



# **ASBESTOS ABATEMENT DESIGN SPECIFICATIONS**

PROJECT

**ABATEMENT OF SELECTED ACM  
FLOOR TILE & ASSOCIATED MASTIC ( $\approx$  1,970 SQUARE FEET)  
THERMAL SYSTEM INSULATION ( $\approx$  35 MUDDERED JOINTS & 54 LINEAR FEET)  
WINDOW GLAZING ( $\approx$  36 WINDOW UNITS)**

**HARTSELL RECREATION CENTER  
60 HARTSELL SCHOOL ROAD  
CONCORD, NORTH CAROLINA**

FOR

**CITY OF CONCORD  
POST OFFICE BOX 308  
CONCORD, NORTH CAROLINA 28026-0308**

BY

**ALLIED CONSULTING & ENVIRONMENTAL SERVICES, LLC  
POST OFFICE BOX 2426  
SHELBY, NORTH CAROLINA 28151  
704.600.6255  
704.482.5596**

**ACES PROJECT No. 2016 – 06 – 050**

**ISSUE DATE: JUNE 29, 2016**



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PREPARED BY:

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## TABLE OF CONTENTS

	PAGE NUMBER
PROJECT SUMMARY	2
PART 1	3
1.0 CODES AND REGULATIONS	3
2.0 PROJECT COORDINATION	8
3.0 GENERAL PROVISIONS	15
4.0 INSURANCE REQUIREMENTS	17
5.0 TEMPORARY FACILITIES	18
6.0 NEGATIVE PRESSURE SYSTEM	21
7.0 WORKER AREA PREPARATION	22
8.0 WORKER PROTECTION	24
9.0 RESPIRATORY PROTECTION	27
10.0 DECONTAMINATION UNITS	28
11.0 PROJECT DECONTAMINATION	31
12.0 WORK AREA CLEARANCE	33
PART 2 – PRODUCTS	35
PART 3 – EXECUTION	36
13.0 ASBESTOS REMOVAL	36
14.0 ASBESTOS REMOVAL METHODS	40
15.0 DISPOSAL OF ASBESTOS CONTAINING WASTE MATERIALS	41
APPENDIX 1 – Figures	
APPENDIX 2 – Survey Report for Asbestos Containing Materials	



## ASBESTOS ABATEMENT DESIGN SPECIFICATION

### PROJECT SUMMARY

Location: Hartsell Recreation Center; 60 Hartsell School Road; Concord, North Carolina

General Description: The abatement scope of work shall include the removal of approximately 1,970 square feet of asbestos containing floor tile and associated mastic, approximately 35 mudded joints and 54 linear feet of asbestos containing thermal system insulation (TSI), and approximately 36 window units with asbestos containing glazing. Verification of the location and quantity of the ACM to be included in the removal scope is the sole responsibility of the asbestos abatement contractor. It is assumed that the windows will be removed as units and upon removal of the window units, the openings will need to be covered in such a manner to prevent interior access to the building.

Removal of the asbestos containing materials included in this project shall be performed in accordance with all applicable federal, state, and local regulations and per the conditions set forth within these project removal guidelines. Information concerning previous material testing, material locations and general conditions is made available as an attachment to the asbestos abatement design specification package.

This document is to provide criteria regarding asbestos removal activities conducted within the building. The abatement contractor shall follow the terms set forth in this specification during all phases of the asbestos abatement conducted on the grounds of the Hartsell Recreation Center property.

Mandatory Pre-Bid Meeting:	July 11, 2014	10 am at Hartsell Recreation Center site
Bid Due Date:	July 18, 2016	2 pm
Anticipated Project Start Date:	August 15, 2016	
Project Completion Date:	August 26, 2016	

Bid and other required bid data due by 2 pm on July 18, 2016. Submit bid package to:

Mr. Enrique Blat, PE  
City of Concord  
850 Warren C. Colman Boulevard  
Concord, North Carolina 28026



## PART 1 – GENERAL REQUIREMENTS

### 1.0 CODES AND REGULATIONS

#### A. REFERENCE SPECIFICATIONS

The Contractor shall assume full responsibility and liability for compliance with all applicable federal, state, and local regulations pertaining to work practices, hauling, disposal, protection of workers, visitors to the site, and persons occupying areas adjacent to the project site.

Unless modified by this project specification, all specifications for stripping, removal, repair, and disposal work shall conform to the following specifications and standards, as applicable, as if completely reproduced herein.

1. The following regulations published by the Environmental Protection Agency (EPA):
  - a. “National Emissions Standards for Hazardous Air Pollutants Asbestos”, 40 CFR Part 61, Subpart A.
  - b. “General Provisions”, 40 CFR Part 61, Subpart A.
  - c. “Guidance for Controlling Asbestos-Containing Materials in Buildings”, June 1985 (EPA # 560/5-85-024).
  - d. “Asbestos-Containing Materials in Schools”, 40 CFR Part 762, Subpart E and Appendices.
2. The following regulations published by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA):
  - a. “Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite; Final Rules”, Title 29, Part 1910, Section 1001 and Part 1926, Section 1101 of the Code of Federal Regulations.
  - b. “Respiratory Protection”, Title 29, Part 1910, Section 134 of the Code of Federal Regulations.
  - c. “Construction Industry”, Title 29, Part 1926, Code of Federal Regulations.
  - d. “Access to Employee Exposure and Medical Records”, Title 29, Part 1910, Section 20 of the Code of Federal Regulations.
  - e. “Hazard Communication”, Title 29, Part 1926, Section 59 of the Code of Federal Regulations.
  - f. “Specifications for Accident Prevention Signs and Tags”, Title 29, Part 1910, Section 145 of the Federal Regulations.
3. The following regulations published by North Carolina state agencies:



- a. North Carolina Asbestos Hazard Management Program Rules as adopted by 15 NCAC 19C .0600.
  - b. “North Carolina Occupational Safety and Health Standards for the Construction Industry”, 29 CFR Part 1926 as adopted by T13 NCAC 07F .0201 and Shipyard T13:07F .0500.
  - c. North Carolina General Statutes, Chapters 95, 97, and 130.
4. The following documents published by the American National Standards Institute:
- a. “Fundamentals Governing the Design and Operation of Local Exhaust Systems”, Z9.2-2006.
  - b. “Standard for Respiratory Protection - Respiratory Use – Physical Qualifications for Personnel”, Z88.6-2006.
  - c. “Practices for Respiratory Protection”, Z88.2-1992

## B. DEFINITIONS

1. **Abatement** – Procedures used to control fiber release from ACBM using either asbestos removal, encapsulation, or enclosure.
2. **Asbestos Project Designer (APD)** – Allied Consulting and Environmental Services, LLC (ACES), Post Office Box 2426, Shelby, North Carolina 28151; Phone – 704.600.6255, Fax – 704.482.5596.
3. **ACBM** – Asbestos containing building materials.
4. **ACM** – Asbestos containing materials.
5. **Accessible** – Asbestos containing building material that is subject to disturbance by occupants or custodial or maintenance personnel in the course of their normal activities.
6. **ACGIH** – American Conference of Government Industrial Hygienists.
7. **Air Monitoring** – The process of measuring the approximate number of asbestos fibers in a specific volume of air in a stated period of time.
8. **Amended Water** – Water to which a surfactant has been added.
9. **Area Monitoring** – Sampling of airborne fiber levels within the asbestos control area and inside the physical boundaries which is representative of the airborne fiber levels but is not collected in the breathing zone of the personnel.
10. **APD** – Asbestos Project Designer, responsible for the preparation of the design document for the removal/abatement of the specified asbestos containing materials.
11. **Asbestos** – Asbestos includes but is not limited to the following minerals: actinolite, amosite, anthophyllite, chrysotile, crocidolite, and tremolite. Asbestos material means asbestos or any material containing asbestos such as asbestos waste, scraps, debris, containers, equipment, and asbestos contaminated clothing consigned for disposal.
12. **Asbestos Containing Waste Material** – any material which is or is suspected of being or any material contaminated with asbestos containing material which is to be removed or has been removed from a work area for disposal.



