INSPECTION REPORT
OF
ASBESTOS AND LEAD-BASED PAINTED
BUILDING MATERIALS

CAPEHART FAMILY HOUSING IMPROVEMENTS
MALMSTROM AIR FORCE BASE
GREAT FALLS, MONTANA

INSPECTION REPORT
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BUILDING MATERIALS

CAPEHART FAMILY HOUSING IMPROVEMENTS - PHASE 3
MALMSTROM AIR FORCE BASE
GREAT FALLS, MONTANA

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MALMSTROM AIR FORCE BASE

Capehart Family Housing Improvements – Phase 3

1.0 INTRODUCTION:

1.1 SCOPE OF WORK

The purpose of this inspection of the Capehart Family Housing, at Malmstrom Air Force Base, in Great Falls, Montana, was to identify friable and nonfriable known or suspect asbestos-containing building materials (ACBM), as well as lead-based paint (LBP). The scope of this inspection included:

1) Performing an ACBM and LBP building inspection which included:

- Inspecting, identifying, and sampling suspect friable ACBM.
- Inspecting and identifying suspect non-friable ACBM.
- Inspecting and identifying building components suspected of being coated with LBP.
- Documenting locations of asbestos and type of asbestos materials and lead-based painted building components on drawings.
- Preparing a comprehensive report documenting the sampling procedures and results of the ACBM and LBP inspection.

1.2 QUALITY ASSURANCE AND QUALITY CONTROL

Quality Assurance and Quality Control (QA/QC) measures adopted by Maxim involved field and office components. Key parameters are summarized below:

1.2.1 Field QA/QC

- Review inspection forms for completeness;
- Check Homogeneous Materials Listing for sufficient number of collected samples;
- Verify locations of major mechanical components;
- Re-check three representative general areas for ACBM and LBP locations and quantities.

1.2.2 Office QA/QC

- Review lab results for completeness;
- Ensure appropriate cross-referencing of results with field forms for the identification of ACBM and LBP;
- Ensure drawings are updated as necessary following field QC;
- Verify approximate quantities of ACBM based on drawing review;
- Review recorded field comments for meaning, incorporate as necessary into report.

1.3 DRAWING DEVELOPMENT

The drawings provided in this report are based on field drawings that were prepared on site during the inspection phase. While performing the inspection, space designations were assigned to all discrete areas and recorded on the drawings. The locations of the ACM and LBP homogeneous areas were included after completion of the laboratory analysis of bulk samples. The final drawings were prepared using computer aided drafting software (Auto CAD).

2.0 ASBESTOS INSPECTION:

2.1 ASBESTOS OVERVIEW:

Asbestos is a trade name for a group of fibrous naturally occurring minerals which was used widely in building materials because of its ability to bind, resist chemicals, insulate, and fireproof. Exposure to elevated levels of asbestos fibers has been documented to cause a variety of diseases including asbestosis and cancer. Consequently, the application, removal, and disposal of asbestos-containing materials is regulated by several agencies. A summary of the regulations regarding asbestos-containing materials is presented in Appendix A.

One definition for asbestos containing building materials (ACBM) was taken from Environmental Protection Agency regulations (40 CFR, Part 763 - Asbestos Model Accreditation Plan and Section 202, Toxic Substance Control Act):

1) Friable asbestos-containing material is material containing more than one percent asbestos which has been applied to ceilings, walls, structural members, piping, duct work or any other part of a building, which when dry, may be crumbled, pulverized, or reduced to powder by hand pressure. The term includes non-friable, asbestos-containing materials after it becomes damaged, by any means, such that when dry, it may be crumbled, pulverized, or reduced to powder by hand-pressure. This definition also includes flooring materials which have become friable.

Another definition taken from Occupational Safety and Health Administration (OSHA) regulations (29 CFR Parts 1910 and 1926):

2) Asbestos-containing materials are defined as being any material which contains more than one percent asbestos and also defines certain high risk materials, which are presumed to contain asbestos, as Presumed Asbestos Containing Materials (PACM). The PACM designation applies to thermal system insulation, sprayed on or troweled on surfacing material and debris where such material is present. The PACM terminology was added to ensure compliance with the hazard communication provisions of the laws and specifically for buildings constructed prior to 1980.

2.2 PROCEDURES:

The asbestos inspection was performed using the applicable portions of the currently recognized standard protocol developed for schools under AHERA, as promulgated in Title 40, Code of Federal Regulations (40 CFR), Part 763 and as amended in the Federal Register. Since the primary concern for this investigation was to identify potential asbestos hazards in each of the designated housing units, Maxim representatives visually inspected existing conditions within each selected living unit.

2.2.1 Inspection and Sampling:

The inspection was conducted by our accredited inspectors, and consisted of a detailed visual survey of surfacing materials, thermal system insulation, and miscellaneous materials throughout each of the designated units. Suspect ACBM was then grouped into homogeneous materials and sampling plans developed. Components of the inspection included:

- Homogeneous suspect materials were identified. These are summarized for each individual building in our Findings Section 4.0. Areas from which samples were to be obtained were also identified during this task.

- Bulk samples of friable, or potentially friable, suspect materials were collected and analyzed to confirm whether or not the suspect materials contain asbestos.

- All suspect flooring and baseboard materials were assumed to contain asbestos per Maxim's proposal to Thomas, Dean and Hoskins dated August 30, 1999.

- An assessment was made of known or assumed ACBM, generally classifying the materials using categories defined in the National Emission Standards of Hazardous Air Pollutants (NESHAP), for asbestos. Further description of the NESHAP categories are presented in Section 2.2.3.

Homogeneous areas of suspect ACBM were, for the purposes of this study and as outlined in the AHERA sampling protocol, placed into the following four material categories types. AHERA sampling protocol specifies sampling procedures for each material type:

Friable Surfacing Material

1) At least three bulk samples from each homogeneous material that is 1,000 square feet or less.

2) At least five bulk samples from each homogeneous material that is greater than 1,000 square feet but less than or equal to 5,000 square feet.

3) At least seven bulk samples from each homogeneous material that is greater than 5,000 square feet.

Thermal System Insulation

1) In a randomly distributed manner, at least three bulk samples from each homogeneous material of thermal system insulation that is not assumed to contain asbestos.

2) At least one bulk sample from each homogeneous material of patched thermal system insulation that was not assumed to be asbestos-containing material (ACM).

3) In a manner sufficient to determine whether the material was ACM or not ACM, (generally three samples), bulk samples from each insulated mechanical system that was not assumed to be ACM where cement or plaster was used on fittings such as tees, elbows, or valves.

4) Bulk samples were not collected from any homogeneous material where the inspector determined that the thermal system insulation is fiberglass, foam glass, rubber, or other non-asbestos-containing building material.

Miscellaneous Material

1) In a manner sufficient to determine whether a material is an ACBM or not, three bulk samples were collected from each area of homogeneous friable miscellaneous material that was not assumed to be ACM.

Nonfriable Miscellaneous Material

1) If any nonfriable suspect homogeneous ACBM was not assumed to be an ACBM, then in a manner sufficient to determine whether the material is ACM or not, bulk samples were collected from the homogeneous material.

Sample locations for this survey were selected in a non-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-abrasive manner. If possible, samples from existing damaged areas or loose pieces of material were collected. Immediately after collection, samples were placed in pre-labeled plastic containers. The containers were then placed in a large resealable plastic bag for transportation to the laboratory.

Samples were obtained by trained, accredited, experienced persons using techniques such as wet slicing, wet boring or similar methods designed to limit contamination of the area during sampling. As indicated the Statement of Work, destructive sampling was permitted, and Maxim did not, therefore, perform permanent repair of sampled materials.

2.2.2 Laboratory Analysis:

Bulk samples obtained during the inspection were assigned sample numbers and entered on sample summary sheets. The samples were shipped to Northern Analytical Laboratories, Inc., in Billings, Montana, for analysis. The analysis was performed in general accordance with EPA Interim Method 600/M4-82-020, which employs Polarized Light Microscopy (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. The results of the analysis are reported on the Sample Collection and Analysis Data Sheets.

It is a requirement under the Administrative Rules of Montana, Chapter 74, 17.74.307(h), that analysis for bulk samples is to be done by a laboratory approved by the National Institute of Standards Technology (NIST). Northern Analytical Laboratories, Inc. was assigned "accredited" status by the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program (NVLAP), for bulk sample analysis on April 1, 1989.

2.2.3 NESHAP Categories:

Following receipt of the laboratory analysis, homogeneous ACBM were identified and the quantities determined. The materials were then categorized using NESHAP criteria for each ACBM.

The NESHAP Categories are defined as:

Category I are non-friable asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos.

Category II are non-friable ACBM excluding Category I non-friable ACBM, containing more than one percent asbestos.

Regulated Asbestos Containing Materials (RACM) are friable materials; Category I non-friable materials that will or may be subjected to sanding, grinding, cutting, or abrading; or Category II non-friable materials that have a high probability of becoming or has become crumbled, pulverized, or reduced to powder by forces expected to act on the material in the course of demolition or renovation operations.

3.0 LEAD-BASED PAINT INSPECTION

3.1 LEAD-BASED PAINT OVERVIEW

Lead-based paint is of concern both as a source of direct exposure through ingestion of paint chips and as a contributor to lead in interior dust and exterior soil. Regulatory agencies which have addressed lead-based paint include the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Department of Housing and Urban Development (HUD), and the Consumer Products Safety Commission (CPSC). A review of these regulations is presented in Appendix A. A lead-based paint is defined as:

1) Paint in liquid form which contains 0.06%, by weight, calculated as lead metal in total nonvolatile content of the liquid paint, or

2) Paint already applied which tests equal to or greater than 0.5% by weight when using Atomic Absorption Spectroscopic analysis.

3) Paint already applied which tests equal to or greater than 1.0 milligram per square centimeter (mg/cm^2) when using field X-Ray Fluorescence (XRF) methodology.

3.2 PROCEDURES

Maxim used XRF sampling methodology as outlined in 24 CFR Part 35 (HUD), for determining lead concentrations in paint.

3.2.1 Inspection and Sampling

Certified Maxim inspection personnel conducted a detailed room-by-room inspection of the building, documenting types of painted building components, substrate materials and general paint colors. Typical building components include walls, floors, ceilings, doors, window units, baseboards, stairway components, radiator or cabinet type heat units, structural members, HVAC system components, and mechanical system components; and typical substrate materials include plaster, wood, drywall and metal. The painted building components were then grouped into Lead-Based Paint Homogeneous Areas (LHA's) based on specific component type and substrate material, and sampling plans were developed. The color of each homogeneous area was also documented.

3.2.2 XRF Sampling Methodology

Field X-Ray Fluorescence (XRF) is identified in 24 CFR Part 35 (HUD) as the recommended method to determine lead concentrations in paint. For this inspection, Maxim personnel utilized the *Niton XL* Spectrum Analyzer equipped with a computer program which automatically calculates measurable amounts of lead in paint by correcting for substrate conditions.

XRF results are classified using threshold values. The results are considered positive if they are greater than or equal to the threshold limit and negative if they are less than the threshold limit. Threshold limits of the *Niton XL* XRF equipment are 1.0 mg/cm^2, 1.0 ± 0.15 mg/cm^2, for surface lead, 1.0 ± 0.2 mg/cm^2 for buried lead, and 1.0 ± 0.3 mg/cm^2 for deeply buried lead, for all substrates at a 95% confidence interval. The depth index is explained as follows; 1.0 - 3.0 for surface lead; 3.1 – 5.0 for buried lead; and 5.1 – 10 for deeply buried lead. The *Niton XL* displays readings and ancillary information useful for classification purposes. Appendix F presents a summary of the results for the XRF readings.

3.2.3 Summary of Lead Based Paint

According to the HUD guidelines, paint is considered lead based if the concentration of lead in the paint is equal to or greater than 1.0 mg/cm^2 as measured by x-ray fluorescence or if it exceeds 5,000 milligrams per kilogram (mg/kg) or 0.5% by weight, as determined by laboratory analysis.

4.0 FINDINGS

A general summary of the designated properties inspected is as follows:

ADDRESS	APPROXIMATE SIZE, SF	ACBM IDENTIFIED	LBP IDENTIFIED
#11 Aspen Street	1950	Yes	Yes
#12 Aspen Street	1850	Yes	Yes
#2 Cedar Street.	2400	Yes	Yes
#12 Birch Street	1650	Yes	Yes

The housing units on Aspen, Cedar and Birch were constructed during 1960s. The units designated in the Capehart Family Housing Improvement Project have had renovation work done at various times. Each of the units inspected contained various types of flooring, such as tile or linoleum, which were installed at different times as occupancy changed. It is possible that there are multiple layers of flooring with concealed layers that were not identified since flooring samples were not collected. All resilient floor coverings were assumed to contain asbestos.

Due to the differences in building materials, the designated apartment units were inspected, sampled, and reported separately. Reference the ACBM and LBP Diagrams (Appendix D and Appendix G) for specific locations of identified materials.

4.1 CAPEHART FAMILY HOUSING UNITS:

The buildings located at #11 Aspen, #2 Cedar and #12 Birch are single-story wood frame buildings with basements and crawlspaces. The residence located at #12 Aspen is a two-story, wood frame building with a basement and crawlspace. All the units inspected have asphalt shingled roofs and metal siding. Interior finishes are generally wood, sheet vinyl, resilient tile or carpeted floors; sheetrock walls and ceilings. The heating system consists of individual natural gas fired, forced air furnace units located in the basement. Mechanical systems such as piping and ductwork is routed in the walls and is uninsulated. Attic spaces were not accessible in the units surveyed with the exception of the residence at #2 Cedar. The attic of this unit was insulated with a combination of blown in and rolled fiberglass insulation.

The units inspected were all painted on the interiors with white or cream paint on the walls, ceilings, doors and windows. The exteriors were finished with painted metal siding, wood and metal doors and painted wood windows.

4.2 HOUSING UNIT INSPECTION SUMMARY:

A summary of the homogeneous areas of asbestos containing building materials and lead-based paint found in each unit inspected are listed in the following tables:

4.2.1. #11 Aspen Street

#11 ASPEN STREET SUMMARY OF ASBESTOS CONTAINING MATERIALS				
Homogeneous Material No.	**Homogeneous Material Description and Material Location**	**Quantity SF/LF/EA[1]**	**PERCENT ASBESTOS**	**NESHAP Category[2]**
F1.1	Yellow & Tan Linoleum and Mastic	135 SF	Assumed	Cat I
F1.2	Tile Pattern Linoleum and Mastic	35 SF	Assumed	Cat I
M1.1	Asphalt Roofing Materials	Not Quantified	Assumed	Cat I
M3.1	Wallboard & Taping Compound	3,040 SF	3%*	NA*
S1.1	Ceiling Surfacing Compound	920 SF	3%	RACM

1 SF = Square feet; LF = Linear feet; EA = Each

2 NESHAP Categories: I: Category I
II: Category II
RACM: Regulated Asbestos Containing Material

* Composite of wallboard and taping system sample is less than 1% asbestos – not regulated by State of Montana NESHAPs. Only OSHA worker exposure regulations apply.

All materials in the building suspected to be asbestos-containing were determined positive by laboratory analysis.

#11 ASPEN STREET SUMMARY OF LEAD-BASED PAINT			
Lead Homogeneous Area No.	**Building Component and General Location**	**Lead Concentration mg/cm^2**	**Condition**
14F	Exterior Green Wood Entry Doors	2.04	Solid
17F	Exterior Green Wood Door Jambs	1.19	Solid
23A	Exterior White Wood Windows - Upper & Lower Units	>5.09	Solid
26A	Interior White Wood Baseboards	1.77	Solid
59F	Exterior Green Wood Soffit and Beams	>5.09	Solid

mg/cm^2 = milligram per square centimeter

4.2.2 #12 Aspen Street

#12 ASPEN STREET SUMMARY OF ASBESTOS CONTAINING MATERIALS				
Homogeneous Material No.	Homogeneous Material Description and Material Location	Quantity SF/LF/EA[1]	PERCENT ASBESTOS	NESHAP Category[2]
F1.1	Tan & Yellow Linoleum and Mastic	130 SF	Assumed	Cat I
F1.2	Orange Linoleum and Mastic	45 SF	Assumed	Cat I
M1.1	Asphalt Roofing Materials	Not Quantified	Assumed	Cat I
M3.1	Wallboard & Taping Compound	2,700 SF	3%*	NA*
M12.1	Mastic Under 4" Rubber Baseboard	2 LF	Assumed	Cat I
S1.1	Ceiling Surfacing Compound	980 SF	3%	RACM

1 SF = Square feet; LF = Linear feet; EA = Each

2 NESHAP Categories: I: Category I

II: Category II

RACM: Regulated Asbestos Containing Material

* Composite of wallboard and taping system sample is less than 1% asbestos – not regulated by State of Montana NESHAPs. Only OSHA worker exposure regulations apply.

All materials in the building suspected to be asbestos-containing were determined positive by laboratory analysis.

#12 ASPEN STREET SUMMARY OF LEAD-BASED PAINT			
Lead Homogeneous Area No.	Building Component and General Location	Lead Concentration Mg/cm^2	Condition
14A	Exterior White Wood Entry Door	2.26	Solid
14B	Exterior Cream Wood Door	>5.09	Solid
17A	Exterior White Wood Door Jamb	2.62	Solid
23A	Exterior White Wood Window	2.92	Solid
26A	Interior White Wood Baseboard	2.05	Solid
33I	Exterior Black Metal Hand Rail	>5.09	Solid
46A	Exterior White Wood Soffit and Beams	>5.09	Solid

mg/cm^2 = milligrams per square centimeter

4.2.3 #2 Cedar Street

#2 CEDAR STREET SUMMARY OF ASBESTOS CONTAINING MATERIALS				
Homogeneous Material No.	**Homogeneous Material Description and Material Location**	**Quantity SF/LF/EA[1]**	**PERCENT ASBESTOS**	**NESHAP Category[2]**
F1.1	Dark Yellow & Beige Pattern Linoleum and Mastic	110 SF	Assumed	Cat I
F1.2	Light Yellow & Beige Pattern Linoleum and Mastic	25 SF	Assumed	Cat I
F1.3	Beige Linoleum and Mastic	80 SF	Assumed	Cat I
F3.1	9" x 9" Tan & Gray Floor Tile and Mastic	400 SF	Assumed	Cat I
M1.1	Asphalt Roofing Materials	Not Quantified	Assumed	Cat I
M3.1	Wallboard & Taping Compound	3,500 SF	3%*	NA*
M12.1	Mastic Under 4" Rubber Baseboard	80 LF	Assumed	Cat I
S1.1	Ceiling Surfacing Compound	850 SF	3%	RACM

1 SF = Square feet; LF = Linear feet; EA = Each

2 NESHAP Categories: I: Category I

II: Category II

RACM: Regulated Asbestos Containing Material

* Composite of wallboard and taping system sample is less than 1% asbestos – not regulated by State of Montana NESHAPs. Only OSHA worker exposure regulations apply.

All materials in the building suspected to be asbestos-containing were determined positive by laboratory analysis.

