

Pre-Demolition Asbestos and Hazardous
Materials Survey
of

10237 W Coldwater Road,
Flushing, MI 48433



Prepared for
Mr. Fredrick Thorsby
Flushing Township
6524 N Seymour Road,
Flushing, MI 48433

Zachary Line
Asbestos Building Inspector

Madison Konrad
Group Manager
Industrial Hygiene Services

Prepared by



Testing Engineers and Consultants, Inc. (TEC)
1343 Rochester Road, PO Box 249
Troy, Michigan 48099-0249

TEC Project Number: 64823

March 17, 2025

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1 EXECUTIVE SUMMARY

Testing Engineers and Consultants, Inc. (TEC) was retained by Flushing Township (Via Gen City), to conduct an assessment for asbestos-containing materials (ACM) and Hazardous Materials (Haz-Mat) within the building located at 10237 W Coldwater Road, Flushing, MI 48433.

Asbestos Containing Materials (ACMs)

A total of **33** sample layers were collected/analyzed from **12** suspected asbestos-containing homogeneous materials (ACMs) identified during the assessment. The samples were analyzed by polarized light microscopy (PLM). A material is considered by the U.S. Environmental Protection Agency (EPA), the U.S. Occupational Safety and Health Administration (OSHA) and the State of Michigan to be ACM if PLM results detect greater than one percent (>1%) asbestos. Refer to Appendix G for the Sample Location Map.

Two ACMs (>1% asbestos) were identified through laboratory analysis during this investigation. Bold Depicts Positive Layer:

- **Sink Undercoat (Black) – FS 3 – 8 SF**
- **Floor Sheeting (Cream/Green Pattern) – FS 4, 5 – 200 SF**

The following materials were not sampled and are assumed to be ACM:

- **None**

A summary of the laboratory results for the suspect ACM samples collected within the subject building are provided in Table 1, while the analytical laboratory results/chain of custody are included as Appendix D and Appendix E. Site diagrams identifying sample locations (Appendix G) are attached for review.

2 GENERAL BUILDING AND SURVEY INFORMATION

2.1 BUILDING INFORMATION

The subject building contains one address 10237 W Coldwater Road, Flushing, MI 48433.

2.2 INSPECTION INFORMATION

2.2.1 GENERAL BUILDING INFORMATION

Subject Property: **10237 W Coldwater Road,
Flushing, MI 48433**
Construction Date: **Unknown**
Number of Floors: **1 Floor, Attic, Crawlspace, and 2 Sheds**

Square Footage **Est. 1,300 SF**

Construction Type: **Wood Frame w/ Plastic Siding,
Pitched Shingled Roof**
Building Occupant(s) **Unoccupied**

2.2.2 Inspection Information

Name of Inspector(s): **Zachary Line**

Signature: 

State of Michigan Inspector No. A63411

Date(s) of Inspection: **March 12, 2025**

Report Reviewed By: **Madison Konrad**

Signature: 

3 FINDINGS

3.1 ASBESTOS RESULTS

A total of **33** samples were collected/analyzed from **12** suspect asbestos-containing homogenous materials identified during the assessment.

The “Report of Bulk Sample Analysis for Asbestos,” the “Asbestos Bulk Sample Log,” Photographs, and Asbestos Glossary are included in the Appendices. Table 1 attached to this report lists the suspect ACMs observed throughout the building that were sampled, along with the results of the inspection and laboratory analysis.

Table 1 provides descriptions of the materials, their general locations, condition, and friability, EPA National Emission Standard for Hazardous Air Pollutants (NESHAP) category, OSHA abatement classification and estimated quantity.

3.1.1 INACCESSIBLE AREAS / AREAS NOT INCLUDED

- All Functional Spaces were accessible; however, the structure was filled with trash/furniture throughout. This made it difficult for the inspector to thoroughly inspect all areas, including but not limited to flooring materials.

3.1.2 NON-SUSPECT MATERIALS

The following materials were observed but are considered ‘non-suspect’ ACM due to their composition (fiberglass, rubber, etc.) and were not sampled.

- Metal, plastic, and glass building components
- Rubber/foam pipe insulation
- Fiberglass roll/bat insulation
- Ceramic bathroom fixtures (sink, toilet, tub, etc.)

4 CONCLUSIONS & RECOMMENDATIONS

4.1 CONCLUSIONS

2 - ACMs were found within and on the subject property.

No Assumed ACMs were found within the subject property.

10 - Assumed HAZMAT Categories as presented on Table 2-Suspected HAZMATs Inventory Checklist

4.1.1 ASSUMPTIONS/OBSERVATIONS

The following assumptions were used to develop TEC's sampling strategy:

- Pipes throughout the building were uninsulated (metal or PVC).
- The air supply and return ducts in the building were either insulated with fiberglass or uninsulated, which is either non-ACM or non-suspect for asbestos.

4.2 RECOMMENDATIONS

ASBESTOS CONTAINING MATERIALS (ACM)

The ACMs identified in the subject building were generally found to be in poor condition.

Prior to demolition, TEC recommends that that the identified ACMs (assumed and verified by sampling), as well as the assumed hazardous materials, be removed prior to demolition. Category I Non-Friable (such as the assumed roofing material) ACM may often be left in place during demolition if not made friable by cutting, grinding or sanding. If left in place, these materials cannot be recycled or used as clean fill.

Any areas that were noted as being inaccessible during this assessment or any concealed areas, such as behind walls, where suspect ACMs could be discovered, will require a survey for ACM.

TEC has provided the regulatory abatement methods as defined by OSHA in Appendix C for each class of work applied to the materials noted in this report. These procedures can be performed by the demolition contractor if they are licensed to perform abatement in Michigan.

TABLES

TABLE 1 – SUSPECT ACMS – SAMPLED (BOLD DEPICTS A POSITIVE RESULT)

Site: 10237 W Coldwater Road, Flushing, MI

Survey Date(s): 3/12/2025

Material Number & Sample Number	Material Description	Material Location	F/NF ¹	Cond. ²	% Asbestos & type ³	EPA NESHAP Category ^{1,4}	OSHA Class Designation ⁵	Estimated Quantity
1A-B	Drywall (Grey/White) w/ Joint Compound	FS 2, 3	F	Poor	NAD/ NAD	NA	NA	NA
2A-B	Ceiling Board (Tan)	FS 2, 3, 4, 5, 6, 7	F	Poor	NAD	NA	NA	NA
3A-B	Construction Adhesive (Tan)	FS 2, 3	NF	Poor	NAD	NA	NA	NA
4A-B	Floor Sheeting (Faux Wood)	FS 2, 3, 8	NF	Poor	NAD	NA	NA	NA
5A-B	Sink Undercoat (Black)	FS 3	F	Poor	1.75% Ch PT	Cat II NF	Class II	8 SF
6A-B	Floor Sheeting (Cream/Green Pattern)	FS 4, 5	NF	Poor	30% Ch	Cat II NF	Class II	200 SF
7A	Fiberglass Insulation (Pink)	Throughout	F	Poor	NAD	NA	NA	NA
8A-B	CMU (Grey) & Mortar	FS 1	NF	Poor	NAD/ NAD	NA	NA	NA
9A-B	Vapor Barrier (Black)	Throughout	F	Poor	NAD	NA	NA	NA
10A-B	Roof Shingles (Black)	FS 1	NF	Poor	NAD	NA	NA	NA
11A-B	Roof Shingles (Black/Brown)	Shed 1	NF	Poor	NAD	NA	NA	NA
12A-B	Roof Shingles (Black/Brown)	Shed 2	NF	Poor	NAD	NA	NA	NA

1 F = Friable ; NF = Non-friable

2 Cond. = Condition of Materials; Either good, fair or poor

3 NAD = No Asbestos Detected, Ch = Chrysotile, Am = Amosite, Tr = Tremolite; Ver = Vermiculite; PT = Point Count Analysis; TEM = Transmission Electron Microscopy

4 NESHAP Category - Regulated ACM (RACM), Cat I NF=Category I Non-Friable ACM, Cat II NF= Category II Non-Friable ACM

NA = Not Applicable

5 OSHA/EPA Class Definitions:

Class I asbestos work means activities involving the removal of TSI and surfacing ACM and PACM.

Class II asbestos work means activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

Class III asbestos work means repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, is likely to be disturbed.

Class IV asbestos work means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

Table 2: Suspected HAZMATS Inventory Checklist

Address: 10237 W Coldwater Road, Flushing, MI 48433- Total Quantities			
Inspection Item	Constituent of Concern	Size/Quantity	Notes:
Compact Fluorescent Bulbs	Mercury	1	FS 8
TV	Mercury	1	FS 7
Misc. Paint Cans	Lead or other misc. constituents	10	Shed 1
Refrigerator/Freezer	CFC/HCFC	1	FS 3
Light Ballasts	PCBs	1	FS 8
2' Fluorescent Bulbs	Mercury	1	FS 8
Miscellaneous Items (Glue, Solvents, Cleaners, etc.)	Varies	20, 1 (5 Gallon Bucket), 1 (55 Gallon Drum)	FS1, 3, 4
Batteries	Lead	1	FS 4
Air Conditioners	CFC/HCFC	3	FS 2, 3, 7
Tires	6PPD-quinone (6PPD-q) & other various chemicals	26	FS 1

APPENDIX A

SCOPE, METHODS, AND REGULATORY GUIDELINES

A1 INTRODUCTION

A1.1 SCOPE OF SERVICES

The scope of services for this project consisted of conducting a comprehensive ACM and hazardous material assessment, sampling, and analysis of accessible and exposed interior areas within the subject facility.

The pre-demolition assessment included areas within the structure where building materials could potentially be impacted during the upcoming demolition. The pre-demolition assessment included a visual inspection of the subject area(s), sample collection, PLM sample analysis, quantification of ACMs and suspected hazardous materials, and report preparation and review.

