic Absorption	10 µg/wipe	<input type="checkbox"/>
	SW846-6010B or C	ICP-AES	1.0 µg/wipe	<input type="checkbox"/>
	SW846-7000B/7010	Graphite Furnace AA	0.075 µg/wipe	<input type="checkbox"/>
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	SW846-1131/SW846-6010B or C	ICP-AES	0.1 mg/L (ppm)	<input type="checkbox"/>
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)	<input type="checkbox"/>
	SW846-7010	Graphite Furnace AA	0.3 mg/kg (ppm)	<input type="checkbox"/>
	SW846-6010B or C	ICP-AES	2 mg/kg (ppm)	<input type="checkbox"/>
Wastewater <span style="float: right;">Unpreserved <input type="checkbox"/> Preserved with HNO<sub>3</sub> pH &lt; 2 <input type="checkbox"/></span>	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.7	ICP-AES	0.020 mg/L (ppm)	<input type="checkbox"/>
Drinking Water <span style="float: right;">Unpreserved <input type="checkbox"/> Preserved with HNO<sub>3</sub> pH &lt; 2 <input type="checkbox"/></span>	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	<input type="checkbox"/>
TSP/SPM Filter	40 CFR Part 50	ICP-AES	12 µg/filter	<input type="checkbox"/>
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter	<input type="checkbox"/>
Other:				<input type="checkbox"/>

Name of Sampler: Anthony Herrmann	Signature of Sampler:
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Sample #	Location	Volume/Area	Date/Time Sampled
LP-1	650 Cali. Blvd - Outside side door	3 SF	5/26/2016 12:15
LP-2	880 Cali. Blvd. - Back Steps	20 SF	5/26/2016 12:45
LP-3	880 Cali. Blvd. - Front Steps	40 SF	5/26/2016 1:15
LP-4	880 cali. Blvd. - Stair Rails	5 SF	5/26/2016 1:50

Client Sample #'s	LP-1 - LP-4	Total # of Samples:	4
Relinquished (Client):	<i>Anthony Herrmann</i>	Date:	5/31/2016
Received (Lab):	<i>GH</i>	Date:	6-3-16
Comments:		Time:	09:00
		Time:	10:30 USPS