#2 CEDAR STREET SUMMARY OF LEAD-BASED PAINT			
Lead Homogeneous Area No.	**Building Component and General Location**	**Lead Concentration mg/cm^2**	**Condition**
14C	Exterior Cream Wood Entry Door	2.37	Solid
17D	Exterior Brown Wood Door Jamb	2.01	Solid
17A	Exterior White Wood Door Jamb	1.02	Solid
20A	Interior White Wood Door Case	0.93	Solid
23A	Interior White Wood Basement Window	1.5	Solid
23D	Exterior Brown Wood Window	>5.09	Solid
26A	Interior White Wood Baseboard	1.22	Solid
33I	Exterior Black Metal Hand Rail	>5.09	Solid
55C	Exterior Tan Wood Soffit and Beams	>5.09	Solid
57A	Interior Metal Portion of Crawl Space Hatch	>5.09	Solid

mg/cm^2 = milligrams per square centimeter

4.2.4 #12 Birch Street

#12 BIRCH STREET SUMMARY OF ASBESTOS CONTAINING MATERIALS				
Homogeneous Material No.	Homogeneous Material Description and Material Location	Quantity SF/LF/EA[1]	PERCENT ASBESTOS	NESHAP Category[2]
F1.1	Beige Linoleum and Mastic	180 SF	Assumed	Cat I
F1.2	Beige & Gray Linoleum and Mastic	80 SF	Assumed	Cat I
M1.1	Asphalt Roofing Materials	Not Quantified	Assumed	Cat I
M3.1	Wallboard & Taping Compound	2,950 SF	3%*	NA*
M12.1	Mastic Under 4" Rubber Baseboard	20 LF	Assumed	Cat I
S1.1	Ceiling Surfacing Compound	750 SF	3%	RACM

1 SF = Square feet; LF = Linear feet; EA = Each

2 NESHAP Categories: I: Category I

II: Catogory II

RACM: Regulated Asbestos Containing Material

* Composite of wallboard and taping system sample is less than 1% asbestos – not regulated by State of Montana NESHAPs. Only OSHA worker exposure regulations apply.

One additional material in the unit was suspected to contain asbestos. The material below was sampled and found not to contain asbestos.

- Wallboard and Taping Materials – Basement Level (M3.2)

#12 BIRCH STREET SUMMARY OF LEAD-BASED PAINT			
Lead Homogeneous Area No.	Building Component and General Location	Lead Concentration Mg/cm^2	Condition
14A	Exterior White Wood Entry Door	2.73	Solid
17A	Exterior White Wood Door Frame	3.31	Solid
17D	Exterior Brown Wood Door Jamb – Concealed by Metal (Understated Lead Concentration)	>0.65	Solid
23A	Interior White Wood Window	1.03	Solid
23D	Exterior Brown Wood Window	2.67	Solid
23F	Interior Green Wood Window	1.05	Solid
26A	Interior White Wood Baseboard	1.46	Solid
33I	Exterior Black Metal Hand Rail	>5.09	Solid
55C	Exterior Cream Wood Soffit and Beams	>5.09	Solid

mg/cm^2 = milligrams per square centimeter

5.0 LIMITATIONS

5.1 ASBESTOS

This asbestos inspection report was prepared based on information obtained during two site visits, and interpretation of the laboratory results of bulk samples of building materials collected during these site visits. The conclusions of this report are professional opinions based solely upon visual site observations and interpretations of chemical analyses as described in our report.

This report has been prepared to provide information concerning the various types and estimated quantities of asbestos-containing materials which may be present in the structures at this site. It includes only those materials that were visible and accessible at the time of our inspection. We did not remove any permanent building enclosures or disassemble any equipment to determine if any asbestos-containing materials were present. No samples were collected if the mechanical integrity of the material would be compromised. As a result, additional asbestos-containing materials may be present in inaccessible areas (e.g., between walls, beneath floors, etc.) of the buildings. Permanent building enclosures were not opened or disassembled for inspection, and additional asbestos-containing materials may also be present in these areas.

This inspection and report is intended to identify and assess asbestos-containing materials. It is not intended to be used by a contractor for removing asbestos-containing materials. Our opinions are intended exclusively for use by Thomas, Dean & Hoskins. The scope of services performed by Maxim 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 sheetrock walls and ceilings in several of the units were classified as asbestos-containing material. OSHA does not recognize joint compound on wall board systems as an integral part of the wallboard. Therefore, any layer that contains asbestos is considered a separate material even if it is not separable from an associated material, such as joint compound on sheetrock. The EPA, however, regards multi-layered wall systems differently from OSHA per the January 5, 1994, August 15, 1994, and December 19, 1995 Asbestos NESHAP Clarification Regarding Analysis of Multi-layered Systems. The 1995 clarification states "that all multi-layered systems *except* for wall systems where joint compound was used only at the joints and nail holes must be analyzed as separate materials and results were not allowed to be combined to determine average asbestos content," whereas the January 5, 1994, clarification states, "When joint compound and/or tape is applied to wallboard it becomes an integral part of the wallboard and in effect becomes one material forming a wall system, Therefore, where demolition or renovation impacts such a wall system, a composite analysis of the wall system (percent of asbestos in the joint compound, tape and wallboard) should be conducted."

5.2 LEAD-BASED PAINT

Because it was not possible to sample or test every building surface and because multiple layers of paint may be present on any building component, additional lead-containing building materials may be present in the building. Further, changes in paint color schemes and previous renovation activities may have obscured existing lead-based paint such that this survey was unable to completely identify or assess the extent of the lead-based paint. It should also be noted that additional lead materials including vent line wrapping, waste line joint sealant, and radioactive material or room shielding may be present in the building but were outside the scope of this survey. These additional materials may also be present in inaccessible areas of the building.

This inspection and report is intended to identify and assess lead-based paint as defined by the Department of Housing and Urban Development (HUD). It is not intended to be used by a contractor for removing lead-based paint.

Our opinions are intended exclusively for use by Thomas, Dean & Hoskins. The scope of services performed by Maxim 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.

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APPENDIX A

REGULATORY REVIEW
ASBESTOS AND LEAD-BASED PAINTED
BUILDING COMPONENTS

REGULATORY OVERVIEW

ASBESTOS

There are three federal agencies that regulate removal, transportation, and disposal of asbestos. They are the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), and the Department of Transportation (DOT).

Environmental Protection Agency

The Environmental Protection Agency (EPA) was required under The Clean Air Act, to protect the general public from exposure to airborne contaminants that are known to be hazardous to human health. To meet this requirement, the EPA established National Emission Standards for Hazardous Air Pollutants (NESHAP). Asbestos was one of the first hazardous air pollutants regulated.

The asbestos NESHAP regulations protect the public by minimizing the release of asbestos fibers involving the processing, handling, and disposal of asbestos-containing material. To this end, NESHAP specified work practices to be followed during demolition and renovations of all structures, installations, and buildings (excluding residential buildings that have four or fewer dwelling units). The regulations also require notification to applicable state and local agencies and/or the EPA Regional Officer prior to all demolition or before renovations of buildings that contain a certain threshold amount of asbestos. The NESHAP has grouped asbestos-containing building material (ACBM) into three categories: Regulated Asbestos Containing Material, Category I non-friable ACBM, and Category II non-friable ACBM.

A regulated asbestos-containing material (RACM) means any friable asbestos material, a Category I non-friable that will or has been subjected to sanding, grinding, cutting, or abrading, or a Category II non-friable ACBM that has a high probability of becoming or has become crumbled, pulverized, or reduced to power by forces expected to act in the material in the course of demolition or renovation operations.

A RACM is a friable asbestos-containing material or any Category I or Category II material that has become friable.

A Category I, non-friable asbestos-containing material is asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos.

Category II, non-friable ACBM means any material excluding Category I non-friable ACBM, containing more than 1 percent asbestos.

Occupational Safety and Health Administration

The Occupational Safety and Health Administration (OSHA) regulates asbestos exposure to workers under the Construction Industry Standard (29 CFR 1910.1101). This section regulates asbestos exposure in all work which includes demolition or salvage of structures where asbestos is present, removal or encapsulation of materials containing asbestos, construction, alteration, repair, maintenance or renovation of structures, substrates or portions that contain asbestos, installation of products that contain asbestos, asbestos spills/emergency cleanup and the transportation, disposal, storage, containment of and housekeeping activities involving asbestos or products containing asbestos, on the site or location at which construction activities are performed. This regulations sets minimum levels of work effort that must be performed on a given type of asbestos material.

OSHA defines these work types as Class I through IV. Class I means activities involving the removal of thermal system insulation or surfacing materials, Class II means activities involving the removal of asbestos-containing wallboard, floor tile and sheet flooring, roofing and siding shingles and construction mastics. Class III means repair and maintenance operations where ACBM is likely to be disturbed, and Class IV means maintenance and custodial activities during which employees contact ACBM and activities to clean up waste and debris containing ACBM.

Department of Transportation

The Department of Transportation (DOT) requires that each individual bag of asbestos-containing waste be labeled and that the transport vehicle be properly placarded.

Waste Disposal

All asbestos-containing waste must be double wrapped, and properly labeled as required by OSHA, EPA and DOT. These wastes must be deposited in a Class II landfill approved by the EPA. NESHAP requires that no visible emissions to the outside air be allowed during collection, packaging, transportation or deposition of the ACBM waste. The transportation and disposal of ACBM waste is documented on a Waste Shipment Record. The transport of the waste must be performed by a person trained in the handling of asbestos, with a minimum of an EPA accredited 32-Hour Worker training class.

LEAD-BASED PAINT

Regulatory agencies which have addressed lead-based paint include EPA, Occupational Safety and Health Administration (OSHA), Department of Housing and Urban Development (HUD), and the Consumer Products Safety Commission (CPSC). Lead-Based Paint (LBP) in the liquid form is defined as any paint that contains more than six one hundredths of one percent (0.06) lead by weight, calculated as lead metal, in nonvolatile content of the liquid paint. For paint that has been applied, the Department of Housing and Urban Development (HUD) has defined LBP as any paint which tests equal to or greater than 1.0 mg/cm2 when using Field X-Ray Fluorescence (XRF) or equal to greater than 0.5% by weight when using Flame Atomic Absorption spectrometry (FAAS) or Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES) analysis.

However, the OSHA Standard for Lead in the Construction Industry does not recognize a minimum concentration of lead. Consequently, all painted surfaces, in which any detectable level of lead is present, must be considered as having the potential to present an occupational exposure to lead to an employee engaged in OSHA regulated construction work.

Occupational Safety and Health Administration

The OSHA Standard for Lead in the Construction Industry (29 CFR 1926.62) became effective June 3, 1993, and applies to all construction work where an employee may be occupationally exposed to lead. OSHA regulated construction work is defined as work for construction, alteration and/or repair, including painting and decorating. Typical activities that fall into these categories include: demolition or salvage of structures where lead or material containing lead are present, removal or encapsulation of materials containing lead, lead contamination/emergency cleanup, transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed and maintenance operations associated with the construction activities described above.

HUD Guidelines

When it is determined that paint abatement and/or interim control activities will be performed on housing components, they should be performed according to practices that are described HUD Guidelines and the regulations promulgated under section 402 of TSCA, 15 USC 2682 (as appropriate for the unit in question), including clearance testing.

Waste Disposal Issues

Lead is considered toxic, and therefore is hazardous. However, lead-based paint may not be classified as hazardous. The first step in disposal of a waste that is suspected to be hazardous is representative testing. This is done by segregating the debris by type and assumed hazardous or nonhazardous. At the completion of the project, each waste is tested by the Toxicity Characteristic Leaching Procedure (TCLP). This is done to determine if the waste is "construction debris" or "hazardous waste". The disposal costs for non-hazardous waste are considerably less that for debris that is considered hazardous, and it can be deposited in a municipal landfill. Debris that is considered hazardous, based on TCLP results, must be disposed of as hazardous waste, in accordance with the regulations promulgated under the Resource Conservation and Recovery Act (RCRA).

APPENDIX B

MAXIM PERSONNEL AHERA LEAD INSPECTOR
CERTIFICATES

Maxim
Technologies, Inc.

CERTIFICATE OF SATISFACTORY COMPLETION

Certificate No.: 990928-04

Expiration Date: September 28, 2000

Student Name: PETER KLEVBERG
(This individual has completed the requisite training for asbestos accreditation under TSCA Title II)

Street: 313 1/2 Central Avenue

City: Great Falls State: MT Zip: 59401

NAME OF COURSE: Asbestos Inspector Refresher/4-Hour

COURSE DATE: September 28, 1999 EXAMINATION DATE: N/A

EXAMINATION PERFORMANCE: PASS N/A FAIL N/A

COURSE APPROVAL:

AIR QUALITY DIVISION
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
P O BOX 200901
HELENA MT 59620-0901
AND
U.S. EPA

COURSE PROVIDER:

MAXIM TECHNOLOGIES, INC.
600 SOUTH 25TH STREET
BILLINGS, MONTANA 59101
PHONE: (406) 248-9161

INSTRUCTOR: Dan Herman for
Roger W. Herman, Jr.

Environmental Training Institute

University of North Dakota
Box 9031, Grand Forks, ND 58202
(701) 777-3341

hereby certifies that

Peter Klevberg

Maxim Technologies, Inc.
303 1/2 Central Ave.
Great Falls, MT 59401

has attended and successfully completed the

Lead Hazard Reduction
Initial Training
for
Inspectors

EPA Accredited Pursuant to
Section 402 of the Toxic Substances Control Act (TSCA) (15C.2582)

August 23-25, 1999

Course Location: Helena, MT
Exam Date: August 25, 1999
Certification No: LI-00010-0825
Expiration Date: **February 25, 2000**

Environmental Training Institute

Environmental Training Institute

University of North Dakota
Box 9031, Grand Forks, ND 58202
(701) 777-3341

hereby certifies that

Peter Klevberg

Maxim Technologies, Inc.
303 1/2 Central Ave.
Great Falls, MT 59401

has attended and successfully completed the

Lead Hazard Reduction
Initial Training
for
Risk Assessors

EPA Accredited Pursuant to
Section 402 of the Toxic Substances Control Act (TSCA) (15C.2582)

August 26-27, 1999

Course Location: Helena, MT
Exam Date: August 27, 1999
Certification No: LR-00010-0827
Expiration Date: **February 27, 2000**

Environmental Training Institute

NITON®

CORPORATION

Certificate of Achievement

Peter Klevberg

Maxim Technologies

has successfully completed the Manufacturer's Training Course for the **NITON Spectrum Analyzer** *and is now certified in radiation safety and monitoring, measurement technology, and machine maintenance of the* **NITON XRF Spectrum Analyzer.**

(CIH's - The ABIH awards 1 CM point, approval #5827)

99090262993
Certificate Number

06/28/99 Billings, MT
Date & Site of Course

Victoria Grzybinski
Training Coordinator

Director of Training

Maxim
Technologies, Inc.

CERTIFICATE OF SATISFACTORY COMPLETION

Certificate No.: 990928-01

Expiration Date: September 28, 2000

Student Name: RICHARD LEFERINK
(This individual has completed the requisite training for asbestos accreditation under TSCA Title II)

Street: 303 Irene Street

City: Helena State: MT Zip: 59601

NAME OF COURSE: Asbestos Inspector Refresher / 4-Hour

COURSE DATE: September 28, 1999 EXAMINATION DATE: N/A

EXAMINATION PERFORMANCE: PASS N/A FAIL N/A

COURSE APPROVAL:

AIR QUALITY DIVISION
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
P O BOX 200901
HELENA MT 59620-0901
AND
U.S. EPA

COURSE PROVIDER:

MAXIM TECHNOLOGIES, INC.
600 SOUTH 25TH STREET
BILLINGS, MONTANA 59101
PHONE: (406) 248-9161

INSTRUCTOR: Dave Stevenson for
Roger W. Herman, Jr.

Environmental Training Institute

University of North Dakota
Box 9031, Grand Forks, ND 58202
(701) 777-3341

hereby certifies that

Richard Leferink

Maxim Technologies, Inc.
303 Irene Street
Helena, MT 59601

has attended and successfully completed the

Lead Hazard Reduction
Refresher Training
for
Inspectors

EPA Accredited Pursuant to
Section 402 of the Toxic Substances Control Act (TSCA) (15C.2582)

August 28, 1999

Course Location: Helena, MT
Exam Date: August 28, 1999
Certification No: LI-00003R-0828
Expiration Date: **February 28, 2000**

Lisa M. Lodoen
Environmental Training Institute

Environmental Training Institute

University of North Dakota
Box 9031, Grand Forks, ND 58202
(701) 777-3341

hereby certifies that

Richard Leferink

Maxim Technologies, Inc.
303 Irene Street
Helena, MT 59601

has attended and successfully completed the

Lead Hazard Reduction
Refresher Training
for
Risk Assessors

EPA Accredited Pursuant to
Section 402 of the Toxic Substances Control Act (TSCA) (15C.2582)

August 21, 1999

Course Location: Butte, MT
Exam Date: August 21, 1999
Certification No: RA-00004R-0821
Expiration Date: **February 21, 2000**

Lyndi M. Fokale
Environmental Training Institute

NITON® corporation

Certificate of Achievement

This is to certify that

Richard Leferink
Maxim Technology

has successfully completed the Manufacturer's Training Course for the **NITON Spectrum Analyzer.**

The one-day course covered radiation safety and monitoring, measurement technology, and machine maintenance of all **NITON XRF** *machines.*

V961002-010
Certificate Number

10/02/96 - Portland, OR
Course Date & Site

Director of Training

President & CEO - NITON

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APPENDIX C

ACBM BULK SAMPLE LABORATORY RESULTS

NORTHERN
Analytical Laboratories, Inc.

602 South 25th Street
P O Box 30315
Billings, MT 59107
Telephone: (406) 254-7226
Fax: (406) 254-7389

REPORT TO: ATTN: RICHARD LEFERINK
MAXIM TECHNOLOGIES, INC.
P O BOX 4699
HELENA MT 59604

DATE: October 20, 1999
JOB NUMBER: 87-911
SHEET: 1 of 3
INVOICE NO.: 25516345

REPORT OF: Building Material Analysis – Thomas, Dean & Hoskins – Capehart Family Housing #3
#11 Aspen Street - 9900589.100

CASE NARRATIVE:

On October 14, 1999, our laboratory received six building material samples from Richard Leferink. A completed chain of custody record was received which identified the above referenced project as the source of the samples. Our laboratory assigned laboratory numbers 141049 through 141054 to the samples. This analysis was performed using an Olympus BH-2 polarizing microscope at magnifications of 40X to 400X in general accordance with EPA Method 600/R-93/116, July 1993, which employs polarized light microscopic techniques with dispersion staining for identification of mineral forms of asbestos.

There are currently six types of mineral fiber that are regulated as asbestos minerals. These are divided into two categories: serpentine asbestos and amphibole asbestos. Serpentine asbestos is called chrysotile, which is the most commonly encountered type of asbestos in the United States. Five of the asbestos minerals are amphiboles. Included in this group are fibrous grunerite (amosite), fibrous riebeckite (crocidolite), fibrous anthophyllite, fibrous tremolite and fibrous actinolite.