A1.2 PURPOSE

The purpose of this survey was to provide general information for the subject structure regarding the presence, condition, and quantity of accessible and/or exposed friable and non-friable, building materials that contain asbestos as well as substances that would require special handling and disposal prior to demolition.

A1.3 AUTHORIZATION

Authorization to perform this work was given by Flushing Township (Via Gen City), as owner, through the issuance of a Signed Proposal.

A1.4 LIMITATIONS

The asbestos survey was intended to meet the requirements of the EPA NESHAP regulation for demolition or renovation. The survey included a thorough inspection of all areas of the building.

TEC performed sampling requiring demolition or destructive activities such as knocking holes in walls, dismantling of equipment or removal of protective coverings. Reasonable efforts to access suspect materials within known areas of restricted access (e.g., catwalks) were made; however, confined spaces or areas which may pose a health or safety risk to TEC personnel were not sampled. Sampling did not include suspect materials which could not be safely reached with available ladders/man-lifts. TEC did not sample any system which presented a hazard to the inspection team such as energized electrical systems, confined spaces, or structurally unsafe areas. This survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions and recommendations expressed in this report are based on conditions observed during our survey of the building.

Void spaces which were evaluated included locations of suspected pipe or HVAC chases, wall cavities where fireproofing or other ACM was suspected, above finished ceiling systems where ACM was likely to exist, within pipe trenches or within concealed locations. Although TEC made an attempt to identify all areas of ACM, an exhaustive

investigation of void spaces was not included in the scope of services for this project. Inaccessible is defined as areas of the building that were locked, or where admittance was not possible. It also includes areas/materials that could not be tested (sampled) without destruction of the structure or a portion of the structure, and areas/materials that could not be safely reached by the inspector or inspection team. In the event that access to a portion of the building was not obtained (which otherwise would have been tested), such limitations specifically are identified in the Findings Section of this report.

The information contained in this report is relevant to the dates on which this survey was conducted and should not be relied upon to represent conditions at a later date. This report has been prepared on behalf of and exclusively for use by Flushing Township for specific application to their project as discussed. This report is not a bidding document. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary. TEC does not warrant the work of regulatory agencies, laboratories or other third parties supplying information which may have been used in the preparation of this report. No warranty, express or implied, is made.

The HAZMATs survey was visual only and did not include sampling of identified materials.

A1.5 WARRANTY

The field and laboratory results reported herein are considered sufficient in detail and scope to determine the presence of accessible and/or exposed suspect ACM/HAZMATs for the building structure. TEC warrants that the findings contained herein have been prepared in general accordance with accepted professional practices at the time of its preparation as applied by professionals in the community. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey and analytical methods have been used to provide the client with information regarding the presence of accessible and/or exposed suspect ACMs existing at the time of the inspection. Test results are valid only for the material(s) tested. There is a distinct possibility that conditions may exist which could not be identified within the scope of the study, or which were not apparent during the site visit. This assessment covered only those areas that were exposed and/or physically accessible to the Inspector. The study is also limited to the information available from the client at the time it was conducted.

A2 METHODOLOGY

Inspection and sampling procedures were performed in general accordance with the guidelines published by the EPA. The inspection and survey described below was performed by an EPA and Michigan accredited inspector.

A2.1 RECORD DOCUMENT REVIEW

Prior to conducting the visual inspection, TEC typically reviews documents provided by the client, including: drawings, floor plans, historical data, maintenance records, previous survey reports, laboratory reports, etc. for information regarding construction history and building materials.

No documents were provided by the client for review as a part of this Asbestos and HAZMAT Survey.

A2.2 VISUAL INSPECTION PROCEDURES

A2.2.1 Asbestos

An initial facility walkthrough was conducted to determine the presence of suspect asbestos-containing materials that were accessible and/or exposed within all areas scheduled for upcoming demolition activities.

Materials which were similar in color, texture, general appearance and which appear to have been installed at the same time were grouped in Homogeneous Sampling Areas. Such materials are termed "homogeneous materials" by the EPA. During this walkthrough, the approximate locations of these homogeneous materials were also noted.

The inspector evaluated the overall condition of the material and determined whether the materials were friable or non-friable by touching the material, where practical. A friable material is defined as any material able to be crushed, crumbled, pulverized or reduced to a powder by hand pressure when dry.

Each material was further assessed for overall condition. Conditions were rated as good, damaged or significantly damaged. TEC's inspector also identified the EPA NESHAP classification of the material based on the materials current condition. TEC's inspector provided estimated quantities of the materials identified as ACM, based only on materials that were accessible and exposed.

A2.3 ASBESTOS SAMPLING PROCEDURES

Following the walkthrough, the Inspector collected samples of suspect materials.

EPA guidelines were used to determine the sampling protocol. Sampling locations were chosen to be representative of the homogeneous sampling area. While an effort was made to collect samples randomly, samples were taken preferentially from areas already damaged or areas which were the least visible to minimize disturbance of the material.

Each sample location was sprayed with amended water and was kept wet during the entire sampling process. Samples were collected by coring through the material from the surface down to the base substrate. All layers of the material were extracted and placed into a sample container for transport to the laboratory. Sample containers were sealed and labeled with a unique sample identification number. Where appropriate, sampled materials were sealed with an encapsulant or covered with tape after sampling. TEC is not responsible for restoring the sampled areas to their pre-sampled condition.

A2.4 ASBESTOS ANALYSIS PROCEDURES

All samples were analyzed by

- APEX Research, Inc.
11054 Hi Tech Drive
Whitmore Lake, Michigan 48189

This Laboratory is National Voluntary Laboratory Accreditation Program (NVLAP) Accredited.

The samples were analyzed for asbestos on a “positive-stop” basis by PLM and in accordance with the “EPA Method for the Determination of Asbestos in Bulk Building Materials” (EPA/600/R-93/116 July 1993). Analysis was performed by observing the bulk samples and slide preparation(s) for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, actinolite/tremolite), and fibrous non-asbestos constituents (mineral wool, fiberglass, cellulose, etc.). Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

Using a stereoscope, the microscopist visually estimated relative amounts of each constituent by determining the volume of each constituent in proportion to the total volume of the sample.

The EPA method allows samples which are visually determined to have less than 10% asbestos to be quantified using a Point Count procedure. An ocular reticule (cross hair or point array) is used to visually superimpose a point or points on the microscope field of view. A total of 400 points superimposed on either asbestos fibers or non-asbestos

matrix material must be counted over at least eight different preparations of representative subsamples. If an asbestos fiber and matrix particle overlap so that a point is superimposed on their visual intersection, a point is scored for both categories. Point counting provides a quantification of the area percent asbestos. Point counted results supersede the results of the visual estimation. 1 sample was point counted for this survey.

It should be noted that some ACM might not be accurately identified or quantified by PLM. As an example, the original fabrication of vinyl floor tiles routinely involved milling of asbestos fibers to extremely small sizes. As a result, these fibers may go undetected under the standard PLM method. Transmission Electron Microscopy (TEM) is recommended for a more definitive analysis of these materials.

A2.4.1 Laboratory Quality Control Program

Each laboratory maintains an in-house quality control program. This program involves blind reanalysis of ten (10) percent of all samples, precision and accuracy controls, and use of standard bulk reference materials. In addition, the Laboratories are accredited by NVLAP, which also has quality control procedures inherent in its program.

A2.5 REGULATORY GUIDELINES:

ACM Definition –

The EPA and OSHA consider a material to be ACM if at least one sample from the homogeneous area shows asbestos in an amount greater than 1%.

Point Count Quantification –

If a material is found to contain less than 1% asbestos via PLM visual estimation, it can be treated as non-ACM per EPA Regulations, if verified to contain 1% or less asbestos by the Point Count Quantification Procedure. If not point counted, a sample in which asbestos was visually detected and estimated (including trace to $\leq 1\%$) must be assumed to be greater than 1% and treated as ACM. Please refer to the laboratory analyses for a more detailed description of the microscopic analysis of individual samples. No samples were quantified by the Point Count Procedure in this Asbestos Survey.

EPA NESHAP Category –

EPA classifies ACM into the following categories:

- **RACM** as defined by the Asbestos NESHAP is any (a) Friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.
- **Category I Non-friable ACM** includes packings, gaskets, resilient floor covering, and asphalt roofing products which contain more than one percent asbestos.
- **Category II Non-friable ACM** includes any material, except for a Category I non-friable ACM, which contains more than one-percent asbestos and cannot be reduced to a powder by hand pressure when dry.

OSHA –

OSHA requires all suspect materials to be analyzed by layer, even materials such as drywall/joint compound, which may sometimes be composited per the EPA. If any layer contains asbestos in a concentration >1%, the material is considered an ACM.

OSHA has a classification system (I thru IV) for ACM depending on the type of material and the disturbance as follows:

- **Class I** work is defined as activities involving the removal of ACM or presumed ACM (PACM) that is thermal system insulation (TSI) and surfacing materials.
- **Class II** activities involve removal of ACM/PACM other than TSI or surfacing material.
- **Class III** work includes repair and maintenance operations which are likely to disturb ACM/PACM.
- **Class IV** work includes maintenance and custodial activities during which employees contact but do not disturb ACM/PACM.

Materials where asbestos is detected, but where point counting is conducted and determined that the concentration is $\leq 1\%$ asbestos, are not considered to be ACM by OSHA. However, these materials are considered unclassified asbestos work per OSHA. Some OSHA work control practices and prohibitions will still apply, with the extent depending on whether the worker's exposure to airborne asbestos exceeds the OSHA permissible exposure limit (PEL).

Additional details of the OSHA asbestos regulations related to the construction industry can be found in 29 CFR Part 1926.1101.

