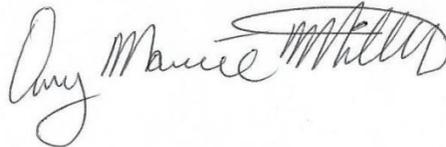


**ASBESTOS CONTAINING BUILDING MATERIALS**  
**FOR NESHAP COMPLIENCE**

**Reference Structure:**  
**Located in the 200 S Center Street**  
**Municipal Government Complex**  
200 South Center Street  
Statesville NC 28677

Prepared For:  
Iredell County  
PO Box 788  
Statesville NC 28687

**Inspector:**

A handwritten signature in cursive script that reads "Amy Marie Miller". The signature is written in black ink and is positioned above the printed name and title.

**Amy Marie Miller**  
**Inspector # 12656**  
**1/17/2020**

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## **SCOPE OF THE INSPECTION**

The purpose of the inspection was to determine if there are any asbestos containing materials in the above referenced location prior to to complete demolition of the structure. The inspector had full and complete access to the structure and utilized destructive means to determine the location and amount of suspect materials in the structure and appropriately sample these materials as directed in federal and state regulations. The structure is a two story built in approximately 1933. It is a brick exterior and a flat roof. The interior is made up of materials that are both original and ones that have been added during various renovations. The inspector did not have access to the roof during the inspection.

The structure has had multiple uses through the years, mainly as office space for departments of the county government. It is currently being used as a file storage depository for the Iredell County government.

The inspector was unable to locate a boiler system, records of the building indicate that the building did have radiant heat in the past but the inspector did not visually identify any radiators or signs of a boiler system.

The structure has vents that appear to be apart of a forced air heating and cooling system. Based on the current configuration of the building and the use of multiple types of building materials the inspector made the determination that sampling the building floors as a single homogeneous level was problematic and elected to treat each floor as a separate sample area.

## **SUSPECT MATERIALS**

The following materials were found to be suspect to contain asbestos.

Exterior

- Window glazing
- Red penetration sealant
- White penetration sealant
- Black penetration sealant

#### Entry Level

- Plaster wall system
- Drywall and joint compound wall system
- Ceiling tile system
- Nine inch floor tile and associated mastic
- Twelve inch floor tile and associated mastic

#### Second Floor

- Plaster wall system
- Drywall and joint compound wall system
- Ceiling tile system
- Rolled flooring in the kitchen/ break room area
- Twelve inch floor tile and associated mastic
- Thermal system insulation above ceiling

### **NOTES AND FURTHER RECOMMENDATIONS**

Based on the laboratory findings the following materials were found to be asbestos containing:

#### Exterior

- Window glazing

#### Entry Level

- Plaster wall system skim coat
- Nine inch floor tiles and associated mastic
- Mastic under twelve inch tile
- Twelve inch tile due to mastic contamination

#### Second Floor

- Plaster wall system skim coat
- Nine inch floor tiles and associated mastic
- Rolled flooring in the kitchen/ break room area
- Mastic on TSI above ceiling

### **The roofing system was assumed to be asbestos containing**

The above mentioned building materials should be abated prior to demolition of the structure. Please see the attached table for the laboratory findings and categorization of the materials.

### **METHODOLOGY OF THE INSPECTION**

The inspection report survey involved visually inspecting each safely accessible area of the building for the purpose of *Identifying Presumed Asbestos Containing Materials (PACM)*.

Bulk sample analysis were be done by Polarized Light Microscopy (PLM). Bulk analysis results will likely apply to both OSHA and EPA regulations. Polarized Light Microscopy of Asbestos. OSHA Method ID-191 (1992). Describes the collection and analysis of asbestos bulk materials by light microscopy techniques including phase-polar illumination and central-stop dispersion microscopy.

Polarized Light Microscopy of Asbestos - 1910.1001, Asbestos. OSHA Standard.  
Appendix J, Polarized light microscopy of asbestos; Non-mandatory - 1915.1001, Asbestos.

OSHA Standard.

Appendix K, Polarized light microscopy of asbestos; Non-mandatory analytical methods  
National Institute for Occupational Safety and Health (NIOSH) has published two methods for the determination of asbestos in bulk materials.

Asbestos, Chrysotile by XRD. NIOSH Method No. 9000, (1994, August)

Asbestos (bulk) by PLM. NIOSH Method No. 9002, (1994, August)

The process of identifying asbestos materials is as follows:

Gathering information – age of building, type of building products used, etc.

Visual inspecting – gaining access to all areas available safely.

