

ASBESTOS INSPECTION REPORT FOR TAYLOR HALL



TAYLOR HALL

Montana State University
Bozeman, Montana

Report Requested By:

MONTANA STATE UNIVERSITY
Facilities Services

Prepared By:

E	Environmental Solutions LLC
	<i>Air Quality, Environmental & Safety Consulting</i>
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DATE OF INSPECTION:
04/23/13

REVISED ON
12/18/13

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Sonia Rogers, IH	3150	10/31/2013	11/02/2013	11/01/2013	
Darrell Freeland	3892	03/13/2014	03/12/2014		

INTRODUCTION

Sonia Rogers, Scott Rogers and Darrell Freeland, of Environmental Solutions LLC performed a comprehensive full building asbestos inspection on April 23, 2013, of Taylor Hall located on the campus of Montana State University in Bozeman, Montana. This evaluation was performed at the request of Montana State University Facilities Services Division.

Taylor Hall consists of an original three story building with a full basement built in 1894, and a single story annex to the east. The main building is a brick building on a rock foundation with a vaulted wood shake roof. The annex section of the building is also a brick and concrete structure with a flat built up roof. Taylor Hall is the oldest building on campus and has undergone multiple renovations over the years. The facility is currently home to the 4-H Foundation and Extension Services.

The intent of this report is to properly identify the presence of asbestos containing materials that will be impacted during an upcoming renovation project. This report and its recommendations are pursuant to the NESHAP requirements (40 CFR 61.145) and the Administrative Rules of Montana (17.74.307) as administered by the Montana Department of Environmental Quality, Asbestos Control Program.

The regulations require the building owner to have the facility inspected for the presence of asbestos containing material(s) (ACM) prior to the construction, renovation or demolition of the facility. The owner is required to provide information obtained from the inspection to those who may be impacted such as, but not limited to, contractors, sub-contractors and/or employees. ARM 17.74.307 requires that the inspection be conducted by a Montana Accredited Inspector.

INSPECTION PROCEDURES

The inspection was conducted by our accredited inspectors, Sonia Rogers, Scott Rogers and Darrell Freeland, and consisted of a detailed visual survey of the building. Following a brief review of the facility inspectors entered the building with sampling equipment and began to assess the homogenous areas. Suspect ACBM was then grouped into homogenous materials and a sampling plan was developed.

Inspectors determined that 25 homogeneous materials were present and collected 72 representative samples from these materials. Five (5) of the 25 materials were found to contain asbestos quantities greater than 1% (9x9 & 12x12 Floor Tiles, Linoleum, Exterior Window Caulk and Roofing Tars). One (1) material was found to contain asbestos quantities of a trace or less than 1% (Drywall Mud). One (1) material was assumed to contain quantities greater than 1% (Stainless Steel Sink Insulation). See the Inspection Summary for a more detailed description and location of materials sampled.

Materials were collected wet to avoid dust generation and placed into Ziploc bags for transport. The materials were submitted to EMSL Laboratories, Raleigh, North Carolina. EMSL is an "accredited" laboratory under the National Voluntary Laboratory Accreditation Program (NVLAP), Laboratory Code #200671-0, which employs Polarized Light Microscopic (PLM) techniques with dispersion staining for identification of mineral forms of asbestos. The quantification of asbestos in the sample is intended to be an estimate only and the limit of detection for this method is approximately 1% by volume.

Bulk samples obtained during the inspection were assigned bulk sample numbers and entered on the sample summary / chain of custody forms. The samples were transported to the laboratory via Fed-Ex (Standard Overnight).

Sample locations for this survey were chosen in a random fashion, with emphasis placed on obtaining samples of each type of accessible, suspect material and minimizing damage to the material being sampled. Samples were collected by carefully removing small portions of the suspect material in a non-invasive manner, when possible. If possible, samples from existing damaged areas or loose pieces of material were collected.

The intent of the inspection was to identify the suspect materials, assume that materials contain asbestos or collect samples of materials to determine if they are ACM and assess the friability of the materials. Materials that were assumed to contain asbestos or that were identified as containing greater than 1% asbestos were categorized as a regulated asbestos containing material (RACM), Category I Non-Friable ACM, Category I RACM or Category II Non-Friable ACM based on the type and the condition of the material.

Sample analysis results are included in Appendix B and Chain of Custody documents are included in Appendix C.

ENVIRONMENTAL SOLUTIONS INSPECTION SUMMARY

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE COLOR	APPROX SQ/FT	MATERIAL DESIGNATION	LAB RESULTS	MATERIAL LOCATIONS	RECOMMENDATIONS
01, 02, 03	Plaster	White/Gray	N/A	N/A	None Detected	Interior Walls	N/A
04, 05, 06	Rock Pointing (Mortar)	Gray	N/A	N/A	None Detected	Basement Foundation	N/A
07, 08, 09	Concrete	Gray	N/A	N/A	None Detected	Basement Floors & Foundation	N/A
10, 11, 12	Window Glazing (Between Glass & Wood)	Gray/White	N/A	N/A	None Detected	Basement Wood Windows	N/A
13, 14, 15	4" Rubber Base w/Glue	Black	N/A	N/A	None Detected	Basement	N/A
16, 17, 18	Mastic	Black	N/A	N/A	None Detected	Basement Concrete Floors	N/A
19, 20, 21	Paint	White	N/A	N/A	None Detected	Basement Walls	N/A
22, 23, 24	Drywall/Mud/Texture	White	N/A	N/A	None Detected	Basement Walls	N/A
25, 26, 27	12x12 Floor Tile w/Mastic	Dark Gray w/Gray Specs	N/A	N/A	None Detected	Area 013 Landing	N/A
28, 29, 30	CMU	Gray	N/A	N/A	None Detected	Basement	N/A
31, 32, 33	CMU Mortar	Gray	N/A	N/A	None Detected	Basement	N/A
34, 35, 36	12x12 Floor Tile w/Mastic	Cream w/Brown Stripes	35	Category I Non-Friable	Tile=2% Chrysotile Mastic=None Detected	1 st Floor Restroom (#110)	Renovation that requires the impact and/or removal of the floor tile must include the abatement of the material and must be performed by a Montana accredited asbestos abatement contractor according to local, state, and federal regulations.
37, 38, 39	4" Rubber Base	Black	N/A	N/A	None Detected	1 st Floor	N/A
40, 41, 42	2x4 Ceiling Tiles (Waves / Multi Pin Holes)	White/Gray	N/A	N/A	None Detected	1 st Floor	N/A
43, 44, 45	12x12 Ceiling Tiles	White/Wood	N/A	N/A	None Detected	2 nd Floor	N/A
46, 47, 48	12x12 Ceiling Tile Glue	Dark Brown	N/A	N/A	None Detected	2 nd Floor	N/A