A2.6 QUANTIFICATION

Quantification of suspect ACMs were conducted using visual estimation by an accredited asbestos inspector. This visual estimation was performed in accordance with generally accepted practices in the asbestos industry based on materials that were accessible and exposed. These values are sufficiently accurate for the purpose of documenting the presence of asbestos within its space for the purpose of identifying abatement control conditions or for general policy considerations. Actual quantities may differ between visually estimated values and physical measurements. If a licensed asbestos abatement contractor is engaged to remove the identified ACM, they should be made responsible for verifying reported quantities of ACM.

APPENDIX B

ASBESTOS GLOSSARY OF TERMS

Asbestos Glossary of Terms

-A-

Abatement – The encapsulation, enclosure, removal or repair of a material.

ACM - Asbestos Containing Material. Any material containing greater than 1% asbestos by weight.

Accessible - When referring to ACM, the material is subject to disturbance by occupants or maintenance personnel in the course of their normal activities.

AHERA – The Asbestos Hazard Emergency Response Act (AHERA); Environmental Protection Agency (EPA), 40 CFR 763, Asbestos-Containing Materials in Schools

Asbestos - Any of a group of commercially mined minerals that tend to break into fibers. The regulated asbestos minerals are the serpentine mineral chrysotile and the asbestiform varieties of the amphibole minerals grunerite (amosite), riebeckite (crocidilite), tremolite, actinolite and anthophyllite. Amphibole minerals occur in both the regulated, asbestiform varieties and the non-regulated, non-asbestiform varieties. The fibers are resistant to high temperatures, have high tensile strength, and in some cases can be woven into cloth.

Asbestosis - A chronic fibrosis of the lungs typically caused by prolonged, heavy exposures to asbestos, usually affecting miners, ship-builders and mill-workers. There are different scales of asbestosis but in the worst cases, it will restrict breathing and often be degenerative. It takes between 15 and 30 years for the disease to manifest following exposure to asbestos.

Asbestos Abatement - The encapsulation, enclosure, removal or repair of an asbestos containing material.

Asbestos-containing Construction Material (ACM) - Any manufactured construction material which contains more than one 1-percent asbestos by weight.

-B-

Bulk Sample - A sample of material such as boarding, insulation or debris taken by an accredited surveyor to be tested for asbestos fiber content by an accredited laboratory.

-C-

Category I Nonfriable Asbestos-Containing Material (ACM) - Asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy.

Category II Nonfriable ACM - Any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos as determined by using the methods specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Cementitious - A material that is typically a densely packed granular matrix of sand and limestone and is typically considered, non-friable.

Class I asbestos work - Activities involving the removal of thermal system insulation (TSI) and surfacing ACM and PACM. These types of activities will not be conducted by university employees.

Class II asbestos work - Activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

Class III asbestos work - Repair and maintenance operations, where "ACM" including TSI and surfacing ACM and PACM, is likely to be disturbed.

Class IV asbestos work - Maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

-D-

Damaged Friable Miscellaneous ACM - Friable miscellaneous ACM which has deteriorated or sustained physical injury such that the internal structure (cohesion) of the material is inadequate or, if applicable, which has delaminated such that its bond to the substrate (adhesion) is inadequate or which for any other reason lacks fiber cohesion or adhesion qualities. Such damage or deterioration may be illustrated by the separation of ACM into layers; separation of ACM from the substrate; flaking, blistering, or crumbling of the ACM surface; water damage; significant or repeated water stains, scrapes, gouges, mars or other signs of physical injury on the ACM. Asbestos debris originating from the ACBM in question may also indicated damage.

Damaged Friable Surfacing ACM - Friable surfacing Asbestos Containing Material which has deteriorated or sustained physical injury such that the internal structure (cohesion) of the asbestos material is inadequate or which has delaminated such that its bond to the substrate (adhesion) is inadequate, or which, for any other reason, lacks fiber cohesion or adhesion qualities. Such damage or deterioration may be illustrated by the separation of ACM into layers; separation of ACM from the substrate; flaking, blistering, or crumbling of the ACM surface; water damage; significant or repeat water stains, scrapes, gouges, mares or other signs of physical injury on the ACM. Asbestos debris originating from the ACBM in question may also indicate damage.

Damaged or Significantly Damaged Thermal System Insulation ACM - Thermal system insulation ACM on pipes, boilers, tanks, ducts, and other thermal system insulation equipment where the insulation has lost its structural integrity, or its covering, in whole or in part, is crushed, water stained, gouged, punctured, missing, or not intact such that it is not able to contain fibers. Damage may be further illustrated by occasional punctures, gouges or other signs of physical injury to ACM; occasional water damage on the protective coverings/jackets; or exposed ACM ends or joints. Asbestos debris originating from the ACBM in question may also indicating damage.

Delaminate - To separate into layers. In asbestos terms, to separate from the substrate.

Demolition - Means the wrecking, razing, or removal of any structure or load-supporting structural item of any structure, including any related material handling operations, and includes the intentional burning of any structure.

-E-

EPA - Environmental Protection Agency; a federal government agency dealing with environmental regulations; 401 M Street, S.W., Washington, D.C. 20460.

EPA Regulations - Regulatory standards which cover emissions into the outside environment from a workplace and disposal of hazardous wastes from job sites, as well as, asbestos issues in school buildings.

-F-

Fireproofing – Spray or trowel applied fire resistant materials.

Floor Tile – a flat piece of hard clay, stone, or other material that is used for covering floors.

Friable - Any material that, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure, and includes previously nonfriable material after such previously nonfriable material becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure.

Friable Asbestos - Any material containing more than 1 percent asbestos as determined using Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos content by point counting using PLM.

Functional Space - A room, group of rooms, or homogeneous area (including crawl spaces or the space between a dropped ceiling and the floor or roof deck above) designated by a person accredited to prepare management plans, design asbestos abatement projects, or conduct asbestos response actions.

-G, H-

Homogenous - Evenly mixed and similar in appearance and texture throughout.

Homogeneous Area - An area of surfacing material, thermal system insulation material, or miscellaneous material that is uniform in color and texture.

-I-

In Poor Condition - The binding of the asbestos containing material is losing its integrity as indicated by peeling, cracking, or crumbling of the material.

Installation - Any building or structure or any group of buildings or structures at a single demolition or renovation site that are under the control of the same owner or operator (or owner or operator under common control).

Inspector - Means an individual who is trained and licensed by the appropriate local, state or federal Department to identify and assess the condition of ACM. Inspectors shall perform their duties in accordance with the techniques, knowledge, training and responsibilities outlined in the appropriate OSHA and EPA regulations.

Intact - ACM that has not been crumbled, pulverized, or otherwise deteriorated.

-J, K, L-

License - Means an authorization issued by the appropriate local, state or federal Department permitting a business entity to engage in an asbestos project.

Linoleum - a material consisting of a canvas backing thickly coated with a preparation of linseed oil and powdered cork, used especially as a floor covering; includes

-M-

MIOSHA – Michigan Occupational Safety and Health Administration.

Miscellaneous ACM - Miscellaneous material that is an 'asbestos containing material' in a building.

Miscellaneous Material - Interior building material on structural components, structural members or fixtures, such as floor and ceiling tiles, and does not include surfacing material or thermal system insulation.

-N-

Non-friable - Material which when dry may not be crumbled, pulverized, or reduced to powder by hand pressure.

Non-friable Asbestos Containing Material (Non friable ACM) - Any material containing more than 1 percent asbestos as determined using Polarized Light Microscopy, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

-O-

OSHA – the Occupational Health and Safety Administration.

-P-

P.P.E. - Personal Protective Equipment worn to protect a worker from exposure to, or contact with, any harmful material or force. Such as overalls, masks, gloves, safety glasses, steel-toed boots, hearing protection, cool collars, etc.

-Q-

Quantity – all quantities should be considered as estimates.

-R-

Random Sample - An asbestos sample drawn in such a way that there is no set pattern and is designed to give a true representation of the entire area.

Regulated Asbestos-Containing Material (RACM) - Means (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder

by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

Removal - All operations where ACM and/or PACM is taken out or stripped from structures or substrates, including demolition operations.

Remove (Asbestos) - To take out RACM or facility components that contain or are covered with RACM from any facility.

-S-

Significantly Damaged Friable Miscellaneous ACM - Damaged friable miscellaneous Asbestos Containing Material where the damage is extensive and severe.

Structure or Structural Item - Means roofs, walls, ceilings, floors, structural supports, pipes, ducts, fittings and fixtures that have been installed as an integral part of any structure.

Surfacing material - Material that is sprayed, troweled-on or applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members).

Surfacing ACM - Surfacing material which contains more than 1% asbestos.

Suspect Material - Material with the potential for being asbestos containing: synonymous with "presumed asbestos-containing material" (PACM).

-T-

Test Till Positive (TTP) or First Positive Stop (FPS) Sample Analysis – a bulk sample direction given to the laboratory by the asbestos surveyors to instruct the laboratory to stop analyzing multiple samples of the same material after the first sample comes back positive for asbestos. This is most typically utilized to minimize costs.

Thermal System Insulation - Material applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat loss or gain, or water condensation, or for other purposes.

Thermal System Insulation ACM - Thermal system insulation that is an Asbestos Containing Material.

-U, V, W, X, Y, Z -

USEPA (EPA) - United States Environmental Protection Agency

Vermiculite - A micaceous mineral that is sometimes used as a substitute for asbestos which is lightweight and highly water-absorbent.

APPENDIX C

OSHA ABATEMENT PROCEDURES

- Part Number: 1926
- Part Title: Safety and Health Regulations for Construction
 - Subpart: Z
 - Subpart Title: Toxic and Hazardous Substances
 - Standard Number: [1926.1101](#)
 - Title: Asbestos

The following excerpts are taken from the subject Regulation identified above; they are provided to provide work practice guidance with respect to asbestos abatement of the materials identified in the assessment. This section is not a replacement for the entire regulation nor is it a replacement for a project specification; it is a guidance document only. The tables identify an OSHA Class designation for each asbestos containing material identified; those Classes and their respective abatement methods are identified in the following:

[1926.1101\(e\)\(1\)](#)

All **Class I, II and III** asbestos work shall be conducted within regulated areas. All other operations covered by this standard shall be conducted within a regulated area where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed a PEL. Regulated areas shall comply with the requirements of paragraphs (2), (3),(4) and (5) of this section.

