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Apex Project Number 0317-55

June 14, 2017

Martin L. Livingston, Jr., AICP, CPM
Neighborhood Services Director
City of Spartanburg
PO Box 1749
Spartanburg, SC 29304

Reference: Asbestos Assessment Services
Cammie Clagett Courts
Phase 1 - 28 Buildings
Highland Street Area
Spartanburg, South Carolina

Dear Mr. Livingston:

Apex Environmental Management, Inc. (Apex) has completed an asbestos containing materials assessment at the above-referenced property. The survey was limited in that demolition, such as jack/sledge hammering or cutting into walls, ceilings, floors, or structural members to expose possible concealed ACM was not performed. Included in this report is a summary of our field activities and the results obtained. Roof sampling was performed as part of this assessment. The objectives of the survey included the following:

- Identification of suspect asbestos-containing material (ACM) in readily observable locations. Limited demolition of building finishes was conducted in the building and associated exteriors included in the assessment.
- Asbestos survey with sample collection by South Carolina licensed inspectors.
- Suspect ACM analysis by polarized light microscopy (PLM) utilizing EMSL Analytical, Inc. (EMSL) an NVLAP certified laboratory, their accreditation number is 200841-0.
- Transmission electron microscopy (TEM) analysis of non-friable organically bound materials suspected to contain asbestos and testing negatively by PLM analysis.
- Presenting the results in a report identifying confirmed ACMs.

PROJECT INFORMATION

Cammie Clagett Courts is a residential apartment community located in the Highland Street area of Spartanburg, South Carolina. The original construction in the early 1970's includes the neighborhood administrative office and approximately fifty (50) residential apartment and duplex style buildings. Apex

was requested to perform asbestos assessment services on twenty-eight (28) residential buildings and the administrative office building during phase 1 of the above referenced project. The one story duplexes are one bedroom with one bathroom and each have the same layout. The apartment buildings include two story, two unit and four unit designs with a four bedroom and one and one half bathroom layout, and a three bedroom and one bathroom layout.

The administrative office building, which also served as the community center, is approximately 3,225 square feet including a pitched wooden roof with shingles and felt; and was built on a concrete slab foundation. The roofing system includes metal flashing with silicone caulk, grey putty, and black mastic on roof penetrations. Exterior walls are brick and mortar. Metal windows with glazing and caulk and metal doors with caulk exist on the exterior. The interior building materials consist of CMU block walls and drywall with joint compound and tape in the ceilings and office partition walls. Multiple types of cove base with mastic and multiple types of floor tile with mastic exist over concrete floors. Additionally, bathrooms contain ceramic tile with grout and caulk, and window caulk exists in the reception area. Tan HVAC tape exists on ducts above the ceiling.

Building # 8 was burned by the fire department as part of a training exercise. Due to safety concerns and structural damage no samples were collected from this building. It is assumed positive for asbestos and considered RACM (regulated asbestos containing materials).

The residential exterior building materials include caulks on the gable vents, windows and doors. The pitched wooden roofs and awnings consist of shingles, felt, black mastic, tar and paint on the roof penetrations, and caulk on the awnings/flashing. Black caulk found on the exterior windows is the same black caulk found on portions of the interior windows. Red wall penetration filler/mastic exists on the exterior brick walls and OSB board with felt backing is located beneath vinyl siding and brick.

Interior building materials within the duplex and apartment style residences include multiple types and layers of floor tile and mastic over concrete and beneath wood. Additionally, vinyl flooring with mastic exists above and beneath wood and beneath ceramic tile in a portion of the bathrooms. 12"x12" brown streaked floor tile with mastic exists beneath a top layer of 12"x12" tan speckled floor tile and mastic in most downstairs and one story portions of the residences. The majority portions of upstairs flooring consist of 12"x12" tan speckled floor tile with mastic over wood with 12"x12" brown streaked floor tile with mastic under wood. The CMU block walls do not contain filler, and bathroom walls and ceilings consist of plaster with finish over unfinished drywall. Portions of bathroom walls were thicker plaster with finish with no unfinished drywall beneath. Drywall with joint compound and tape exists throughout the interior of the residences. Portions of walls and ceilings contain drywall, joint compound and tape patches. Additionally, multiple types of caulk exist within the bathrooms, kitchens, windows, HVAC closets and portions of the doors. HVAC mastic and tape exists within the HVAC closets and on ducts above the ceiling. Kitchen double sinks contain white and black coatings and wall backsplashes with mastic exist within the residences.