13. **Asbestos Fibers** – Airborne fibers having an aspect ratio of 3:1 longer than 5 micrometers when analyzed by the NIOSH 7400 Method.
14. **Building Owner** – City of Concord
15. **Class I Asbestos Work** – Activities involving the removal of TSI and surfacing ACBM and PCAM.
16. **Class II Asbestos Work** – Activities involving the removal of ACBM which is not TSI insulation or surfacing material. This includes, but is not limited to, the removal of asbestos containing wallboard, floor tile and sheetgood flooring, roofing, siding shingles, and construction mastics.
17. **Class III Asbestos Work** – Repair and maintenance operations where ACBM, including TSI and surfacing ACBM and PACM, is likely to be disturbed.
18. **Class IV Asbestos Work** – Maintenance and custodial activities during which employees may contact but do not disturb ACBM or PACM and activities to clean-up dust, waste, and debris resulting from Class I, II, and III activities.
19. **Competent Person** – As used in this document, refers to a person employed by the contractor who is trained in the recognition and control of asbestos hazards in accordance with the current applicable federal, state, and local regulations.
20. **Contractor** – Refers to a North Carolina accredited and qualified asbestos abatement contractor.
21. **Control Area** – Designated rooms, spaces, or areas of the project in which asbestos abatement actions are to be undertaken or which may become contaminated as a result of such abatement actions. These areas have been sealed off from the outside, protected with 6 mil polyethylene sheeting, and are equipped with a decontamination enclosure system and reduced pressure system.
22. **Decontamination Area** – A series of connected rooms, with curtained doorways between any two adjacent rooms, for the decontamination of workers or materials and equipment. A decontamination enclosure system always contains at least one airlock.
23. **Decontamination Enclosure System** – A series of connected rooms, with curtained doorways between any two adjacent rooms, for the decontamination of workers or of materials and equipment. A decontamination enclosure system always contains at least one airlock.
24. **Disturbance** – Activities that disrupt or disturb the matrix of ACBM or PACM, crumble or pulverize ACBM, or generate visible debris from ACBM or PACM. Disturbance includes cutting away small amounts of ACBM or PACM, no greater than the amount that can be contained in one standard size glove bag or waste bag in order to access a building component. In no event shall the amount of ACBM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.
25. **Eight-Hour Time Weighted Average (TWA)** – Airborne concentration of asbestos to which an employee is exposed, averaged over an 8-hour workday as indicated in 29 CFR 1926.62.



26. **Encapsulation** – The coating of asbestos containing materials with a bonding agent, sealing agent (encapsulant), or elastomer bridging agent to prevent the release of asbestos fibers following abatement.
27. **Encapsulant** – A liquid material that can be applied to asbestos containing materials, which controls the possible release of asbestos fibers from the materials either by creating a membrane over the surface (bridging) or by penetrating into the material and binding its components (penetrating).
28. **Enclosure** – Refers to the area in which asbestos containing materials are encased within permanent impermeable, airtight barriers.
29. **EPA** – Environmental Protection Agency
30. **Excursion Limit** – Airborne asbestos concentration (1.0 fiber/cc) as averaged over a 30-minute period.
31. **Friable Asbestos Containing Material** – Material that contains greater than 1.0 percent asbestos that when dry can be crumbled, pulverized, or reduced to powder by hand pressure or is damaged by operations such as drilling, sanding, sawing, or abrading.
32. **Glovebag** – 6-mil polyethylene bag with latex gloves extending inside the work bag and having ports for water and vacuum attachments.
33. **HEPA Filter** – High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining at least 99.97 percent of mono-dispersed particles of 0.3 micrometer in diameter or larger.
34. **HEPA Vacuum** – Vacuum equipped with HEPA filters used to clean-up dust and debris in work areas.
35. **HVAC** – Heating, ventilation, and air-conditioning
36. **NC HHCU** – The North Carolina Health Hazards Control Unit.
37. **Masking and Sealing Operations** – Procedures used to cover and protect floors, walls, and fixed objects as appropriate with 6 mil polyethylene plastic sheets during an asbestos abatement project.
38. **NIOSH** – National Institute for Occupational Safety and Health.
39. **OSHA** – Occupational Safety and Health Association.
40. **PACM** – Presumed asbestos containing materials.
41. **Permissible Exposure Limit (PEL)** – The PEL for asbestos is 0.1 asbestos fibers per cubic centimeter (f/cc) of air as an 8-hour time weighted average as determined by 29 CFR 1926.62. If an employee is exposed for more than eight hours in a work day, the PEL shall be determined by the following formula:  $PEL (f/cc) = C_1 \times T_1 + C_2 \times T_2 + \dots + C_n \times T_n / 8$  where  $C_x$  = airborne asbestos concentration collected over time period  $T_x$
42. **Personnel Monitoring** – Sampling of the breathing zone of contractor personnel in accordance with 29 CFR 1926.1101 and appendices.



43. **Post-Removal Cleaning** – Refers to final cleaning of the control area following all asbestos removal using a combination of HEPA vacuuming and wet wiping.
44. **Pre-Cleaning** – Refers to the cleaning of fixed and movable items of equipment and material within the control area by the Contractor before set-up of the control area.
45. **Presumed Asbestos Containing Materials** – thermal system insulation and/or surfacing material found in buildings constructed no later than 1980. The designation of a material as “PACM” may be rebutted pursuant to paragraph (k)(5) of 29 CFR 1926.1101.
46. **Project Site** – the Hartsell Recreation Center building
47. **Removal** – All specified procedures necessary to remove asbestos containing materials from an area and dispose of the materials at an authorized site in accordance with regulatory requirements of NESHAPS and applicable state and local guidelines.
48. **Renovation** – Altering, removing, or stripping of one or more facility components, including, but not limited to the stripping or removal of asbestos containing materials from facility components, retrofitting for fire protection, the installation or removal of heating, ventilation, and air conditioning (HVAC) system.
49. **Repair** – Returning damaged ACBM to an undamaged condition or to an intact state so as to prevent a fiber release using encapsulation, sealing, enclosure, or encasement.
50. **Respirator (Negative Pressure)** – A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.
51. **Respiratory Protection** – Protecting the employee, through the wearing of a respirator, from breathing airborne asbestos fibers.
52. **Testing Laboratory** – The term “testing laboratory” is defined as an independent entity engaged to perform specific inspections or air monitoring analysis of the work, either at the project site or elsewhere; and to report the results of those inspections and/or tests.
53. **TSI** – Thermal system insulation
54. **VAFT** – Vinyl asbestos floor tile
55. **Work Area** – The area where asbestos related work or removal operations are performed which is defined and/or isolated to prevent the spread of asbestos dust, fibers, debris, and to prevent entry by unauthorized personnel. The work area is a regulated area as defined by 29 CFR 1926.
56. **Work Site** – The work site consists of those area where the asbestos abatement activities will be performed and all areas within 100 feet of the abatement areas and/or as designated in the Project Specifications and subsequent addendums.



## 2.0 PROJECT COORDINATION

### A. GENERAL

1. The asbestos abatement contractor (Contractor) will be a licensed general contractor in either the specialty interior, building, unclassified, or asbestos categories by the North Carolina Licensing Board of General Contractors and limited for the bid amount.
2. The Contractor shall be responsible for visiting the site, prior to bidding, to confirm the scope of the work. Any quantities listed by the asbestos project designer (APD) in the plans, specifications, or surveys are done so as approximations. The Contractor has the responsibility for determining actual quantities of the materials to be removed/abated. No additional contract price adjustments will be allowed due to variances between actual quantities and the estimated quantities listed herein. Should additional ACM be discovered during abatement activities, which was not previously identified, the contractor shall immediately notify the Building Owner and the APD.
3. The Contractor shall furnish and is responsible for all costs including but not limited to: permit fees, containment preparation, labor, materials, services, insurance, bonding, and equipment necessary to perform and complete the asbestos abatement/removal and disposal of all asbestos containing materials in accordance with the plans and specifications, applicable EPA and OSHA regulations, and any applicable state and local government regulations.
4. The Contractor has and assumes the responsibility of proceeding in such a manner that he offers his employees and others a workplace free of recognized hazards causing or likely to cause death or serious injury. The Contractor shall be responsible for performing this abatement and disposal so that airborne asbestos fibers levels do not exceed established protective levels.
5. The Contractor will be responsible for all costs, including additional visits and analytical fees, should the Building Owner's air monitoring firm determines that the Contractor failed a visual and/or final air clearance inspection. Notification and scheduling of inspections during the project is the responsibility of the Contractor. The Contractor will allow a minimum notice of 48 hours prior to final visual assessment and air clearance sampling unless the Building Owner's air monitoring firm, Contractor, and the Building Owner agree upon a different time frame.



## B. PERSONNEL

### 1. Supervisor

- a. All supervisors shall be currently accredited by the NC HHCU for asbestos abatement.
- b. All supervisors on the project shall have a minimum of two years experience in the administration and supervision of asbestos abatement projects including work practices, protective measures for building and personnel, disposal procedures, etc.
- c. One supervisor shall be provided for every ten (10) workers at the project site during work hours. A minimum of one supervisor shall be present at the project site during all work hours.
- d. The Contractor shall have at least one employee on the job, per shift, in either a foreman or supervisor's position, who is bilingual in the appropriate languages when employing workers who do not speak fluent English.
- e. A minimum of one accredited supervisor per company shall have attended a 24-hour respiratory protection course and provide appropriate documentation of such.

### 2. Worker

- a. All workers shall be currently accredited as such by the NC HHCU.

### 3. Competent Person

- a. A competent person, as defined in the OSHA Asbestos Standard, 29 CFR 1926.1101, employed by the Contractor must be outside the work area at all times to monitor activity, ensure containment security, provide information to visitors, and provide access for authorized persons to the work area.

### 4. Employees

- a. The Contractor is responsible for the behavior of workers within his employment. If at any time during the contracted work, or any of the Contractor's employees are judged to exhibit behavior unfitting for the area or



judged to be a nuisance by the Building Owner or the Building Owner's representative, the Contractor shall immediately remove them from the project site.