ENVIRONMENTAL SOLUTIONS INSPECTION SUMMARY

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE COLOR	APPROX SQ/FT	MATERIAL DESIGNATION	LAB RESULTS	MATERIAL LOCATIONS	RECOMMENDATIONS
49, 50, 51	Linoleum w/Glue	Tan (Stone Pattern)	35	Category I Non-Friable	Lino = 25% Chrysotile Glue=<1% Chrysotile	2 nd Floor Restroom (#212)	Renovation that requires the impact and/or removal of the linoleum and glue must include the abatement of the materials and must be performed by a Montana accredited asbestos abatement contractor according to local, state, and federal regulations.
52, 53, 54	9x9 Floor Tile w/Mastic	Light Blue/Cream & Tan	1,180	Category I Non-Friable	Tile = 2% Chrysotile Mastic=Non Detected	Rooms: 213, 300, 301, 302, 303, 304, 305	Renovation that requires the impact and/or removal of the floor tile must include the abatement of the material and must be performed by a Montana accredited asbestos abatement contractor according to local, state, and federal regulations.
55, 56, 57	Drywall/Mud/Texture	White w/Paint	N/A	N/A	Drywall = None Detected Mud = 5% Chrysotile Composite=<1% 400 Point Ct=<0.25% Chrysotile	2 nd & 3 rd Floors	Impact of this material is not regulated by the EPA and DEQ as an asbestos containing material; however, OSHA guidelines must be followed for workers. Verification of <1% PLM result performed by required 400-Point Count Method.
58, 59, 60	Wall Tile Glue	Dark Brown	N/A	N/A	None Detected	Room 303	N/A
61, 62, 63	Brick	Red	N/A	N/A	None Detected	Exterior	N/A
64, 65, 66	Brick Mortar	Gray	N/A	N/A	None Detected	Exterior	N/A
67, 68, 69	Exterior Window Caulk (Between Window & Building)	White	41 Windows	Category I Non-Friable	2-3% Chrysotile	Exterior Windows	Renovation that requires the impact and/or removal of the floor tile must include the abatement of the material and must be performed by a Montana accredited asbestos abatement contractor according to local, state, and federal regulations.
70, 71, 72	Roofing Tars (3 Layers)	Black/Silver	1,000	Category I Non-Friable	2-8% Chrysotile	Flat Roofs (East Annex & North Entry Roof)	Impact of this asbestos containing material is regulated by both environmental and worker protection regulations. Asbestos accredited persons must perform all work impacting, disturbing, or requiring the removal of this material following regulatory requirements.

ENVIRONMENTAL SOLUTIONS INSPECTION SUMMARY

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE COLOR	APPROX SQ/FT	MATERIAL DESIGNATION	LAB RESULTS	MATERIAL LOCATIONS	RECOMMENDATIONS
N/A	Stainless Steel Sink Insulation	Black	2	Category II Non-Friable	Assumed	Rooms: 003, 300	Sinks must be removed prior to renovation/demolition and disposed of as asbestos containing waste. Work to be performed by a Montana Accredited Abatement Contractor according to local, state, and federal regulations.
Additional Samples 12/18/13							
01, 02, 03	Tar Paper	Black	N/A	N/A	None Detected	Under 9x9 Floor Tile on 3 rd Floor (300, 301, 302, 303, 304, 305)	N/A

- Materials containing >1% Asbestos
- Materials of Note – Containing Trace Amounts of Asbestos

ENVIRONMENTAL SOLUTIONS INSPECTION SUMMARY FOR CHEEVER HALL

9x9 Floor Tile w/Mastic Locations and Sq/ft Numbers: Tiles are located in the following areas (213, 300, 301, 302, 303, 304, and 305). There is approximately 1,180 sq/ft of 9x9 floor tile (2nd Floor = 35, 3rd Floor=1,145).

Window NOTE: Exterior window caulk located between the wood frame and building contains a regulated quantity of asbestos. Total of 41 window openings that contain these types of windows.

TSI Fittings NOTE: No visible TSI was located in the building; all exposed pipe insulation is fiberglass. However, it is our opinion that additional TSI fittings are located in vertical pipe chases and buried in the walls. All TSI fittings are assumed to contain regulated quantities of asbestos. Care should be taken when opening any enclosed spaces.

Roofing Materials NOTE: The main building has a wood shake roof. The old wood roof was completely removed and replaced with new wood shakes during the summer of 2012. The East Annex Roof and the North Main Entry Flat roofs are a rolled tar/asphalt and are positive for regulated quantities of asbestos. All layers of both of these roofs should be treated as asbestos containing and disposed of as asbestos waste. In the present condition the materials are Non-Friable; however materials may become friable during a demolition/renovation project. Removal work practice shall be reviewed by a licensed and Montana accredited Asbestos Inspector for final determination on condition of materials.

Areas of Limited or No Access:

- Vertical pipe chases behind walls (limited access). All visible pipe chases contained straight runs of fiberglass insulation.
- Electrical Vault Area.

DISCLAIMERS

This document and its contents incorporated herein, is proprietary information and as an instrument of professional services, is the property of Environmental Solutions LLC, and are not to be used, in part or in whole for any other project without the written authorization of Environmental Solutions LLC.

This asbestos assessment report was prepared based on information obtained during the surveys, interpretation of the laboratory results of bulk samples of building materials collected during the surveys. The conclusions of this report are professional opinions based solely upon visual site observations and interpretations of laboratory analysis and field data as described in our report.

This report has been prepared to provide information concerning the various types and estimated quantities of asbestos-containing materials that may be impacted during this project. While extreme effort was made to inspect every aspect of the buildings, it still includes only those materials that were visible and accessible at the time of our inspection.

Our opinions are intended exclusively for use by Montana State University. The scope of services performed by Environmental Solutions LLC may not be appropriate to satisfy the needs of other users, and any use or re-use of this document, or the findings presented herein, is at the sole risk of the user.

The opinions presented herein apply to the site conditions existing at the time of our investigation. Therefore, our opinions and recommendations may not apply to future conditions that may exist at the site, which we have not had the opportunity to evaluate.

APPENDIX A
PHOTOGRAPHS SAMPLES



Plaster



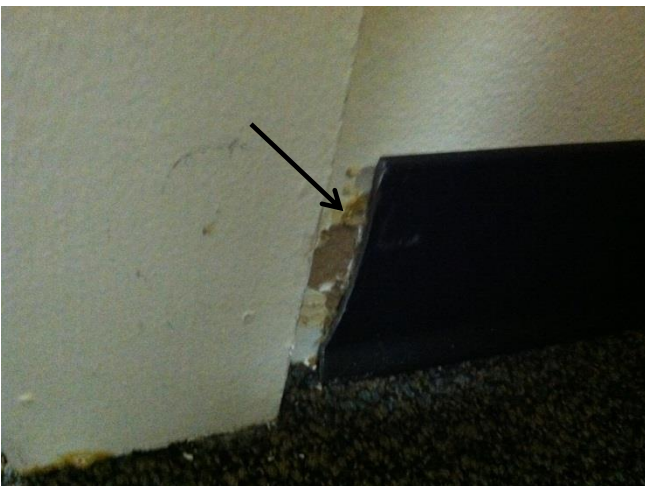
Foundation Rock Pointing (Mortar)