The EPA test method for bulk analysis (EPA/600/R-93/116) states in paragraph 2.2.2. that "the detection limit for visual estimation is a function of the quantity of sample analyzed, the nature of matrix interference, sample preparation, and fiber size and distribution. Asbestos may be detected in concentrations of less than one percent by area if sufficient material is analyzed. Samples may contain fibers too small to be resolved by PLM (<0.25 micrometers in diameter) so detection of those fibers by this method may not be possible".

In the case of nonhomogeneous samples (samples which contain more than one visually distinct material which is not mixed), concentrations of materials are given for each layer and composite values are given for the entire sample. The quantification of asbestos in the sample is intended to be a volume estimate only. The concentrations of various components reported for these samples are intended to represent the materials received at our laboratory for testing only. Variations in the concentrations due to the limitations of the test method, equipment, and operator are given below.

1 - 10%, true concentrations may vary ±5% from the reported value
10 - 50%, true concentrations may vary ±10% from the reported value
50 - 100%, true concentrations may vary ±10% from the reported value

According to the National Emission Standards for Hazardous Air Pollutants; Asbestos NESHAP Revision Final Rule in the Federal Register, Volume 55, Number 224 dated November 20, 1990, any friable material containing less than 10 percent asbestos by the Polarized Light Microscopy (PLM) Method is recommended to be verified by the Point Count Method using PLM. Friable asbestos material means any material containing more than one percent asbestos as determined by the visual PLM method, that when dry can be crumbled, pulverized or reduced to powder with hand pressure. This rule applies to building renovations and demolitions.

The U.S. EPA Clarification of the Asbestos NESHAP Requirement to perform Point Counting dated May 8, 1991 states:

- First, that a sample which contains no asbestos by visual PLM does not have to be point counted.
- Second, the owner or operator of the building may choose to assume the asbestos amount to be greater than one percent and treat the material as asbestos containing material (ACM) or require point counting for verification.
- Third, if a result obtained by point counting is different from a result obtained by visual estimation, the point count result will be used.

We will hold the samples for sixty (60) days in the event you choose to have future analysis performed on any sample containing less than 10 percent asbestos.

The results are shown on the following page. A < sign indicates the value reported was the practical quantitation limit for these samples using the method described. Concentrations of analyte, if present, below this were not quantifiable.

On April 1, 1989, our laboratory was assigned "accredited" status by the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program, (NVLAP), Laboratory Code No. 101292-0.

This report may not be used to claim a product endorsement by NVLAP or any agency of the U.S. government.

Analyzed by:

Reviewed by:

Attachments: Chain of Custody
Sample Receipt Checklist

caj

NORTHERN
Analytical Laboratories, Inc.

BUILDING MATERIAL ANALYSIS
ASBESTOS CONTENT

THOMAS, DEAN & HOSKINS – CAPEHART FAMILY HOUSING #3
#11 ASPEN STREET - 9900589.100

October 20, 1999
Job No. 87-911
Sheet 3 of 3

Lab No.	Sample Identification	Sample Description	Asbestos Identification and Estimated Quantity	Non-Asbestos Fibrous Material Identification and Estimated Quantity
141049	3.1A-Wallboard & joint compound – Rm 105	Three layers:		
		1) White crystalline layers w/paint (3%)	3% Chrysotile	97% Nonfibrous Binder
		2) White/tan fibrous layers (20%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		3) White chalky solid (77%)	None Detected	<1% Cellulose 99% Nonfibrous Binder
		Composite of Layers:	<1% Chrysotile	
141050	M3.1B-Wallboard & joint compound – Rm 103	Three layers:		
		1) Off-white crystalline layer (40%)	3% Chrysotile	97% Nonfibrous Binder
		2) Tan fibrous backing (20%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		3) White chalky solid (40%)	None Detected	<1% Cellulose 99% Nonfibrous Binder
		Composite of Layers:	1% Chrysotile	
141051	M3.1C-Wallboard & joint compound-Rm 104	Three layers:		
		1) Off-white crystalline solid w/paint (95%)	3% Chrysotile	97% Nonfibrous Binder
		2) Tan fibrous backing (2%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		3) White chalky solid (3%)	None Detected	<1% Cellulose 99% Nonfibrous Binder
		Composite of Layers:	3% Chrysotile	
141052	S1.1A-Surfacing compound Rm 104	One layer:		
		1) White crystalline layer w/paint (100%)	None Detected	100% Nonfibrous Binder
141053	S1.1B-Surfacing compound Rm 110	One layer:		
		1) Gray crystalline layer w/paint (100%)	3% Chrysotile	97% Nonfibrous Binder
141054	S1.1C-Surfacing compound Rm 109	Three layers:		
		1) White crystalline layer w/paint (30%)	3% Chrysotile	97% Nonfibrous Binder
		2) Tan fibrous backing (40%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		3) White chalky solid (30%)	None Detected	<1% Cellulose 99% Nonfibrous Binder
		Composite of Layers:	<1% Chrysotile	

BULK ASBESTOS SAMPLES

Maxim Technologies

Thomas, Dean & Hoskins
Client Name

Compliant Family Housing - #3
Project Name

#11 Aspen Street
Building Address

MAFB - Great Falls, MT.
City, State, and Zip Code

303 Irene Street
Street Address

Helena, MT. 59601
City, State, and Zip Code

443-5210 449-3729
Phone No. Fax No.

9900389-100
Project Number

10/4/99
Date Collected

Richard Lefebvre
Sample Collected by:

Normal (5-10 days)
Turn Around Time

Laboratory Number	Sample Number	Sample Description and Location	Date Collected	Analysis Required	Results
410976	M3.1A	Wallboard & Joint Compound - Rm 105	10/4/99	PCM	3%
977	M3.1B	- Rm 103			
978	M3.1C	- Rm 104			
979	S1.1A	Surfacing Compound - Rm 104			
980	S1.1B	- Rm 110			
981	S1.1C	- Rm 109			

Date	Time	Relinquished by	Total Samples Shipped	Received by	Total Samples
10/13/99	4:00pm	Richard Lefebvre	(6) To USPS Courier		
10/14/99	0930	USPS		Mike Lee	

SHEET 1 OF 1

NORTHERN Analytical Laboratories, Inc.

SAMPLE RECEIPT CHECKLIST

Dear Valued Client: This checklist documents the condition of your sample(s) as it (they) arrived at our lab. Please review it and familiarize yourself with its contents. Should you have any questions or comments, please contact us. Thank you for your use of our services.

Client Name: M-Hulen

Project: Thomas Dean & Hoskins

Laboratory Number(s): H0988/1993

Checklist Completed by: MW 10/14/99 (Initials / Date)

Date/Time Received: 10/14/99 0930 (Date / Time)

Received by: MW

Carrier Name: USPS

Sample Type: PLM

	YES	NO
1. Shipping container in good condition?	✓	
2. Custody seals present on shipping container? Condition: Intact ✓ Broken	✓	
3. Chain of custody present?	✓	
4. Chain of custody signed when relinquished and received?	✓	
5. Chain of custody agrees with sample labels?	✓	
6. Custody seals on sample bottles? Condition: Intact ___ Broken ___		✓
7. Samples in proper container/bottle?*	✓	
8. Sample containers intact?*	✓	
9. Sufficient sample volume for indicated test?*	✓	
10. Ice/Frozen Blue Ice present in shipping container? (circle one)	NA	
container temperature 1.___ 2.___ 3.___ * (if <0 or>10)		
11. All samples rec'd within holding time?*	✓	
12. VOA vials have zero headspace? * (if contains >5mm headspace)	NA	
13. Trip Blank received?		

	YES	NO
14. pH check performed by:		
15. Metals bottle(s) pH <2?		
16. Nutrient bottle(s) pH <2?		
17. Cyanide bottle(s) pH >12?		
18. Sulfide bottle(s) pH >9?		
19. TOC bottle(s) pH <2?		
20. Phenolics bottle(s) pH <2?		
21. Oil & grease bottle(s) pH <2? (checked by analyst)		
22. DRO/418.1 bottle(s) pH <2? (checked by analyst)		
23. Volatiles (VOA) pH <2? (VOA pH checked by analyst)		
24. Herbicides (515) pH <2? (checked by analyst)		
25. Semivolatiles (525) pH <2? (checked by analyst)		
26. Client contacted?		
27. Person contacted		
28. Date contacted		

WD

NOTES: **Samples may be affected when not transported at the temperature recommended by the EPA for the test you've selected. Please contact the lab if you have concerns about the temperature of your samples.**

* **Critical item - if marked "NO" contact lab manager.**

COMMENTS: _____

NORTHERN
Analytical Laboratories, Inc

602 South 25th Street
P O Box 30315
Billings, MT 59107
Telephone: (406) 254-7226
Fax: (406) 254-1389

REPORT TO: ATTN: RICHARD LEFERINK
MAXIM TECHNOLOGIES, INC.
P O BOX 4699
HELENA MT 59604

DATE: October 20, 1999
JOB NUMBER: 87-911
SHEET: 1 of 3
INVOICE NO.: 25516347

REPORT OF: Building Material Analysis – Thomas, Dean & Hoskins – Capehart Family Housing #3
#12 Aspen - 9900589.100

CASE NARRATIVE:

On October 14, 1999, our laboratory received six building material samples from Richard Leferink. A completed chain of custody record was received which identified the above referenced project as the source of the samples. Our laboratory assigned laboratory numbers 140988 through 140993 to the samples. This analysis was performed using an Olympus BH-2 polarizing microscope at magnifications of 40X to 400X in general accordance with EPA Method 600/R-93/116, July 1993, which employs polarized light microscopic techniques with dispersion staining for identification of mineral forms of asbestos.

There are currently six types of mineral fiber that are regulated as asbestos minerals. These are divided into two categories: serpentine asbestos and amphibole asbestos. Serpentine asbestos is called chrysotile, which is the most commonly encountered type of asbestos in the United States. Five of the asbestos minerals are amphiboles. Included in this group are fibrous grunerite (amosite), fibrous riebeckite (crocidolite), fibrous anthophyllite, fibrous tremolite and fibrous actinolite.

The EPA test method for bulk analysis (EPA/600/R-93/116) states in paragraph 2.2.2, that "the detection limit for visual estimation is a function of the quantity of sample analyzed, the nature of matrix interference, sample preparation, and fiber size and distribution. Asbestos may be detected in concentrations of less than one percent by area if sufficient material is analyzed. Samples may contain fibers too small to be resolved by PLM (<0.25 micrometers in diameter) so detection of those fibers by this method may not be possible".

In the case of nonhomogeneous samples (samples which contain more than one visually distinct material which is not mixed), concentrations of materials are given for each layer and composite values are given for the entire sample. The quantification of asbestos in the sample is intended to be a volume estimate only. The concentrations of various components reported for these samples are intended to represent the materials received at our laboratory for testing only. Variations in the concentrations due to the limitations of the test method, equipment, and operator are given below.

1 - 10%, true concentrations may vary ±5% from the reported value
10 - 50%, true concentrations may vary ±10% from the reported value
50 - 100%, true concentrations may vary ±10% from the reported value

According to the National Emission Standards for Hazardous Air Pollutants; Asbestos NESHAP Revision Final Rule in the Federal Register, Volume 55, Number 224 dated November 20, 1990, any friable material containing less than 10 percent asbestos by the Polarized Light Microscopy (PLM) Method is recommended to be verified by the Point Count Method using PLM. Friable asbestos material means any material containing more than one percent asbestos as determined by the visual PLM method, that when dry can be crumbled, pulverized or reduced to powder with hand pressure. This rule applies to building renovations and demolitions.

Building Material Analysis
Thomas, Dean & Hoskins – Capehart Family Housing #3
#12 Aspen - 9900589.100

October 20, 1999
Job No. 87-911
Sheet 2 of 3

The U.S. EPA Clarification of the Asbestos NESHAP Requirement to perform Point Counting dated May 8, 1991 states:

- First, that a sample which contains no asbestos by visual PLM does not have to be point counted.
- Second, the owner or operator of the building may choose to assume the asbestos amount to be greater than one percent and treat the material as asbestos containing material (ACM) or require point counting for verification.
- Third, if a result obtained by point counting is different from a result obtained by visual estimation, the point count result will be used.

We will hold the samples for sixty (60) days in the event you choose to have future analysis performed on any sample containing less than 10 percent asbestos.

The results are shown on the following page. A < sign indicates the value reported was the practical quantitation limit for these samples using the method described. Concentrations of analyte, if present, below this were not quantifiable.

On April 1, 1989, our laboratory was assigned "accredited" status by the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program, (NVLAP), Laboratory Code No. 101292-0.

This report may not be used to claim a product endorsement by NVLAP or any agency of the U.S. government.

Analyzed by: Mike Otness

Reviewed by: Caitlin Ahl

Attachments: Chain of Custody
Sample Receipt Checklist

caj

NORTHERN
Analytical Laboratories, Inc.

BUILDING MATERIAL ANALYSIS
ASBESTOS CONTENT

THOMAS, DEAN & HOSKINS – CAPEHART FAMILY HOUSING #3
#12 ASPEN - 9900589.100

October 20, 1999
Job No. 87-911
Sheet 3 of 3

Lab No.	Sample Identification	Sample Description	Asbestos Identification and Estimated Quantity	Non-Asbestos Fibrous Material Identification and Estimated Quantity
140988	M3.1A-Wallboard & joint compound – Rm 201	Three layers:		
		1) White crystalline layer w/paint (5%)	None Detected	100% Nonfibrous Binder & Paint
		2) Tan fibrous backing (25%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		3) White chalky solid (70%)	None Detected	<1% Cellulose 99% Nonfibrous Binder
140989	M3.1B-Wallboard & joint compound - Rm 201	Five layers:		
		1) Off-white crystalline w/brown mastic (2%)	3% Chrysotile	97% Nonfibrous Binder
		2) White crystalline layer w/paint (5%)	None Detected	100% Nonfibrous Binder
		3) Tan fibrous backing (<1%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		4) White chalky solid (90%)	None Detected	<1% Cellulose 99% Nonfibrous Binder
		5) Brown fibrous mass w/wood chips (2%)	None Detected	90% Cellulose 10% Nonfibrous Binder & Perlite
		Composite of Layers:	<1% Chrysotile	
140990	M3.1C-Wallboard & joint compound – Rm 102	Two layers:		
		1) Off-white crystalline layer w/paint (60%)	2% Chrysotile	98% Nonfibrous Binder
		2) Brown solid w/debris (40%)	None Detected	100% Nonfibrous Binder
		Composite of Layers:	1% Chrysotile	
140991	S1.1A-Surfacing compound Rm 101	Three layers:		
		1) Gray crystalline layer w/paint (30%)	3% Chrysotile	97% Nonfibrous Binder
		2) Tan fibrous layer (45%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		3) White chalky solid (25%)	None Detected	<1% Cellulose 99% Nonfibrous Binder
		Composite of Layers:	<1% Chrysotile	
140992	S1.1B-Surfacing compound Rm 101	One layer:		
		1) Gray crystalline layer w/paint (100%)	3% Chrysotile	97% Nonfibrous Binder
140993	S1.1C-Surfacing compound Rm 101		HOLD NOT ANALYZED	

CHAIN OF CUSTODY RECORD
BULK ASBESTOS SAMPLES

Maxim Technologies

Thomas, Dean & Hoskins
Client Name

9900589-100
Project Number

Carnegie Family Housing #3
Project Name

303 Irene Street
Street Address

10/4/99
Date Collected

#12 Aspen
Building Address

Helena, MT. 59601
City, State, and Zip Code

Richard Geerink
Sample Collected by:

MAFB - Great Falls, MT.
City, State, and Zip Code

443-5210
Phone No.

449-3729
Fax No.

Normal (5-10 days)
Turn Around Time

Laboratory Number	Sample Number	Sample Description and Location	Date Collected	Analysis Required	Results
140988	M3.1A	Wallboard, Joint Compound - Rm 201	10/4/99	PCM	
989	M3.1B	- Rm 201			
990	M3.1C	- Rm 102			
991	S1.1A	Sanding Compound - Rm 101			
992	S1.1B	- Rm 101			
993	S1.1C	- Rm 101			

Date	Time	Relinquished by	Total Samples Shipped	Received by	Total Samples
10/13/99	3:30pm	Richard Geerink	(6) USPS Courier		
Date	Time	Relinquished by	Total Samples Shipped	Received by	Total Samples
10/14/99	0730	USPS		M Walton	

NORTHERN Analytical Laboratories, Inc.

SAMPLE RECEIPT CHECKLIST

Dear Valued Client: This checklist documents the condition of your sample(s) as it (they) arrived at our lab. Please review it and familiarize yourself with its contents. Should you have any questions or comments, please contact us. Thank you for your use of our services.

Client Name: M-Helena

Project: Thomas, Dean & Hoskins

Laboratory Number(s): 140988/993

Checklist Completed by: MW 10/14/99 (Initials / Date)

Date/Time Received: 10/14/99 0730 (Date / Time)

Received by: MW

Carrier Name: USPS

Sample Type: PLM

	YES	NO
1. Shipping container in good condition?	✓	
2. Custody seals present on shipping container? Condition: Intact ✓ Broken	✓	
3. Chain of custody present?	✓	
4. Chain of custody signed when relinquished and received?	✓	
5. Chain of custody agrees with sample labels?	✓	
6. Custody seals on sample bottles? Condition: Intact ____ Broken ____		✓
7. Samples in proper container/bottle?*	✓	
8. Sample containers intact?*	✓	
9. Sufficient sample volume for indicated test?*	✓	
10. Ice/Frozen Blue Ice present in shipping container? (circle one)	NA	
container temperature 1.____ 2.____ 3.____ * (if <0 or>10)		
11. All samples rec'd within holding time?*	✓	
12. VOA vials have zero headspace? * (if contains >5mm headspace)	NA	
13. Trip Blank received?		

	YES	NO
14. pH check performed by:		
15. Metals bottle(s) pH <2?		NP
16. Nutrient bottle(s) pH <2?		
17. Cyanide bottle(s) pH >12?		
18. Sulfide bottle(s) pH >9?		
19. TOC bottle(s) pH <2?		
20. Phenolics bottle(s) pH <2?		
21. Oil & grease bottle(s) pH <2? (checked by analyst)		
22. DRO/418.1 bottle(s) pH <2? (checked by analyst)		
23. Volatiles (VOA) pH <2? (VOA pH checked by analyst)		
24. Herbicides (515) pH <2? (checked by analyst)		
25. Semivolatiles (525) pH <2? (checked by analyst)		
26. Client contacted?		
27. Person contacted		
28. Date contacted		

NOTES: **Samples may be affected when not transported at the temperature recommended by the EPA for the test you've selected. Please contact the lab if you have concerns about the temperature of your samples.**

* **Critical item - if marked "NO" contact lab manager.**

COMMENTS: _____

NORTHERN
Analytical Laboratories, Inc

602 South 25th Street
P O Box 30315
Billings, MT 59107
Telephone: (406) 254-7226
Fax: (406) 254-1389

REPORT TO: ATTN: RICHARD LEFERINK
MAXIM TECHNOLOGIES, INC.
P O BOX 4699
HELENA MT 59604

DATE: October 20, 1999
JOB NUMBER: 87-911
SHEET: 1 of 3
INVOICE NO.: 25516348

REPORT OF: Building Material Analysis – Thomas, Dean & Hoskins – Capehart Family Housing #3
#2 Cedar Street - 9900589.100

CASE NARRATIVE:

On October 14, 1999, our laboratory received six building material samples from Richard Leferink. A completed chain of custody record was received which identified the above referenced project as the source of the samples. Our laboratory assigned laboratory numbers 140982 through 140987 to the samples. This analysis was performed using an Olympus BH-2 polarizing microscope at magnifications of 40X to 400X in general accordance with EPA Method 600/R-93/116, July 1993, which employs polarized light microscopic techniques with dispersion staining for identification of mineral forms of asbestos.