METHODS

Apex was requested to perform a limited asbestos assessment to identify asbestos-containing materials (ACM) which could be disturbed prior to or during scheduled demolition activities. The National Emission Standard for Hazardous Air Pollutants (NESHAP) requires the identification

of friable ACM and non-friable ACM likely to become friable during demolition and/or renovation activities. NESHAP requires that the identified ACM be removed prior to initiating activities likely to disturb the ACM.

As per AHERA regulations, bulk asbestos samples were collected from random locations of each homogeneous area, with the material's number of samples based upon the following criteria:

- Thermal Insulation Materials (piping, breeching, boiler insulation, etc.) – A minimum of three (3) samples are required. Only patch areas (less than 6 square or linear feet) may have one (1) sample collected.
- Surfacing Materials (plaster, fireproofing, sheetrock and joint compound, etc.) – A minimum of seven (7) samples are to be taken for areas greater than 5,000 square feet; five (5) for areas greater than 1,000 square feet, but less than 5,000 square feet; three (3) for areas less than 1,000 square feet.
- Miscellaneous Materials (flooring, adhesives, roofing, floor tiles, etc.) – A minimum of three (3) samples are required.
 - If samples of non-friable organically bound (NOB) materials were collected and reported by the laboratory to contain less than 1% asbestos by PLM, these materials were re-analyzed in accordance with SCDHEC requirements for NOB's by transmission electron microscopy (TEM).

The asbestos survey was performed by Mr. Tom Oliver (SC DHEC asbestos inspector license # BI-00680, exp. 01/18/2018), Mr. Ted Shultz (SC/DHEC inspector license # BI-00971, exp. 01/18/2018), Mr. Ben Oliver (SC/DHEC inspector license # BI-01528, exp. 03/22/2018) and Mr. Nicholas Neerhof (SC/DHEC inspector license # BI-01545, exp. 08/10/2017) on April 26th to May 12th, 2017. The survey consisted of observing the accessible areas throughout the interiors, exteriors and roofs of the Cammie Clagett Court administrative office and residential buildings that may potentially be disturbed during renovation/demolition activities for the presence of suspect materials which may contain asbestos. The survey involved detecting both friable materials (materials which can be crumbled, pulverized or reduced to a powder by hand pressure when dry) and non-friable materials (materials which pose a hazard when sawn, sanded, drilled or pulverized). Homogeneous materials (based on material type, color, texture, etc.) were identified in various functional spaces during the survey.

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. One thousand five hundred fifty-three (1,553) bulk samples were collected during the survey and submitted to EMSL in Charlotte, 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). EMSL participates in the National Voluntary Laboratory Accreditation Program (NVLAP). Their NVLAP accreditation number is 200841-0. Due to EPA regulations, samples are split into homogeneous layers and each layer is analyzed separately. One thousand nine hundred twenty-one (1,921) samples were analyzed due to layering by PLM and positive stop methods. 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). Five hundred thirty-seven

Cammie Clagett Courts
Asbestos Containing Materials Assessment
Apex Project No. 0317-55
June 14, 2017

(537) samples were analyzed using TEM.

RESULTS

The EPA defines an asbestos-containing material (ACM) as a material containing greater than 1% asbestos. OSHA defines ACM as a material containing any amount of asbestos. Multiple materials were analyzed to contain less than 1% asbestos and it should be noted that OSHA asbestos regulations will apply. The *Asbestos PLM & TEM Data Table* is provided in Appendix II.

Building # 29			
Units 411 & 413 - Two Story, Four Bedroom, One and One Half Bathroom			
Sample #	Location of ACM	Description of ACM	Estimated Quantities
29-1 – 29-7	411 & 413 - Throughout Interior	Drywall with Joint Compound and Tape	7,000 SF
29-14 – 29-16	411 & 413-Kitchens	12" x 12" thin brown floor tile and mastic (bottom layer)	120 SF
29-26 – 29-28	411-2nd floor bathroom	12" x 12" brown/orange floor tile and mastic (bottom layer)	25 SF
29-32 – 29-34	411-Kitchen on double sink	Black Coating	1 EA
Assumed	411 & 413-throughout except in kitchens, bathrooms & HVAC closets	12" x 12" brown streaked floor tile and mastic (bottom layer)	1,650 SF