1926.1101(e)(2)

Demarcation. The regulated area shall be demarcated in any manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne asbestos. Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area. Signs shall be provided and displayed pursuant to the requirements of paragraph (k)(7) of this section.

1926.1101(e)(3)

Access. Access to regulated areas shall be limited to authorized persons and to persons authorized by the Act or regulations issued pursuant thereto.

1926.1101(e)(4)

Respirators. All persons entering a regulated area where employees are required pursuant to paragraph (h)(1) of this section to wear respirators shall be supplied with a respirator selected in accordance with paragraph (h)(2) of this section.

1926.1101(e)(5)

Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area.

1926.1101(e)(6)

Competent Persons. The employer shall ensure that all asbestos work performed within regulated areas is supervised by a competent person, as defined in paragraph (b) of this section. The duties of the competent person are set out in paragraph (o) of this section.

1926.1101(g)

Methods of compliance.

1926.1101(g)(1)

Engineering controls and work practices for all operations covered by this section. The employer shall use the following engineering controls and work practices in all operations covered by this section, regardless of the levels of exposure:

1926.1101(g)(1)(i)

Vacuum cleaners equipped with HEPA filters to collect all debris and dust containing ACM and PACM, except as provided in paragraph (g)(8)(ii) of this section in the case of roofing material.

1926.1101(g)(1)(ii)

Wet methods, or wetting agents, to control employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup, except where employers demonstrate that the use of wet methods is infeasible due to for example, the creation of electrical hazards, equipment malfunction, and, in roofing, except as provide in paragraph (g)(8)(ii) of this section; and

1926.1101(g)(1)(iii)

Prompt clean-up and disposal of wastes and debris contaminated with asbestos in leak-tight containers except in roofing operations, where the procedures specified in paragraph (g)(8)(ii) of this section apply.

1926.1101(g)(2)

In addition to the requirements of paragraph (g)(1) of this section, the employer shall use the following control methods to achieve compliance with the TWA permissible exposure limit and excursion limit prescribed by paragraph (c) of this section;

1926.1101(g)(2)(i)

Local exhaust ventilation equipped with HEPA filter dust collection systems;

1926.1101(g)(2)(ii)

Enclosure or isolation of processes producing asbestos dust;

1926.1101(g)(2)(iii)

Ventilation of the regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter;

1926.1101(g)(2)(iv)

Use of other work practices and engineering controls that the Assistant Secretary can show to be feasible.

1926.1101(g)(2)(v)

Wherever the feasible engineering and work practice controls described above are not sufficient to reduce employee exposure to or below the permissible exposure limit and/or excursion limit prescribed in paragraph (c) of this section, the employer shall use them to reduce employee exposure to the lowest levels attainable by these controls and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (h) of this section.

1926.1101(g)(3)

Prohibitions. The following work practices and engineering controls shall not be used for work related to asbestos or for work which disturbs ACM or PACM, regardless of measured levels of asbestos exposure or the results of initial exposure assessments:

1926.1101(g)(3)(i)

High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.

1926.1101(g)(3)(ii)

Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.

1926.1101(g)(3)(iii)

Dry sweeping, shoveling or other dry clean-up of dust and debris containing ACM and PACM.

1926.1101(g)(3)(iv)

Employee rotation as a means of reducing employee exposure to asbestos.

1926.1101(g)(4)

Class I Requirements. In addition to the provisions of paragraphs (g)(1) and (2) of this section, the following engineering controls and work practices and procedures shall be used.

1926.1101(g)(4)(i)

All **Class I** work, including the installation and operation of the control system shall be supervised by a competent person as defined in paragraph (b) of this section;

1926.1101(g)(4)(ii)

For all **Class I** jobs involving the removal of more than 25 linear or 10 square feet of thermal system insulation or surfacing material; for all other **Class I** jobs, where the employer cannot produce a negative exposure assessment pursuant to paragraph (f)(2)(iii) of this section, or where employees are working in

areas adjacent to the regulated area, while the **Class I** work is being performed, the employer shall use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area:

1926.1101(g)(4)(ii)(A)

Critical barriers shall be placed over all the openings to the regulated area, except where activities are performed outdoors; or

1926.1101(g)(4)(ii)(B)

The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area surveillance during each work shift at each boundary of the regulated area, showing no visible asbestos dust; and perimeter area monitoring showing that clearance levels contained in 40 CFR Part 763, Subpt. E, of the EPA Asbestos in Schools Rule are met, or that perimeter area levels, measured by Phase Contrast Microscopy (PCM) are no more than background levels representing the same area before the asbestos work began. The results of such monitoring shall be made known to the employer no later than 24 hours from the end of the work shift represented by such monitoring. Exception: For work completed outdoors where employees are not working in areas adjacent to the regulated areas, this paragraph (g)(4)(ii) is satisfied when the specific control methods in paragraph (g)(5) of this section are used.

1926.1101(g)(4)(iii)

For all **Class I** jobs, HVAC systems shall be isolated in the regulated area by sealing with a double layer of 6 mil plastic or the equivalent;

1926.1101(g)(4)(iv)

For all **Class I** jobs, impermeable dropcloths shall be placed on surfaces beneath all removal activity;

1926.1101(g)(4)(v)

For all **Class I** jobs, all objects within the regulated area shall be covered with impermeable dropcloths or plastic sheeting which is secured by duct tape or an equivalent.

1926.1101(g)(4)(vi)

For all **Class I** jobs where the employer cannot produce a negative exposure assessment, or where exposure monitoring shows that a PEL is exceeded, the employer shall ventilate the regulated area to move contaminated air away from the breathing zone of employees toward a HEPA filtration or collection device.

1926.1101(g)(5)

*Specific control methods for **Class I** work.* In addition, **Class I** asbestos work shall be performed using one or more of the following control methods pursuant to the limitations stated below:

1926.1101(g)(5)(i)

Negative Pressure Enclosure (NPE) systems: NPE systems may be used where the configuration of the work area does not make the erection of the enclosure infeasible, with the following specifications and work practices.

1926.1101(g)(5)(i)(A)

Specifications:

1926.1101(g)(5)(i)(A)(1)

The negative pressure enclosure (NPE) may be of any configuration,

1926.1101(g)(5)(i)(A)(2)

At least 4 air changes per hour shall be maintained in the NPE,

1926.1101(g)(5)(i)(A)(3)

A minimum of -0.02 column inches of water pressure differential, relative to outside pressure, shall be maintained within the NPE as evidenced by manometric measurements,

1926.1101(g)(5)(i)(A)(4)

The NPE shall be kept under negative pressure throughout the period of its use, and

1926.1101(g)(5)(i)(A)(5)

Air movement shall be directed away from employees performing asbestos work within the enclosure, and toward a HEPA filtration or a collection device.

1926.1101(g)(5)(i)(B)

Work Practices:

1926.1101(g)(5)(i)(B)(1)

Before beginning work within the enclosure and at the beginning of each shift, the NPE shall be inspected for breaches and smoke-tested for leaks, and any leaks sealed.

1926.1101(g)(5)(i)(B)(2)

Electrical circuits in the enclosure shall be deactivated, unless equipped with ground-fault circuit interrupters.

1926.1101(g)(5)(ii)

Glove bag systems may be used to remove PACM and/or ACM from straight runs of piping and elbows and other connections with the following specifications and work practices:

1926.1101(g)(5)(ii)(A)

Specifications:

1926.1101(g)(5)(ii)(A)(1)

Glovebags shall be made of 6 mil thick plastic and shall be seamless at the bottom.

1926.1101(g)(5)(ii)(A)(2)

Glovebags used on elbows and other connections must be designed for that purpose and used without modifications.

1926.1101(g)(5)(ii)(B)

Work Practices:

1926.1101(g)(5)(ii)(B)(1)

Each glovebag shall be installed so that it completely covers the circumference of pipe or other structure where the work is to be done.

1926.1101(g)(5)(ii)(B)(2)

Glovebags shall be smoke-tested for leaks and any leaks sealed prior to use.

1926.1101(g)(5)(ii)(B)(3)

Glovebags may be used only once and may not be moved.

1926.1101(g)(5)(ii)(B)(4)

Glovebags shall not be used on surfaces whose temperature exceeds 150 deg. F.

1926.1101(g)(5)(ii)(B)(5)

Prior to disposal, glovebags shall be collapsed by removing air within them using a HEPA vacuum.

1926.1101(g)(5)(ii)(B)(6)

Before beginning the operation, loose and friable material adjacent to the glovebag/box operation shall be wrapped and sealed in two layers of six mil plastic or otherwise rendered intact,

1926.1101(g)(5)(ii)(B)(7)

Where system uses attached waste bag, such bag shall be connected to collection bag using hose or other material which shall withstand pressure of ACM waste and water without losing its integrity:

1926.1101(g)(5)(ii)(B)(8)

Sliding valve or other device shall separate waste bag from hose to ensure no exposure when waste bag is disconnected:

1926.1101(g)(5)(ii)(B)(9)

At least two persons shall perform **Class I** glovebag removal operations.

1926.1101(g)(5)(iii)

Negative Pressure Glove Bag Systems. Negative pressure glove bag systems may be used to remove ACM or PACM from piping.

1926.1101(g)(5)(iii)(A)

Specifications: In addition to specifications for glove bag systems above, negative pressure glove bag systems shall attach HEPA vacuum systems or other devices to bag to prevent collapse during removal.