There are currently six types of mineral fiber that are regulated as asbestos minerals. These are divided into two categories: serpentine asbestos and amphibole asbestos. Serpentine asbestos is called chrysotile, which is the most commonly encountered type of asbestos in the United States. Five of the asbestos minerals are amphiboles. Included in this group are fibrous grunerite (amosite), fibrous riebeckite (crocidolite), fibrous anthophyllite, fibrous tremolite and fibrous actinolite.

The EPA test method for bulk analysis (EPA/600/R-93/116) states in paragraph 2.2.2. that "the detection limit for visual estimation is a function of the quantity of sample analyzed, the nature of matrix interference, sample preparation, and fiber size and distribution. Asbestos may be detected in concentrations of less than one percent by area if sufficient material is analyzed. Samples may contain fibers too small to be resolved by PLM (<0.25 micrometers in diameter) so detection of those fibers by this method may not be possible".

In the case of nonhomogeneous samples (samples which contain more than one visually distinct material which is not mixed), concentrations of materials are given for each layer and composite values are given for the entire sample. The quantification of asbestos in the sample is intended to be a volume estimate only. The concentrations of various components reported for these samples are intended to represent the materials received at our laboratory for testing only. Variations in the concentrations due to the limitations of the test method, equipment, and operator are given below.

1 - 10%, true concentrations may vary ±5% from the reported value
10 - 50%, true concentrations may vary ±10% from the reported value
50 - 100%, true concentrations may vary ±10% from the reported value

According to the National Emission Standards for Hazardous Air Pollutants, Asbestos NESHAP Revision Final Rule in the Federal Register, Volume 55, Number 224 dated November 20, 1990, any friable material containing less than 10 percent asbestos by the Polarized Light Microscopy (PLM) Method is recommended to be verified by the Point Count Method using PLM. Friable asbestos material means any material containing more than one percent asbestos as determined by the visual PLM method, that when dry can be crumbled, pulverized or reduced to powder with hand pressure. This rule applies to building renovations and demolitions.

Building Material Analysis
Thomas, Dean & Hoskins – Capchart Family Housing #3
#2 Cedar Street - 9900589.100

October 20, 1999
Job No. 87-911

The U.S. EPA Clarification of the Asbestos NESHAP Requirement to perform Point Counting dated May 8, 1991 states:

- First, that a sample which contains no asbestos by visual PLM does not have to be point counted.
- Second, the owner or operator of the building may choose to assume the asbestos amount to be greater than one percent and treat the material as asbestos containing material (ACM) or require point counting for verification.
- Third, if a result obtained by point counting is different from a result obtained by visual estimation, the point count result will be used.

We will hold the samples for sixty (60) days in the event you choose to have future analysis performed on any sample containing less than 10 percent asbestos.

The results are shown on the following page. A < sign indicates the value reported was the practical quantitation limit for these samples using the method described. Concentrations of analyte, if present, below this were not quantifiable.

On April 1, 1989, our laboratory was assigned "accredited" status by the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program, (NVLAP), Laboratory Code No. 101292-0.

This report may not be used to claim a product endorsement by NVLAP or any agency of the U.S. government.

Analyzed by: Mike Ofness

Reviewed by: [signature]

Attachments: Chain of Custody
Sample Receipt Checklist

csj

NORTHERN
Analytical Laboratories, Inc

BUILDING MATERIAL ANALYSIS
ASBESTOS CONTENT

THOMAS, DEAN & HOSKINS -- CAPEHART FAMILY HOUSING #3
#2 CEDAR STREET - 9900589.100

October 20, 1999
Job No. 87-911
Sheet 3 of 3

Lab No.	Sample Identification	Sample Description	Asbestos Identification and Estimated Quantity	Non-Asbestos Fibrous Material Identification and Estimated Quantity
140982	M3.1A-Wallboard & joint compound -- Rm 101	Three layers:		
		1) Gray crystalline layer w/paint (5%)	3% Chrysotile	97% Nonfibrous Binder
		2) Tan fibrous backing (25%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		3) White chalky solid (70%)	None Detected	<1% Cellulose 99% Nonfibrous Binder
		Composite of Layers:	<1% Chrysotile	
140983	M3.1B-Wallboard & joint compound - Rm 101	Three layers:		
		1) Gray crystalline layer w/paint (5%)	3% Chrysotile	97% Nonfibrous Binder
		2) Tan fibrous backing (25%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		3) White chalky solid (70%)	None Detected	<1% Cellulose 99% Nonfibrous Binder
		Composite of Layers:	<1% Chrysotile	
140984	M3.1C-Wallboard & joint compound -- Rm 106	Two layers:		
		1) Tan fibrous layer w/paint (15%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		2) White chalky solid (85%)	None Detected	<1% Cellulose 99% Nonfibrous Binder
140985	S1.1A-Surfacing compound Rm 103	One layer:		
		1) Gray crystalline layer w/paint (100%)	3% Chrysotile	97% Nonfibrous Binder
140986	S1.1B-Surfacing compound Rm 101		HOLD NOT ANALYZED	
140987	S1.1C-Surfacing compound Rm 106		HOLD NOT ANALYZED	

CHAIN OF CUSTODY RECORD
BULK ASBESTOS SAMPLES

Thomas, Dean & Hoskins
Client Name

Maxim Technologies

9900589-100
Project Number

Copehart Family Housing - #3
Project Name

303 Irene Street
Street Address

10/12/99
Date Collected

#2 Cedar Street
Building Address

Helena, MT. 59601
City, State, and Zip Code

Richard Ceferink
Sample Collected by:

MAFB - Great Falls, MT.
City, State, and Zip Code

443-5210 449-3729
Phone No. Fax No.

Normal (5-10 day's)
Turn Around Time

Laboratory Number	Sample Number	Sample Description and Location	Date Collected	Analysis Required	Results
Nov 140982	M3.1A	Wallboard & Joint Compound - Rm 101	10/12/99	PCM	
983	M3.1B	- Rm 101	↓	↓	
984	M3.1C	- Rm 106	↓	↓	
985	S1.1A	Surfacing Compound - Rm 103	↓	↓	
986	S1.1B	- Rm 101	↓	↓	
987	S1.1C	- Rm 106	↓	↓	

Date	Time	Relinquished by	Total Samples Shipped	Received by	Total Samples
10/13/99	2:30 pm	R. Ceferink	(6) To USPS Courier		
Date	Time	Relinquished by	Total Samples Shipped	Received by	Total Samples
10/14/99	0730	USPS		M Walton	

NORTHERN Analytical Laboratories, Inc.

SAMPLE RECEIPT CHECKLIST

Dear Valued Client: This checklist documents the condition of your sample(s) as it (they) arrived at our lab. Please review it and familiarize yourself with its contents. Should you have any questions or comments, please contact us. Thank you for your use of our services.

Client Name: M-Habeeb

Project: Thomas, Dean & Hasler

Laboratory Number(s): 140988/993

Checklist Completed by: MW 10/14/99 (Initials / Date)

Date/Time Received: 10/14/99 0930 (Date / Time)

Received by: MW

Carrier Name: USPS

Sample Type: PLM

	YES	NO
1. Shipping container in good condition?	✓	
2. Custody seals present on shipping container? Condition: Intact ✓ Broken	✓	
3. Chain of custody present?	✓	
4. Chain of custody signed when relinquished and received?	✓	
5. Chain of custody agrees with sample labels?	✓	
6. Custody seals on sample bottles? Condition: Intact ____ Broken ____		✓
7. Samples in proper container/bottle?*	✓	
8. Sample containers intact?*	✓	
9. Sufficient sample volume for indicated test?*	✓	
10. Ice/Frozen Blue Ice present in shipping container? (circle one)	NA	
container temperature 1.____ 2.____ 3.____ * (if <0 or>10)		
11. All samples rec'd within holding time?*	✓	
12. VOA vials have zero headspace? * (if contains >5mm headspace)	NA	
13. Trip Blank received?		

	YES	NO
14. pH check performed by:		
15. Metals bottle(s) pH <2?	NP	
16. Nutrient bottle(s) pH <2?		
17. Cyanide bottle(s) pH >12?		
18. Sulfide bottle(s) pH >9?		
19. TOC bottle(s) pH <2?		
20. Phenolics bottle(s) pH <2?		
21. Oil & grease bottle(s) pH <2? (checked by analyst)		
22. DRO/418.1 bottle(s) pH <2? (checked by analyst)		
23. Volatiles (VOA) pH <2? (VOA pH checked by analyst)		
24. Herbicides (515) pH <2? (checked by analyst)		
25. Semivolatiles (525) pH <2? (checked by analyst)		
26. Client contacted?		
27. Person contacted		
28. Date contacted		

NOTES: **Samples may be affected when not transported at the temperature recommended by the EPA for the test you've selected. Please contact the lab if you have concerns about the temperature of your samples.**

* **Critical item - if marked "NO" contact lab manager.**

COMMENTS: _____

NORTHERN
Analytical Laboratories, Inc.

602 South 25th Street
P O Box 30318
Billings, MT 59107
Telephone: (406) 254-7226
Fax: (406) 254-1389

REPORT TO: ATTN: RICHARD LEFERINK
MAXIM TECHNOLOGIES, INC.
P O BOX 4699
HELENA MT 59604

DATE: October 21, 1999
JOB NUMBER: 87-911
SHEET: 1 of 4
INVOICE NO.: 25516346

REPORT OF: Building Material Analysis – Thomas, Dean & Hoskins – Capehart Family Housing #3
#12 Birch Street - 9900589.100

CASE NARRATIVE:

On October 14, 1999, our laboratory received nine building material samples from Richard Leferink. A completed chain of custody record was received which identified the above referenced project as the source of the samples. Our laboratory assigned laboratory numbers 140994 through 141002 to the samples. This analysis was performed using an Olympus BH-2 polarizing microscope at magnifications of 40X to 400X in general accordance with EPA Method 600/R-93/116, July 1993, which employs polarized light microscopic techniques with dispersion staining for identification of mineral forms of asbestos.

There are currently six types of mineral fiber that are regulated as asbestos minerals. These are divided into two categories: serpentine asbestos and amphibole asbestos. Serpentine asbestos is called chrysotile, which is the most commonly encountered type of asbestos in the United States. Five of the asbestos minerals are amphiboles. Included in this group are fibrous grunerite (amosite), fibrous riebeckite (crocidolite), fibrous anthophyllite, fibrous tremolite and fibrous actinolite.

The EPA test method for bulk analysis (EPA/600/R-93/116) states in paragraph 2.2.2. that "the detection limit for visual estimation is a function of the quantity of sample analyzed, the nature of matrix interference, sample preparation, and fiber size and distribution. Asbestos may be detected in concentrations of less than one percent by area if sufficient material is analyzed. Samples may contain fibers too small to be resolved by PLM (<0.25 micrometers in diameter) so detection of those fibers by this method may not be possible".

In the case of nonhomogeneous samples (samples which contain more than one visually distinct material which is not mixed), concentrations of materials are given for each layer and composite values are given for the entire sample. The quantification of asbestos in the sample is intended to be a volume estimate only. The concentrations of various components reported for these samples are intended to represent the materials received at our laboratory for testing only. Variations in the concentrations due to the limitations of the test method, equipment, and operator are given below.

1 - 10%, true concentrations may vary ±5% from the reported value
10 - 50%, true concentrations may vary ±10% from the reported value
50 - 100%, true concentrations may vary ±10% from the reported value

According to the National Emission Standards for Hazardous Air Pollutants; Asbestos NESHAP Revision Final Rule in the Federal Register, Volume 55, Number 224 dated November 20, 1990, any friable material containing less than 10 percent asbestos by the Polarized Light Microscopy (PLM) Method is recommended to be verified by the Point Count Method using PLM. Friable asbestos material means any material containing more than one percent asbestos as determined by the visual PLM method, that when dry can be crumbled, pulverized or reduced to powder with hand pressure. This rule applies to building renovations and demolitions.

Building Material Analysis
Thomas, Dean & Hoskins – Capehart Family Housing #3
#12 Birch Street - 9900589.100

October 21, 1999
Job No. 87-911
Sheet 2 of 4

The U.S. EPA Clarification of the Asbestos NESHAP Requirement to perform Point Counting dated May 8, 1991 states:

- First, that a sample which contains no asbestos by visual PLM does not have to be point counted.
- Second, the owner or operator of the building may choose to assume the asbestos amount to be greater than one percent and treat the material as asbestos containing material (ACM) or require point counting for verification.
- Third, if a result obtained by point counting is different from a result obtained by visual estimation, the point count result will be used.

We will hold the samples for sixty (60) days in the event you choose to have future analysis performed on any sample containing less than 10 percent asbestos.

The results are shown on the following page. A < sign indicates the value reported was the practical quantitation limit for these samples using the method described. Concentrations of analyte, if present, below this were not quantifiable.

On April 1, 1989, our laboratory was assigned "accredited" status by the National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program, (NVLAP), Laboratory Code No. 101292-0.

This report may not be used to claim a product endorsement by NVLAP or any agency of the U.S. government.

Analyzed by:

Reviewed by:

Attachments: Chain of Custody
Sample Receipt Checklist

caj

NORTHERN
Analytical Laboratories, Inc.

BUILDING MATERIAL ANALYSIS
ASBESTOS CONTENT

THOMAS, DEAN & HOSKINS – CAPEHART FAMILY HOUSING #3
#12 BIRCH STREET - 9900589.100

October 21, 1999
Job No. 87-911
Sheet 3 of 4

Lab No.	Sample Identification	Sample Description	Asbestos Identification and Estimated Quantity	Non-Asbestos Fibrous Material Identification and Estimated Quantity
140994	M3.1A-Wallboard & Joint compound – Rm 111	Three layers:		
		1) Gray crystalline solid w/paint (30%)	3% Chrysotile	97% Nonfibrous Binder
		2) Tan fibrous backing (35%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		3) White chalky solid (35%)	None Detected	<1% Cellulose 99% Nonfibrous Binder
		Composite of Layers:	<1% Chrysotile	
140995	M3.1B-Wallboard & Joint compound – Rm 105	Three layers:		
		1) Gray crystalline solid w/paint (25%)	3% Chrysotile	97% Nonfibrous Binder
		2) Tan fibrous backing (10%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		3) White chalky solid (65%)	None Detected	<1% Cellulose 99% Nonfibrous Binder
		Composite of Layers:	<1% Chrysotile	
140996	M3.1C-Wallboard & Joint compound – Rm 101	Three layers:		
		1) Gray crystalline solid w/paint (5%)	3% Chrysotile	97% Nonfibrous Binder
		2) Tan fibrous backing (25%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		3) White chalky solid (70%)	None Detected	<1% Cellulose 99% Nonfibrous Binder
		Composite of Layers:	<1% Chrysotile	
140997	M3.2A-Wallboard & Joint compound – Rm 001	Three layers:		
		1) White crystalline solid w/paint (2%)	None Detected	100% Nonfibrous Binder
		2) Tan fibrous backing (8%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		3) White chalky solid (90%)	None Detected	<1% Cellulose 99% Nonfibrous Binder
140998	M3.2B-Wallboard & Joint compound – Rm 001	Three layers:		
		1) White crystalline solid w/paint (2%)	None Detected	100% Nonfibrous Binder
		2) Tan fibrous backing (18%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		3) White chalky solid (80%)	None Detected	<1% Cellulose 99% Nonfibrous Binder

BUILDING MATERIAL ANALYSIS
ASBESTOS CONTENT

THOMAS, DEAN & HOSKINS – CAPEHART FAMILY HOUSING #3
#12 BIRCH STREET - 9900589.100

October 21, 1999
Job No. 87-911
Sheet 4 of 4

Lab No.	Sample Identification	Sample Description	Asbestos Identification and Estimated Quantity	Non-Asbestos Fibrous Material Identification and Estimated Quantity
140999	M3.2C-Wallboard & Joint compound – Rm 001	Three layers:		
		1) White crystalline solid w/paint (25%)	None Detected	100% Nonfibrous Binder
		2) Tan fibrous backing (20%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		3) White chalky solid (55%)	None Detected	<1% Cellulose 99% Nonfibrous Binder
141000	S1.1A-Surfacing Compound Rm 111	Two layers:		
		1) Gray crystalline layer w/paint (90%)	<1% Chrysotile	99% Nonfibrous Binder & Paint
		2) White fibrous layer (10%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		Composite of Layers:	<1% Chrysotile	
141001	S1.1B-Surfacing Compound Rm 104	Two layers:		
		1) Gray crystalline layer w/paint (75%)	3% Chrysotile	97% Nonfibrous Binder
		2) Tan fibrous backing (25%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		Composite of Layers:	2% Chrysotile	
141002	S1.1C-Surfacing Compound Rm 105	Two layers:		
		1) Gray crystalline layer w/paint (95%)	3% Chrysotile	97% Nonfibrous Binder
		2) White fibrous layer (5%)	None Detected	90% Cellulose 10% Nonfibrous Binder
		Composite of Layers:	3% Chrysotile	

BULK ASBESTOS SAMPLES

Maxim Technologies

Thomas, Dem's & Hoskins
Client Name

9900589-100
Project Number

Carpenter Family Housing #3
Project Name

303 Irene Street
Street Address

10/5/99
Date Collected

#12 Birch Street
Building Address

Helena, MT. 59601
City, State, and Zip Code

Richard Ceferink
Sample Collected by:

MAFB - Great Falls, MT.
City, State, and Zip Code

443-5210 449-3729
Phone No. Fax No.

Normal (5-10 days)
Turn Around Time

Laboratory Number	Sample Number	Sample Description and Location	Date Collected	Analysis Required	Results
140994	M3.1A	Wallboard : Joint Compound - Rm 111	10/5/99	PCM	
995	M3.1B	- Rm 105			
996	M3.1C	- Rm 101			
997	M3.2A	- Rm 001			
998	M3.2B	- Rm 001			
999	M3.2C	- Rm 001			
141000	S1.1A	Surfacing Compound - Rm 111			
001	S1.1B	- Rm 104			
002	S1.1C	- Rm 105			

Date	Time	Relinquished by	Total Samples Shipped	Received by	Total Samples
10/13/99	4:00pm	Richard Ceferink	(9) Tousers Courier		
Date	Time	Relinquished by	Total Samples Shipped	Received by	Total Samples
10/14/99	0930	USPS		M Walden	

SHEET 1 OF 1

NORTHERN Analytical Laboratories, Inc.