Concrete



Window Glazing



4" Rubber Base w/Glue



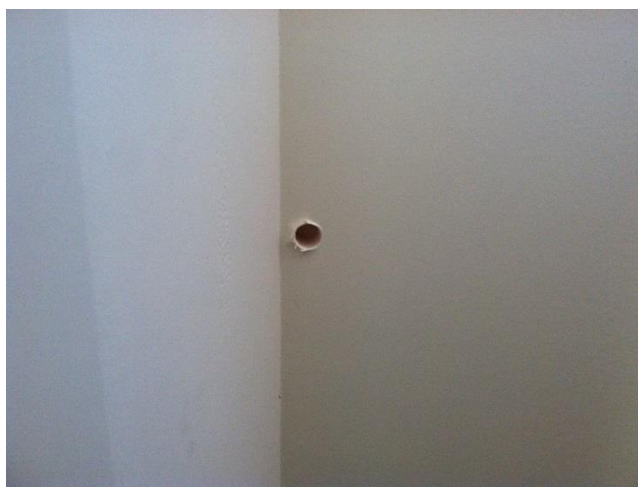
Mastic

APPENDIX A

PHOTOGRAPHS OF SAMPLES CONTINUED



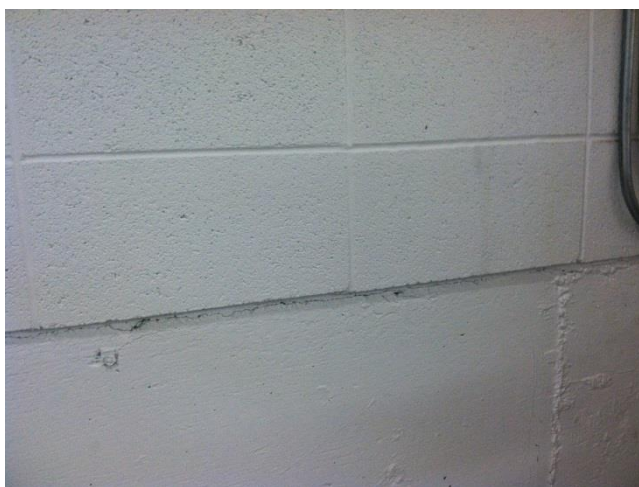
Paint (Surfacing Material)



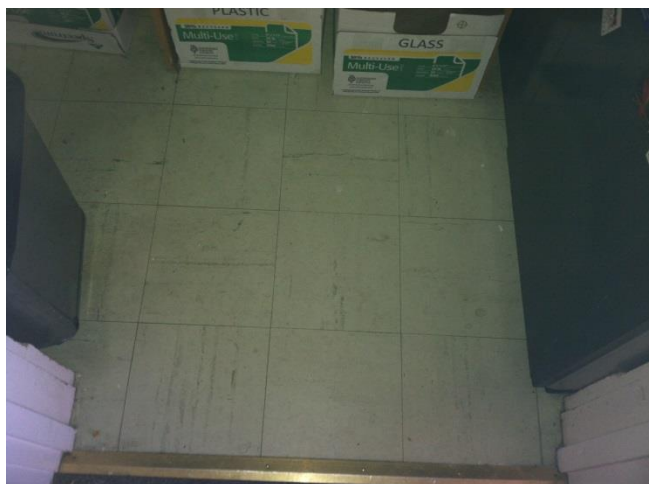
Drywall / Mud / Texture



12x12 Floor Tile w/Mastic (Dark Gray)



CMU & CMU Mortar



12x12 Floor Tile w/Mastic (Cream)



4" Rubber Base w/Glue

APPENDIX A

PHOTOGRAPHS OF SAMPLES CONTINUED



2x4 Ceiling Tiles



12x12 Ceiling Tiles



12x12 Ceiling Tile Glue



Linoleum w/Glue (Tan Stone Pattern)



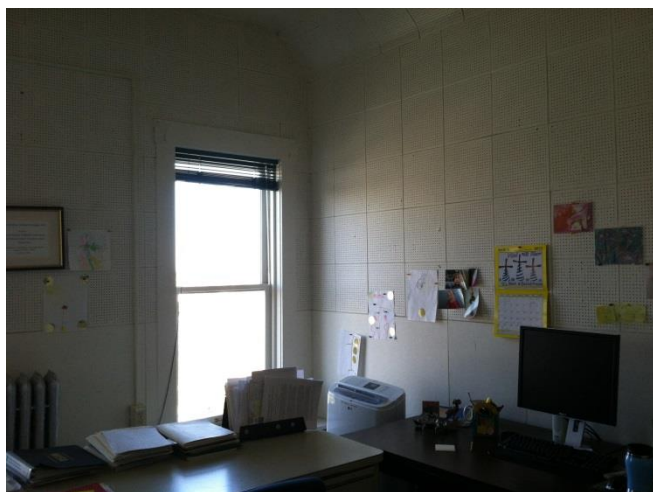
9x9 Floor Tile w/Mastic



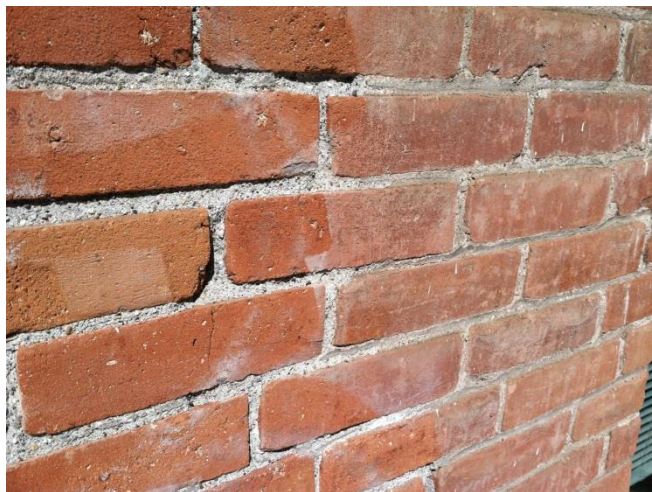
Drywall / Mud / Texture

APPENDIX A

PHOTOGRAPHS OF SAMPLES CONTINUED



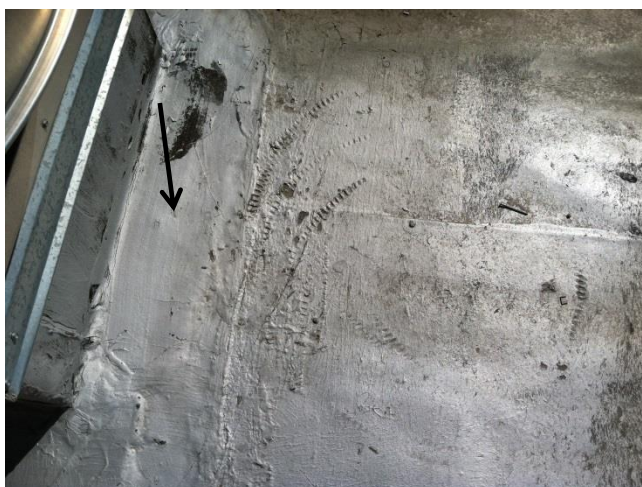
Wall Tile Glue (Room w/Ceiling Tiles on Walls)



Brick & Brick Mortar



Exterior Window Caulk



Roofing Tars (3 Layers)



Stainless Steel Sink Insulation

APPENDIX B

**Sample Analysis Report by
EMSL Raleigh, NC Laboratory**



EMSL Analytical, Inc.