Building # 30			
Community Administrative Office Building			
Sample #	Location of ACM	Description of ACM	Estimated Quantities
30-1 – 30-5	Throughout ceilings and partition walls in large back office area	Drywall with Joint Compound and Tape	4,000 SF
30-12 – 30-14	Lobby, large back office area with partition walls & large open room	12" x 12" tan streaked floor tile with mastic	1,950 SF
30-15 – 30-17	Office with key box	12" x 12" brown streaked floor tile with mastic	135 SF
30-18 – 30-20	Hallway	Mastic on 12" x 12" beige speckled floor tile	20 SF
30-21 – 30-23	Reception area	12" x 12" tan speckled floor tile with mastic	165 SF
30-24 – 30-26	Lobby, hallway & reception area	Black and tan/brown cove base mastic	60 LF
30-27 – 30-29	Large back office area with partition walls & large open room	Mastic on 12" x 12" white/cream speckled floor tile (patches)	28 SF



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

411704131

376 Crompton Street

Charlotte, NC 28273

PHONE: (704) 525-2205

FAX: (704) 525 2382

Company : Apex Environmental Management, Inc.		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments**</small>	
Street: 7 Winchester Court		<i>Third Party Billing requires written authorization from third party</i>	
City: Mauldin	State/Province: SC	Zip/Postal Code: 29662	Country: US
Report To (Name): Tom Oliver		Telephone #: 864-404-3210	
Email Address: tolover@apex-ehs.com		Fax #: 864-404-3213	Purchase Order:
Project Name/Number: <i>Cammie Claggett Bldg 30</i>		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email <input type="checkbox"/> Mail	
U.S. State Samples Taken: <i>SC</i>		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)	<u>Other</u>
<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:

Samplers Name: Tom Oliver Samplers Signature: *[Signature]*

Sample #	HA #	Sample Location	Material Description
30-1		<div style="font-size: 2em;"> </div>	
30-2			
30-3			
30-4			
30-5			
30-6			
30-7			
30-8			

Drywall w/ JC + tape

Black core base mastic (mastic only)

Client Sample # (s):	1 - 56	Total # of Samples:	56
Relinquished (Client):	<i>[Signature]</i>	Date:	5-24-17
Received (Lab):	<i>[Signature]</i>	Date:	5/26/17
Comments/Special Instructions:	7952 9037 7767		



EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

411704131

376 Crompton Street

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
30-9		Painted low base mastic	
30-10		(mastic only)	
30-11			
30-12		12"x12" tan streaked F.T.	
30-13		+ mastic	
30-14			
30-15		12"x12" brown streaked F.T.	
30-16		+ mastic	
30-17			
30-18		12"x12" beige speckled f.T.	
30-19		+ mastic	
30-20			
30-21		12"x12" tan speckled f.T.	
30-22		+ mastic	
30-23			
30-24		Brown cave base mastic	
30-25		(mastic only)	
30-26			
30-27		12"x12" white/cream speckled	
30-28		F.T. + mastic patches	
30-29			
30-30		Window cork	
30-31			
30-32			
*Comments/Special Instructions:			



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Sample #	HA #	Sample Location	Material Description
30-33		Tan HVAE tape	
30-34			
30-35			
30-36		Bathroom caulk	
30-37			
30-38			
30-39		Roof shingles (2) + felt (1)	
30-40			
30-41			
30-42		Metal window glazing	
30-43			
30-44			
30-45		Metal window caulk - tan	
30-46			
30-47			
30-48		Metal door + window caulk -	
30-49		grey	
30-50			
30-51		Mastik on roof penetrations	
30-52			
30-53			
30-54		Grey flashing putty	
30-55			
30-56			

*Comments/Special Instructions:



EMSL Analytical, Inc.