1926.1101(g)(5)(iii)(B)

Work Practices:

1926.1101(g)(5)(iii)(B)(1)

The employer shall comply with the work practices for glove bag systems in paragraph (g)(5)(ii)(B)(4) of this section.

1926.1101(g)(5)(iii)(B)(2)

The HEPA vacuum cleaner or other device used to prevent collapse of bag during removal shall run continually during the operation until it is completed at which time the bag shall be collapsed prior to removal of the bag from the pipe.

1926.1101(g)(5)(iii)(B)(3)

Where a separate waste bag is used along with a collection bag and discarded after one use, the collection bag may be reused if rinsed clean with amended water before reuse.

1926.1101(g)(5)(iv)

Negative Pressure Glove Box Systems: Negative pressure glove boxes may be used to remove ACM or PACM from pipe runs with the following specifications and work practices.

1926.1101(g)(5)(iv)(A)

Specifications:

1926.1101(g)(5)(iv)(A)(1)

Glove boxes shall be constructed with rigid sides and made from metal or other material which can withstand the weight of the ACM and PACM and water used during removal:

1926.1101(g)(5)(iv)(A)(2)

A negative pressure generator shall be used to create negative pressure in the system:

1926.1101(g)(5)(iv)(A)(3)

An air filtration unit shall be attached to the box:

1926.1101(g)(5)(iv)(A)(4)

The box shall be fitted with gloved apertures:

1926.1101(g)(5)(iv)(A)(5)

An aperture at the base of the box shall serve as a bagging outlet for waste ACM and water:

1926.1101(g)(5)(iv)(A)(6)

A back-up generator shall be present on site:

1926.1101(g)(5)(iv)(A)(7)

Waste bags shall consist of 6 mil thick plastic double-bagged before they are filled or plastic thicker than 6 mil.

1926.1101(g)(5)(iv)(B)

Work practices:

1926.1101(g)(5)(iv)(B)(1)

At least two persons shall perform the removal:

1926.1101(g)(5)(iv)(B)(2)

The box shall be smoke-tested for leaks and any leaks sealed prior to each use:

1926.1101(g)(5)(iv)(B)(3)

Loose or damaged ACM adjacent to the box shall be wrapped and sealed in two layers of 6 mil plastic prior to the job, or otherwise made intact prior to the job.

1926.1101(g)(5)(iv)(B)(4)

A HEPA filtration system shall be used to maintain pressure barrier in box.

1926.1101(g)(5)(v)

Water Spray Process System. A water spray process system may be used for removal of ACM and PACM from cold line piping if, employees carrying out such process have completed a 40-hour separate training course in its use, in addition to training required for employees performing **Class I** work. The system shall meet the following specifications and shall be performed by employees using the following work practices.

1926.1101(g)(5)(v)(A)

Specifications:

1926.1101(g)(5)(v)(A)(1)

Piping shall be surrounded on 3 sides by rigid framing,

1926.1101(g)(5)(v)(A)(2)

A 360 degree water spray, delivered through nozzles supplied by a high pressure separate water line, shall be formed around the piping.

1926.1101(g)(5)(v)(A)(3)

The spray shall collide to form a fine aerosol which provides a liquid barrier between workers and the ACM and PACM.

1926.1101(g)(5)(v)(B)

Work Practices:

1926.1101(g)(5)(v)(B)(1)

The system shall be run for at least 10 minutes before removal begins.

1926.1101(g)(5)(v)(B)(2)

All removal shall take place within the water barrier.

1926.1101(g)(5)(v)(B)(3)

The system shall be operated by at least three persons, one of whom shall not perform removal, but shall check equipment, and ensure proper operation of the system.

1926.1101(g)(5)(v)(B)(4)

After removal, the ACM and PACM shall be bagged while still inside the water barrier.

1926.1101(g)(5)(vi)

A small walk-in enclosure which accommodates no more than two persons (mini-enclosure) may be used if the disturbance or removal can be completely contained by the enclosure with the following specifications and work practices.

1926.1101(g)(5)(vi)(A)

Specifications:

1926.1101(g)(5)(vi)(A)(1)

The fabricated or job-made enclosure shall be constructed of 6 mil plastic or equivalent:

1926.1101(g)(5)(vi)(A)(2)

The enclosure shall be placed under negative pressure by means of a HEPA filtered vacuum or similar ventilation unit:

1926.1101(g)(5)(vi)(B)

Work practices:

1926.1101(g)(5)(vi)(B)(1)

Before use, the mini-enclosure shall be inspected for leaks and smoke-tested to detect breaches, and breaches sealed.

1926.1101(g)(5)(vi)(B)(2)

Before reuse, the interior shall be completely washed with amended water and HEPA-vacuumed.

1926.1101(g)(5)(vi)(B)(3)

During use, air movement shall be directed away from the employee's breathing zone within the mini-enclosure.

1926.1101(g)(6)

Alternative control methods for Class I work. **Class I** work may be performed using a control method which is not referenced in paragraph (g)(5) of this section, or which modifies a control method referenced in paragraph (g)(5) of this section, if the following provisions are complied with:

1926.1101(g)(6)(i)

The control method shall enclose, contain or isolate the processes or source of airborne asbestos dust, or otherwise capture or redirect such dust before it enters the breathing zone of employees.

1926.1101(g)(6)(ii)

A certified industrial hygienist or licensed professional engineer who is also qualified as a project designer as defined in paragraph (b) of this section, shall evaluate the work area, the projected work practices and the engineering controls and shall certify in writing that the planned control method is adequate to reduce direct and indirect employee exposure to below the PELs under worst-case conditions of use, and that the planned control method will prevent asbestos contamination outside the regulated area, as measured by clearance sampling which meets the requirements of EPA's Asbestos in Schools rule issued under AHERA, or perimeter monitoring which meets the criteria in paragraph (g)(4)(ii)(B) of this section.

1926.1101(g)(6)(ii)(A)

Where the TSI or surfacing material to be removed is 25 linear or 10 square feet or less, the evaluation required in paragraph (g)(6) of this section may be performed by a "competent person", and may omit consideration of perimeter or clearance monitoring otherwise required.

1926.1101(g)(6)(ii)(B)

The evaluation of employee exposure required in paragraph (g)(6) of this section, shall include and be based on sampling and analytical data representing employee exposure during the use of such method under worst-case conditions and by employees whose training and experience are equivalent to employees who are to perform the current job.

1926.1101(g)(7)

Work Practices and Engineering Controls for **Class II** work.

1926.1101(g)(7)(i)

All **Class II** work shall be supervised by a competent person as defined in paragraph (b) of this section.

1926.1101(g)(7)(ii)

For all indoor **Class II** jobs, where the employer has not produced a negative exposure assessment pursuant to paragraph (f)(2)(iii) of this section, or where during the job, changed conditions indicate there may be exposure above the PEL or where the employer does not remove the ACM in a

substantially intact state, the employer shall use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area;

1926.1101(g)(7)(ii)(A)

Critical barriers shall be placed over all openings to the regulated area; or,

1926.1101(g)(7)(ii)(B)

The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area monitoring or clearance monitoring which meets the criteria set out in paragraph (g)(4)(ii)(B) of this section.

1926.1101(g)(7)(ii)(C)

Impermeable dropcloths shall be placed on surfaces beneath all removal activity;

1926.1101(g)(7)(iii)

[Reserved]

1926.1101(g)(7)(iv)

All **Class II** asbestos work shall be performed using the work practices and requirements set out above in paragraph (g)(1)(i) through (g)(1)(iii) of this section.

1926.1101(g)(8)

*Additional Controls for **Class II** work.* **Class II** asbestos work shall also be performed by complying with the work practices and controls designated for each type of asbestos work to be performed, set out in this paragraph. Where more than one control method may be used for a type of asbestos work, the employer may choose one or a combination of designated control methods. **Class II** work also may be performed using a method allowed for **Class I** work, except that glove bags and glove boxes are allowed if they fully enclose the **Class II** material to be removed.

1926.1101(g)(8)(i)

For removing vinyl and asphalt flooring materials which contain ACM or for which in buildings constructed no later than 1980, the employer has not verified the absence of ACM pursuant to paragraph (g)(8)(i)(I) of this section. The employer shall ensure that employees comply with the following work practices and that employees are trained in these practices pursuant to paragraph (k)(9):

1926.1101(g)(8)(i)(A)

Flooring or its backing shall not be sanded.

1926.1101(g)(8)(i)(B)

Vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) shall be used to clean floors.

1926.1101(g)(8)(i)(C)

Resilient sheeting shall be removed by cutting with wetting of the snip point and wetting during delamination. Rip-up of resilient sheet floor material is prohibited.

1926.1101(g)(8)(i)(D)

All scraping of residual adhesive and/or backing shall be performed using wet methods.

1926.1101(g)(8)(i)(E)

Dry sweeping is prohibited.

1926.1101(g)(8)(i)(F)

Mechanical chipping is prohibited unless performed in a negative pressure enclosure which meets the requirements of paragraph (g)(5)(i) of this section.

1926.1101(g)(8)(i)(G)

Tiles shall be removed intact, unless the employer demonstrates that intact removal is not possible.

1926.1101(g)(8)(i)(H)

When tiles are heated and can be removed intact, wetting may be omitted.

1926.1101(g)(8)(i)(I)

Resilient flooring material including associated mastic and backing shall be assumed to be asbestos-containing unless an industrial hygienist determines that it is asbestos-free using recognized analytical techniques.

1926.1101(g)(8)(ii)

For removing roofing material which contains ACM the employer shall ensure that the following work practices are followed:

1926.1101(g)(8)(ii)(A)

Roofing material shall be removed in an intact state to the extent feasible.

1926.1101(g)(8)(ii)(B)

Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such wet methods are not feasible or will create safety hazards.

1926.1101(g)(8)(ii)(C)

Cutting machines shall be continuously misted during use, unless a competent person determines that misting substantially decreases worker safety.