2500 Gateway Centre Blvd., Suite 600, Morrisville, NC 27560

Phone/Fax: (919) 465-3900 / (919) 465-3950

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CustomerID: ENSO62

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ProjectID:

Attn: **Sonia Rogers**
Environmental Solutions, LLC
PO Box 7010

Bozeman, MT 59771

Project: 13031-01, Taylor Hall

Phone: (406) 579-1441

Fax:

Received: 05/02/13 9:30 AM

Analysis Date: 5/7/2013

Collected:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos			Asbestos
			% Fibrous	% Non-Fibrous	% Type	
01 291302415-0001	Plaster	Gray/White Fibrous Heterogeneous	5% Cellulose 3% Synthetic 3% Hair	89% Non-fibrous (other)	None Detected	
02 291302415-0002	Plaster	Gray/White Fibrous Heterogeneous	5% Cellulose 5% Synthetic 5% Hair	85% Non-fibrous (other)	None Detected	
03 291302415-0003	Plaster	Gray/White Fibrous Heterogeneous	8% Cellulose 5% Synthetic 5% Hair	82% Non-fibrous (other)	None Detected	
04 291302415-0004	Mortar	Gray/White Fibrous Heterogeneous	8% Cellulose 5% Synthetic 5% Hair	82% Non-fibrous (other)	None Detected	
05 291302415-0005	Mortar	Gray/White Fibrous Heterogeneous	8% Cellulose 5% Synthetic 5% Hair	82% Non-fibrous (other)	None Detected	
06 291302415-0006	Mortar	Gray/White Fibrous Heterogeneous	5% Cellulose 5% Synthetic 5% Hair	85% Non-fibrous (other)	None Detected	

Analyst(s)

Billy Barnes (32)

Essie Spencer (64)

Essie Spencer, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Morrisville, NC NVLAP Lab Code 200671-0, VA 3333 000278, WVA LT000296

Initial report from 05/07/2013 17:33:47



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Sample	Description	Appearance	Non-Asbestos			Asbestos
			% Fibrous	% Non-Fibrous	% Type	
07 291302415-0007	Concrete	Tan/Beige Fibrous Heterogeneous	10% 5% 5%	Cellulose Synthetic Hair	80% Non-fibrous (other)	None Detected
08 291302415-0008	Concrete	Tan/Beige Fibrous Heterogeneous	10% 5% 5%	Cellulose Synthetic Hair	80% Non-fibrous (other)	None Detected
09 291302415-0009	Concrete	Tan/Beige Fibrous Heterogeneous	10% 5% 5%	Cellulose Synthetic Hair	80% Non-fibrous (other)	None Detected
10 291302415-0010	Window Glazing	Tan/Beige Fibrous Homogeneous	3% 2%	Cellulose Wollastonite	95% Non-fibrous (other)	None Detected
11 291302415-0011	Window Glazing	Tan/Beige Fibrous Homogeneous	2% 2%	Wollastonite Cellulose	96% Non-fibrous (other)	None Detected
12 291302415-0012	Window Glazing	Tan/Beige Fibrous Homogeneous	5% 2%	Cellulose Wollastonite	93% Non-fibrous (other)	None Detected
13-Rubber 291302415-0013	Rubber Base w/ glue	Black Non-Fibrous Homogeneous			100% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
13-Glue 291302415-0013A	Rubber Base w/ glue	Tan Fibrous Heterogeneous	25% Cellulose	75% Non-fibrous (other)	None Detected
14-Rubber 291302415-0014	Rubber Base w/ glue	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
14-Glue 291302415-0014A	Rubber Base w/ glue	Tan Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (other)	None Detected
15-Rubber 291302415-0015	Rubber Base w/ glue	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
15-Glue 291302415-0015A	Rubber Base w/ glue	Tan Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (other)	None Detected
16 291302415-0016	Mastic	Brown/Black Fibrous Heterogeneous	5% Cellulose 2% Synthetic	93% Non-fibrous (other)	None Detected
17 291302415-0017	Mastic	Brown/Black Fibrous Heterogeneous	5% Cellulose 2% Synthetic	93% Non-fibrous (other)	None Detected
18 291302415-0018	Mastic	Brown/Black Fibrous Heterogeneous	8% Cellulose 3% Synthetic	89% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
19 291302415-0019	Paint	White Fibrous Heterogeneous	2% 2%	Wollastonite Cellulose	96% Non-fibrous (other) None Detected
20 291302415-0020	Paint	White/Beige Fibrous Homogeneous	2% 2%	Wollastonite Cellulose	96% Non-fibrous (other) None Detected
21 291302415-0021	Paint	White/Beige Fibrous Heterogeneous	2% 2%	Cellulose Wollastonite	96% Non-fibrous (other) None Detected
22-Drywall 291302415-0022	Drywall/Mud/Texture	Brown/White Fibrous Heterogeneous	20%	Cellulose	80% Non-fibrous (other) None Detected
22-Mud 291302415-0022A	Drywall/Mud/Texture	Beige Fibrous Homogeneous	5%	Cellulose	95% Non-fibrous (other) None Detected
22-Texture 291302415-0022B	Drywall/Mud/Texture	Beige Fibrous Homogeneous	2%	Wollastonite	98% Non-fibrous (other) None Detected
23-Drywall 291302415-0023	Drywall/Mud/Texture	Brown/White Fibrous Heterogeneous	25%	Cellulose	75% Non-fibrous (other) None Detected
23-Mud 291302415-0023A	Drywall/Mud/Texture	Beige Fibrous Homogeneous	3%	Cellulose	97% Non-fibrous (other) None Detected

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Received: 05/02/13 9:30 AM

Analysis Date: 5/7/2013

Collected:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
23-Texture 291302415-0023B	Drywall/Mud/Texture	Beige Fibrous Homogeneous	2%	Wollastonite	98% Non-fibrous (other) None Detected
24-Drywall 291302415-0024	Drywall/Mud/Texture	Brown/White Fibrous Heterogeneous	25%	Cellulose	75% Non-fibrous (other) None Detected
24-Mud 291302415-0024A	Drywall/Mud/Texture	Beige Fibrous Homogeneous	2%	Cellulose	98% Non-fibrous (other) None Detected
24-Texture 291302415-0024B	Drywall/Mud/Texture	Beige Fibrous Homogeneous	5%	Cellulose	95% Non-fibrous (other) None Detected
25 291302415-0025	12x12 Floor Tile w/ Glue	Gray Fibrous Homogeneous	2%	Cellulose	98% Non-fibrous (other) None Detected
No glue present.					
26 291302415-0026	12x12 Floor Tile w/ Glue	Gray Fibrous Homogeneous	5%	Cellulose	95% Non-fibrous (other) None Detected
No glue present.					
27 291302415-0027	12x12 Floor Tile w/ Glue	Gray Fibrous Homogeneous	2%	Cellulose	98% Non-fibrous (other) None Detected
No glue present.					