- b. The contractor shall be responsible for compliance with the following behavior:
  - (i) Under no circumstances will alcohol, drugs, firearms, tobacco, tobacco products or any other type of controlled substances be permitted on the project site.
  - (ii) All workers are restricted to the area of asbestos abatement work.
  - (iii) All vehicles must be parked in the area designated by the Building Owner.
  - (iv) All workers must conform to the following basic dress code when in the public area of the work site: long pants and shirts with sleeves, i.e., no tank tops, no shorts, etc.
  - (v) The Contractor is responsible for disposal of all materials brought to the project site/work site by his employees including drink cans, bottles, wrappers, or other food containers.
- c. Failure to adhere to these rules could result in criminal or civil prosecution and/or removal from the project site.

## C. MEETINGS

### 1. Pre-Bid

A pre-bid meeting will be held at 10 am on July 11, 2016 at the Hartsell Recreation Center building located at 60 Hartsell School Road. All contractors desiring to submit a bid must attend the pre-bid meeting, visit the work site, confirm quantities, site access issues, etc. Questions regarding the project design specifications must be submitted to the APD not later than 11 am on July 13, 2016.



2. Periodic Project Meetings

The Building Owner and/or project manager reserves the right to schedule meetings with a representative of the abatement contractor during the course of the project to discuss project activities, scheduling, etc.

D. SUBMITTALS

1. With Bid Documents

A. Bidders must demonstrate experience on asbestos abatement projects by the submission of a list of three (3) previous asbestos abatement removal projects; names, addresses, and phone numbers of clients; location of projects; and dates projects were performed.

B. An officer of the company must sign a statement containing the following information:

(i) Record of any citations issued by Federal, State, or Local regulatory agencies relating to asbestos abatement activity. Projects, dates, and resolutions must be included.

(ii) Situations in which an asbestos-related contract has been terminated including projects, dates, and reason(s) for termination.

(iii) Listing of any asbestos-related legal proceedings/claims in which the contractor (or employees scheduled to participate) are currently involved. Include descriptions of role, issue, and resolution to date.

C. Bidders shall provide evidence of insurance.

D. Bidders shall provide proposed detailed schedule of work.

E. Performance and Payment Bonds will be required for this project. Bidders shall provide documentation that they will be able to provide bonds if selected.

2. Upon Award of Contract

The successful contractor will submit two complete, bound sets of pre-job submittals within five days of the award of the contract for review and approval by the Building Owner and APD. A copy of the submittals shall also be kept in a three-ring binder as



part of the project log by the Contractor at the work site in a clean room or on-site office of the contractor. The submittals will contain, at a minimum, the following information:

- A. A summary of the company's training program and/or a list of EPA approved training certification courses that the company's employees have attended.
- B. A summary of the company's written respiratory protection program which is in compliance with OSHA regulations and other applicable state or local regulations.
- C. Statement indicating the company has an established medical surveillance program in compliance with 29 CFR 1926.1101. The statement should also include documentation that all personnel participate in the medical surveillance program.
- D. A copy of the Asbestos Permit Application and Notification for Demolition/Renovation (NC DENR Form 3768) submitted to the NC HHCU and any other required agency. The contractor will be provide notification to the Building Owner and APD at the time the Form 3768 is submitted to the NC HHCU. The Contractor will also notify local fire and police departments and other local agencies as applicable or required. Upon receipt of the approved permit, the Contractor shall provide a copy of the approved permit to the Building Owner and APD. The actual permit will be posted outside the decontamination unit at the work site.
- E. Provide documentation for of all employees that will be involved in the abatement/removal activities at the work site. The documentation should include the name of each individual, their position, their accreditation, social security number, and copy of the most recent certificate.
- F. Documentation signed by each worker acknowledging their participation in the company's employee medical surveillance program.
- G. Documentation for each worker reflecting their most recent fit test records and completion date of most recent respiratory protection program.
- H. Copy of most recent Initial Exposure Assessment as required by the OSHA Construction Asbestos Standard, 29 CFR 1926.
- I. Name, location, and applicable permit of asbestos waste disposal site. A contact name and phone number for the facility shall also be provided.
- J. Manufacturer's technical data sheets, certificates of compliance, MSDS sheets, and additional information as appropriate for all equipment and materials to be utilized during the abatement/removal project.
- K. Proposed location of decontamination unit.



- L. Proposed project schedule including anticipated start date, set-up time, anticipated dates of work, number of shifts per day, anticipated completion date, etc.
- M. Copy of Emergency Contingency Plan. The contractor shall prepare a Contingency Plan to address emergencies that may include fire, accident, hazardous material release, power failure, negative pressure system failure, supplied air system failure, evacuation of injured person(s) for both life threatening and non-life threatening injuries, or any other event that may require modification or abridgement of the decontamination/isolation procedures. The Contingency Plan shall list phone numbers and locations of local emergency services including but not limited to: fire, ambulance, doctor, hospital, police, power company, and natural gas company. The Contingency Plan will be posted inside and outside the work area during all work shifts and be readily available to all personnel.
- N. Provide Certificates of Insurance with the Building Owner and APD listed as an additional party.
- O. The Contractor shall furnish a Performance Bond and Payment Bond executed by a surety company authorized to do business in North Carolina. The bonds shall be in the full contract amount. All bonds shall be countersigned by an authorized agent of the bonding company who is licensed to do business in North Carolina.

### 3. Post-Job

Upon completion of the scope of work, the Contractor shall submit two complete, bound sets of post-job submittals to the APD. Request for final payment will not be approved until the post-job submittal package has been reviewed and approved by the Building Owner and the Building Owner's representative. The post-job submittal should include at a minimum:

- A. Affidavits: Provide Contractor's affidavit of payment of debts and claims, affidavit of release of liens, and consent of the surety company to final payment.
- B. Manifest: Provide North Carolina Asbestos Waste Shipment Record (NCDENR 3787) receipt from asbestos waste disposal site which acknowledges the Contractor's delivery(s) of waste material. Include date, name of waste transporter, quantity of material delivered, and signature of authorized representative of disposal site.
- C. Daily Logs: Submit copies of all daily logs showing the following: name of all persons entering the work site, date, entering and leaving time, company or



agency represented, reason for entering, employee's daily air monitoring data as required by the OSHA Standard, written comments by inspectors, APD, or other persons.

D. Medical: Provide copies of worker release forms.

E. Special Reports: All documents generated under Section 2.0, Paragraph D, Sub-paragraph 3.

#### 4. Special Reports

A. General: Except as otherwise indicated, submit special reports to the APD within one day of occurrence. One copy should also be placed in the project logbook.

B. Unusual Events: When an event of unusual and significant nature occurs (i.e. failure of negative pressure system, rupture of temporary enclosure, etc.) at the work site, Contractor shall prepare and submit a special report to the APD within 3 hours of the occurrence. The report shall list chain of events, persons involved, response by Contractor's personnel, evaluation of results or effects, and any other pertinent information.

C. Accidents: Prepare and submit reports of significant accidents at the work site to the APD within 8 hours after occurrence. Reports should include date, person(s) involved, apparent cause, response, and if needed, actions take to prevent further such accidents. For the purposes of this specification, a significant accident is defined to include events where personal injury is sustained, property loss occurs, or where an event posed a significant threat of personal injury or property loss.



### 3.0 GENERAL PROVISIONS

#### A. GENERAL

1. By submitting a bid on this project, the Contractor acknowledges that the work site has been visited and the Contractor is satisfied as to (1) the conditions affecting the work, including (but not limited to) the physical conditions of the work site which may bear upon site access, handling and storage of tools and materials, access to water, electric or other utilities or otherwise that may affect performance of the required activities; (2) the character and quantity of all surface and subsurface materials or obstacles to be encountered in so far as this information is reasonably ascertainable from a visit to the work site, including exploratory work done by the Building Owner, the APD, as well as, information presented in the project Specification. Any failure of the Contractor to become acquainted with available information shall not relieve the Contractor from the responsibility for estimating properly the difficulty or cost of successfully performing the work. The Building Owner and the APD for this project are not responsible for any conclusions or interpretations made by the Contractor on the basis of the information presented in the Project Specification.
2. Should a Contractor find discrepancies in the plans and/or project specification or should Contractor be in doubt as to the meaning or intent of any part thereof, the Contractor must, prior to the bid request, request in writing clarification from the Building Owner and/or the APD. Discrepancies with regard to conflicts between the project specification and applicable federal, state, or local regulations or requirements shall be included herein. Failure to request such clarification is a waiver to any claim by the Contractor for expense made necessary by reason of later interpretation of the project specification by the Building Owner and/or the APD.
3. Explanations desired by a prospective Contractor regarding the project specifications may be requested in writing from the Building Owner's representative/APD not later than 11 am on July 13, 2016. The Building Owner's representative can be contacted at:  
  

[dewitt@aces-env.com](mailto:dewitt@aces-env.com)
4. Liquidated Damages: Should the Contractor fail to substantially complete the scope of work on or before the date stipulated for Substantial Completion, or failure of the Contractor to complete all remedial work, correct deficient work, clean-up of work site, and/or other miscellaneous tasks as required to complete all work specified, or



such later date as may result from an extension of time granted by the Building Owner, the Contractor shall pay the Building Owner, as liquidated damages, the sum of three hundred dollars (\$300.00) for each consecutive calendar day that terms of the contract remain unfulfilled beyond the date allowed by the project specification and contract with the Building Owner, which sum is agreed upon as a reasonable and proper measure of damages which the Building Owner will sustain per day by failure of the Contractor to complete the scope of work within the time as stipulated; it being recognized by the Building Owner and the Contractor that the damage to the Building Owner which could result from the failure of the Contractor to complete on schedule is uncertain and cannot be computed exactly. In no way shall costs for liquidated damages be construed as a penalty on the Contractor. The amount of liquidated damages set forth as described previously shall be assessed cumulatively. This provision for liquidated damages does not bar the Building Owner's right to enforce other rights and remedies against the Contractor, including but not limited to, specific performance or injunctive relief.