1926.1101(g)(8)(ii)(D)

When removing built-up roofs with asbestos-containing roofing felts and an aggregate surface using a power roof cutter, all dust resulting from the cutting operation shall be collected by a HEPA dust collector, or shall be HEPA vacuumed by vacuuming along the cut line. When removing built-up roofs

with asbestos-containing roofing felts and a smooth surface using a power roof cutter, the dust resulting from the cutting operation shall be collected either by a HEPA dust collector or HEPA vacuuming along the cut line, or by gently sweeping and then carefully and completely wiping up the still-wet dust and debris left along the cut line.

1926.1101(g)(8)(ii)(E)

Asbestos-containing material that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane or hoist:

1926.1101(g)(8)(ii)(E)(1)

Any ACM that is not intact shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift. While the material remains on the roof it shall either be kept wet, placed in an impermeable waste bag, or wrapped in plastic sheeting.

1926.1101(g)(8)(ii)(E)(2)

Intact ACM shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift.

1926.1101(g)(8)(ii)(F)

Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such manner so as to preclude the dispersion of dust.

1926.1101(g)(8)(ii)(G)

Roof level heating and ventilation air intake sources shall be isolated or the ventilation system shall be shut down.

1926.1101(g)(8)(ii)(H)

Notwithstanding any other provision of this section, removal or repair of sections of intact roofing less than 25 square feet in area does not require use of wet methods or HEPA vacuuming as long as manual methods which do not render the material non-intact are used to remove the material and no visible dust is created by the removal method used. In determining whether a job involves less than 25 square feet, the employer shall include all removal and repair work performed on the same roof on the same day.

1926.1101(g)(8)(iii)

When removing cementitious asbestos-containing siding and shingles or transite panels containing ACM on building exteriors (other than roofs, where paragraph (g)(8)(ii) of this section applies) the employer shall ensure that the following work practices are followed:

1926.1101(g)(8)(iii)(A)

Cutting, abrading or breaking siding, shingles, or transite panels, shall be prohibited unless the employer can demonstrate that methods less likely to result in asbestos fiber release cannot be used.

1926.1101(g)(8)(iii)(B)

Each panel or shingle shall be sprayed with amended water prior to removal.

1926.1101(g)(8)(iii)(C)

Unwrapped or unbagged panels or shingles shall be immediately lowered to the ground via covered dust-tight chute, crane or hoist, or placed in an impervious waste bag or wrapped in plastic sheeting and lowered to the ground no later than the end of the work shift.

1926.1101(g)(8)(iii)(D)

Nails shall be cut with flat, sharp instruments.

1926.1101(g)(8)(iv)

When removing gaskets containing ACM, the employer shall ensure that the following work practices are followed:

1926.1101(g)(8)(iv)(A)

If a gasket is visibly deteriorated and unlikely to be removed intact, removal shall be undertaken within a glovebag as described in paragraph (g)(5)(ii) of this section.

1926.1101(g)(8)(iv)(B)

[Reserved]

1926.1101(g)(8)(iv)(C)

The gasket shall be immediately placed in a disposal container.

1926.1101(g)(8)(iv)(D)

Any scraping to remove residue must be performed wet.

1926.1101(g)(8)(v)

When performing any other **Class II** removal of asbestos containing material for which specific controls have not been listed in paragraph (g)(8)(iv)(A) through (D) of this section, the employer shall ensure that the following work practices are complied with.

1926.1101(g)(8)(v)(A)

The material shall be thoroughly wetted with amended water prior to and during its removal.

1926.1101(g)(8)(v)(B)

The material shall be removed in an intact state unless the employer demonstrates that intact removal is not possible.

1926.1101(g)(8)(v)(C)

Cutting, abrading or breaking the material shall be prohibited unless the employer can demonstrate that methods less likely to result in asbestos fiber release are not feasible.

1926.1101(g)(8)(v)(D)

Asbestos-containing material removed, shall be immediately bagged or wrapped, or kept wetted until transferred to a closed receptacle, no later than the end of the work shift.

1926.1101(g)(8)(vi)

Alternative Work Practices and Controls. Instead of the work practices and controls listed in paragraph (g)(8)(i) through (v) of this section, the employer may use different or modified engineering and work practice controls if the following provisions are complied with.

1926.1101(g)(8)(vi)(A)

The employer shall demonstrate by data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used, that employee exposure will not exceed the PELs under any anticipated circumstances.

1926.1101(g)(8)(vi)(B)

A competent person shall evaluate the work area, the projected work practices and the engineering controls, and shall certify in writing, that the different or modified controls are adequate to reduce direct and indirect employee exposure to below the PELs under all expected conditions of use and that the method meets the requirements of this standard. The evaluation shall include and be based on data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used for the current job, and by employees whose training and experience are equivalent to employees who are to perform the current job.

1926.1101(g)(9)

*Work Practices and Engineering Controls for **Class III** asbestos work.* **Class III** asbestos work shall be conducted using engineering and work practice controls which minimize the exposure to employees performing the asbestos work and to bystander employees.

1926.1101(g)(9)(i)

The work shall be performed using wet methods.

1926.1101(g)(9)(ii)

To the extent feasible, the work shall be performed using local exhaust ventilation.

1926.1101(g)(9)(iii)

Where the disturbance involves drilling, cutting, abrading, sanding, chipping, breaking, or sawing of thermal system insulation or surfacing material, the employer shall use impermeable dropcloths, and shall isolate the operation using mini-enclosures or glove bag systems pursuant to paragraph (g)(5) of this section or another isolation method.

1926.1101(g)(9)(iv)

Where the employer does not produce a "negative exposure assessment" for a job, or where monitoring results show the PEL has been exceeded, the employer shall contain the area using impermeable

dropcloths and plastic barriers or their equivalent, or shall isolate the operation using a control system listed in and in compliance with paragraph (g)(5) of this section.

1926.1101(g)(9)(v)

Employees performing **Class III** jobs, which involve the disturbance of thermal system insulation or surfacing material, or where the employer does not produce a "negative exposure assessment" or where monitoring results show a PEL has been exceeded, shall wear respirators which are selected, used and fitted pursuant to provisions of paragraph (h) of this section.

1926.1101(g)(10)

Class IV asbestos work. **Class IV** asbestos jobs shall be conducted by employees trained pursuant to the asbestos awareness training program set out in paragraph (k)(9) of this section. In addition, all **Class IV** jobs shall be conducted in conformity with the requirements set out in paragraph (g)(1) of this section, mandating wet methods, HEPA vacuums, and prompt clean up of debris containing ACM or PACM.

1926.1101(g)(10)(i)

Employees cleaning up debris and waste in a regulated area where respirators are required shall wear respirators which are selected, used and fitted pursuant to provisions of paragraph (h) of this section.

1926.1101(g)(10)(ii)

Employers of employees who clean up waste and debris in, and employers in control of, areas where friable thermal system insulation or surfacing material is accessible, shall assume that such waste and debris contain asbestos.

APPENDIX D

ASBESTOS SAMPLE LOG/CHAIN OF CUSTODY



Testing Engineers and Consultants, Inc.
 1343 Rochester Road
 Troy, Michigan 4083-6015
 Phone: 248.585.6200; Fax 248.585.9519

CHAIN OF CUSTODY

Client Name: Flushing Twp.
 Address:
 City, St., Zip

Date of Survey: 3-12-2025
 Project Name: 10237 W. Coldwater Rd - ACM
 Project Number: 64823
 Contact Person: see circled below*

Apex # **116573**

TURN AROUND TIME

Analytical Method(s) Requested:

Rush	24 Hour	X	Asbestos:	Bulk	X	Wipe	Pnt. Cnt.	7%	PCM
48 Hour	72 Hour		Lead:	Bulk		Wipe	Air	Paint	Soil
Other	TTP	X	Mold:	Bulk		Tape	BioCell	BioSlts	Other
			TEM:	AHERA	7400		Bulk/NOB	EPA	Level II

Lab ID#	Client ID #	Material/Description	Volume/Area/Location	Results
	1A-B	Drywall w/ Joint Compound + Tape (White/Grey)		
	2A-B	Ceiling Board (Tan)		
	3A-B	Construction Adhesive (Brown)		
	4A-B	Floor Sheeting (Faux wood)		
	5A-B	Smk Undercut (Black)		
	6A-B	Floor Sheeting (cream/green Pattern)		
	7A	Fiberglass Insulation (Pink)		
	8A-B	CMU w/ Mortar (Grey)		
	9A-B	Vapor Barrier (Black)		
	10A-B	Roof Shingles (Black)		
	11A-B	Roof Shingles (Black/Brown)		
	12A-B	Roof Shingles (Black/Brown)		
RECEIVED				

Relinquished
 By: [Signature]
 Date: 3-13-2025

Received By: MAR 17 2025 KI
 Date: 1:30

Relinquished
 By: _____
 Date: _____

Received
 By: _____
 Date: _____

APEX RESEARCH

*jkonrad@tectest.com; mkonrad@tectest.com; jllkonrad@tectest.com; jllallach@tectest.com; eklemann@tectest.com; ihdepartment123456@gmail.com

z.lme@tectest.com

APPENDIX E

**REPORT OF BULK SAMPLE ANALYSIS
FOR ASBESTOS**

Certificate of Laboratory Analysis
Test Method, Polarized Light Microscopy (PLM)
 Project: 10237 W. Coldwater Rd. - ACM
 Project #: 64823



Report To:

Mr. Joe Konrad
 Testing Engineers & Consultants, Inc.
 1343 Rochester Road
 Troy, MI 48083

ARI Report # 25-116573
 Date Collected: 03/12/25
 Date Received: 03/17/25
 Date Analyzed: 03/17/25
 Date Reported: 03/18/25

Sample Information	Asbestos Type/Percent	Non-Asbestos Material
Lab ID #: 116573 - 01 Cust. #: 1A Material: Drywall (Grey) Location: Appearance: beige, fibrous, nonhomogenous Layer: 1 of 2	Asbestos Present: NO No Asbestos Observed	Cellulose - 20% Other - 80%
Lab ID #: 116573 - 01a Cust. #: 1A Material: Joint Compound (White) Location: Appearance: white, nonfibrous, homogenous Layer: 2 of 2	Asbestos Present: NO No Asbestos Observed	Other - 100%
Lab ID #: 116573 - 02 Cust. #: 1B Material: Drywall (Grey) Location: Appearance: beige, fibrous, nonhomogenous Layer: 1 of 2	Asbestos Present: NO No Asbestos Observed	Cellulose - 20% Other - 80%

For Layered Samples, each component will be analyzed and reported separately.