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

EMSL Order: 411704131
Customer ID: AXEM25
Customer PO:
Project ID:

Attention: Tom Oliver
Apex Environmental Management
7 Winchester Court
Mauldin, SC 29662
Phone: (864) 640-5274
Fax:
Received Date: 05/26/2017 9:10 AM
Analysis Date: 05/30/2017 - 05/31/2017
Collected Date:
Project: Cammie Clagget Bldg. 30

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
30-1-Drywall <small>411704131-0001 No tape present.</small>	Drywall w/ JC & Tape	Brown/Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
30-1-Joint Compound <small>411704131-0001A</small>	Drywall w/ JC & Tape	Beige Fibrous Homogeneous		30% Ca Carbonate 68% Non-fibrous (Other)	2% Chrysotile
30-2-Drywall <small>411704131-0002 No tape present.</small>	Drywall w/ JC & Tape	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
30-2-Joint Compound <small>411704131-0002A</small>	Drywall w/ JC & Tape				Positive Stop (Not Analyzed)
30-3-Drywall <small>411704131-0003</small>	Drywall w/ JC & Tape	Brown/Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
30-3-Joint Compound <small>411704131-0003A</small>	Drywall w/ JC & Tape				Positive Stop (Not Analyzed)
30-3-Tape <small>411704131-0003B</small>	Drywall w/ JC & Tape	Tan Fibrous Homogeneous	99% Cellulose	1% Non-fibrous (Other)	None Detected
30-4-Drywall <small>411704131-0004</small>	Drywall w/ JC & Tape	Gray Fibrous Homogeneous	5% Cellulose 1% Glass	94% Non-fibrous (Other)	None Detected
30-4-Joint Compound <small>411704131-0004A</small>	Drywall w/ JC & Tape	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
30-4-Tape <small>411704131-0004B</small>	Drywall w/ JC & Tape	Tan Fibrous Homogeneous	100% Cellulose		None Detected
30-5-Drywall <small>411704131-0005</small>	Drywall w/ JC & Tape	Gray Fibrous Homogeneous	5% Cellulose 1% Glass	94% Non-fibrous (Other)	None Detected
30-5-Joint Compound <small>411704131-0005A</small>	Drywall w/ JC & Tape	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
30-5-Tape <small>411704131-0005B</small>	Drywall w/ JC & Tape	Tan Fibrous Homogeneous	100% Cellulose		None Detected
30-6 <small>411704131-0006</small>	Black Cove Base Mastic (Mastic Only)	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
30-7 <small>411704131-0007</small>	Black Cove Base Mastic (Mastic Only)	Tan Non-Fibrous Homogeneous		8% Ca Carbonate 92% Non-fibrous (Other)	None Detected

Initial report from: 06/01/2017 08:40:02



EMSL Analytical, Inc.

376 Crompton Street Charlotte, NC 28273

Tel/Fax: (704) 525-2205 / (704) 525-2382

http://www.EMSL.com / charlottelab@emsl.com

EMSL Order: 411704131
 Customer ID: AXEM25
 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
30-9 411704131-0008	Painted Cove Base Mastic (Mastic Only)	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
30-10 411704131-0009	Painted Cove Base Mastic (Mastic Only)	Tan Non-Fibrous Homogeneous		8% Ca Carbonate 92% Non-fibrous (Other)	None Detected
30-12-Floor Tile 411704131-0010	12"x12" Tan Streaked F.T. & Mastic	Tan Fibrous Homogeneous		30% Ca Carbonate 67% Non-fibrous (Other)	3% Chrysotile
30-12-Mastic 411704131-0010A	12"x12" Tan Streaked F.T. & Mastic	Black Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
30-13-Floor Tile 411704131-0011	12"x12" Tan Streaked F.T. & Mastic				Positive Stop (Not Analyzed)
30-13-Mastic 411704131-0011A	12"x12" Tan Streaked F.T. & Mastic				Positive Stop (Not Analyzed)
30-15-Floor Tile 411704131-0012	12"x12" Brown Streaked F.T. & Mastic	Brown Fibrous Homogeneous		30% Ca Carbonate 67% Non-fibrous (Other)	3% Chrysotile
30-15-Mastic 411704131-0012A	12"x12" Brown Streaked F.T. & Mastic	Black Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
30-16-Floor Tile 411704131-0013	12"x12" Brown Streaked F.T. & Mastic				Positive Stop (Not Analyzed)
30-16-Mastic 411704131-0013A	12"x12" Brown Streaked F.T. & Mastic				Positive Stop (Not Analyzed)
30-18-Floor Tile 411704131-0014	12"x12" Beige Speckled F.T. & Mastic	Beige Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
30-18-Mastic 411704131-0014A	12"x12" Beige Speckled F.T. & Mastic	Black Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
30-19-Floor Tile 411704131-0015	12"x12" Beige Speckled F.T. & Mastic	Beige Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
30-19-Mastic 411704131-0015A	12"x12" Beige Speckled F.T. & Mastic				Positive Stop (Not Analyzed)
30-21-Floor Tile 411704131-0016	12"x12" Tan Speckled F.T. & Mastic	Tan Fibrous Homogeneous		30% Ca Carbonate 64% Non-fibrous (Other)	6% Chrysotile
30-21-Mastic 411704131-0016A	12"x12" Tan Speckled F.T. & Mastic	Black Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
30-22-Floor Tile 411704131-0017	12"x12" Tan Speckled F.T. & Mastic				Positive Stop (Not Analyzed)
30-22-Mastic 411704131-0017A	12"x12" Tan Speckled F.T. & Mastic				Positive Stop (Not Analyzed)
30-24-Black Mastic 411704131-0018	Brown Cove Base Mastic (Mastic Only)	Black Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile

Initial report from: 06/01/2017 08:40:02



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EMSL Order: 411704131
 Customer ID: AXEM25
 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
30-24-Tan/Brown Mastic <small>411704131-0018A</small>	Brown Cove Base Mastic (Mastic Only)	Brown/Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
30-25-Black Mastic <small>411704131-0019</small>	Brown Cove Base Mastic (Mastic Only)				Positive Stop (Not Analyzed)
30-25-Tan/Brown Mastic <small>411704131-0019A</small>	Brown Cove Base Mastic (Mastic Only)	Brown/Tan Non-Fibrous Homogeneous		8% Ca Carbonate 92% Non-fibrous (Other)	None Detected
30-27-Floor Tile <small>411704131-0020</small>	12"x12" White/ Cream Speckled F.T. & Mastic	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
30-27-Mastic <small>411704131-0020A</small>	12"x12" White/ Cream Speckled F.T. & Mastic	Tan/Black Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
30-28-Floor Tile <small>411704131-0021</small>	12"x12" White/ Cream Speckled F.T. & Mastic	White/Beige Non-Fibrous Homogeneous		35% Ca Carbonate 65% Non-fibrous (Other)	None Detected
30-28-Mastic <small>411704131-0021A</small>	12"x12" White/ Cream Speckled F.T. & Mastic				Positive Stop (Not Analyzed)
30-30 <small>411704131-0022</small>	Window Caulk	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
30-31 <small>411704131-0023</small>	Window Caulk	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
30-33-Tape <small>411704131-0024</small>	Tan HVAC Tape	Tan/Silver Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
30-33-Mastic <small>411704131-0024A</small>	Tan HVAC Tape	Tan Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
30-34-Tape <small>411704131-0025</small>	Tan HVAC Tape	Tan/Silver Non-Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
30-34-Mastic <small>411704131-0025A</small>	Tan HVAC Tape	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
30-36 <small>411704131-0026</small>	Bathroom Caulk	Gray Fibrous Homogeneous	1% Cellulose	5% Quartz 5% Ca Carbonate 89% Non-fibrous (Other)	None Detected
30-37 <small>411704131-0027</small>	Bathroom Caulk	Gray Non-Fibrous Homogeneous	<1% Cellulose	5% Quartz 5% Ca Carbonate 90% Non-fibrous (Other)	None Detected
30-39-Shingle 1 <small>411704131-0028</small>	Roof Shingles (2) & Felt (1)	Black Fibrous Homogeneous	10% Glass	8% Quartz 5% Ca Carbonate 77% Non-fibrous (Other)	None Detected
30-39-Shingle 2 <small>411704131-0028A</small>	Roof Shingles (2) & Felt (1)	Brown Fibrous Homogeneous	12% Glass	8% Quartz 5% Ca Carbonate 75% Non-fibrous (Other)	None Detected
30-39-Felt <small>411704131-0028B</small>	Roof Shingles (2) & Felt (1)	Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
30-40-Shingle 1 <small>411704131-0029</small>	Roof Shingles (2) & Felt (1)	Black Fibrous Homogeneous	8% Glass	8% Quartz 10% Ca Carbonate 74% Non-fibrous (Other)	None Detected

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http://www.EMSL.com / charlottelab@emsl.com