SAMPLE RECEIPT CHECKLIST

Dear Valued Client: This checklist documents the condition of your sample(s) as it (they) arrived at our lab. Please review it and familiarize yourself wi its contents. Should you have any questions or comments, please contact us. Thank you for your use of our services.

Client Name: M-Helena

Date/Time Received: 10/14/99 0730 (Date / Time)

Project: Thomas Dean & Hoskins

Received by: MW

Laboratory Number(s): 140988/1993

Carrier Name: USPS

Checklist Completed by: MW 10/14/99 (Initials / Date)

Sample Type: PLM

	YES	NO
1. Shipping container in good condition?	✓	
2. Custody seals present on shipping container? Condition: Intact ✓ Broken	✓	
3. Chain of custody present?	✓	
4. Chain of custody signed when relinquished and received?	✓	
5. Chain of custody agrees with sample labels?	✓	
6. Custody seals on sample bottles? Condition: Intact ____ Broken ____		✓
7. Samples in proper container/bottle?*	✓	
8. Sample containers intact?*	✓	
9. Sufficient sample volume for indicated test?*	✓	
10. Ice/Frozen Blue Ice present in shipping container? (circle one)	N/A	
container temperature 1.____ 2.____ 3.____ * (if <0 or>10)		
11. All samples rec'd within holding time?*	✓	
12. VOA vials have zero headspace? * (if contains >5mm headspace)	N/A	
13. Trip Blank received?		

	YES	NO
14. pH check performed by:		
15. Metals bottle(s) pH <2?		ND
16. Nutrient bottle(s) pH <2?		
17. Cyanide bottle(s) pH >12?		
18. Sulfide bottle(s) pH >9?		
19. TOC bottle(s) pH <2?		
20. Phenolics bottle(s) pH <2?		
21. Oil & grease bottle(s) pH <2? (checked by analyst)		
22. DRO/418.1 bottle(s) pH <2? (checked by analyst)		
23. Volatiles (VOA) pH <2? (VOA pH checked by analyst)		
24. Herbicides (515) pH <2? (checked by analyst)		
25. Semivolatiles (525) pH <2? (checked by analyst)		
26. Client contacted?		
27. Person contacted		
28. Date contacted		

NOTES: **Samples may be affected when not transported at the temperature recommended by the EPA for the test you've selected. Please contact the lab if you have concerns about the temperature of your samples.**

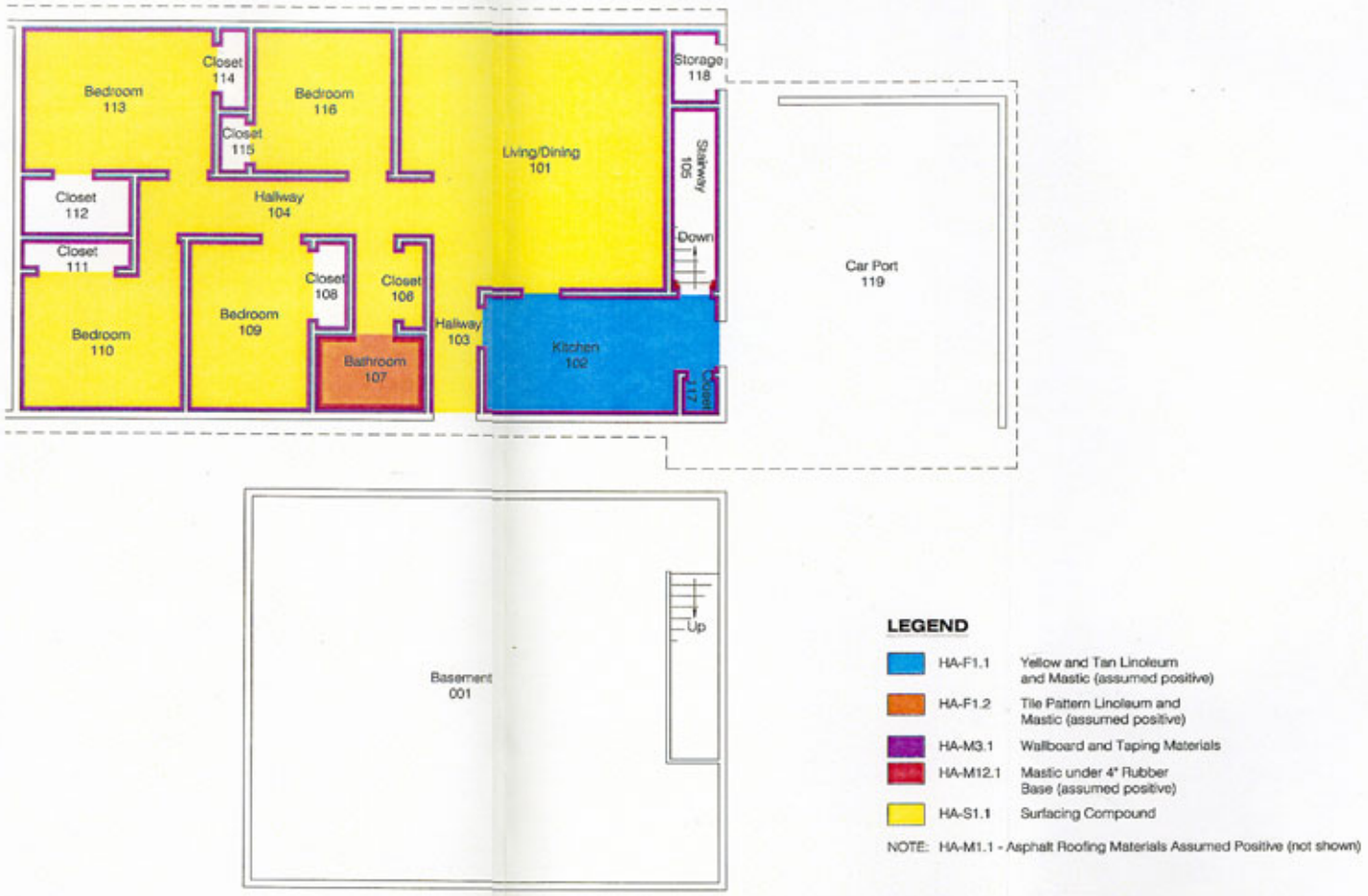
*** Critical item - if marked "NO" contact lab manager.**

COMMENTS: _____

APPENDIX D

ASBESTOS HOMOGENEOUS AREA DIAGRAMS

facility\maintrm\11aspen\floor.dwg



LEGEND

	HA-F1.1	Yellow and Tan Linoleum and Mastic (assumed positive)
	HA-F1.2	Tile Pattern Linoleum and Mastic (assumed positive)
	HA-M3.1	Wallboard and Taping Materials
	HA-M12.1	Mastic under 4" Rubber Base (assumed positive)
	HA-S1.1	Surfacing Compound

NOTE: HA-M1.1 - Asphalt Roofing Materials Assumed Positive (not shown)

N

0 Feet 8

MAXIM 9900589.100

October 1999

ACBM Homogeneous Area Locations
MAFB - 11 Aspen
Great Falls, Montana
FIGURE 1

facility\malmstrm\12aspen\floor.dwg

N

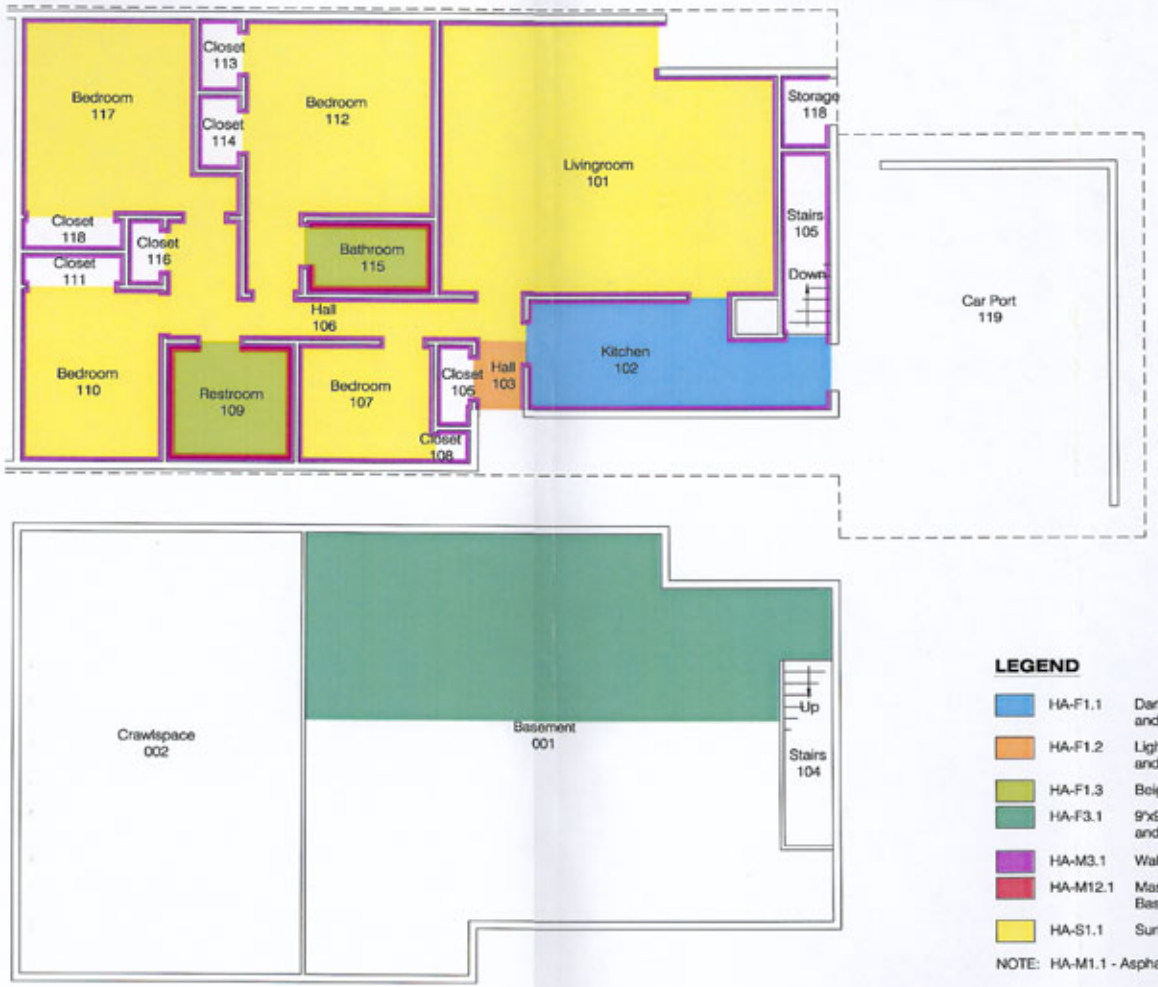
0 Feet 6

MAXIM 9900589.100

October 1999

ACBM Homogeneous Area Locations
MAFB - 12 Aspen
Great Falls, Montana
FIGURE 1

facility\malmstrm\2cedar\floor.dwg



LEGEND

	HA-F1.1	Dark Yellow/Beige Pattern Linoleum and Mastic (assumed positive)
	HA-F1.2	Light Yellow/Beige Pattern Linoleum and Mastic (assumed positive)
	HA-F1.3	Beige Linoleum and Mastic (assumed positive)
	HA-F3.1	9"x9" Tan and Gray Floor Tile and Mastic (assumed positive)
	HA-M3.1	Wallboard and Taping Materials
	HA-M12.1	Mastic under 4" Rubber Baseboard (assumed positive)
	HA-S1.1	Surfacing Compound

NOTE: HA-M1.1 - Asphalt Roofing Materials Assumed Positive (not shown)

N

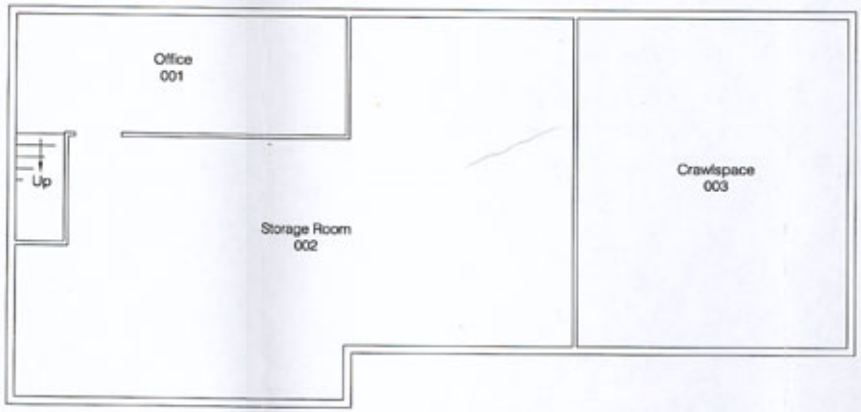
0 Feet 8

MAXIM 9900589.100

October 1999

ACBM Homogeneous Area Locations
MAFB - 2 Cedar
Great Falls, Montana
FIGURE 1

facility\malmstrm\12ceder\floor.dwg



LEGEND

	HA-F1.1	Beige Linoleum and Mastic (assumed positive) and Surfacing Compound
	HA-F1.2	Beige/Gray Linoleum and Mastic (assumed positive)
	HA-M3.1	Wallboard and Taping Materials
	HA-M12.1	Mastic under 4" Black Rubber Wallbase (assumed positive)
	HA-S1.1	Surfacing Compound

NOTE: HA-M1.1 - Asphalt Roofing Materials Assumed Positive (not shown)

N

0 Feet 8

MAXIM 9900589.100

October 1999

ACBM Homogeneous Area Locations
MAFB - 12 Birch
Great Falls, Montana
FIGURE 1

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APPENDIX E

PHOTOGRAPHS OF HOMOGENEOUS ASBESTOS-CONTAINING BUILDING MATERIALS

Photo 1 - Front of Residence (#11 Aspen)

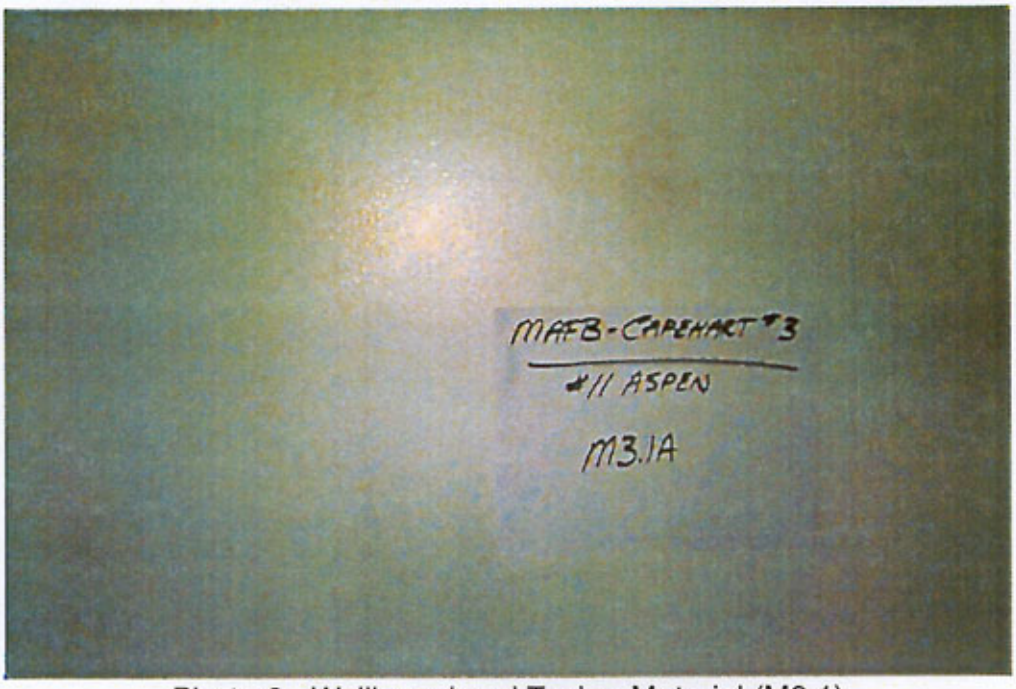

Photo 2 - Wallboard and Taping Material (M3.1)

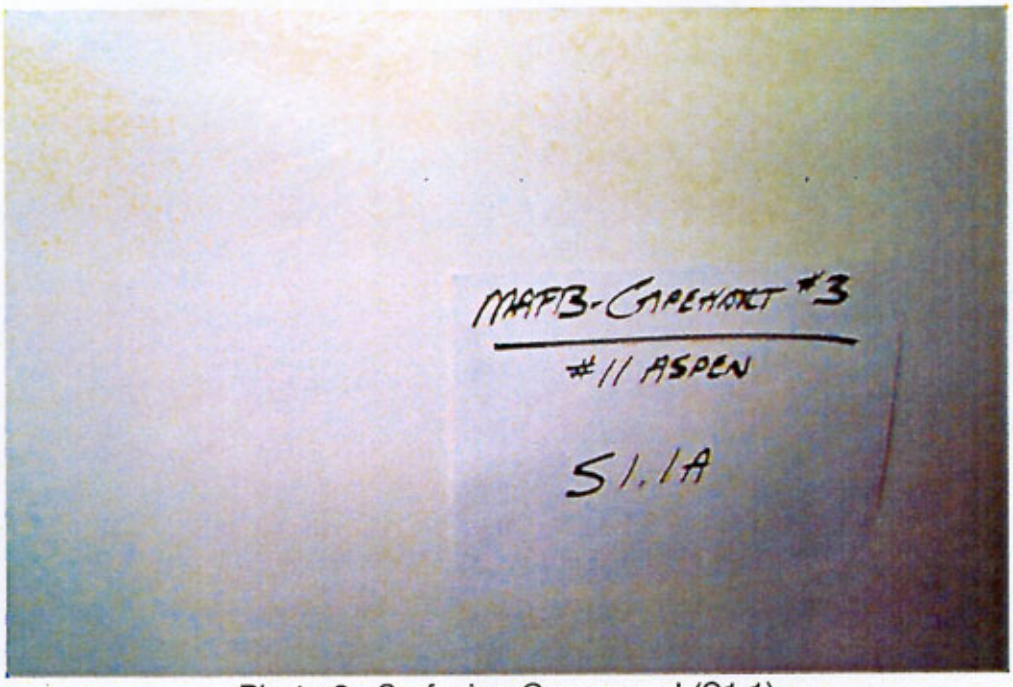

Photo 3 - Surfacing Compound (S1.1)

Photo 1 - Front of Residence (#12 Aspen)