#### **4.0 INSURANCE REQUIREMENTS**

##### **A. GENERAL**

1. The Contractor shall purchase and maintain in force, at their own expense, such insurance to satisfy the requirements set forth in other sections of the City of Concord's contract documents.



## 5.0 TEMPORARY FACILITIES

### A. GENERAL

1. The Contractor shall provide temporary connection to existing building utilities or provide temporary facilities as required herein or as necessary to carry out the work.
2. The Contractor shall use qualified tradesmen for installation of temporary services and facilities. Locate, modify, and extend temporary services and facilities where they serve the project adequately and result in minimum interference with the performance of the work.

### B. WATER SERVICE

1. The Building Owner will supply a source of water at the work site. The Contractor bears all expense of heating and getting water to the work site areas and decontamination locations. The Contractor shall be responsible for ensuring that the waterline(s) that they are using are properly maintained and protected and do not leak or break. Any resulting damage to the building or items within the building from water damage shall be replaced or repaired at the Contractor's expense to the Building Owner's satisfaction.
2. Supply hot and cold water to the decontamination unit(s) in accordance with Section 10.0. Hot water shall be supplied at a minimum temperature of 100° Fahrenheit (F) and a maximum temperature of 110° F.
3. After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping and equipment.

### C. ELECTRICAL SERVICE

1. The Building Owner will supply a source of electricity at the work site. The Contractor bears all expense of providing electricity to the work site areas and decontamination locations.
2. The Contractor will comply with all applicable NEMA, NEC, and UL standards and governing state and local regulations for materials and layout of temporary electrical service.



3. The Contractor will provide receptacle outlets equipped with ground fault circuit interrupters, reset button, and pilot light for plug-in connections of power tools and equipment.
4. The Contractor will provide a weatherproof, grounded temporary electric power service and distribution system of sufficient size, capacity, and power characteristics to accommodate performance of work during the abatement/removal period.
5. Install temporary lighting adequate to provide sufficient illumination for safe work and traffic conditions in every work area.
6. The contractor will provide the services of an electrician, on a standby basis, to service electrical needs during the abatement process.
7. The contractor will provide an additional power service and distribution service, consisting of individual dedicated 15 amp, 120 volt circuits to electrical drops with receptacle outlets equipped with ground fault interrupt protection, color coded for the exclusive use of the air monitoring firm.

D. FIRST AID

1. A minimum of one first aid kit shall be located in the clean room of the decontamination unit. Additional first aid kits, as the Contractor feels is adequate or is required by law, shall be located throughout the work area.

E. FIRE EXTINGUISHERS

1. The Contractor shall comply with the applicable recommendations of NFPA Standard 10 – “Standard for Portable Fire Extinguishers”. Locate fire extinguishers where they are most convenient and effective for their intended purpose but provide not less than one extinguisher in each work area or floor level.

F. TOILET FACILITIES

1. The Contractor shall provide temporary toilet facilities to be used by the Contractor’s employees.

G. PARKING

1. The Contractor’s employees will park only in areas designated by the Building Owner.



H. SITE SECURITY

1. The Contractor is responsible for maintaining security in the work areas at all times during work hours at the work site. The Contractor is responsible for securing the work areas at the end of the work day.

I. STORAGE

1. The Contractor shall supply temporary storage for all equipment and materials for the duration of the project. Storage facilities and dumpster(s) will be maintained in areas designated by the Building Owner.

J. HEATING/COOLING

1. The Contractor shall provide adequate heating and cooling in the work areas of the building to perform his work as appropriate.



## 6.0 NEGATIVE PRESSURE SYSTEM

### A. GENERAL

1. The Contractor will provide high-efficiency particulate air (HEPA) filter exhaust systems equipped with new HEPA filters for the project. Exhaust equipment and systems shall comply with ANSI Z9.2-79 and used according to the manufacturer's recommendations.
2. A system of HEPA-equipped air filtration devices shall be configured so that a pressure differential is established between the work area and the surrounding area (-0.02" to -0.04" water column). A continuous chart-recorded manometer shall be used to confirm this condition. The Contractor shall provide a manometer or magnehelic-type negative pressure differential monitor with minor scale divisions of 0.005 inches of water and accuracy within plus or minus one percent. The manometer will be calibrated daily as recommended by the manufacturer.
3. The Contractor will provide additional air filtration devices inside the work areas for emergency standby as well as for circulation of dead air space.
4. The pressure differential will be maintained at all times after preparation is complete and until the final visual inspection and clearance air tests confirm the area is clean and acceptable for re-occupancy and the designer confirms verbally with written follow-up to discontinue the use of the negative pressure system.
5. Air shall be exhausted outside the building and away from the decontamination chamber if at all feasible. Any variations must be approved by the NC HHCUC.
6. The Contractor shall check daily for leaks and document his checks in the bound logbook.
7. There shall be a minimum of four air changes per hour in any air containment area.
8. The Contractor shall change the pre-filters, secondary filters, and the HEPA filters as necessary to ensure negative pressure is maintained throughout the duration of the project.
9. The Contractor will install observation windows where feasible. The Contractor will work with the Building Owner's Air Monitor to determine feasibility and location. The observation windows will be provide a minimum of one square foot of visible area using a plexi-glass type material.



## 7.0 WORK AREA PREPARATION

### A. GENERAL

1. Before work begins at the work site, a decontamination unit must be in operation as outlined in Section 10.0
2. Completely isolate the work area from the other parts of the building so as to prevent contamination beyond the isolated area.
3. The Contractor shall set-up a work area, load out, and decontamination facility at the locations shown in the approved asbestos abatement design specification. Any variations must be approved by the Building Owner. The decontamination facility outside the work area shall consist of a change room, shower room, and equipment room, at a minimum, as described in Section 10.0
4. The Contractor shall wet clean and/or HEPA vacuum all items and equipment in the work area suspected of being contaminated with asbestos but not in direct contact with the asbestos material to be removed and either secure these items in place with two layers of polyethylene sheeting, air tight, or have them removed from the work area.
5. Critical Barriers: The Contractor shall thoroughly seal the work area for the duration of the project by completely sealing off all individual openings and fixtures in the work area, including but limited to, heating and ventilation ducts, doorways, corridors, windows, skylights, and lighting with two layers polyethylene sheeting taped securely in place. If the Contractor is using sealant materials to fill in small holes or cracks, the material shall have appropriate fire ratings. Protection for any non-moveable fixtures that may be on the walls, floors, or ceilings that are not part of the work shall be protected by appropriate means.
6. Floors: Apply two or more layers of 6 mil (minimum) polyethylene plastic sheeting with joints overlapped 24 inches and taped securely. Plastic sheeting shall be carried up wall a minimum of 12 inches and secured.
7. Walls: Apply two or more layers of 4 mil (minimum) polyethylene plastic sheeting with joints overlapped 24 inches and taped securely. Plastic sheeting shall be lapped over floor coverings and taped securely.



8. Polyethylene sheeting on floors and walls shall be installed in such a manner that they may be removed independently of the critical barriers.
9. Entrances and exits from a work area will have triple barriers of polyethylene plastic sheeting in a z-configuration so that the work area is always closed off by one barrier when workers enter or exit the work area. The containment exits shall be adequately labeled and emergency evacuation routes shall be demarcated.
10. No ACM or water may be left on the floor at the end of the workday.
11. Floor surfaces, walls, finishes, or coverings, etc. that in the Contractor's opinion will be damaged by water or that may become contaminated with asbestos shall have additional protective preparation as the Contractor sees appropriate, at his cost, to protect the original condition of the surfaces.
12. Any costs associated with physical damage caused by water or securing polyethylene sheeting to areas inside or outside the abatement area shall be the Contractor's responsibility.
13. Provide caution signs at all approaches to asbestos-control areas containing concentrations of airborne asbestos fibers. Locate signs at such distance that personnel may read the signage and take the necessary protective steps required before entering the area. All signs will conform to 29 CFR 1926.1101 and 29 CFR 1926.62 requirements.
14. A negative pressure system shall be addressed as outlined in Section 6.0.
15. After work area preparation, the Contractor shall notify the Building Owner and the Building Owner's air monitoring firm with written follow-up that the Contractor is ready for a pre-work inspection.



## 8.0 WORKER PROTECTION

### A. GENERAL

1. The Contractor shall provide worker protection as required by OSHA, state, and local standards applicable to the work being performed. The Contractor is solely responsible for enforcing worker protection requirements at least equal to those specified in this Section.
2. Each time the work area is entered, the Contractor shall require all persons to remove street clothes in the changing room of the personnel decontamination unit and put on new disposable coveralls, new head cover, and a clean respirator. Proceed through shower room to equipment room and put on work boots.
3. Workers shall not eat, drink, smoke, chew gum, apply cosmetics, or chew tobacco in the work area, the equipment room, the load out area, or the clean room.