Analyst(s)

Billy Barnes (32)

Essie Spencer (64)

Essie Spencer, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Morrisville, NC NVLAP Lab Code 200671-0, VA 3333 000278, WVA LT000296

Initial report from 05/07/2013 17:33:47



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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
28 291302415-0028	CMU	Gray/White Fibrous Heterogeneous	5% Cellulose 2% Synthetic	93% Non-fibrous (other)	None Detected
29 291302415-0029	CMU	Gray/White Fibrous Heterogeneous	2% Cellulose 2% Synthetic	96% Non-fibrous (other)	None Detected
30 291302415-0030	CMU	Gray/White Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (other)	None Detected
31 291302415-0031	CMU Mortar	Gray/White Fibrous Heterogeneous	5% Cellulose 5% Synthetic	90% Non-fibrous (other)	None Detected
32 291302415-0032	CMU Mortar	Gray/White Fibrous Heterogeneous	5% Cellulose 3% Synthetic	92% Non-fibrous (other)	None Detected
33 291302415-0033	CMU Mortar	Gray/White Fibrous Heterogeneous	5% Cellulose 3% Synthetic	92% Non-fibrous (other)	None Detected
34-Floor Tile 291302415-0034	12x12 Floor Tile w/ Mastic	Tan/Beige Fibrous Homogeneous	5% Cellulose	93% Non-fibrous (other)	2% Chrysotile
34-Mastic 291302415-0034A	12x12 Floor Tile w/ Mastic	Tan Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
35-Floor Tile 291302415-0035	12x12 Floor Tile w/ Mastic	Tan Fibrous Homogeneous	3% Cellulose	95% Non-fibrous (other)	2% Chrysotile
35-Mastic 291302415-0035A	12x12 Floor Tile w/ Mastic	Tan Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (other)	None Detected
36-Floor Tile 291302415-0036	12x12 Floor Tile w/ Mastic	Beige Fibrous Homogeneous	2% Cellulose	96% Non-fibrous (other)	2% Chrysotile
36-Mastic 291302415-0036A	12x12 Floor Tile w/ Mastic	Tan Fibrous Homogeneous	8% Cellulose	92% Non-fibrous (other)	None Detected
37 291302415-0037	Rubber Base	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
38 291302415-0038	Rubber Base	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
39 291302415-0039	Rubber Base	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
40 291302415-0040	2x4 Ceiling Tiles	Tan/White Fibrous Homogeneous	10% Cellulose 20% Min. Wool	10% Perlite 60% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos			Asbestos
			% Fibrous	% Non-Fibrous	% Type	
41 291302415-0041	2x4 Ceiling Tiles	White/Beige Fibrous Heterogeneous	20% Cellulose 15% Min. Wool	10% Perlite 55% Non-fibrous (other)	None Detected	
42 291302415-0042	2x4 Ceiling Tiles	White/Beige Fibrous Homogeneous	20% Cellulose 20% Min. Wool	20% Perlite 40% Non-fibrous (other)	None Detected	
43 291302415-0043	12x12 Ceiling Tile	Tan Fibrous Heterogeneous	85% Cellulose	15% Non-fibrous (other)	None Detected	
44 291302415-0044	12x12 Ceiling Tile	Tan Fibrous Heterogeneous	85% Cellulose	15% Non-fibrous (other)	None Detected	
45 291302415-0045	12x12 Ceiling Tile	Tan/White Fibrous Heterogeneous	80% Cellulose	20% Non-fibrous (other)	None Detected	
46 291302415-0046	12x12 Ceiling Tile Glue	Brown Fibrous Heterogeneous	5% Cellulose	95% Non-fibrous (other)	None Detected	
47 291302415-0047	12x12 Ceiling Tile Glue	Brown Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (other)	None Detected	
48 291302415-0048	12x12 Ceiling Tile Glue	Brown Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (other)	None Detected	

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos	
			% Fibrous	% Non-Fibrous	% Type	
49-Linoleum 291302415-0049	Linoleum w/ Glue	Tan/Beige Fibrous Heterogeneous	20% Cellulose	55% Non-fibrous (other)	25% Chrysotile	
49-Glue 291302415-0049A	Linoleum w/ Glue	Tan Fibrous Heterogeneous	5% Cellulose	95% Non-fibrous (other)	<1% Chrysotile	
Possible contamination from backing.						
50-Linoleum 291302415-0050	Linoleum w/ Glue	Tan/Beige Fibrous Heterogeneous	20% Cellulose	55% Non-fibrous (other)	25% Chrysotile	
50-Glue 291302415-0050A	Linoleum w/ Glue	Tan Fibrous Heterogeneous	5% Cellulose	95% Non-fibrous (other)	<1% Chrysotile	
Possible contamination from backing.						
51-Linoleum 291302415-0051	Linoleum w/ Glue	Tan/Beige Fibrous Heterogeneous	20% Cellulose	55% Non-fibrous (other)	25% Chrysotile	
51-Glue 291302415-0051A	Linoleum w/ Glue	Tan Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (other)	<1% Chrysotile	
Possible contamination from backing.						
52-Floor Tile 291302415-0052	9x9 Floor Tile w/ Glue	Green Fibrous Homogeneous	5% Cellulose	93% Non-fibrous (other)	2% Chrysotile	

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
52-Mastic 291302415-0052A	9x9 Floor Tile w/ Glue	Brown/Black Fibrous Homogeneous	15%	Cellulose	85% Non-fibrous (other) None Detected
53-Floor Tile 291302415-0053	9x9 Floor Tile w/ Glue	Green Fibrous Homogeneous	2%	Wollastonite 2% Cellulose	94% Non-fibrous (other) 2% Chrysotile
53-Mastic 291302415-0053A	9x9 Floor Tile w/ Glue	Brown/Black Fibrous Heterogeneous	15%	Cellulose	85% Non-fibrous (other) None Detected
54-Floor Tile 291302415-0054	9x9 Floor Tile w/ Glue	Green Fibrous Homogeneous	5%	Cellulose	93% Non-fibrous (other) 2% Chrysotile
54-Mastic 291302415-0054A	9x9 Floor Tile w/ Glue	Brown/Black Fibrous Heterogeneous	15%	Cellulose	85% Non-fibrous (other) None Detected
55-Drywall 291302415-0055	Drywall/Mud/Textu re	Brown/White Fibrous Heterogeneous	15%	Cellulose 3% Glass	82% Non-fibrous (other) None Detected
55-Joint Compound 291302415-0055A	Drywall/Mud/Textu re	White Non-Fibrous Homogeneous	5%	Cellulose <1% Wollastonite	90% Non-fibrous (other) 5% Chrysotile
55-Composite 291302415-0055B	Drywall/Mud/Textu re	Brown/White/Beig e Fibrous Heterogeneous	15%	Cellulose 3% Glass <1% Wollastonite	82% Non-fibrous (other) <1% Chrysotile

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Analysis Date: 5/7/2013

Collected:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos			Asbestos
			% Fibrous	% Non-Fibrous	% Type	
56-Drywall 291302415-0056	Drywall/Mud/Texture	Brown/White Fibrous Heterogeneous	15% Cellulose 3% Glass	82% Non-fibrous (other)	None Detected	
56-Joint Compound 291302415-0056A	Drywall/Mud/Texture	Beige Fibrous Homogeneous	2% Wollastonite 5% Cellulose	88% Non-fibrous (other)	5% Chrysotile	
56-Composite 291302415-0056B	Drywall/Mud/Texture	Brown/White/Beige Fibrous Heterogeneous	15% Cellulose 2% Glass <1% Wollastonite	83% Non-fibrous (other)	<1% Chrysotile	
57-Drywall 291302415-0057	Drywall/Mud/Texture	Brown/White Fibrous Heterogeneous	15% Cellulose 3% Glass	82% Non-fibrous (other)	None Detected	
57-Joint Compound 291302415-0057A	Drywall/Mud/Texture	White Fibrous Heterogeneous	5% Cellulose 2% Wollastonite	88% Non-fibrous (other)	5% Chrysotile	
57-Composite 291302415-0057B	Drywall/Mud/Texture	Brown/White/Beige Fibrous Heterogeneous	15% Cellulose 2% Glass <1% Wollastonite	83% Non-fibrous (other)	<1% Chrysotile	
58 291302415-0058	Wall Tile Glue	Brown/Tan Fibrous Heterogeneous	2% Cellulose	98% Non-fibrous (other)	None Detected	