Taking samples – samples are taken where possible of suspect materials and products, all samples are sent and tested at a competent & accredited laboratory.

Report and summary – the report outlines findings, health risks and if asbestos is present.

The presence of asbestos or asbestos containing materials installed in a building or plant & equipment can only be confirmed visually and backed by sample analysis in a certified laboratory. An appropriately qualified person will take samples of suspected materials and have them analyzed in a laboratory to confirm the presence of asbestos. Therefore limiting samples taken will decrease the confidence in the Asbestos Audits findings and the Asbestos Materials Report generated from it.

There is no device or instrument at the moment that can automatically detect asbestos.

### **LIMITATIONS OF THE INSPECTION**

A & LM Environmental has made every effort to identify all *Asbestos Containing Materials* contained within the building, no warranty, expressed or implied, is made to the completeness of this inspection and report. During the course of a visual asbestos inspection it may not be possible to identify the presence of all asbestos materials. In many instances, asbestos materials may be present in areas that cannot be accessed without implementing destructive sampling techniques. Such areas may include:

- wall cavities & internal pipe work
- penetrations in solid walls and concrete floor slabs, multiple floor layers
- integral parts of machinery, plant and pipe work
- fire dampers and reheat units within air conditioning ducts, and inaccessible service ducts risers,

Samples were not taken of suspect materials that may have placed the inspector at risk of injury or death at the time of the inspection. High-risk asbestos situations that may be identified during an inspection may include internals of electrical switchboards and substations. Generally it is impossible to locate all asbestos within a building in the course of an audit. This is due to factors such as,

- No building plans available indicating hidden asbestos usage.
- Minimizing the inconvenience or delay while an asbestos audit is underway
- No access to rooms, air conditioning ductwork, airways and other internal construction elements such as plumbing or electrical risers/conduits.
- Services located below wall surfaces “chased” in insulated material.

Relying on an asbestos inspection or audit

· An Asbestos materials report can only indicate such asbestos as was found in the course of the inspection. For the reasons outlined above it should ***never be relied upon solely*** to indicate

the presence of ***all or no asbestos***. The findings must be considered together with the specific limitations and scope of the inspection which was undertaken, and all other documentation on the building.

### **LEGISLATIVE REQUIREMENTS**

The current regulations; OSHA, EPA, NIOSH, etc. require that the owner of a building or plant that contains any asbestos ensures that:

- Asbestos which is unstable or poses a significant health risk is removed as soon as reasonably practicable; and

- Policies and procedures are established to control the asbestos and prevent (or where not reasonably practicable to minimize) the exposure of any person to airborne asbestos fibers.

The policies must address the following;

- The steps that can be taken to restrict access to the place where the asbestos is situated.

- The steps that can be taken to prevent disturbance of the asbestos.

- Work practices in the vicinity of the asbestos materials.

- Notification of the existence of an asbestos register.

- Regular inspections by a competent person; of the asbestos (at least annually) and earlier if the nature or location of work in the vicinity of the asbestos materials changes; and

- Any asbestos removal work done is required to be carried out by an “asbestos removal contractor”. Any maintenance work done on, or in the vicinity of, materials which contain asbestos is required by legislation to be carried out in accordance with the necessary standard. It is necessary to ensure that all asbestos products are removed prior to any demolition, removal, maintenance, operational or construction work which may damage or disturb asbestos product/s.

### **EPA Regulations Governing Asbestos**

#### **TSCA**

In 1979, under the Toxic Substances Control Act (TSCA), EPA began an asbestos technical assistance program for building owners, environmental groups, contractors and industry. In May 1982, EPA issued the first regulation intended to control asbestos in schools under the authority of TSCA; this regulation was known as the Asbestos-in-Schools Rule. Starting in 1985, loans and grants have been given each year to aid Local Education Agencies (LEA's) in conducting asbestos abatement projects under the Asbestos School Hazard Abatement Act (ASHAA).

#### **AHERA**

In 1986, the Asbestos Hazard Emergency Response Act (AHERA; Asbestos Containing Materials in Schools, 40 CFR Part 763, Subpart E) was signed into law as Title II of TSCA. AHERA is more inclusive than the May 1982 Asbestos-in-Schools Rule. AHERA requires LEA's to inspect their schools for asbestos containing building materials (ACBM) and prepare management plans which recommend the best way to reduce the asbestos hazard. Options include repairing damaged ACM, spraying it with sealants, enclosing it, removing it, or keeping it in good condition so that it does not release fibers. The plans must be developed by accredited management planners and approved by the State. LEA's must notify parent, teacher and employer organizations of the plans, and then the plans must be implemented. AHERA also requires accreditation of abatement designers, contractor supervisors and workers, building inspectors, and school management plan writers. Those responsible for enforcing AHERA have concentrated on educating LEA's, in an effort to ensure that they comply with the regulations. Contractors that improperly remove asbestos from schools can be liable under both AHERA and NESHAP. For more information on AHERA, request the pamphlet entitled "The ABC's of Asbestos in Schools" from the EPA Public Information Center .