### B. WORKER TRAINING

1. The Contractor will have his workers trained in accordance with 29 CFR 1926 and applicable North Carolina regulations regarding the dangers inherent in handling, breathing asbestos fibers, proper work procedures, and personal and area protective measures.

### C. MEDICAL EXAMINATIONS

1. The Contractor will provide medical examinations for all his workers. The medical examinations shall, at a minimum, meet the OSHA requirements as set forth in 29 CFR 1926.

### D. PROTECTIVE CLOTHING

1. The Contractor will provide disposable full-body coveralls and disposable head covers and require that all workers in the work area wear them. Provide a sufficient number for all required changes for all workers in the work area. Cloth work clothing may be worn underneath disposable protective clothing. However, this clothing is to remain inside the work area and be disposed of as asbestos contaminated waste.
2. Boots: The Contractor will provide work boots with non-skid soles, and where required by OSHA, additional foot protection for all workers. All boots/footwear worn within



the control area will be considered as asbestos contaminated material and may not be worn outside the control area.

3. Gloves: The Contractor will provide suitable work gloves to all workers and require that they be worn at the appropriate times. The work gloves are not to be removed from the work area and shall be disposed of as asbestos containing waste at the completion of the work.
4. The Contractor shall provide eye and ear protection as appropriate.

#### E. ADDITIONAL PROTECTIVE EQUIPMENT

1. The Contractor will provide the appropriate respirators or respirator system to ensure adequate respiratory protection, disposable coveralls, head covers, gloves, and footwear covers for the Building Owner, the Building Owner's representative, the Building Owner's air monitoring firm, or other authorized representatives who may inspect the work site at no cost to the Building Owner. The personal protective equipment provided by the Contractor shall remain the property of the Contractor.

#### F. DECONTAMINATION PROCEDURES

1. The Contractor will require that all workers use the following decontamination procedures as a minimum requirement whenever leaving the work area.
  - a. Remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the equipment room.
  - b. Still wearing respirators, proceed to showers. Showering is mandatory. Care should be taken to follow reasonable procedures in removing the respirator to avoid asbestos fibers while showering. The following procedure is a minimum:
    - Thoroughly wet body including hair and face
    - With respirator still in place thoroughly wash body, hair, respirator face piece, and all exterior parts of the respirator
    - Take a deep breath, hold it and/or exhale slowly, completely wet hair, face, and respirator. While still holding breath, remove respirator and hold it away from face before starting to breathe.
    - Carefully wash face piece of respirator inside and out
    - Shower completely with soap and water, rinse thoroughly
    - Rinse shower room walls and floor prior to exit
    - Proceed from shower to changing (clean) room and change into street clothes or new disposable work items



- c. After showering, each employee shall inspect, clean and repair his respirator as needed. The respirator shall be dried, placed in a suitable storage bag and properly stored.
- d. Proceed to clean room, dry off, and dress in street clothes.



## 9.0 RESPIRATORY PROTECTION

### A. GENERAL

1. All respiratory protection programs shall be established in accordance with the respiratory protection requirements of 29 CFR 1910.134 and 29 CFR 1926.1101. These regulations shall be considered a requirement of these specifications. The following sub-sections provide for the establishment of standard protection program, but do not relieve the Contractor from the implementation or enforcement of a respiratory protection program.
2. The Contractor shall designate an administrator for their respiratory program. The administrator shall be responsible for the implementation and enforcement of the provisions and procedures set forth in the respiratory protection program. The Contractor shall submit the name of the administrator to the Building Owner and APD.
3. The Contractor shall ensure that only those individuals who are medically able to wear respiratory protection equipment shall be issued a respirator. Before being issued a respirator, an employee of the Contractor shall have received a medical and physical examination and approved to wear a respirator.
4. Each employee of the Contractor that is determined to be fit to wear a respirator shall be fit tested, following applicable procedures outlined in OSHA regulations, upon receiving the respiratory equipment and then regularly throughout the project.



## 10. DECONTAMINATION UNITS

### A. GENERAL

#### 1. Personnel Decontamination Area

- a. The Contractor shall establish a decontamination unit to include an equipment room, clean room, and a shower outside each work area. The decontamination unit shall be a continuous with the work area.
- b. The clean room will contain boxes or lockers for each worker's street clothes. The boxes or lockers will be provided by the Contractor.
- c. Maintain floor of changing room dry and clean at all times. Do not allow the overflow water from shower to escape the shower room.
- d. Damp wipe all surfaces twice after each shift change with a disinfectant solution.
- e. Provide hot and cold water, adequate drainage, and standard fixtures including an elevated showerhead as necessary for a complete and operable shower. A water hose and bucket is not an acceptable shower.
- f. Arrange water shut-off and drain pump operation controls so that a single individual can shower without assistance from either inside or outside of the work area.
- g. Pump shower wastewater to drain. Provide 20 micron and 5 micron wastewater filters in line to drain. Change filters daily or more often if necessary.
- h. If the decontamination area is located within an area containing friable asbestos on overhead ceilings, ducts, piping, etc., provide the area with a minimum 3/8 inch plywood "ceiling" with two layers of polyethylene sheeting covering the top of the plywood "ceiling".
- i. Visual Barrier: Where the decontamination area is immediately adjacent to and within view of the occupied areas, provide a visual barrier of opaque plastic sheeting so that worker privacy is maintained and work procedures are not visible to the building occupants. Where the area adjacent to the



decontamination area is accessible to the public, construct a solid barrier (i.e. wood, metal, etc.) on the public side of the sheeting to protect the sheeting. Construct barrier using wood or metal studs, 16 inches on center maximum, covered with a minimum of 3/8 inch plywood or equivalent.

## 2. Equipment Decontamination Units

- a. Provide an equipment decontamination unit consisting of a serial arrangement of rooms - clean room, holding area, and washroom (at a minimum) with each room separated by a minimum of three curtain doorways for removal of equipment and material from work area. Do not allow personnel to enter or exit work area through equipment decontamination unit.
- b. Washroom: Provide a washroom for cleaning of bagged or drummed asbestos waste materials passed from the work area.
- c. Holding Area: Provide a holding area as a drop location for sealed drums and bagged asbestos waste materials passed from the washroom.
- d. Clean Room: Provide a clean room to isolate the holding area from the building exterior or occupied areas.
- e. Equipment or Material: Obtain all equipment or materials from the work area through the equipment decontamination unit according to the following procedure (at a minimum):
  - (1) When passing contaminated equipment, sealed plastic bags, drums or containers into the washroom, close all doorways of the equipment decontamination unit, other than the doorway between the work area and the washroom. Keep all outside personnel clear of the equipment decontamination unit.
  - (2) Once inside the washroom, wet-clean the bags and/or equipment.
  - (3) When wet-cleaning is complete, insert bagged waste material into a clean container (bag, drum, etc.) during the pass between the washroom and holding area. Close all doorways except the doorway between the washroom and holding area.



- (4) Workers from the exterior of the work area enter the clean room then the holding area to remove decontaminated equipment and/or containers for disposal. Require these workers to wear full protective clothing and respiratory protection as described in Section 8.0 and Section 9.0.

### 3. Maintenance of Enclosure System

- a. The Contractor's supervisor shall ensure that the barriers and plastic linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery. Areas of damage and the required repairs will be documented in the project logbook.
- b. The Contractor's supervisor shall visually inspect the asbestos removal enclosure at the beginning of each work shift.
- c. Use smoke methods to test the effectiveness of the enclosure system when requested by the Building Owner or Building Owner's designated representative.

### 4. Decontamination Unit Contamination

- a. If the air quality in the decontamination unit exceeds 0.01 fibers per cubic centimeter analyzed by PCM or 70 structures per millimeter squared analyzed by TEM or its integrity is diminished through use as the Building Owner's air monitoring firm or other designated representative, no employee shall use the unit until corrective steps are taken and approved by the Building Owner's air monitoring firm or other designated representative.



## 11.0 PROJECT DECONTAMINATION

### A. GENERAL

1. Carry out a first cleaning of all surfaces of the work area including plastic sheeting, tools, scaffolding, and/or staging equipment/materials by use of damp cleaning and/or mopping and a HEPA vacuum until there is no visible debris from removed materials or residue on plastic sheeting or other surfaces. Do not perform dry dusting, dry sweeping, or blow down with high-pressure air or water systems.
2. Equipment shall be cleaned and all contaminated materials removed before removing polyethylene from the walls and floors.
3. The Contractor shall replace all pre-filters and clean the inside and outside of the HEPA exhaust units.
4. After removing polyethylene sheets from walls and floors but with polyethylene sheets remaining on all windows, doors, and critical components, the Contractor shall clean all surfaces in the work area including ducts, electrical conduits, steel beams, roof deck, etc. with amended water and then HEPA vacuum all surfaces.
5. After cleaning the work area, the Contractor shall allow the area to thoroughly dry and then wet-clean and HEPA vacuum all surfaces in the work area again.
6. At completion of the cleaning operations, the Contractor's supervisor shall perform a thorough visual inspection of the work area to ensure that the work area is dust and fiber free. When the supervisor believes the work area is ready for a final project decontamination inspection, he shall notify the Building Owner's air monitoring firm.
7. Upon notification of the Contractor's supervisor and after all work areas are dry, the personnel of the project's air monitoring firm shall perform a visual inspection for dust and/or fibers. The air monitoring firm will notify the Contractor's supervisor of any discrepancies found during the visual inspection. If the work area has not been adequately cleaned/decontaminated, cleaning shall be repeated at the Contractor's expense including additional visual inspections by the project's air monitoring firm until the work is found to be in compliance.