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
59 291302415-0059	Wall Tile Glue	Brown/Tan Fibrous Heterogeneous	2% Cellulose	98% Non-fibrous (other)	None Detected
60 291302415-0060	Wall Tile Glue	Brown/Tan Fibrous Heterogeneous	3% Cellulose	97% Non-fibrous (other)	None Detected
61 291302415-0061	Brick	Tan/White Fibrous Heterogeneous	3% Cellulose	97% Non-fibrous (other)	None Detected
62 291302415-0062	Brick	Brown/Tan Fibrous Heterogeneous	3% Cellulose	97% Non-fibrous (other)	None Detected
63 291302415-0063	Brick	Brown/Tan Fibrous Heterogeneous	5% Cellulose	95% Non-fibrous (other)	None Detected
64 291302415-0064	Brick Mortar	White/Beige Fibrous Heterogeneous	8% Cellulose	92% Non-fibrous (other)	None Detected
65 291302415-0065	Brick Mortar	White/Beige Fibrous Heterogeneous	5% Cellulose	95% Non-fibrous (other)	None Detected
66 291302415-0066	Brick Mortar	White/Beige Fibrous Heterogeneous	5% Cellulose	95% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
67 291302415-0067	Exterior Caulk	Tan/Beige Fibrous Heterogeneous	8% Cellulose 2% Wollastonite	87% Non-fibrous (other)	3% Chrysotile
68 291302415-0068	Exterior Caulk	Gray/Beige Fibrous Heterogeneous	10% Cellulose 2% Wollastonite	86% Non-fibrous (other)	2% Chrysotile
69 291302415-0069	Exterior Caulk	Tan/Beige Fibrous Heterogeneous	5% Cellulose 2% Wollastonite	91% Non-fibrous (other)	2% Chrysotile
70 291302415-0070	Roofing Materials	Brown/Black Fibrous Heterogeneous	10% Cellulose	88% Non-fibrous (other)	2% Chrysotile
71 291302415-0071	Roofing Materials	Brown/Black Fibrous Heterogeneous	30% Cellulose	62% Non-fibrous (other)	8% Chrysotile
72 291302415-0072	Roofing Materials	Brown/Black Fibrous Heterogeneous	15% Cellulose	77% Non-fibrous (other)	8% Chrysotile

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Project: MSU Taylor	

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
01 291307927-0001	Tar Paper	Brown/Black Fibrous Homogeneous	85% Cellulose	15% Non-fibrous (other)	None Detected
02 291307927-0002	Tar Paper	Brown/Black Fibrous Homogeneous	85% Cellulose	15% Non-fibrous (other)	None Detected
03 291307927-0003	Tar Paper	Brown/Black Fibrous Homogeneous	85% Cellulose	15% Non-fibrous (other)	None Detected

Analyst(s) _____
Essie Spencer (3)


Essie Spencer, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%
Samples analyzed by EMSL Analytical, Inc. Morrisville, NC NVLAP Lab Code 200671-0, VA 3333 000278, WVA LT000296

Initial report from 12/19/2013 13:37:03

APPENDIX C

CHAIN OF CUSTODY DOCUMENTS

Environmental Solutions, LLC
 13031-01, Taylor Hall
 5/2/2013 9:30
 PLM

TAT: 96 Hour
 Bulk

Order ID: 291302415
 No Samples: 72
 Due: 05/08 9:30 AM
 Fax:

Raleigh, NC
 2500 Gateway Centre Blvd.
 Suite 600
 Morrisville, NC 27560
 PHONE: 919-465-3900
 FAX: 919-465-3950

Company: Environmental Solutions LLC		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments** Third Party Billing requires written authorization from third party</small>	
Street: PO Box 7010			
City/State/Zip: Bozeman, MT 59771-7010			
Report To (Name): Sonia Rogers		Fax: 406-587-0193	
Telephone: 406-579-1441		Email Address: srogers@esmontana.com	
Project Name/Number: <u>13031-01 Taylor Hall</u>			
Please Provide Results: Email		Purchase Order:	State Samples Taken: MT

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 hours/6 hours, 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.

PCM - Air <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA PLM - Bulk (reporting limit) <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NIOSH 9002 (<1%)	TEM - Air <input type="checkbox"/> 4-4.5hr TAT (AHERA only) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 TEM - Bulk <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5 TEM - Water: EPA 100.2 Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking	TEM-Dust <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167) Soil/Rock/Vermiculite <input type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - C (0.01% sensitivity) <input type="checkbox"/> EPA Protocol (Semi-Quantitative) <input type="checkbox"/> EPA Protocol (Quantitative) Other: <input type="checkbox"/>
---	--	---

Check For Positive Stop - Clearly Identify Homogenous Group

Samplers Name:	Samplers Signature:
----------------	---------------------

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
	* See Attached		

Client Sample # (s):	-	Total # of Samples:	72
Relinquished (Client):	<u>Sonia Rogers</u>	Date:	<u>5-1-13</u>
		Time:	<u>1:00 pm</u>
Received (Lab):	<u>[Signature]</u>	Date:	<u>5/2</u>
		Time:	<u>9:50</u>

Comments/Special Instructions:

EPE 8766 8750 0936

CHAIN OF CUSTODY For Environmental Solutions LLC

Date Shipped: 5-1-13Number of Samples: ~~72~~ 72Project ID: 13031-01 Taylor HallShipped Via: Fed-Ex Standard Fed-Ex AM Delivery Fed-Ex Saturday
US Mail

Sample ID	Sample Description	Quantity
01-02-03	Plaster	3
04-05-06	Mortar	3
07-08-09	Concrete	3
10-11-12	Window Glazing	3
13-14-15	Rubber Base w/Glue	3
16-17-18	Mastic	3
19-20-21	Paint	3
22-23-24	Drywall / Mud / Texture	3
25-26-27	12x12 Floor Tile w/Glue	3
28-29-30	CMU	3
31-32-33	CMU Mortar	3
34-35-36	12x12 Floor Tile w/Mastic	3
37-38-39	Rubber Base	3
40-41-42	2x4 Ceiling Tiles	3
43-44-45	12x12 Ceiling Tiles	3
46-47-48	12x12 Ceiling Tile Glue	3
49-50-51	Linoleum w/Glue	3
52-53-54	9x9 Floor Tile w/Mastic	3
55-56-57	Drywall / Mud / Texture	3
58-59-60	Wall Tile Glue	3
61-62-63	Brick	3
64-65-66	Brick Mortar	3
67-68-69	Exterior Caulk	3
70-71-72	Roofing Materials	3

CECA

Environmental Solutions, LLC
13031-01, Taylor Hall
5/2/2013 9:30
PLM

TAT: 96 Hour
Bulk

Order ID: 291302415
No Samples: 72
Due: 05/08 9:30 AM
Fax:

5/2 9:30

Environmental Solutions, LLC

MSU Taylor
12/19/2013 10:1
PLM

TAT: 6 Hour
Bulk

Order ID: 291307927
No Samples: 3
Due: 12/19 4:15 PM
Fax:

Raleigh, NC
2500 Gateway Centre Blvd.
Suite 600
Morrisville, NC 27560
PHONE: 919-465-3900
FAX: 919-465-3950

Company: Environmental Solutions LLC		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments**</small>	
Street: PO Box 7010		Third Party Billing requires written authorization from third party	
City/State/Zip: Bozeman, MT 59771-7010			
Report To (Name): Sonia Rogers		Fax: 406-587-0193	
Telephone: 406-579-1441		Email Address: srogers@esmontana.com	
Project Name/Number: <u>MSU-Taylor</u>			
Please Provide Results: Email		Purchase Order:	State Samples Taken: MT

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 hours/6 hours, 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.