## NESHAP

The Clean Air Act (CAA) of 1970 requires EPA to develop and enforce regulations to protect the general public from exposure to airborne contaminants that are known to be hazardous to human health. In accordance with Section 112 of the CAA, EPA established National Emission Standards for Hazardous Air Pollutants (NESHAP). Asbestos was one of the first hazardous air pollutants regulated under Section 112. On March 31, 1971, EPA identified asbestos as a hazardous pollutant, and on April 6, 1973, EPA promulgated the Asbestos NESHAP in 40 CFR Part 61, Subpart M. The Asbestos NESHAP has been amended several times, most recently in November 1990. For a copy of the Asbestos NESHAP contact the Asbestos NESHAP Coordinators listed in the Appendix.

## TERMS USED IN ASBESTOS INSPECTION REPORT CONDITION

**G = Good:** Showing no, or very minor signs of Damage and / or Deterioration of the material.

**F = Fair:** Showing small amounts of damage and/or deterioration of the material.

**P = Poor:** Showing large amounts of damage and/or deterioration of the material.

## PRIORITY LEVELS

**I = Immediate:** Materials deteriorated to an unserviceable condition and as such should be removed as soon as practical. Potential for exposure exists.

**H = High:** Deterioration of material is evident. Stabilize the material, prevent further deterioration and review option to remove material (e.g. Refurbishment etc).

**M = Medium:** Minor deterioration of material is evident. (e.g. Structural integrity affected; breakdown of castable insulation etc.) Planned removal should be allowed for.

**L = Low:** Leave in situ and monitor condition. Should be reassessed in conjunction with future inspections and reports.

## ASBESTOS LEGEND

**CH** CHRYSOTILE ASBESTOS

**AM** AMOSITE ASBESTOS

**CR** CROCIDOLITE ASBESTOS

**NAD** NO ASBESTOS DETECTED

## RECOMMENDATIONS

**Category I Non-friable Materials --** A Category I Non-friable material is defined by 40 CFR Part 61, National Emission Standards for Hazardous Air Pollutants (NESHAPS) as: Asbestos-containing packings, gaskets, resilient floor coverings, and asphalt roofing products containing more than 1% asbestos.

It should be noted that Category I Non-friable materials that are in poor condition or are damaged have become friable. Once a Category I Non-friable material becomes friable, it is a Regulated Asbestos Containing Material (RACM). However, Category I Non-friable materials that have been managed in place in good condition are significant with respect to demolition. These materials may remain in place during demolition. Razing a structure with Category I Non-friable material in good condition in place triggers other requirements for wetting, competent and trained personnel, and special waste/debris disposal issues. Renovation is very different than demolition. Renovation in an area where an asbestos containing material of any type will be disturbed requires that the ACM be abated. The abatement is necessary to protect human health and the environment. Although the NESHAPS standard gives owners some options for demolition, it is

the opinion of Terry Lynn that all asbestos containing materials be abated prior to renovation or demolition. A licensed asbestos abatement contractor who employs accredited personnel should conduct abatement activities.

**Category II Non-friable Materials** – A Category II Non-friable material is defined by 40 CFR Part 61, National Emission Standards for Hazardous Air Pollutants (NESHAPS) as: any material excluding Category I Non-friable asbestos containing materials, containing more than 1% asbestos.

Two examples of Category II Non-friable materials are asbestos cement (A/C) shingles/board (Transite) and window caulk or glazing. Category II Non-friable materials are given no special consideration for demolition. Therefore, Category II Non-friable materials must be abated prior to renovation or demolition. Like Category I Non-friable materials, Category II materials that are damaged or friable must be treated as Regulated Asbestos Containing Materials (RACM). It is the opinion of Mountain Environmental Services, Inc. that all asbestos containing materials be abated prior to renovation or demolition. A licensed asbestos abatement contractor who employs accredited personnel should conduct abatement activities.