8. Assuming no discrepancies are noted and/or the work area is found to be in compliance, the Contractor shall apply an approved and compatible lockdown sealant to surfaces in the work area.
9. Once the lockdown sealant has been applied and the work area has dried, all entrances and exits shall be unsealed and the plastic sheeting, tape, and any other trash/debris shall be disposed of as ACM waste material as outlined in Section 14.
10. All HEPA unit intakes and exhausts shall be wrapped and sealed with 6 mil polyethylene before removing from the work area.
11. After the air monitoring firm has approved the final project decontamination and the Contractor has completed the tear down for occupancy by others, the air monitoring firm shall perform a final visual inspection of the work area.
12. Any residual ACM that is present after removing critical barriers that in the opinion of the air monitoring firm should have been removed/cleaned during the pre-cleaning phase prior to installing critical barriers shall be cleaned and re-cleared at the Contractor's expense.
13. There shall be appropriate seals totally enclosing the inspection area to keep it separate from clean areas or other areas where abatement/removal of ACM is or will be in progress. Once an area has been accepted and air monitoring has determined an area is found in compliance for re-occupancy, a loss of the critical barrier integrity or escape of asbestos dust into a previously identified clean area shall void the previous visual acceptance and air sampling clearance testing. Additional visual cleaning and air clearance sampling shall be required at the Contractor's expense.
14. Upon completion of the work, the Contractor shall remove all tools, equipment, and materials from the work area.
15. The Contractor shall leave the site clean, neat, and orderly and in a condition to begin new construction and/or renovation. The Contractor will be responsible for repair or replacement of the Building Owner's property damaged by the Contractor during performance of this project.



## 12.0 WORK AREA CLEARANCE

### A. GENERAL

1. Notification and scheduling of the final inspection during the project is the responsibility of the Contractor.

### B. FINAL CLEARANCE TESTING

1. After the second cleaning operation and after the area is completely dry, the following test procedures shall be performed:
  - a. The air monitoring firm retained by the Building Owner shall conduct a final inspection. The inspection shall be conducted following the guidelines set forth in the American Society for Testing and Materials (ASTM), Standard Practices for the Visual Inspection of Asbestos Abatement Projects, Designation E1368.90. If the work area is found visibly clean, the air monitoring firm will collect air samples for clearance and re-occupancy.
  - b. During the air testing, the accredited air monitor shall perform aggressive air sampling as described in the EPA-AHERA regulations (40 CFR Part 763, Subpart E, Appendix A). Where non-friable removal techniques are utilized with limited containment, non-aggressive air sampling shall be performed.
  - c. Clearance testing for samples analyzed using Phase Contrast Microscopy (PCM) Method (minimum of five samples using the NIOSH 7400 Method) will be sampled as follows: during sampling, the maximum flow rate shall be 10 liters per minute or less with a minimum sample size of 1,200 liters for each sample. Clearance criteria shall be less than 0.1 fibers per cubic centimeter of air (f/cc) for all samples analyzed.
  - d. Clearance testing for samples analyzed using the Transmission Electron Microscopy (TEM) Method described in 40 CFR Part 763, Subpart E, Appendix F will be sampled as follows: during sampling, the maximum flow rate shall be 10 liters per minute or less with a minimum sample size of 1,200 liters for each sample. Clearance criteria shall be an arithmetic mean less than or equal to 70 structures per square millimeter or a Z-Test less than or equal to 1.65.



- e. Final clearance criteria shall be in accordance with applicable federal and state regulations, unless otherwise noted. The air monitoring firm will submit to the Building Owner a final report which shall describe the activities performed during the abatement of ACM at the building.
- f. The use of the negative pressure system, if necessary, may be discontinued after the air monitoring firm instructs the Contractor that they have passed the final project decontamination inspection.

For this project, clearance testing will be performed using the TEM method. The Building Owner will pay for the initial air clearance testing and a turn-around-time of twenty-four (24) hours will be utilized. In the event the results of the initial air clearance testing do not meet the applicable clearance criteria, the contractor will be responsible for the cost of the additional air clearance testing until the air clearance criteria has been met.



## **PART 2 - PRODUCTS**

### **A. GENERAL**

1. The Contractor shall submit a list of all materials and products to be used during this project. The Building Owner reserves the right to review this list and reject any products deemed unacceptable. The Contractor will not substitute materials unless prior receipt of written approval by the Building Owner or the Building Owner's representative.



## PART 3.0 – EXECUTION

### 13.0 ASBESTOS REMOVAL

#### A. GENERAL

1. It is the intent of this specification that the Contractor shall completely remove and dispose of all ACM from the work site as described herein this document. The identified areas of ACM are further described in this section, on the attached figures, and the attached laboratory results.
2. The Contractor shall perform the removal of all friable ACM or significantly damaged non-friable ACM from within reduced pressure enclosures or reduced pressure glove bag enclosures.
3. Prior to the Contractor's mobilization to the project site or starting the asbestos removal, the Contractor shall thoroughly decontaminate all equipment. The Contractor's equipment, decontamination units, and work area set-up shall be approved by the Building Owner's designated representative.
4. The Contractor shall be responsible for collecting personnel air monitoring samples in accordance with OSHA Construction Asbestos Standard 29 CFR 1926.1101 unless an initial exposure assessment has been submitted and approved by the Building Owner's representative. Results of the occupational and environmental sampling shall be submitted to the Building Owner's representative within three working days of collection, signed by the testing laboratory responsible official, the employee that performed the sampling, and the Contractor's competent person.
  - a. The sampling results shall represent each job classification, or if working conditions are similar to previous projects by the same employer, the Contractor may provide previously collected exposure data that can be used to estimate worker exposures in accordance with 29 CFR 1926.1101. The data shall represent the worker's regular daily exposure to asbestos.
  - b. The initial monitoring shall determine the requirements for further monitoring and the need to fully implement the control and protective requirements included in 29 CFR 1926.1101.



5. All loose asbestos material removed in the work area shall be adequately wetted, bagged, sealed, and labeled properly before personnel breaks or end of each shift.
6. All plastic sheeting, tape, cleaning materials, clothing, and all other disposable materials or items used in the work area shall be packed into sealable plastic bags (6 mil minimum thickness), doubled, and treated as contaminated material.
7. All materials shall be double-bagged prior to removing it from the established waste load out area.
8. All excess water (except shower water) shall be combined with removed material or other absorptive material and properly disposed of per EPA regulations. The Contractor shall not place water into storm drains, onto lawns, into ditches, creeks, streams, rivers, or oceans.
9. The Building Owner and/or Building Owner's designated representative may consider alternate removal procedures and methods, however, alternate removal procedures and methods shall not be utilized unless authorized in writing by the Building Owner or the Building Owner's designated representative.
10. Various tasks may be combined with the approval, in writing, by the Building Owner or Building Owner's designated representative.

#### B. SCOPE OF WORK

1. The Contractor shall furnish all labor, materials, services, insurance, and equipment necessary for the removal and disposal of ACM and materials as described in this section in the designated areas of the Hartsell Recreation Center located at 60 Hartsell School Road in Concord, North Carolina (Figure 1). The abatement/removal and disposal will be performed in accordance with the appropriate and applicable Federal, State, and Local guidelines and regulations.
2. The quantities shown in this Section are estimates only. The Contractor has the responsibility for determining the actual quantities of material to be abated, removed, and disposed of. No additional contract price adjustments will be allowed due to variances between actual and the estimated quantities listed herein.
3. Project Site: Hartsell Recreation Center



Start Date: August 15, 2016 – Allowable work hours: 7 am to 7 pm. Work on Saturday and Sunday is permitted.

5. Scope of Work:

- Remove approximately 1,970 square feet of asbestos containing floor tile and associated mastic. In the multi-purpose room on the lower level, the contractor shall remove and dispose of the existing cabinets as non-ACM to allow for removal of the underlying floor tile and mastic. In custodian's closet on upper level, the contractor will need to remove the existing water heater and interior wood walls and baseboards. The water heater should be set aside for reuse by the general contractor. The wood walls and baseboards can be disposed of non-ACM.

- Remove approximately 35 mudded joints and 54 linear feet of asbestos containing thermal system insulation (TSI). At each mudded joint location, the contractor will also remove twelve (12) to eighteen (18) inches of insulation on either side of the mudded joint.