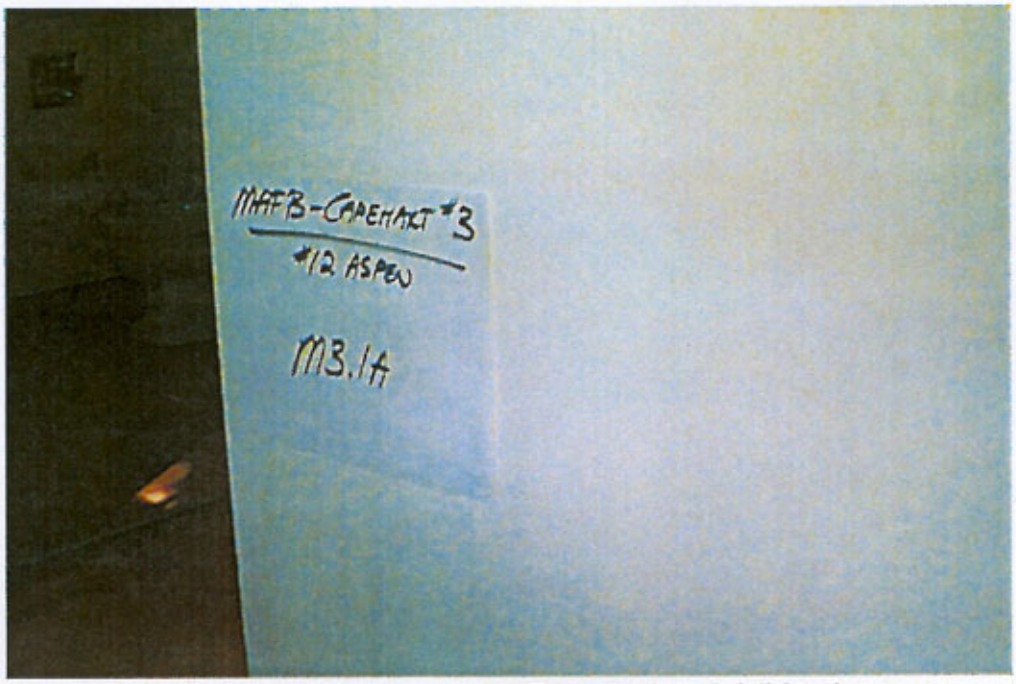

Photo 2 - Wallboard and Taping Material (M3.1)

Photo 3 - Surfacing Compound (S1.1)

Photo 1 - Front of Residence (#2 Cedar)

Photo 2 - Wallboard and Taping Material (M3.1)

Photo 3 - Surfacing Compound (S1.1)

Photo 1 - Front of Residence (#12 Birch)

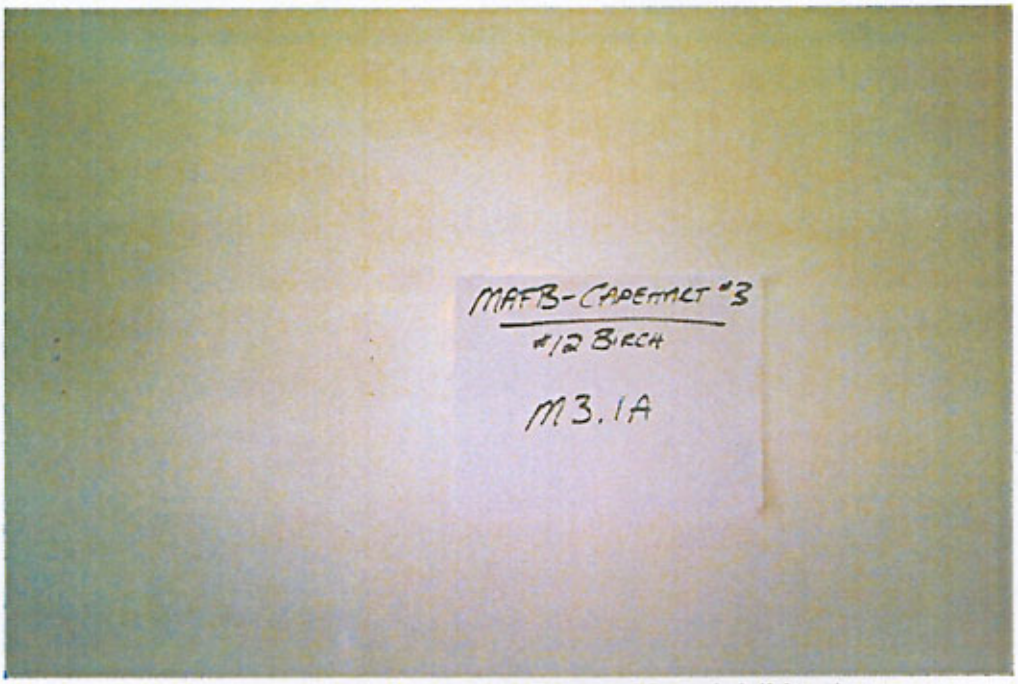

Photo 2 - Wallboard and Taping Material (M3.1)

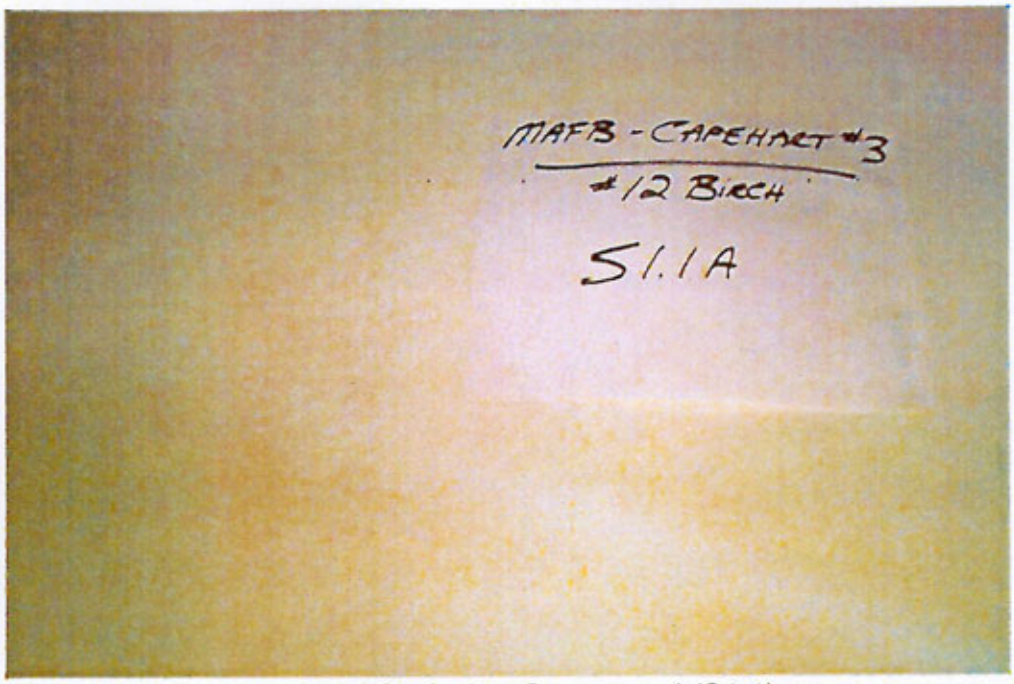

Photo 3 - Surfacing Compound (S1.1)

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APPENDIX F

LEAD-BASED PAINT XRF TEST RESULTS

EXPLANATION OF XRF TEST HEADINGS

Positive LHA-NO. refers to painted building components that are grouped together into homogeneous areas (LHAs) based on specific component type and substrate material.

The **Room #** refers to the room number given to the room by the inspector - not necessarily the room number shown on the doors in the building.

The **Side** heading refers to sides of the building. The outside of the building is lettered starting with the letter A. The A side of the building refers to the side in which the building gets its address, or in cases where there is no address it refers to the side where the front entrance is located. Then starting at the A side, the building is lettered consecutively B, C, D clockwise around the building. Inside the building, the rooms are labeled in the same manner.

The **Structure** heading refers to the actual structure being tested, such as a window, wall, or handrail.

The **Feature** refers to a part of the structure where the actual test was taken. For example, on a window the XRF may be held on the sash, the mullions or the casing. Features are assigned by the Niton in the field to ensure accuracy and displayed on the XRF Test Result Sheets. Features include doors, window sash ("sash"), window stools (a window component), and other building components.

The **Fea#** heading gives a location on features where the XRF reading was taken since different features on a structure may be painted with different paints, some possibly containing lead, others not.

The **Substrate** heading tells what the painted structure or feature is made of.

The **Lead Concentration (in mg/cm^2)** is the XRF measurement of the concentration (milligrams) of lead per square centimeter (cm^2) of a painted surface. According to HUD, the level of lead in paint or other coatings which materially endangers the health of children or adults by producing a substantial and serious danger of lead poisoning is a measurement of 1.0 mg/cm^2 or greater as measured by X-Ray Florescence (XRF).

The **Depth** is the XRF measurement of the depth of the layer or layers of paint corresponding to confidence intervals constructed by the XRF. The Niton XL ARF Depth Index, a scale from 1 - 10, 10 being deeply buried lead, provides for concentration calculations of: 1.0 mg/cm^2, plus or minus 0.15 mg/cm^2 for surface lead; plus or minus 0.2 mg/cm^2 for buried lead; plus or minus 0.3 mg/cm^2 for deeply buried lead, for all substrates at 95% confidence. The depth index is explained as follows: 1-3.0 for surface lead; 3.1-5.0 for buried lead; and 5.1-10 for deeply buried lead.

XRF Test Results
#11 Aspen Street
MAFB
Great Falls, Montana
Niton XL #309-U638NR154

Positive LHA-NO	Room#	Side	Structure	Feature	Fea#	Substrate	Pb mg/cm2	Depth
	101	A	Wall	Middle Wall		Drywall	<0.1	2.6
	101	A	Ceiling	Ceiling		Drywall	<0.1	4.7
	101	A	Window	Mullion		Wood	<0.1	1
26A	101	A	Wall	Baseboard		Wood	**1.07**	3.5
	101	A	Shelves	Closet		Wood	<0.1	1.7
	101	A	Shelves	Closet		Wood	<0.1	1
	101	A	Radiator	Radiator		Metal	0.13	5.5
	102	A	Wall	Middle Wall		Drywall	0.46	5.3
	102	A	Radiator	Radiator		Metal	0.4	3.3
	102	A	Ceiling	Ceiling		Drywall	0.19	3
	103	A	Wall	Wall	Upr	Drywall	0.25	9.3
14F	103	A	Door	Door		Wood	**2.04**	10
17F	103	A	Door	Jamb	Left	Wood	**1.19**	2
	103	A	Door	Casing	Left	Wood	0.13	3.2
26A	103	A	Wall	Baseboard		Wood	**0.81**	6.2
	102	A	Radiator	Radiator		Metal	<0.1	2.6
	104	A	Door	Jamb	Left	Wood	0.27	3.4
	104	A	Door	Casing	Left	Wood	0.14	2.3
26A	104	A	Wall	Baseboard		Wood	**1.77**	4.9
	105	A	Stairway	Step		Wood	<0.1	1
	105	A	Stairway	Stringer		Wood	<0.1	1
	105	A	Ceiling	Ceiling		Drywall	0.29	3.1
	105	A	Wall	Wall	Upr	Drywall	<0.1	1
	105	A	Wall	Wall	Lwr	Concrete	0.19	1.9
	105	A	Stairway	Step		Wood	0.2	2.2
	105	A	Stairway	Stringer		Wood	0.38	2.7
	001	A	Ceiling	Ceiling		Drywall	0.16	1
	001	A	Wall	Middle Wall		Concrete	0.33	3.5
	001	A	Floor	Floor		Concrete	<0.1	1
	001	A	Floor	Floor		Concrete	<0.1	1.1
	001	A	Wall	Wall	Lwr	Drywall	0.27	3.5
	001	A	Window	Sill	Ext	Wood	0.15	1.4
23A	001	A	Window	Sash	Lwr	Wood	**1.19**	1.9
	001	A	Columns	Columns		Metal	<0.1	2.9
	001	A	Columns	Columns		Metal	<0.1	5.9
	106	A	Floor	Floor		Wood	<0.1	1
	106	A	Wall	Middle Wall		Wood	<0.1	1
	107	A	Door	Jamb	Left	Wood	0.26	3.6
	107	A	Door	Casing	Left	Wood	0.1	2.6
	107	A	Window	Sash	Lwr	Wood	<0.1	1
	107	A	Radiator	Radiator		Metal	0.15	3.4
	108	A	Wall	Middle Wall		Drywall	<0.1	1
	108	A	Shelf	Holder		Wood	0.1	4.8
	105	A	Ceiling	Ceiling		Drywall	<0.1	1
	109	A	Window	Mullion		Wood	<0.1	1.4
26A	109	A	Wall	Baseboard		Wood	**0.75**	8.2

XRF Test Results
#11 Aspen Street
MAFB
Great Falls, Montana
Niton XL #309-U638NR154

Positive LHA-NO	Room#	Side	Structure	Feature	Fea#	Substrate	Pb mg/cm2	Depth
	109	A	Radiator	Radiator		Metal	<0.1	1.4
	110	A	Window	Stool		Wood	0.24	2.8
	110	A	Wall	Baseboard		Wood	<0.1	1
	111	A	Shelf	Holder		Wood	<0.1	1
	113	A	Door	Jamb	Left	Wood	<0.1	2
	113	A	Door	Jamb	Rht	Wood	<0.1	2.3
	113	A	Window	Sill	Ext	Wood	<0.1	1
26A	113	A	Wall	Baseboard		Wood	**0.76**	4.1
	115	A	Shelf	Holder		Wood	<0.1	1
	116	A	Radiator	Radiator		Metal	0.11	4.2
	EXT	A	Handrail	Handrail		Metal	0.21	1.2
	EXT	A	Handrail	Handrail		Metal	0.1	1
	EXT	A	Downspout	Downspout		Metal	<0.1	3.1
	EXT	A	Downspout	Downspout		Metal	<0.1	1.7
59F	EXT	A	Soffit	Soffit		Wood	**>5.09**	3.4
	EXT	A	Columns	Columns		Wood	<0.1	1
	EXT	A	Columns	Columns		Wood	<0.1	1
23A	EXT	A	Window	Sash	Ext	Wood	**3.73**	3.2
	EXT	A	Ext Wall	Siding		Metal	<0.1	6.9
	EXT	A	Ext Wall	Siding		Metal	<0.1	10
	EXT	A	Soffit	Soffit		Metal	<0.1	1
	EXT	A	Soffit	Soffit		Metal	<0.1	6.7
	EXT	A	Door	Door		Metal	<0.1	3
	EXT	A	Door	Jamb		Metal	<0.1	1
23A	EXT	A	Window	Sash	Ext	Wood	**>5.09**	4.1
	EXT	A	Door	Door		Wood	<0.1	1
	EXT	A	Door	Jamb		Metal	0.34	10
	EXT	A	Door	Threshold		Wood	<0.1	1
	EXT	A	Door	Jamb		Metal	<0.1	5.3
23A	EXT	A	Window	Sash	Ext	Wood	**3.5**	4.8

XRF Test Results
#12 Aspen Street
MAFB
Great Falls, Montana
Niton XL #309-U638NR154

Positive LHA-NO	Room#	Side	Structure	Feature	Fea#	Substrate	Pb mg/cm2	Depth
	101	A	Wall	Middle Wall		Drywall	0.08	2.3
14A	101	A	Door	Door		Wood	**1.6**	3.6
	101	A	Door	Casing	Left	Wood	<0.1	2
17A	101	A	Door	Jamb	Rht	Wood	**0.85**	2.5
	101	A	Window	Stool		Wood	0.12	1.9
	101	A	Window	Mullion		Wood	<0.1	1.1
	101	A	Window	Casing	Left	Wood	<0.1	1.1
26A	101	A	Wall	Baseboard		Wood	**0.86**	3
	101	A	Radiator	Radiator		Metal	<0.1	2.2
	102	A	Ceiling	Ceiling		Drywall	<0.1	1.6
	102	A	Wall	Middle Wall		Drywall	0.24	4
14A	102	A	Door	Door		Wood	**2.26**	2.8
17A	102	A	Door	Jamb	Left	Wood	**1.37**	2.5
	102	A	Door	Casing	Left	Wood	<0.1	1.4
	102	A	Window	Sash	Lwr	Wood	<0.1	1
	102	A	Window	Casing	Left	Wood	0.11	2.4
	103	A	Wall	Middle Wall		Drywall	<0.1	1.9
	103	A	Ceiling	Ceiling		Drywall	0.1	2.1
	103	A	Door	Jamb	Left	Wood	0.16	1.9
	103	A	Door	Casing	Left	Wood	<0.1	2.1
	103	A	Window	Casing	Rht	Wood	<0.1	2.4
	104	A	Wall	Middle Wall		Drywall	0.14	3.8
	104	A	Ceiling	Ceiling		Drywall	<0.1	1
	104	A	Stairs	Stringer		Wood	0.72	2.9
	104	A	Stairs	Stringer		Wood	0.57	2.5
	201	A	Wall	Wall	Upr	Drywall	<0.1	2.1
	201	A	Ceiling	Ceiling		Drywall	<0.1	1.5
	201	A	Door	Jamb	Left	Wood	<0.1	1.3
	201	A	Door	Casing	Left	Wood	0.15	2.2
	201	A	Window	Sill	Ext	Wood	<0.1	**2**
26A	201	A	Wall	Baseboard		Wood	<0.1	1
	202	A	Ceiling	Ceiling		Drywall	0.12	**2.2**
	203	A	Wall	Middle Wall		Wood	<0.1	1
	203	A	Wall	Wall		Wood	<0.1	1
	204	A	Window	Mullion		Wood	0.36	3.3
	204	A	Radiator	Radiator		Metal	<0.1	1.4
26A	204	A	Wall	Baseboard		Wood	**0.87**	2.3
	204	A	Door	Jamb	Left	Wood	<0.1	1.2
	204	A	Door	Casing	Left	Wood	0.16	2.1
26A	204	A	Wall	Baseboard		Wood	**0.97**	2.4
	205	A	Shelves	Closet		Wood	<0.1	1.5
	205	A	Shelves	Closet		Wood	<0.1	1
	206	A	Wall	Middle Wall		Drywall	<0.1	3.9
26A	206	A	Wall	Baseboard		Wood	**0.68**	2.4

XRF Test Results
#12 Aspen Street
MAFB
Great Falls, Montana
Niton XL #309-U638NR154