Robert T. Letarte Jr., Laboratory Director

Test Method EPA 40 CFR - Part 763 and/or EPA 600/R-93/116 was used to analyze the above samples. Matrix interference and/or resolution limits may yield false/negative results in certain circumstances. Suspect floor tiles containing <1% should be tested with SEM or TEM. This certificate of analysis relates only to the samples as submitted and to insure the integrity of the results, may only be reproduced in full. This certificate must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. Liability limited to cost of analysis.



NVLAP Lab Code 102118-0

APEX Research Inc., 7717 Kensington Ct., Brighton, MI 48116
 (734) 449-9990, Fax (734) 449-9991

Certificate of Laboratory Analysis
Test Method, Polarized Light Microscopy (PLM)
 Project: 10237 W. Coldwater Rd. - ACM
 Project #: 64823



Report To:

Mr. Joe Konrad
 Testing Engineers & Consultants, Inc.
 1343 Rochester Road
 Troy, MI 48083

ARI Report # 25-116573
 Date Collected: 03/12/25
 Date Received: 03/17/25
 Date Analyzed: 03/17/25
 Date Reported: 03/18/25

Sample Information	Asbestos Type/Percent	Non-Asbestos Material
Lab ID #: 116573 - 02a Cust. #: 1B Material: Joint Compound (White) Location: Appearance: white,nonfibrous,homogenous Layer: 2 of 2	Asbestos Present: NO No Asbestos Observed	Other - 100%
Lab ID #: 116573 - 03 Cust. #: 2A Material: Ceiling Board (Tan) Location: Appearance: brown,fibrous,homogenous Layer: 1 of 1	Asbestos Present: NO No Asbestos Observed	Cellulose - 95% Other - 5%
Lab ID #: 116573 - 04 Cust. #: 2B Material: Ceiling Board (Tan) Location: Appearance: brown,fibrous,homogenous Layer: 1 of 1	Asbestos Present: NO No Asbestos Observed	Cellulose - 95% Other - 5%

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Robert T. Letarte Jr., Laboratory Director

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ARI Report # 25-116573
 Date Collected: 03/12/25
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 Date Reported: 03/18/25

Sample Information	Asbestos Type/Percent	Non-Asbestos Material
Lab ID #: 116573 - 05 Cust. #: 3A Material: Construction Adhesive (Brown) Location: Appearance: brown,nonfibrous,homogenous Layer: 1 of 1	Asbestos Present: NO No Asbestos Observed	Other - 100%
Lab ID #: 116573 - 06 Cust. #: 3B Material: Construction Adhesive (Brown) Location: Appearance: brown,nonfibrous,homogenous Layer: 1 of 1	Asbestos Present: NO No Asbestos Observed	Other - 100%
Lab ID #: 116573 - 07 Cust. #: 4A Material: Floor Sheeting (Faux Wood) Location: Appearance: brown,fibrous,homogenous Layer: 1 of 1	Asbestos Present: NO No Asbestos Observed	Fiberglass - 10% Other - 90%

For Layered Samples, each component will be analyzed and reported separately.

Robert T. Letarte Jr., Laboratory Director

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 Testing Engineers & Consultants, Inc.
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 Troy, MI 48083

ARI Report # 25-116573
 Date Collected: 03/12/25
 Date Received: 03/17/25
 Date Analyzed: 03/17/25
 Date Reported: 03/18/25

Sample Information	Asbestos Type/Percent	Non-Asbestos Material
Lab ID #: 116573 - 08 Cust. #: 4B Material: Floor Sheeting (Faux Wood) Location: Appearance: brown, fibrous, homogenous Layer: 1 of 1	Asbestos Present: NO No Asbestos Observed	Fiberglass - 10% Other - 90%
Lab ID #: 116573 - 09 Cust. #: 5A Material: Sink Undercoat (Black) Location: Appearance: black, fibrous, homogenous Layer: 1 of 1	Asbestos Present: YES Chrysotile - 1.75% POINT COUNT RESULT	Other - 98.25%
Lab ID #: 116573 - 10 Cust. #: 5B Material: Sink Undercoat (Black) Location: Appearance: Layer: 1 of 1	Asbestos Present: NOT ANALYZED	

For Layered Samples, each component will be analyzed and reported separately.

Robert T. Letarte Jr., Laboratory Director

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Certificate of Laboratory Analysis
Test Method, Polarized Light Microscopy (PLM)
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Report To:

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 1343 Rochester Road
 Troy, MI 48083

ARI Report # 25-116573
 Date Collected: 03/12/25
 Date Received: 03/17/25
 Date Analyzed: 03/17/25
 Date Reported: 03/18/25

Sample Information	Asbestos Type/Percent	Non-Asbestos Material
Lab ID #: 116573 - 11 Cust. #: 6A Material: Floor Sheeting (Cream/Green Pattern) Location: Appearance: green, fibrous, homogenous Layer: 1 of 1	Asbestos Present: YES Chrysotile - 30%	Other - 70%
Lab ID #: 116573 - 12 Cust. #: 6B Material: Floor Sheeting (Cream/Green Pattern) Location: Appearance: Layer: 1 of 1	Asbestos Present: NOT ANALYZED	
Lab ID #: 116573 - 13 Cust. #: 7A Material: Fiberglass Insulation (Pink) Location: Appearance: pink, fibrous, homogenous Layer: 1 of 1	Asbestos Present: NO No Asbestos Observed	Fiberglass - 95% Other - 5%

For Layered Samples, each component will be analyzed and reported separately.

Robert T. Letarte Jr., Laboratory Director

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 Date Collected: 03/12/25
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 Date Analyzed: 03/17/25
 Date Reported: 03/18/25

Sample Information	Asbestos Type/Percent	Non-Asbestos Material
Lab ID #: 116573 - 14 Cust. #: 8A Material: CMU (Grey) Location: Appearance: grey,nonfibrous,homogenous Layer: 1 of 2	Asbestos Present: NO No Asbestos Observed	Other - 100%
Lab ID #: 116573 - 14a Cust. #: 8A Material: Mortar Location: Appearance: grey,nonfibrous,homogenous Layer: 2 of 2	Asbestos Present: NO No Asbestos Observed	Other - 100%
Lab ID #: 116573 - 15 Cust. #: 8B Material: CMU (Grey) Location: Appearance: grey,nonfibrous,homogenous Layer: 1 of 2	Asbestos Present: NO No Asbestos Observed	Other - 100%

For Layered Samples, each component will be analyzed and reported separately.

Robert T. Letarte Jr., Laboratory Director

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 Project: 10237 W. Coldwater Rd. - ACM
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 Troy, MI 48083

ARI Report # 25-116573
 Date Collected: 03/12/25
 Date Received: 03/17/25
 Date Analyzed: 03/17/25
 Date Reported: 03/18/25

Sample Information	Asbestos Type/Percent	Non-Asbestos Material
Lab ID #: 116573 - 15a Cust. #: 8B Material: Mortar Location: Appearance: grey,nonfibrous,homogenous Layer: 2 of 2	Asbestos Present: NO No Asbestos Observed	Other - 100%
Lab ID #: 116573 - 16 Cust. #: 9A Material: Vapor Barrier (Black) Location: Appearance: black,fibrous,nonhomogenous Layer: 1 of 1	Asbestos Present: NO No Asbestos Observed	Cellulose - 65% Other - 35%
Lab ID #: 116573 - 17 Cust. #: 9B Material: Vapor Barrier (Black) Location: Appearance: black,fibrous,nonhomogenous Layer: 1 of 1	Asbestos Present: NO No Asbestos Observed	Cellulose - 65% Other - 35%

For Layered Samples, each component will be analyzed and reported separately.

Robert T. Letarte Jr., Laboratory Director

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 Project: 10237 W. Coldwater Rd. - ACM
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 Troy, MI 48083

ARI Report # 25-116573
 Date Collected: 03/12/25
 Date Received: 03/17/25
 Date Analyzed: 03/17/25
 Date Reported: 03/18/25

Sample Information	Asbestos Type/Percent	Non-Asbestos Material
Lab ID #: 116573 - 18 Cust. #: 10A Material: Roof Shingle (Black) Location: Appearance: black, fibrous, homogenous Layer: 1 of 2	Asbestos Present: NO No Asbestos Observed	Fiberglass - 15% Other - 85%
Lab ID #: 116573 - 18a Cust. #: 10A Material: Roof Shingle (Black) Location: Appearance: black, fibrous, homogenous Layer: 2 of 2	Asbestos Present: NO No Asbestos Observed	Fiberglass - 15% Other - 85%
Lab ID #: 116573 - 19 Cust. #: 10B Material: Roof Shingle (Black) Location: Appearance: black, fibrous, homogenous Layer: 1 of 2	Asbestos Present: NO No Asbestos Observed	Fiberglass - 15% Other - 85%

For Layered Samples, each component will be analyzed and reported separately.