For the abatement of the mudded joints in the meeting room on the lower level, the contractor shall remove a sufficient number of the lay-in ceiling tiles to complete the necessary abatement. The contractor should take care not to damage the grid work. Any damage and subsequent repair to the existing lay-in ceiling tiles and grid work will be the responsibility of the contractor.

For the abatement of mudded joints in the gymnasium area on the upper level, contractor shall provide a satisfactory means to protect the existing gym from damage. Any damage to the floor and subsequent repairs to the damaged floors will be the responsibility of the contractor.

- Remove approximately 36 window units with asbestos containing glazing. In addition to the window units, the contractor will need to remove the following items present on the north side of the lower level:

Approximately 8 panels of existing plywood covering the existing windows; the plywood can be disposed of as non-ACM

An air conditioning unit currently mounted in one of the window units; the air conditioning unit can be left inside the building for use by others

Power vent fan currently mounted in one of the window units; the power vent fan can be left inside the building for use by others

- In addition, metal columns are located on the north and south walls of the building on the lower level and may need to be removed to facilitate removal of the window units. If the metal columns are removed, they should not be damaged



during the removal process. Columns that are removed should be placed inside the building for reuse by others. It is assumed that the windows will be removed as units and upon removal of the windows, the openings will need to be covered in such a manner to prevent interior access to the building.



## 14.0 ASBESTOS REMOVAL METHODS

1. Asbestos Removal
  - a. Establish a control area as outlined in Section 7.0 and 10.0 of this specification.
  - b. Pre-clean and decontaminate all items appropriately that may be contaminated within the control area. Remove and dispose of any asbestos contaminated items if they cannot be decontaminated.
  - c. The ACM shall be wet down and removed and placed into properly labeled 6 mil polyethylene bags and sealed with duct tape. Seal bag within a clean bag.
  - d. Any additional waste materials shall be placed into properly labeled 6 mil polyethylene bags and seal with duct tape. Seal bag within a clean bag.
  - e. After asbestos removal, no asbestos materials shall be visible on exposed surfaces. If so, clean-up work shall be done at the Contractor's expense until all visible evidence of asbestos has been removed.
  - f. Glove Bag Removal: As appropriate or as needed, the Contractor may use glove bags for removal of pipe insulation as allowed by current OSHA Standard 1926.1101.
    - (1) Position bag around the pipe insulation to be removed and seal to pipe with tape. Construct a sealed side port to allow access for wetting asbestos and evacuating the bag with a HEPA filtered vacuum. In accordance with the OSHA Standards, each glove bag shall be smoke-tested for leaks and any leaks sealed prior to use.
    - (2) Wet the insulation as much as possible to minimize dust generation.
    - (3) Cut insulation along a joint with a sharp knife into manageable sections and let fall into bag.
    - (4) Scrape all residual insulation completely off pipes, brackets, and hangers.
    - (5) Tape glove together below pipe before removing bag from pipe. Completely evacuate air from bag with a HEPA vacuum.
    - (6) Place contaminated glove bag into a properly labeled 6 mil polyethylene bag and seal with duct tape.



## 15.0 DISPOSAL OF ASBESTOS CONTAINING WASTE MATERIAL

### A. GENERAL

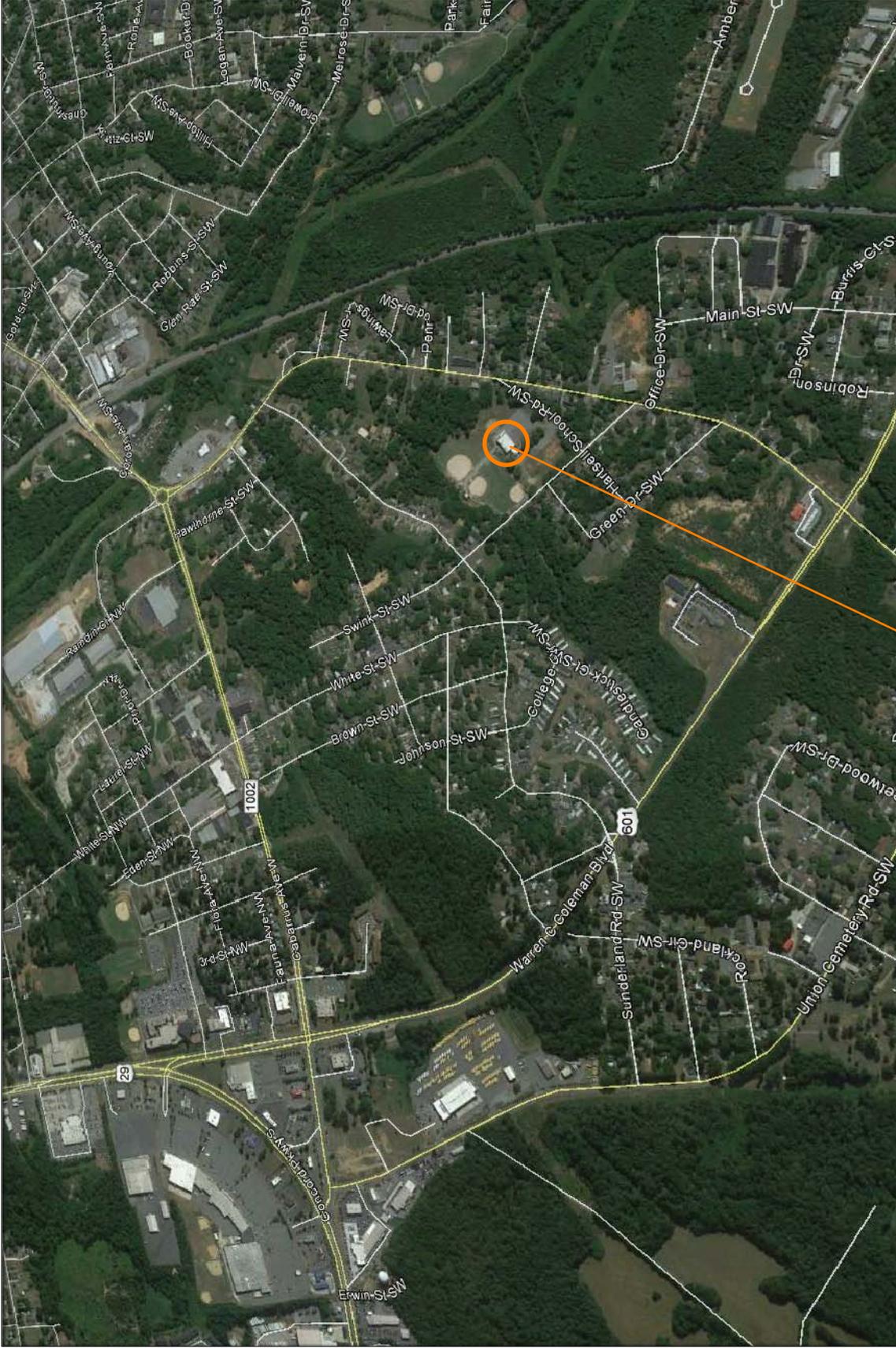
1. Within the work area, all asbestos containing materials and miscellaneous contaminated debris shall be immediately placed into properly labeled 6 mil polyethylene bags or appropriate non-porous waste containers; properly sealed and protected. All material shall be double bagged and wet-wiped prior to removing to waste load-out area.
2. If a dumpster is to remain on the project site during abatement/removal operations to accumulate waste before disposal, then it must be completely closed or covered (no open top dumpsters). The load out vehicle/dumpster shall be locked and labeled with warning signs while located at the project site. The placement of the dumpster shall be approved by the Building Owner.
3. Waste disposal polyethylene bags (6 mil thickness minimum) and containers, non-porous (steel/plastic) drums or equivalent, with labels, appropriate for storing asbestos waste during transportation to the disposal site shall be utilized. In addition to the OSHA, NESHAP, and DOT labeling requirements, all containers shall be labeled with the date of removal, the name of the waste generator, and the location at which the waste was generated.
4. The Contractor shall transport the containers and bags of ACM waste material to the approved waste disposal site. An enclosed vehicle will be used to haul the ACM waste materials to the disposal site. No rental vehicles or trailers shall be used. Vehicle selection, vehicle covers, and associated work practices shall assure that no asbestos dust becomes airborne during the loading, transport, and unloading activities, and that materials placed at the waste site is performed without breaking any seals. Transportation of the waste material to the pre-designated disposal site shall be in accordance with 40 CFR 61.150 and DOT 49 CFR Parts 100 – 399.
5. Workers loading and unloading the asbestos waste materials shall wear respirators and disposable clothing when handling waste materials. Asbestos warning signs shall be posted during loading and unloading the asbestos waste materials.
6. The Contractor shall use the NC HHCU's Waste Shipment Record (Form 3787) for disposal records per 40 CFR 61.150 and distribute a copy of all waste shipment records to the Building Owner after completion of the project.