**Regulated Asbestos Containing Materials (RACM)** – is defined by 40 CFR Part 61, National Emission Standards for Hazardous Air Pollutants (NESHAPS) as: (a) Friable asbestos containing material, (b) Category I Non-friable ACM that has become friable, (c) Category II Non-friable ACM that will or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II Non-friable ACM that has a high probability of becoming crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation. Regulated Asbestos Containing Materials (RACM) must be removed prior to renovation or demolition. A licensed asbestos abatement contractor who employs accredited personnel must abate these materials. Depending on the quantity of RACM, North Carolina state rules and regulations may apply. For information concerning the North Carolina Health Hazards Control Unit permits and disposal requirements, please call (919) 733-0820.

**Intentional Burning** – The NESHAPS' regulation referenced above also regulated intentional burning of structures for fire department training. It is specific when it states that all asbestos containing materials regardless of type or condition must be removed prior to the intentional burning of a structure. 40 CFR 61.145(10).

In summary, to protect human health and the environment, it is essential that a licensed asbestos abatement contractor who employs accredited personnel conduct asbestos abatement activities prior to renovation, demolition, or intentional burning.

Asbestosis, mesothelioma, pleural plaques and lung cancer are the recognized diseases caused by asbestos and are all as a result of inhalation of airborne asbestos fibers. Hence for asbestos containing materials or products to pose a health risk airborne fibers must be generated either through degradation or high energy mechanical action.

The degree of asbestos fiber release, and hence inhalation exposure, is in part dependent upon the matrix material binding the asbestos, general condition and product type. The highest health risk is associated with exposure to amphibole asbestos (amosite, crocidolite) with crocidolite being cited as the material of greatest concern. Chrysotile (a serpentine mineral) is considered to be of lesser but still significant concern.

Asbestos types:

- Chrysotile is commonly known as white asbestos.
- Amosite is commonly known as grey or brown asbestos.

- Crocidolite is commonly known as blue asbestos.

### **Asbestos Cement Products**

Asbestos cement products were commonplace building materials prior to 1986. Many building product manufacturers in Australia didn't phase out the use of asbestos in their products until the early 1980's and then it was a gradual process.

Imported building products can still contain asbestos either through legislation that allows a certain percentage of asbestos in products in that country or no legislation at all in countries that still mine it.

These products consist of asbestos fibers bound in a cement matrix and the degree of fiber release depends on the condition of the material.

The main health risk with asbestos cement products is from maintenance or similar activity where the material is worked upon (mechanical energy applied) resulting in airborne dust.

It can also be prone to weather, storm damage and the cement matrix does react and break down in acidic or polluted atmospheric conditions (i.e.; industrial areas) over a period of time.

### **Vinyl Floor Coverings**

With vinyl floor covering, asbestos may be present in any of the following:

- The vinyl body of the tile or sheet.
- A fibrous backing felt/insulation under the tile or sheet.
- A fibrous adhesive, putty or grout used to fix the tile.

Asbestos contained in the vinyl body of the tile or sheet is held in a stable matrix. The very low rate of wear does not normally give rise to fiber release considered to pose a significant health risk. A health risk may arise when asbestos fibers are released due to maintenance work or when the flooring is friable due to age.

Asbestos adhesive or putty is sometimes used to coat the back of vinyl tiles or sheet. This product does not pose a risk to exposure from airborne fibers, so long as it is not disturbed or worked upon.

Asbestos backing felt/insulation or asbestos adhesive is normally not exposed and does not represent a significant health risk. ***However, when exposed due to wear or damage to the overlaying vinyl these materials upon further wear or abrasion may liberate fibers depending upon the amount of abrasion and the age and condition of the material.***

### **GLOSSARY OF TERMS**

**Action Taken:** This section is provided for the building owner/manager to record any works carried out altering the status or condition of products, e.g. "sheeting removed May 2004". This will make the annual update if required easier and more detailed.

**Asbestos:** Asbestos is a naturally occurring mineral which is fibrous in nature. Asbestos is found in veins surrounded by other rock. The vein consists of bundles of fibers held together reasonably firmly to form a solid rock; Mechanical milling breaks the fibers away from each other, leaving free fluffy fibers. Further mechanical action can break the fibers down into finer and finer fibers. This is because asbestos tends to break along the length of the fiber, not across the length of the fiber. Asbestos fibers can be extremely fine, with fiber diameters smaller than a micrometer (one one-thousandth of a millimeter) being fairly common.

It differs from other minerals in its crystal development. The crystal formation of asbestos is in

the form of long thin fibers. Asbestos is divided into two mineral groups – serpentine and amphibole. The division between the two types is based upon the crystalline structure. Serpentine has a sheet or layered structure whereas amphiboles have a chain like structure.