<p>PCM - Air</p> <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA <p>PLM - Bulk (reporting limit)</p> <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NIOSH 9002 (<1%)	<p>TEM - Air <input type="checkbox"/> 4-4.5hr TAT (AHERA only)</p> <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 <p>TEM - Bulk</p> <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5 <p>TEM - Water: EPA 100.2</p> Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking	<p>TEM-Dust</p> <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167) <p>Soil/Rock/Vermiculite</p> <input type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - C (0.01% sensitivity) <input type="checkbox"/> EPA Protocol (Semi-Quantitative) <input type="checkbox"/> EPA Protocol (Quantitative) <p>Other:</p> <input type="checkbox"/>
---	--	---

Check For Positive Stop - Clearly Identify Homogenous Group

Samplers Name: _____ Samplers Signature: _____

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
01-02-03	Tar paper	3	

Client Sample # (s): _____ Total # of Samples: 3

Relinquished (Client): Sonia Rogers Date: 12-18-13 Time: 1:30

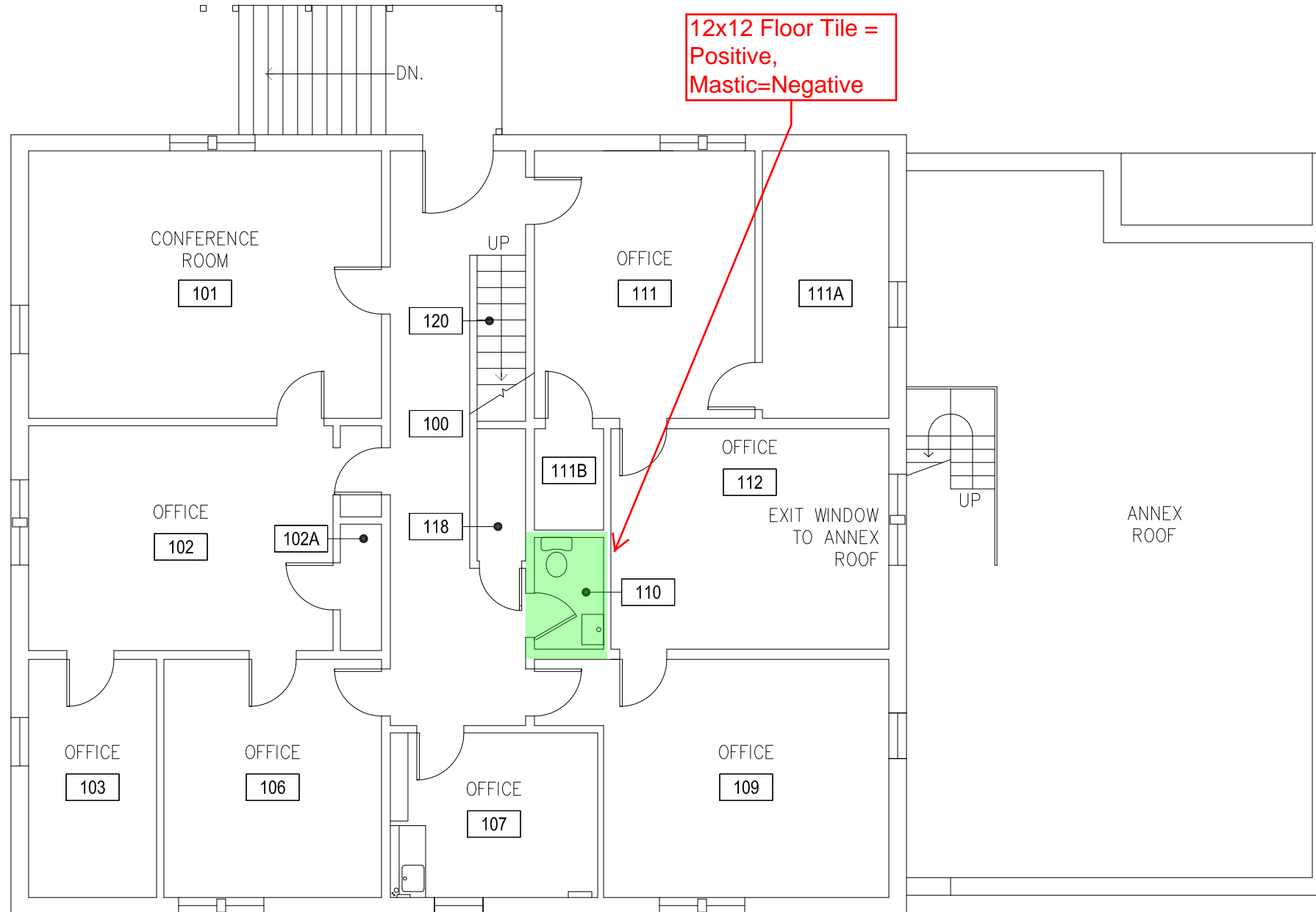
Received (Lab): [Signature] Date: 12-19 Time: 10:15