Robert T. Letarte Jr., Laboratory Director

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Certificate of Laboratory Analysis
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 Project: 10237 W. Coldwater Rd. - ACM
 Project #: 64823



Report To:

Mr. Joe Konrad
 Testing Engineers & Consultants, Inc.
 1343 Rochester Road
 Troy, MI 48083

ARI Report # 25-116573
 Date Collected: 03/12/25
 Date Received: 03/17/25
 Date Analyzed: 03/17/25
 Date Reported: 03/18/25

Sample Information	Asbestos Type/Percent	Non-Asbestos Material
Lab ID #: 116573 - 19a Cust. #: 10B Material: Roof Shingle (Black) Location: Appearance: black, fibrous, homogenous Layer: 2 of 2	Asbestos Present: NO No Asbestos Observed	Fiberglass - 15% Other - 85%
Lab ID #: 116573 - 20 Cust. #: 11A Material: Roof Shingle (Black/Brown) Location: Appearance: black, fibrous, homogenous Layer: 1 of 2	Asbestos Present: NO No Asbestos Observed	Cellulose - 25% Other - 75%
Lab ID #: 116573 - 20a Cust. #: 11A Material: Roof Shingle (Black/Brown) Location: Appearance: black, fibrous, homogenous Layer: 2 of 2	Asbestos Present: NO No Asbestos Observed	Cellulose - 25% Other - 75%

For Layered Samples, each component will be analyzed and reported separately.

Robert T. Letarte Jr., Laboratory Director

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 Project: 10237 W. Coldwater Rd. - ACM
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 1343 Rochester Road
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ARI Report # 25-116573
 Date Collected: 03/12/25
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 Date Analyzed: 03/17/25
 Date Reported: 03/18/25

Sample Information	Asbestos Type/Percent	Non-Asbestos Material
Lab ID #: 116573 - 21 Cust. #: 11B Material: Roof Shingle (Black/Brown) Location: Appearance: black, fibrous, homogenous Layer: 1 of 2	Asbestos Present: NO No Asbestos Observed	Cellulose - 25% Other - 75%
Lab ID #: 116573 - 21a Cust. #: 11B Material: Roof Shingle (Black/Brown) Location: Appearance: black, fibrous, homogenous Layer: 2 of 2	Asbestos Present: NO No Asbestos Observed	Cellulose - 25% Other - 75%
Lab ID #: 116573 - 22 Cust. #: 12A Material: Roof Shingle (Black/Brown) Location: Appearance: black, fibrous, homogenous Layer: 1 of 3	Asbestos Present: NO No Asbestos Observed	Fiberglass - 15% Other - 85%

For Layered Samples, each component will be analyzed and reported separately.

Robert T. Letarte Jr., Laboratory Director

Test Method EPA 40 CFR - Part 763 and/or EPA 600/R-93/116 was used to analyze the above samples. Matrix interference and/or resolution limits may yield false/negative results in certain circumstances. Suspect floor tiles containing <1% should be tested with SEM or TEM. This certificate of analysis relates only to the samples as submitted and to insure the integrity of the results, may only be reproduced in full. This certificate must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. Liability limited to cost of analysis.



Certificate of Laboratory Analysis
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 Project: 10237 W. Coldwater Rd. - ACM
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 Date Collected: 03/12/25
 Date Received: 03/17/25
 Date Analyzed: 03/17/25
 Date Reported: 03/18/25

Sample Information	Asbestos Type/Percent	Non-Asbestos Material
Lab ID #: 116573 - 22a Cust. #: 12A Material: Roof Shingle (Black/Brown) Location: Appearance: black, fibrous, homogenous Layer: 2 of 3	Asbestos Present: NO No Asbestos Observed	Fiberglass - 15% Other - 85%
Lab ID #: 116573 - 22b Cust. #: 12A Material: Roof Shingle (Black/Brown) Location: Appearance: black, fibrous, homogenous Layer: 3 of 3	Asbestos Present: NO No Asbestos Observed	Fiberglass - 15% Other - 85%
Lab ID #: 116573 - 23 Cust. #: 12B Material: Roof Shingle (Black/Brown) Location: Appearance: black, fibrous, homogenous Layer: 1 of 3	Asbestos Present: NO No Asbestos Observed	Fiberglass - 15% Other - 85%

For Layered Samples, each component will be analyzed and reported separately.

Robert T. Letarte Jr., Laboratory Director

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 Date Collected: 03/12/25
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 Date Analyzed: 03/17/25
 Date Reported: 03/18/25

Sample Information	Asbestos Type/Percent	Non-Asbestos Material
Lab ID #: 116573 - 23a Cust. #: 12B Material: Roof Shingle (Black/Brown) Location: Appearance: black, fibrous, homogenous Layer: 2 of 3	Asbestos Present: NO No Asbestos Observed	Fiberglass - 15% Other - 85%
Lab ID #: 116573 - 23b Cust. #: 12B Material: Roof Shingle (Black/Brown) Location: Appearance: black, fibrous, homogenous Layer: 3 of 3	Asbestos Present: NO No Asbestos Observed	Fiberglass - 15% Other - 85%
Lab ID #: Cust. #: Material: Location: Appearance: Layer: of	Asbestos Present:	

For Layered Samples, each component will be analyzed and reported separately.

Robert T. Letarte Jr., Laboratory Director

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APPENDIX F
PHOTOGRAPHIC LOG

TESTING ENGINEERS & CONSULTANTS, INC.
TEC PROJECT NUMBER: 64823



10237 W Coldwater Rd, Flushing MI 48433



Asbestos-Containing HM# 5 – Sink Undercoat (Black)



Asbestos-Containing HM# 6 – Floor Sheetting (Cream/Green Pattern)



General Photo of Building Conditions

TESTING ENGINEERS & CONSULTANTS, INC.
TEC PROJECT NUMBER: 64823



General Photo of Building Conditions



General Photo of Building Conditions

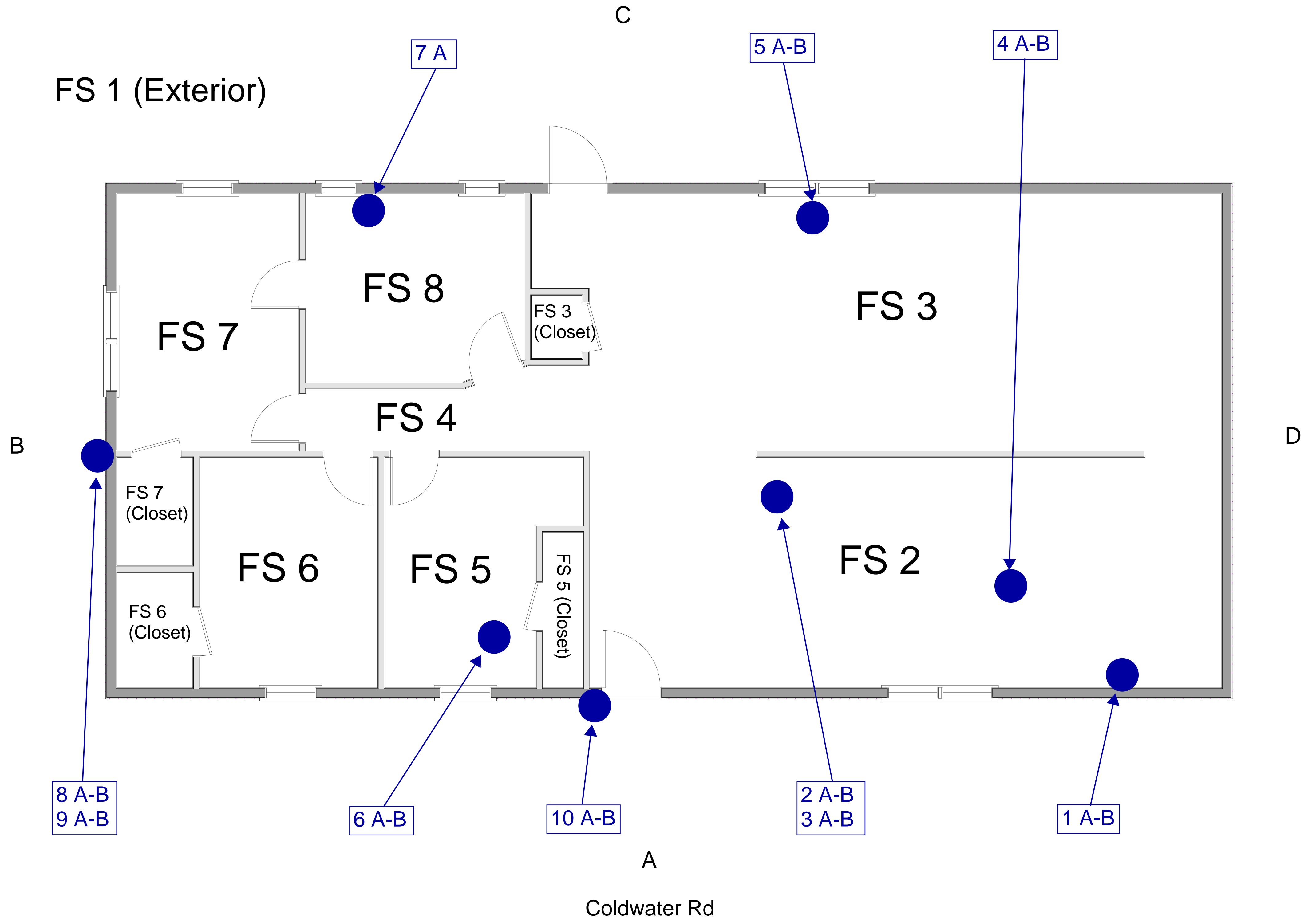


General Photo of Building Conditions



General Photo of Building Conditions

APPENDIX G
SAMPLE LOCATION MAP



TEC ACM Sample Locations Map (Shed 1 & 2)
10237 W Coldwater Rd, Flushing, MI, 48433
TEC Project Number: 64823



C

Shed 2

FS 1 (Exterior)

12 A-B

B

D

Shed 1

11 A-B

A

Coldwater Rd