EMSL Order: 411704131
Customer ID: AXEM25
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
30-40-Shingle 2 411704131-0029A	Roof Shingles (2) & Felt (1)	Brown Fibrous Homogeneous	8% Glass	8% Quartz 10% Ca Carbonate 74% Non-fibrous (Other)	None Detected
30-40-Felt 411704131-0029B	Roof Shingles (2) & Felt (1)	Black Fibrous Homogeneous	65% Cellulose	35% Non-fibrous (Other)	None Detected
30-42 411704131-0030	Metal Window Glazing	White Fibrous Homogeneous	<1% Cellulose	25% Ca Carbonate 75% Non-fibrous (Other)	None Detected
30-43 411704131-0031	Metal Window Glazing	White Non-Fibrous Homogeneous		25% Ca Carbonate 75% Non-fibrous (Other)	None Detected
30-45 411704131-0032	Metal Window Caulk - Tan	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
30-46 411704131-0033	Metal Window Caulk - Tan	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
30-48 411704131-0034	Metal Door & Window Caulk - Grey	Gray Fibrous Homogeneous	<1% Glass	15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
30-49 411704131-0035	Metal Door & Window Caulk - Grey	Gray Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
30-51 411704131-0036	Mastic on Roof Penetrations	Black Fibrous Homogeneous	10% Cellulose	5% Ca Carbonate 85% Non-fibrous (Other)	None Detected
30-52 411704131-0037	Mastic on Roof Penetrations	Black Non-Fibrous Homogeneous	10% Cellulose	8% Ca Carbonate 82% Non-fibrous (Other)	None Detected
30-54 411704131-0038	Grey Flashing Putty	Silver Fibrous Homogeneous	2% Cellulose	5% Ca Carbonate 93% Non-fibrous (Other)	None Detected
30-55 411704131-0039	Grey Flashing Putty	Gray Non-Fibrous Homogeneous	2% Cellulose	5% Ca Carbonate 93% Non-fibrous (Other)	None Detected

Analyst(s)

Anupriya Tyagi (31)

Lytterra 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: 06/01/2017 08:40:02



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EMSL Order: 411704131
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Mauldin, SC 29662
Phone: (864) 640-5274
Fax:
Received Date: 05/26/2017 9:10 AM
Analysis Date: 06/03/2017
Collected Date:
Project: Cammie Clagget Bldg. 30

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
30-8 411704131-0040	Black Cove Base Mastic (Mastic Only)	Tan Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
30-11 411704131-0041	Painted Cove Base Mastic (Mastic Only)	Brown/Tan Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
30-20-Floor Tile 411704131-0042	12"x12" Beige Speckled F.T. & Mastic	Tan Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
30-26-Tan/Brown Mastic 411704131-0043	Brown Cove Base Mastic (Mastic Only)	Brown/Tan Non-Fibrous Heterogeneous	100	None	<0.1% Chrysotile
30-29-Floor Tile 411704131-0044	12"x12" White/ Cream Speckled F.T. & Mastic	Gray Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
30-32 411704131-0045	Window Caulk	White Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
30-35-Tape 411704131-0046	Tan HVAC Tape	Gray Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
30-35-Mastic 411704131-0047	Tan HVAC Tape	Tan Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
30-38 411704131-0048	Bathroom Caulk	Gray Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
30-41-Shingle 1 411704131-0049	Roof Shingles (2) & Felt (1)	Brown/Red/Black Non-Fibrous Heterogeneous	99.2	0.83 Fibrous_Other	No Asbestos Detected
30-41-Shingle 2 411704131-0050	Roof Shingles (2) & Felt (1)	Gray/Black Non-Fibrous Heterogeneous	99.6	0.39 Fibrous_Other	No Asbestos Detected
30-41-Felt 411704131-0051	Roof Shingles (2) & Felt (1)	Black Non-Fibrous Heterogeneous	100	None	No Asbestos Detected

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: 06/05/2017 11:48:16



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Project: Cammie Clagget Bldg. 30

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
30-44 411704131-0052	Metal Window Glazing	Gray/Tan Non-Fibrous Heterogeneous	99.5	0.49 Fibrous_Other	No Asbestos Detected
30-47 411704131-0053	Metal Window Caulk - Tan	Tan Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
30-50 411704131-0054	Metal Door & Window Caulk - Grey	Gray Fibrous Heterogeneous	100	None	No Asbestos Detected
30-53 411704131-0055	Mastic on Roof Penetrations	Black Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
30-56 411704131-0056	Grey Flashing Putty	Gray Non-Fibrous Heterogeneous	99.5	0.46 Fibrous_Other	No Asbestos Detected

Analyst(s)

Aaron Hartley (17)

Lee Plumley, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Charlotte, NC

Initial report from: 06/05/2017 11:48:16