Comments/Special Instructions: _____

FE 8041 3620 8144

APPENDIX D

FLOOR PLANS



12x12 Floor Tile =
Positive,
Mastic=Negative

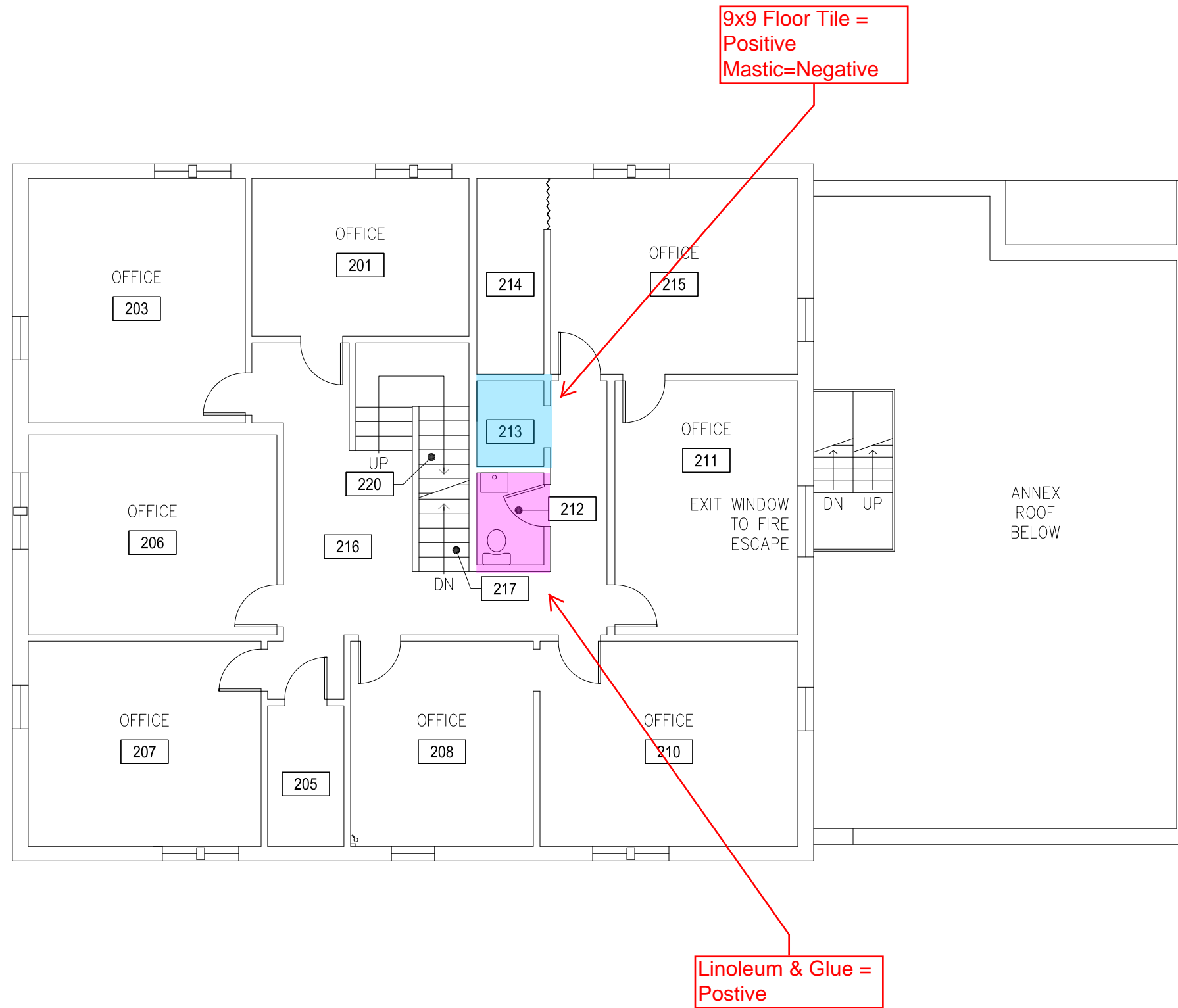
1

TAYLOR HALL - FIRST LEVEL

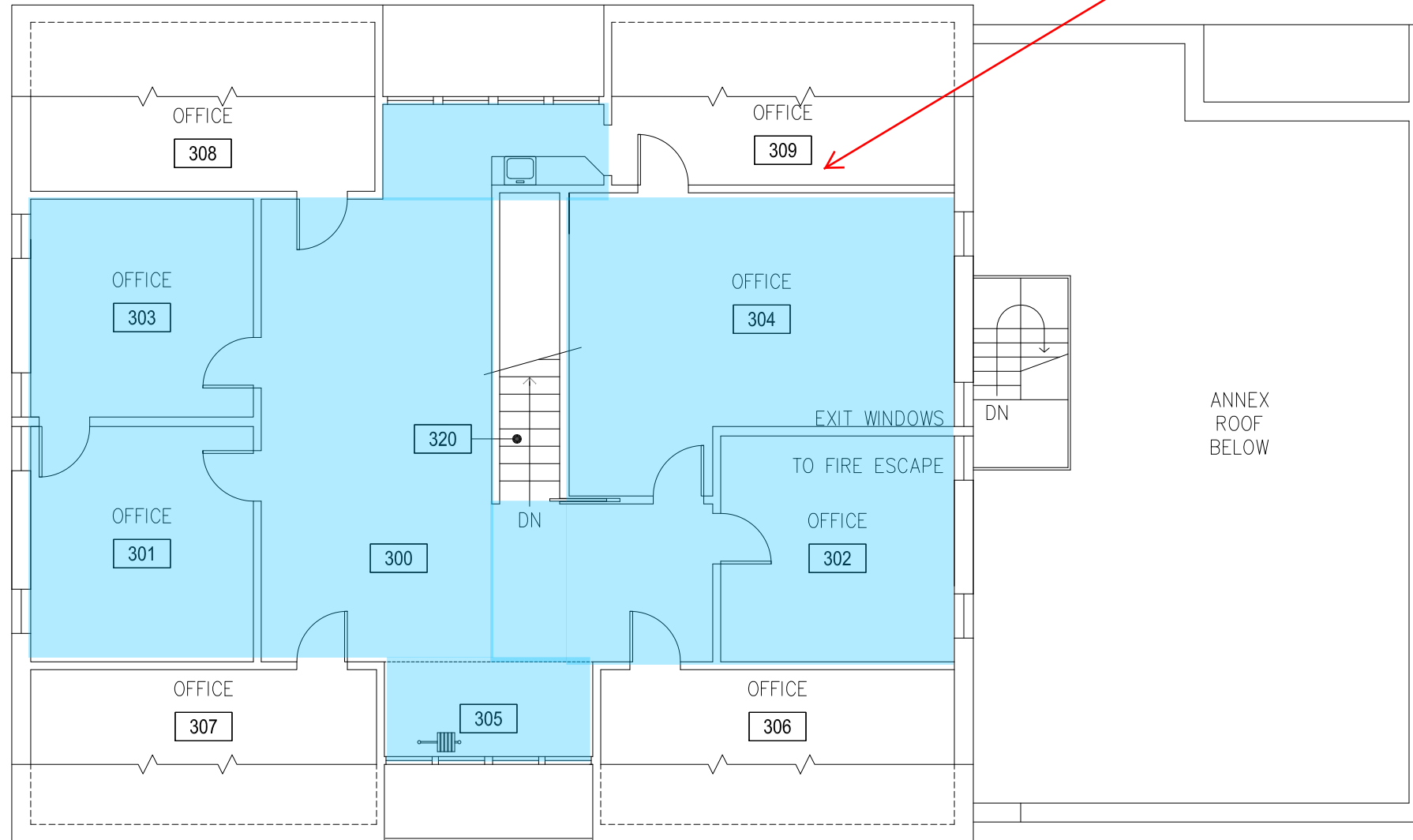
SCALE: 1/8" = 1'



Jan 24, 2012 - 9:12am - 108_A2.dwg
H:\Taylor\Building Plan - Book Copy\



Areas with 9x9
Floor Tile under
Carpet
9x9 Tiles = Positive
Mastic=Negative



1

TAYLOR HALL - THIRD LEVEL

SCALE: 1/8" = 1'



APPENDIX E

ABBREVIATIONS

A/C	asbestos/cement
ACM	asbestos-containing material
AHERA	Asbestos Hazard Emergency Response Act of 1986
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
BID	background information document
CAA	Clean Air Act
CPSC	Consumer Products Safety Commission
DOT	Department of Transportation
EPA	Environmental Protection Agency
ID	identification
LEV	local exhaust ventilation
NADC	National Association of Demolition Contractors
NARS	National Asbestos Registry System
NESHAP	National Emission Standards for Hazardous Air Pollutants
NIOSH	National Institute for Occupational Safety and Health
OAQPS	Office of Air Quality Planning and Standards
OSHA	Occupational Safety and Health Administration
OSW	Office of Solid Waste
PEL	permissible exposure limit
PLM	polarized light microscopy
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act of 1986
TEM	transmission electron microscopy
TSCA	Toxic Substances Control Act