These minerals do not have any detectable odor or taste. Asbestos can be found naturally in soil and rocks in some areas. Asbestos fibers are resistant to heat and most chemicals and have great tensile strength. Because of these properties asbestos has been mined for use in a very wide range of building materials, friction products and heat resistant fabrics.

**Asbestos Removal Contractor:**

An employer whose business or undertaking includes asbestos removal work; or a self-employed person whose work includes asbestos removal work.

**Avoid damage and abrasion:**

As far as practicable limit activities on or adjacent to material such that significant damage to the material that will release fibers is avoided, e.g.; avoid drilling, cutting, sanding, etc. For softer or more friable materials this also means lighter or repeated impacts (such as opening or closing doors with asbestos door seals or heavy wear areas for asbestos felt backed vinyl).

**Chased:** Where pipe work (usually hot water pipes) has been fitted into channels carved out of brickwork or concrete walls and insulated using plaster type filler asbestos. (This is not common in the Northern states of Australia but is important in the Southern states where heat loss due to low temperatures meant that hot water piping needed to be insulated).

**Chrysotile: White asbestos:** This is a Serpentine mineral and considered to be of lesser but still significant concern than brown or blue asbestos. White asbestos has “curly” fibers. This property allows it to be woven e.g. fire resistant suits or gloves.

**Amosite: Grey or brown asbestos:** This is an Amphibole mineral and has straight harsh grey to brown fibers and was often used in situations where additional strength was required such as high temperature asbestos pipe insulation as well as heat resistance such as fire rating.

**Crocidolite: Blue asbestos:** This is an Amphibole mineral and has straight blue fibers and the fibers are very fine. Blue asbestos tends to have been used in situations where acid resistance was required as well as being a common material used for fire rating of steel structural beams.

**Friability:** The potential for a product containing asbestos to release breathable fibers depends on its degree of friability. Friable means that the material can be crumbled with hand pressure and is therefore likely to emit or release fibers. The fibrous or fluffy sprayed on materials used for fireproofing, insulation or sound proofing is considered to be friable and they readily release airborne fibers if disturbed.

Materials such as asbestos containing vinyl floor tile or cement siding boards are generally considered non friable and do not emit or release fibers unless subjected to mechanical energy operations such as sawing or sanding operations. Asbestos cement pipes or sheet can emit or release airborne fibers if the materials are cut or sawed or if broken up in demolition operations.

**Friable:** Non bonded asbestos fabric or material can be in a powder form or can be crumbled, pulverized or reduced to powder by hand pressure when dry.

**Monitor Condition:** Carry out regular general observation of the condition of the material to note

any changes.

**Non Friable:** Material / Product which contains asbestos fibers are bonded by cement, vinyl, resin or other similar material.

Owner: of a building – means a person who –

- Holds title to the building
- Has effective management or control of the building and any essential plant in it and includes a person who manages a building as agent for a person mentioned above.

## **11.0 FURTHER INFORMATION**

### **Web Sites**

USDOL/OSHA

<http://www.osha.gov/SLTC/asbestos/>

Environmental Protection Agency Asbestos

<http://www.epa.gov/asbestos/index.html>

NIOSH

<http://www.cdc.gov/niosh/topics/asbestos/>



**The structure inspected is outlined in red due to it not having an independent address from the other buildings in the complex**

Iredell County Building Located at approximately 200 S Center Street Statesville NC

Location	Material	Condition	Approximate Amount	Asbestos Content
Exterior	Window Glazing	Poor	200 ln ft	3% Chrysotile
First Floor	Nine Inch Tile	Good	400 sq ft	4% Chrysotile
First Floor	Nine Inch Tile Mastic	Good	400 sq ft	6% Chrysotile
First Floor	Twelve inch tile	Good	375 sq ft	Contaminated by underlying mastic
First Floor	Mastic under twelve inch tile	Good	375 sq ft	2% Chrysotile
First Floor	Plaster wall system skim coat	Good	2500 sq ft	4% Chrysotile, 1% Amosite
Second Floor	Nine Inch Tile	Good	50 sq ft	3% Chrysotile
Second Floor	Nine Inch Tile Mastic	Good	50 sq ft	4% Chrysotile
Second Floor	Plaster wall system skim coat	Good	2000 sq ft	5% Chrysotile, 2% Amosite
Second Floor	Rolled Flooring in Kitchen Area	Damaged	120 sq ft	12% Chrysotile
Second Floor	Mastic on TSI Above Ceiling	Good	150 ln ft	2% Chrysotile

All quantities are approximate and should be verified by contractor on site