Positive LHA-NO	Room#	Side	Structure	Feature	Fea#	Substrate	Pb mg/cm2	Depth
	206	A	Radiator	Radiator		Metal	<0.1	1
	209	A	Ceiling	Ceiling		Drywall	<0.1	1
	209	A	Wall	Middle Wall		Drywall	0.1	2.6
	209	A	Door	Jamb	Left	Wood	0.12	2
	209	A	Door	Casing	Left	Wood	0.13	2.2
	209	A	Window	Mullion		Wood	<0.1	1
26A	209	A	Wall	Baseboard		Wood	**2.05**	3.4
	209	A	Radiator	Radiator		Metal	<0.1	3.2
	210	A	Shelves	Closet		Wood	<0.1	1
	210	A	Floor	Floor		Wood	<0.1	1
	210	A	Floor	Floor		Wood	<0.1	1
33I	EXT	A	Handrail	Handrail		Metal	**>5.09**	1.9
	EXT	A	Ext Wall	Siding		Metal	<0.1	3.2
	EXT	A	Door	Door		Metal	<0.1	1
	EXT	A	Door	Jamb		Metal	0.34	9.3
	EXT	A	Columns	Columns		Wood	<0.1	1
	EXT	A	Columns	Columns		Wood	<0.1	1
	EXT	A	Rain	Gutters		Metal	<0.1	1
	EXT	A	Rain	Gutters		Metal	0.18	1.7
46A	EXT	A	Soffit	Soffit		Wood	**3.75**	2.9
	EXT	A	Soffit	Soffit		Metal	0.49	10
46A	EXT	A	Soffit	Soffit		Wood	**>5.09**	4.2
	EXT	A	Window	Sash	Ext	Wood	0.53	2.7
	EXT	A	Downspout	Downspout		Metal	<0.1	1.4
	EXT	A	Downspout	Downspout		Metal	<0.1	1
14B	EXT	A	Door	Door		Wood	**>5.09**	2.4
17A	EXT	A	Door	Jamb		Wood	**2.62**	1.5
	105	A	Stairway	Edge		Wood	<0.1	1
	105	A	Foundation	Wall		Wood	<0.1	1
	105	A	Stairs	Tread		Wood	<0.1	1
	105	A	Stairs	Stringer		Wood	<0.1	1.2
	001	A	Wall	Middle Wall		Concrete	<0.1	1
	001	A	Wall	Middle Wall		Concrete	<0.1	1
	001	A	Window	Sash	Lwr	Wood	0.64	1.4
23A	001	A	Window	Storm	Ext	Wood	**2.92**	3.2
	001	A	Window	Casing	Rht	Wood	<0.1	1
23A	001	A	Window	Storm	Ext	Wood	**1.37**	1.2
14A	102	A	Door	Door		Wood	**2.04**	6.8
17A	201	A	Door	Jamb	Left	Wood	**1.54**	3.7
	102	A	Door	Casing	Left	Wood	0.36	2.7
	102	A	Window	Sill	Ext	Wood	0.36	3.1

XRF Test Results
#2 Cedar Street
MAFB
Great Falls, Montana
Niton XL #309-U638NR154

Positive LHA-NO	Room#	Side	Structure	Feature	Fea#	Substrate	Pb mg/cm2	Depth
	EXT	A	Rain Gutter	Rain Gutter		Metal	<0.1	1
	EXT	A	Rain Gutter	Rain Gutter		Metal	<0.1	5.6
	EXT	A	Downspout	Downspout		Metal	<0.1	2.8
	EXT	A	Downspout	Downspout		Metal	<0.1	1
	EXT	A	Soffit	Soffit		Metal	<0.1	1.5
	EXT	A	Soffit	Soffit		Metal	<0.1	3.2
55C	EXT	A	Soffit	Soffit		Wood	**>5.09**	3.9
55C	EXT	A	Beam	Beam		Wood	**4.31**	3.3
	EXT	A	Ext Wall	Siding		Metal	<0.1	2.4
	EXT	A	Ext Wall	Siding		Metal	<0.1	10
	EXT	A	Columns	Columns		Wood	<0.1	7.4
	EXT	A	Columns	Columns		Wood	<0.1	1
	EXT	A	Window	Sash	Ext	Wood	<0.1	1
23D	EXT	A	Window	Sash	Ext	Wood	**>5.09**	4.2
33I	EXT	A	Handrail	Handrail		Metal	**>5.09**	1.3
	EXT	A	Door	Door		Metal	<0.1	1
	EXT	A	Door	Jamb		Metal	<0.1	1
	EXT	A	Door	Door		Metal	<0.1	1.7
	EXT	A	Door	Door		Metal	<0.1	1
	EXT	A	Door	Jamb		Metal	<0.1	1
	EXT	A	Door	Jamb		Metal	<0.1	1
14C	EXT	A	Door	Door		Wood	**2.37**	10
	EXT	A	Door	Threshold		Wood	<0.1	2.4
17D	EXT	A	Door	Jamb		Wood	**2.01**	4
23D	EXT	A	Window	Sash	Ext	Wood	**3.37**	3.5
	101	A	Ceiling	Ceiling		Drywall	<0.1	1.6
	101	A	Wall	Middle Wall		Drywall	<0.1	1
	101	A	Door	Door		Wood	<0.1	1
	101	A	Door	Door		Wood	<0.1	1
17A	101	A	Door	Jamb	Left	Wood	**1.02**	2.9
17A	101	A	Door	Casing	Left	Wood	**0.7**	6.8
	101	A	Door	Casing	Rht	Wood	<0.1	2.1
	101	A	Window	Sill	Ext	Wood	0.15	4.6
26A	101	A	Wall	Baseboard		Wood	**0.76**	4.8
	101	A	Radiator	Radiator		Metal	0.03	2.1
	102	A	Ceiling	Ceiling		Drywall	<0.1	1
	102	A	Wall	Middle Wall		Drywall	0.1	2.8
	102	A	Door	Door		Metal	0.01	2.7
	102	A	Door	Jamb	Left	Wood	<0.1	1
	102	A	Door	Jamb	Left	Wood	<0.1	1
	102	A	Door	Door		Metal	<0.1	1
	102	A	Door	Casing	Left	Wood	<0.1	1
	102	A	Window	Mullion		Wood	0.14	2.3
	105	A	Wall	Wall	Upr	Drywall	<0.1	1
	105	A	Wall	Wall	Lwr	Concrete	<0.1	1.7

XRF Test Results
#2 Cedar Street
MAFB
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Niton XL #309-U638NR154

Positive LHA-NO	Room#	Side	Structure	Feature	Fea#	Substrate	Pb mg/cm2	Depth
	105	A	Ceiling	Ceiling		Drywall	0.14	10
	105	A	Stair	Stringer		Wood	<0.1	1
	105	A	Stair	Tread		Wood	0.44	4.5
	105	A	Door	Jamb	Left	Wood	<0.1	2.4
	105	A	Door	Casing	Left	Wood	0.73	2.5
	105	A	Stairwell	Wall		Wood	<0.1	1.1
	105	A	Molding	Wall		Wood	0.24	9.3
	001	A	Ceiling	Ceiling		Wood	<0.1	1
	001	A	Ceiling	Ceiling		Wood	<0.1	1
	001	A	Wall	Middle Wall		Concrete	0.13	2.2
	001	A	Wall	Wall	Upr	Concrete	<0.1	1
23A	001	A	Window	Stool		Wood	**1.5**	6.4
	001	A	Wall	Baseboard		Wood	<0.1	1
	001	A	Wall	Baseboard		Wood	<0.1	1
	001	A	Hatch	Door		Wood	0.34	1.6
	001	A	Hatch	Door		Wood	<0.1	1
57A	001	A	Hatch	Door		Metal	**>5.09**	1.9
	103	A	Ceiling	Ceiling		Drywall	<0.1	1.7
	103	A	Wall	Middle Wall		Drywall	<0.1	1
	103	A	Door	Door		Metal	<0.1	3.1
	103	A	Door	Jamb	Left	Wood	<0.1	1
	103	A	Door	Jamb	Left	Wood	<0.1	1
	103	A	Door	Casing	Left	Wood	<0.1	1
26A	103	A	Wall	Baseboard		Wood	**0.94**	2.3
	104	A	Shelves	Holder		Wood	<0.1	1
	106	A	Door	Jamb	Left	Wood	0.46	7.1
26A	106	A	Wall	Baseboard		Wood	**0.86**	5.5
	106	A	Door	Casing	Left	Wood	0.68	5.9
	107	A	Window	Sill	Ext	Wood	<0.1	1.6
	107	A	Radiator	Radiator		Metal	<0.1	1
	108	A	Shelves	Holder		Wood	<0.1	1
	108	A	Wall	Baseboard		Wood	0.65	3.9
	109	A	Radiator	Radiator		Metal	<0.1	1.4
	109	A	Window	Sill	Ext	Wood	<0.1	1.7
	109	A	Door	Jamb	Left	Wood	<0.1	1
20A	109	A	Door	Casing	Left	Wood	**0.93**	7.1
	109	A	Ceiling	Ceiling		Drywall	<0.1	2
	109	A	Wall	Middle Wall		Drywall	0.25	5.7
	110	A	Door	Jamb	Left	Wood	<0.1	1
	110	A	Door	Casing	Left	Wood	0.64	5.7
	110	A	Window	Stops	Left	Wood	0.27	2.4
26A	110	A	Wall	Baseboard		Wood	**1.22**	3.6
	110	A	Radiator	Radiator		Metal	0.12	3.7
	111	A	Unlisted			Wood	<0.1	1.4
	116	A	Floor	Floor		Wood	<0.1	1.1
	116	A	Ceiling	Ceiling		Wood	<0.1	1

XRF Test Results
#2 Cedar Street
MAFB
Great Falls, Montana
Niton XL #309-U638NR154

Positive LHA-NO	Room#	Side	Structure	Feature	Fea#	Substrate	Pb mg/cm2	Depth
	101	A	Wall	Middle Wall		Drywall	0.3	4.9
26A	101	A	Wall	Baseboard		Wood	**0.76**	2.9
	101	A	Radiator	Radiator		Metal	0.15	3.3
	101	A	Window	Sill	Ext	Wood	0.35	4.5
	104	A	Ceiling	Ceiling		Drywall	0.15	3.7
	104	A	Wall	Wall	Lwr	Drywall	0.11	2.1
	104	A	Door	Door		Metal	<0.1	1
	104	A	Door	Jamb	Left	Wood	<0.1	1
	104	A	Door	Casing	Left	Wood	<0.1	1
	104	A	Door	Jamb	Left	Wood	<0.1	1
	104	A	Wall	Baseboard		Wood	0.44	4.2
	103	A	Unlisted	Unlisted		Wood	0.13	1.3

XRF Test Results
#12 Birch Street
MAFB
Great Falls, Montana
Niton XL #309-U638NR154

Positive LHA-NO	Room#	Side	Structure	Feature	Fea#	Substrate	Pb mg/cm2	Depth
	105	A	Wall	Middle Wall		Drywall	0.2	3.8
	105	A	Ceiling	Ceiling		Drywall	0.28	5
	105	A	Door	Jamb	Left	Wood	0.1	1.4
	105	A	Door	Casing	Left	Wood	0.32	4.8
26A	105	A	Wall	Baseboard		Wood	**1.46**	3.7
	107	A	Ceiling	Ceiling		Wood	<0.1	2
	107	A	Window	Sill	Ext	Wood	0.21	4.2
	107	A	Radiator	Radiator		Metal	<0.1	2.2
	108	A	Ceiling	Ceiling		Wood	0.33	2.2
	108	A	Floor	Floor		Wood	0.38	1.8
	109	A	Ceiling	Ceiling		Drywall	<0.1	1
	109	A	Wall	Middle Wall		Drywall	<0.1	1
	109	A	Door	Jamb	Left	Wood	0.14	2.1
	109	A	Door	Casing	Left	Wood	0.19	3.6
	109	A	Window	Sill	Ext	Wood	0.15	2.4
26A	109	A	Baseboard	Baseboard		Wood	**1.11**	4.1
	109	A	Radiator	Radiator		Wood	<0.1	1
	117	A	Door	Jamb	Left	Wood	<0.1	1.3
	117	A	Door	Casing	Left	Wood	<0.1	1.4
	117	A	Window	Sash	Upr	Wood	<0.1	1.6
	117	A	Radiator	Radiator		Metal	0.27	7.8
	118	A	Ceiling	Ceiling		Drywall	<0.1	1
	118	A	Wall	Wall	Lwr	Drywall	<0.1	1.8
	118	A	Wall	Wall	Lwr	Concrete	0.14	9.1
	118	A	Wall	Wall	Lwr	Concrete	<0.1	4.9
	118	A	Unlisted	Unlisted		Wood	<0.1	1.1
	118	A	Stairwell	Molding		Wood	<0.1	2.5
	001	A	Ceiling	Ceiling		Drywall	<0.1	3.3
	001	A	Ceiling	Ceiling		Drywall	<0.1	4.9
	001	A	Wall	Middle Wall		Drywall	<0.1	1
	001	A	Wall	Middle Wall		Drywall	<0.1	1
	001	A	Ceiling	Ceiling		Wood	<0.1	1
	001	A	Ceiling	Ceiling		Wood	<0.1	1
23A	001	A	Window	Sash	Lwr	Wood	**1.03**	1.2
	001	A	Wall	Baseboard		Wood	<0.1	1
	001	A	Wall	Baseboard		Wood	<0.1	1
	002	A	Wall	Middle Wall		Concrete	0.17	8
	002	A	Wall	Middle Wall		Concrete	<0.1	1
23F	002	A	Window	Sash	Lwr	Wood	**1.05**	1.5
55C	EXT	A	Beams	Beams		Wood	**4.43**	3.1
55C	EXT	A	Soffit	Soffit		Wood	**>5.09**	2.5
	EXT	A	Soffit	Soffit		Metal	0.11	3.2
	EXT	A	Soffit	Soffit		Metal	0.39	10
33I	EXT	A	Handrail	Handrail		Metal	**>5.09**	1.2

XRF Test Results
#12 Birch Street
MAFB
Great Falls, Montana
Niton XL #309-U638NR154

Positive LHA-NO	Room#	Side	Structure	Feature	Fea#	Substrate	Pb mg/cm2	Depth
	EXT	A	Unlisted	Unlisted		Wood	<0.1	1
	EXT	A	Unlisted	Unlisted		Wood	<0.1	1
	EXT	A	Downspout	Downspout		Metal	<0.1	1.1
	EXT	A	Downspout	Downspout		Metal	<0.1	1
	EXT	A	Door	Door		Metal	<0.1	1
	EXT	A	Door	Door		Metal	<0.1	1
	EXT	A	Door	Jamb		Metal	<0.1	7.9
	EXT	A	Door	Jamb		Metal	<0.1	1
14A	EXT	A	Door	Door		Wood	**2.73**	3.9
17A	EXT	A	Door	Jamb		Wood	**3.31**	3.6
	EXT	A	Ext Wall	Siding		Metal	<0.1	10
	EXT	A	Ext Wall	Siding		Metal	<0.1	7.7
	EXT	A	Window	Sash	Ext	Wood	0.19	1.3
23D	EXT	A	Window	Sill	Ext	Wood	**2.67**	3.7
	EXT	A	Door	Door		Wood	<0.1	1
17D	EXT	A	Door	Jamb		Wood	**0.65**	4
	EXT	A	Door	Jamb		Metal	<0.1	1
	EXT	A	Door	Door		Wood	<0.1	1
	EXT	A	Floor	Floor		Wood	<0.1	1
	EXT	A	Floor	Floor		Wood	<0.1	1.6
	EXT	A	Wall	Middle Wall		Drywall	<0.1	1
	EXT	A	Ceiling	Ceiling		Drywall	<0.1	4.8
	EXT	A	Unlisted	Unlisted		Wood	<0.1	1
48C	EXT	A	Wall	Baseboard		Wood	**1.27**	3.2

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APPENDIX G

LEAD-BASED PAINT HOMOGENEOUS AREA DIAGRAMS

facility\maimstrm\11aspen\floor.dwg

LEGEND

	LHA 14F & 17F	White Wood Door and Door Jamb
	LHA 23A	White Wood Window
	LHA 26A	White Wood Baseboard
	LHA 59F	Green Wood Soffit and Beams

N

0 Feet 8

MAXIM 9900589.100

October 1999

LBP Homogeneous Area Locations
MAFB - 11 Aspen
Great Falls, Montana
FIGURE 2

facility\malmstrm\12aspen\floor.dwg

N

0 Feet 6

MAXIM 9900589.100

October 1999

LBP Homogeneous Area Locations
MAFB - 12 Aspen
Great Falls, Montana
FIGURE 2

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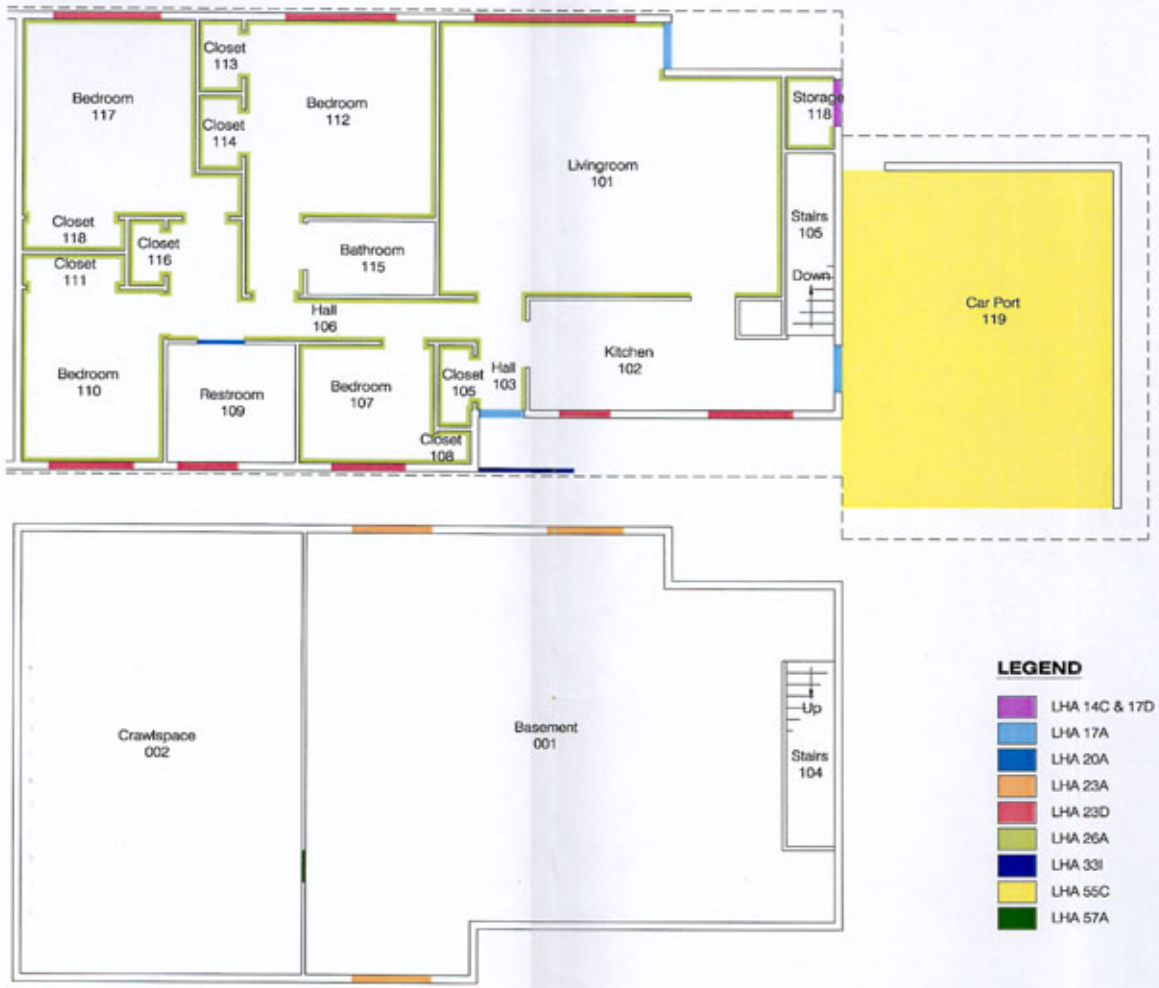

LEGEND

	LHA 14C & 17D	Tan Wood Door and Brown Wood Jamb
	LHA 17A	White Wood Door Jamb
	LHA 20A	White Wood Door Case
	LHA 23A	White Wood Window
	LHA 23D	Brown Wood Window
	LHA 26A	White Wood Baseboard
	LHA 33I	Black Metal Handrail
	LHA 55C	Tan Wood Soffit and Beams
	LHA 57A	White Metal Crawlspace Access Hatch

N

0 Feet 8

MAXIM 9900589.100

October 1999

LBP Homogeneous Area Locations
MAFB - 2 Cedar
Great Falls, Montana
FIGURE 2

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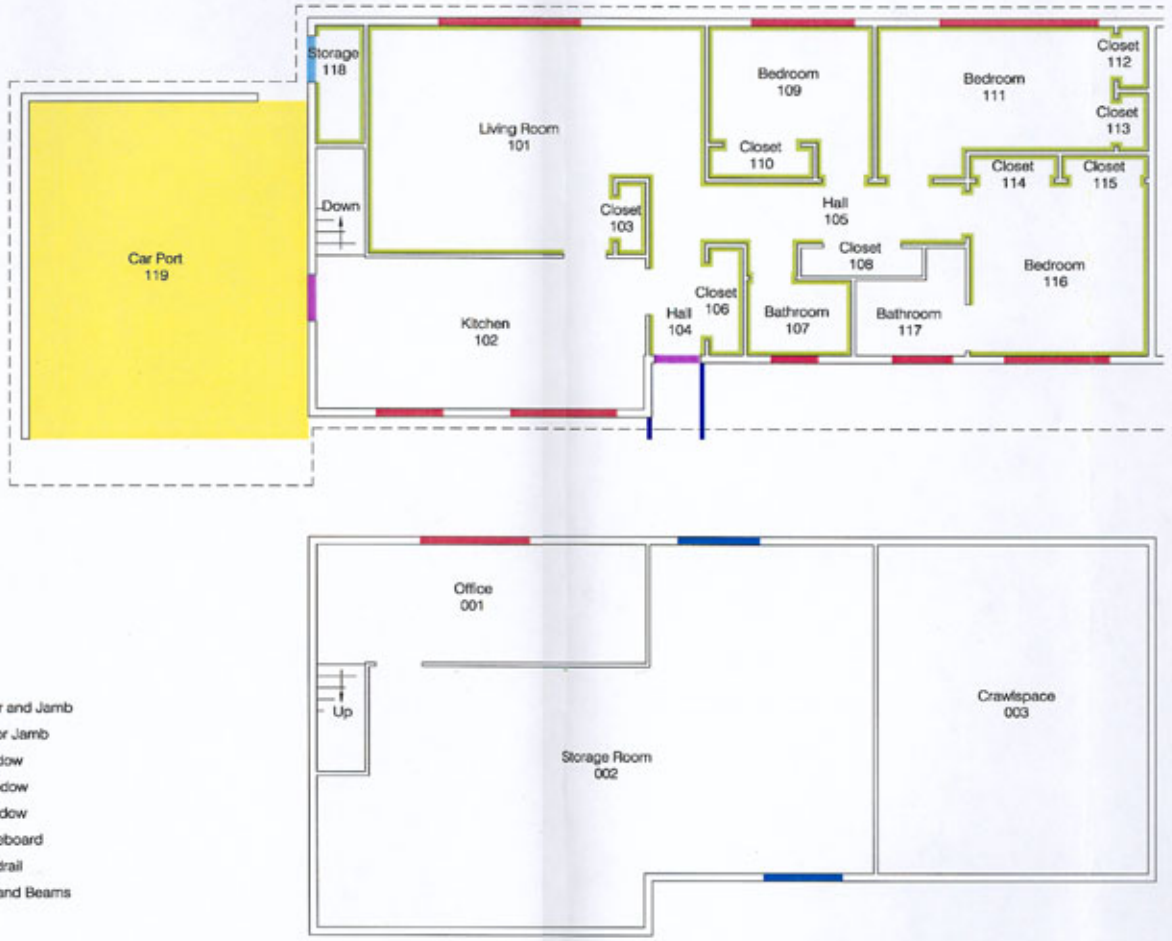

LEGEND

	LHA 14A & 17A	White Wood Door and Jamb
	LHA 17D	Brown Wood Door Jamb
	LHA 23A	White Wood Window
	LHA 23D	Brown Wood Window
	LHA 23F	Green Wood Window
	LHA 26A	White Wood Baseboard
	LHA 33I	Black Metal Handrail
	LHA 37C & 55C	Tan Wood Soffit and Beams

N

0 Feet 8

MAXIM 9900589.100

October 1999

LBP Homogeneous Area Locations
MAFB - 12 Birch
Great Falls, Montana
FIGURE 2

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APPENDIX H

PHOTOGRAPHS OF HOMOGENEOUS LEAD-BASED PAINTED BUILDING MATERIALS

Photo 1 - Front of Residence (#11 Aspen)

Photo 2 - Green Wood Door and Door Jamb (LHA-14F & 17F)

Photo 3 - White Wood Window (LHA-23A)

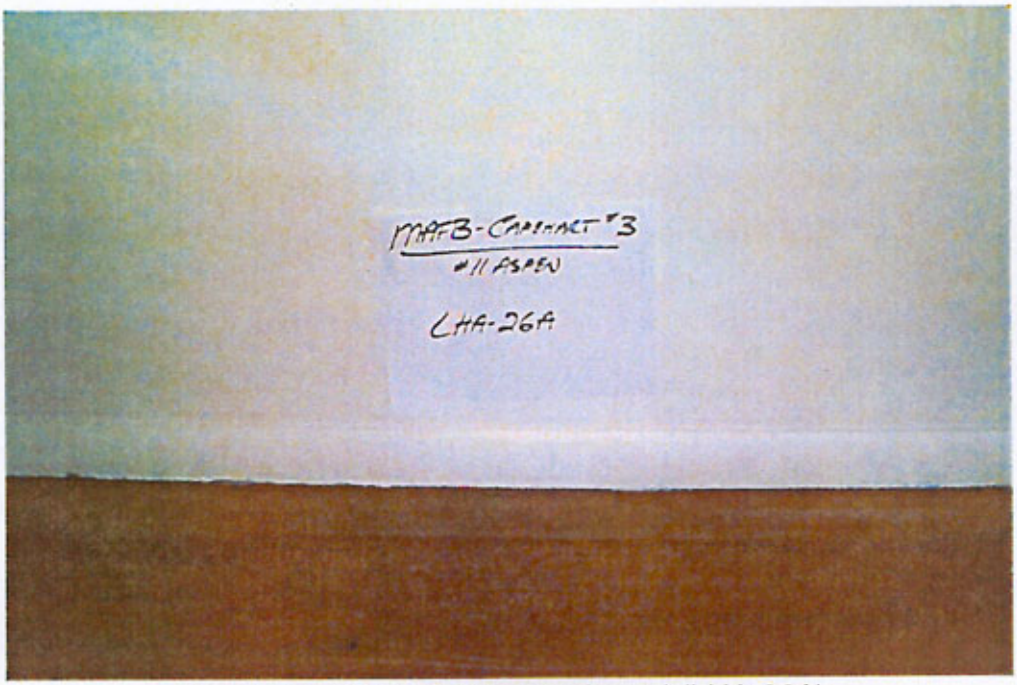

Photo 4 - White Wood Baseboard (LHA-26A)

Photo 5 - Green Wood Soffit and Beams (LHA-59F)

Photo 1 - Front of Residence (#12 Aspen)

Photo 2 - Cream Wood Door and White Wood Door Jamb
(LHA-14B & 17A)

Photo 3 - White Wood Door and Door Jamb (LHA-14A &17A)

Photo 4 - White Wood Window (LHA-23A)

Photo 5 - White Wood Baseboard (LHA-26A)

Photo 6 - Black Metal Handrail (LHA-33I)

Photo 7 - White Wood Soffit and Beams (LHA-46A)

Photo 1 - Front of Residence (#2 Cedar)

Photo 2 - Tan Wood Door and Brown Wood Door Jamb
(LHA-14C & 17D)

Photo 3 - White Wood Door Jamb (LHA-17A)

Photo 4 - Brown Wood Window (LHA-23D)

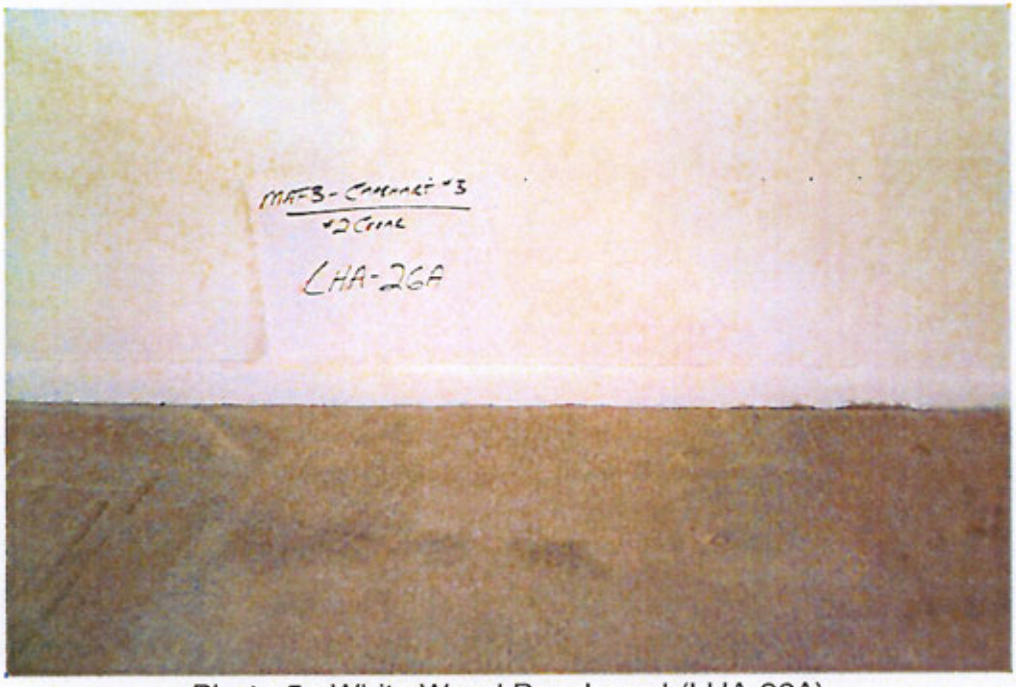

Photo 5 - White Wood Baseboard (LHA-26A)

Photo 6 - Black Metal Handrail (LHA-33I)

Photo 7 - Tan Wood Soffit (LHA-55C)

Photo 8 - White Metal Crawlspace Access Hatch (LHA-57A)

NO PHOTO AVAILABLE

Photo 9 - White Wood Window (LHA-23A)

NO PHOTO AVAILABLE

Photo 10 - White Wood Door Casing (LHA-20A)

Photo 1 - Front of Residence (#12 Birch)

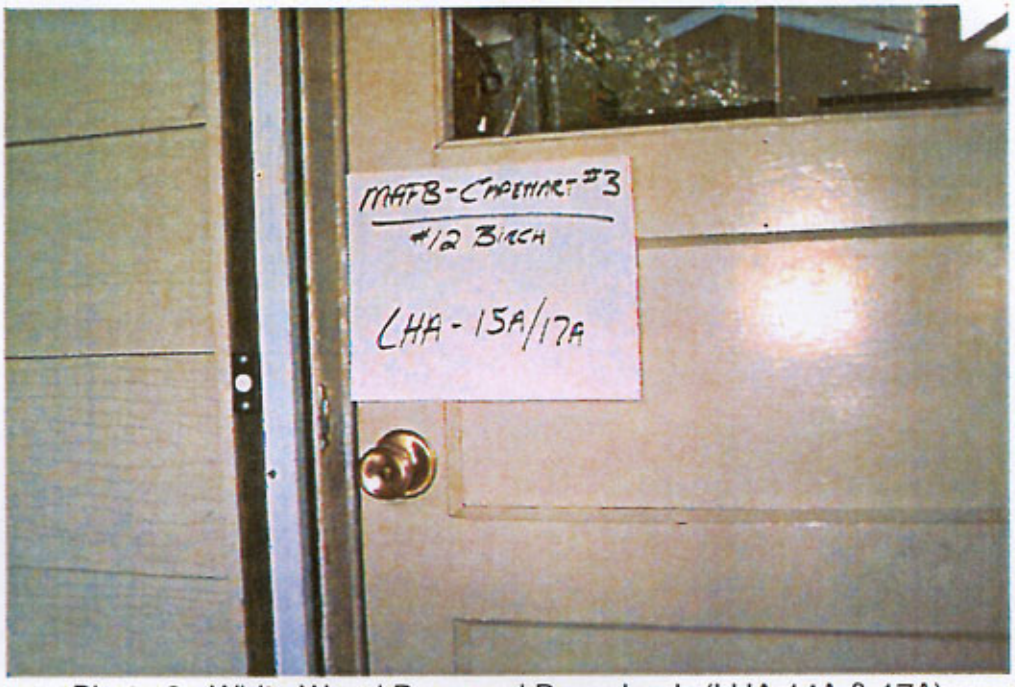

Photo 2 - White Wood Door and Door Jamb (LHA-14A & 17A)

Photo 3 - Brown Wood Door Jamb (LHA-17D)

Photo Not Available

Photo 4 - White Wood Window (LHA-23A)

Photo 5 - Brown Wood Window (LHA-23D)

Photo Not Available

Photo 6 - Green Wood Window (LHA-23F)

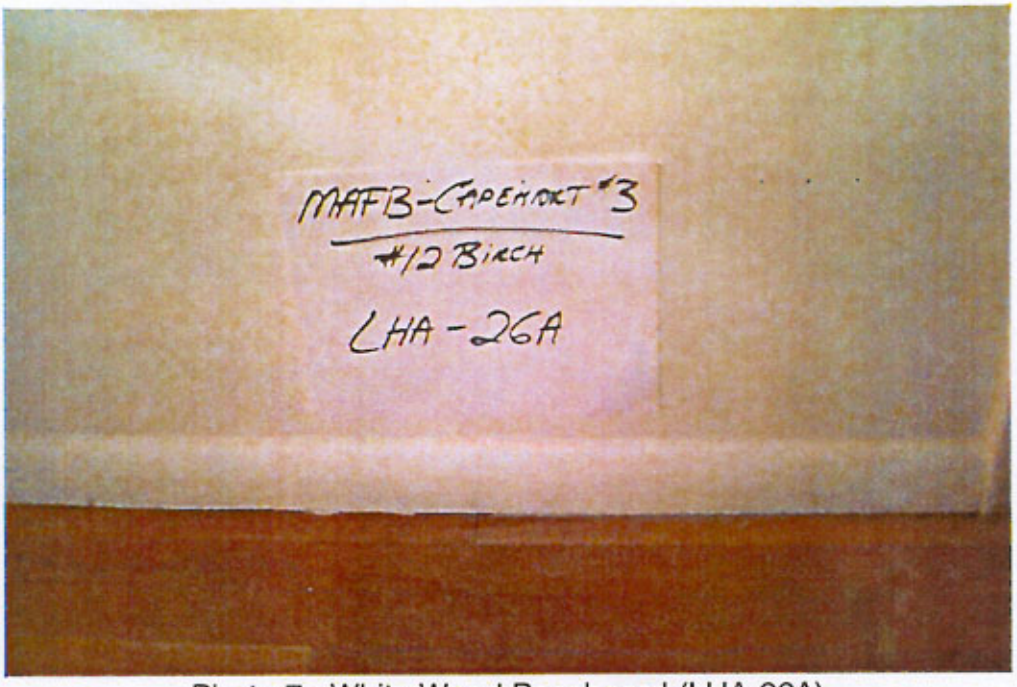

Photo 7 - White Wood Baseboard (LHA-26A)

Photo 8 - Black Metal Handrail (LHA-33I)

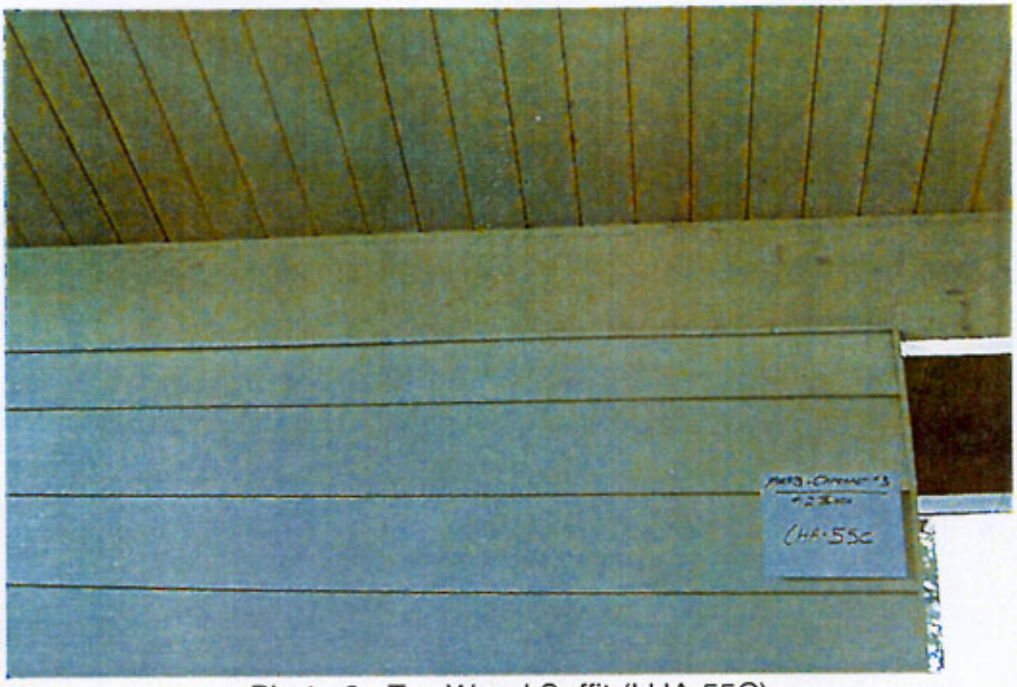

Photo 9 - Tan Wood Soffit (LHA-55C)