## END OF SPECIFICATION



# APPENDIX 1

## FIGURES



FIGURE

1

**ASBESTOS ABATEMENT DESIGN SPECIFICATIONS**  
**HARTSELL RECREATION CENTER**  
**60 HARTSELL SCHOOL ROAD**  
**CONCORD, NORTH CAROLINA**

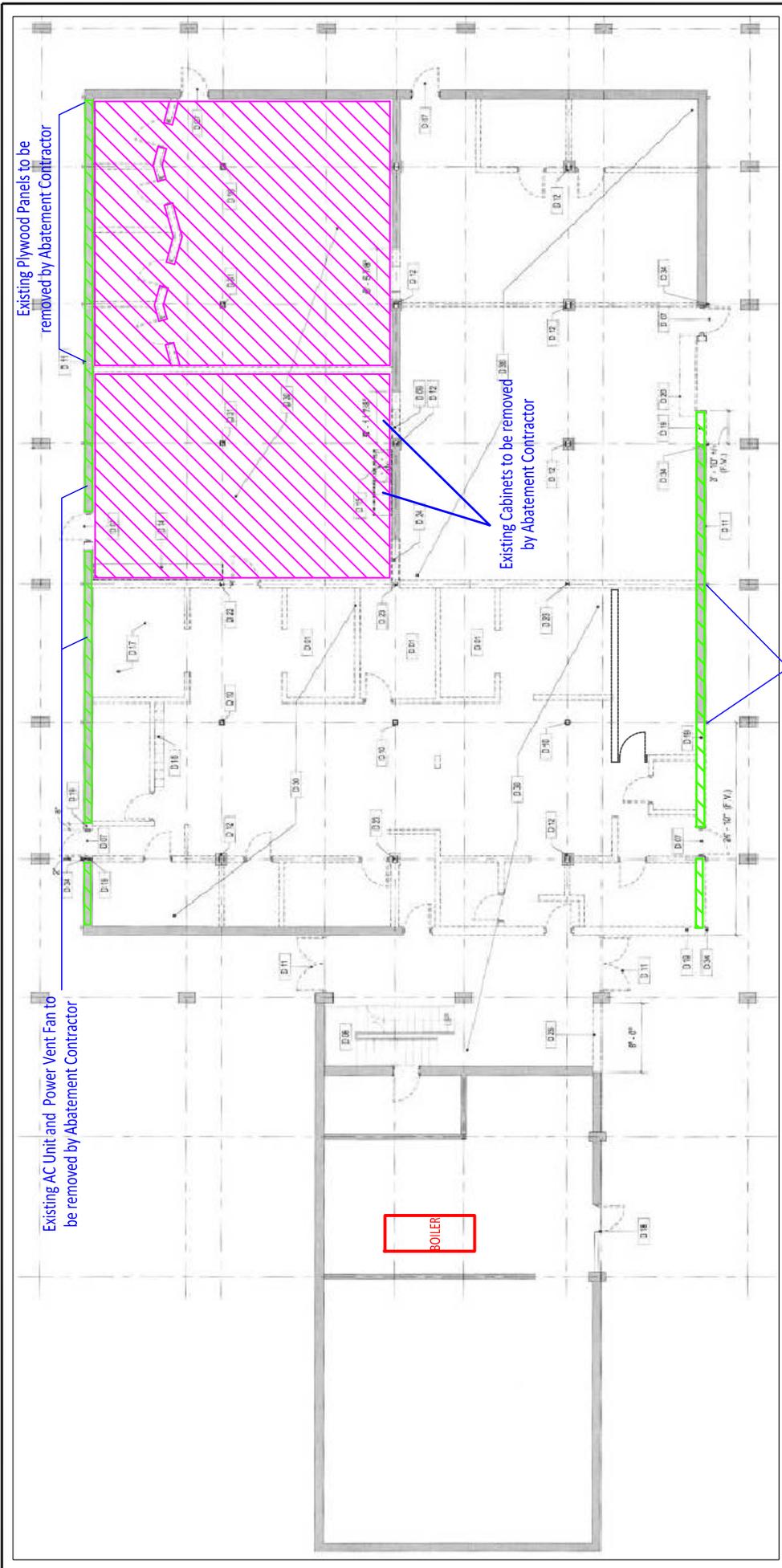
HARTSELL RECREATION CENTER

**ALLIED CONSULTING &  
 ENVIRONMENTAL SERVICES**  
 SHELBY, NORTH CAROLINA  
 P.O. BOX 2426 (28151-2426) 704-600-6255  
 409 E. MARION ST. (28150) FAX 704-482-5596



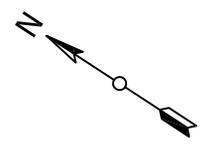
ACES PROJ. NO.: 2016-06-050  
 DATE: June 23, 2016

**SITE LOCATION**  
**PLAN**



Base Floor Plan Taken From Drawing Supplied by Morris Berg Architects

Existing Metal Columns on North & South Walls May Be Removed by Abatement Contractor to Facilitate Window Removal; All Removed Columns Should be Secured and Stored for Re-installation by Others



**LEGEND**

-  Approximate Location of Floor Tile and Mastic to be removed
-  Approximate Location of Windows/Window Glazing to be removed

**LOWER LEVEL**

NOT TO SCALE

ACES PROJ. NO.: 2016 - 06 - 050  
 DATE: June 23, 2016

**ACM LOCATION  
 PLAN**

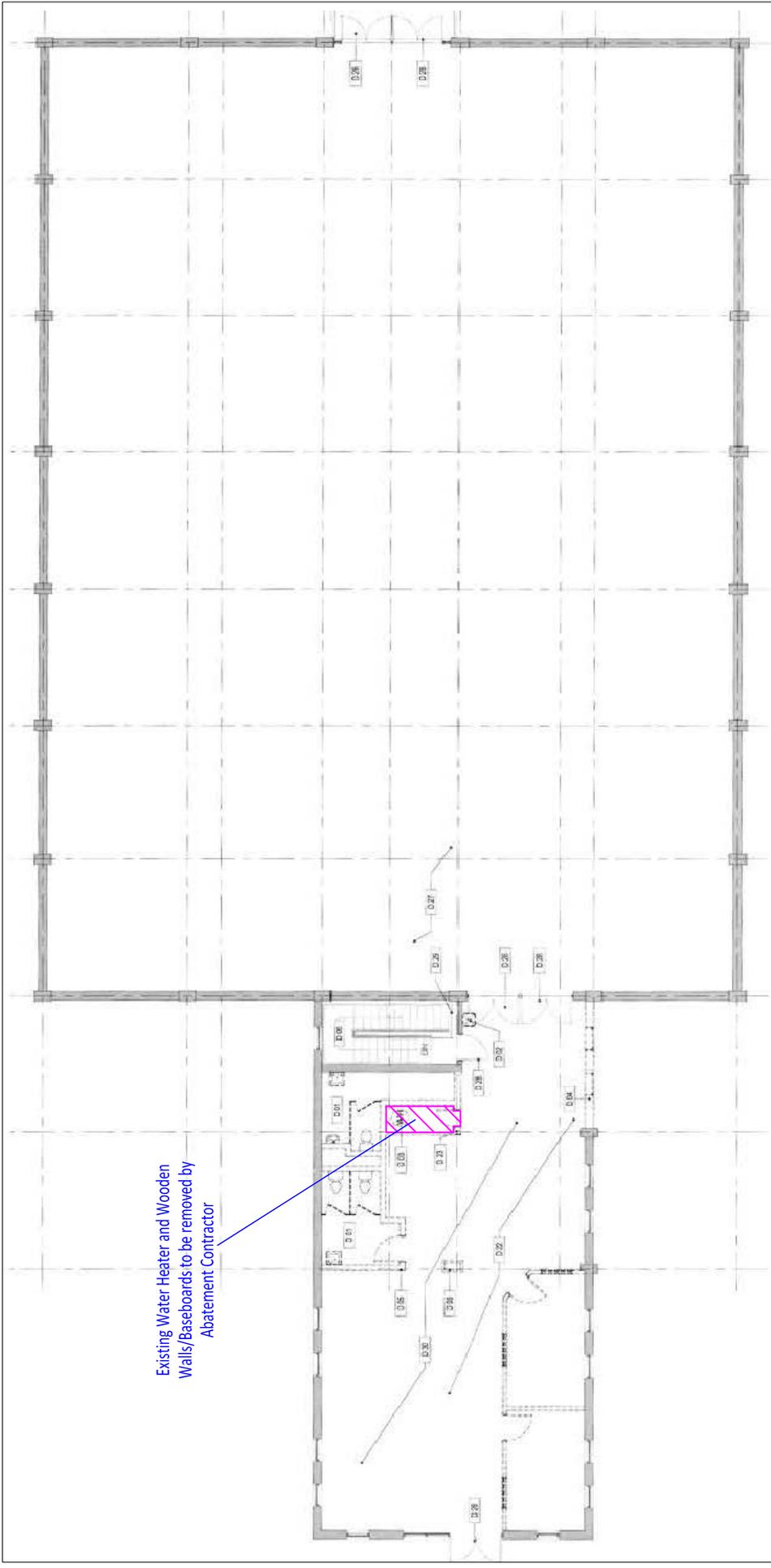
  
**ALLIED CONSULTING &  
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 P.O. BOX 2426 (28151-2426) 704-600-6255  
 409 E. MARION ST. (28150) FAX 704-482-5596

**ASBESTOS ABATEMENT DESIGN SPECIFICATIONS**

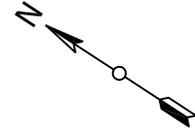
**HARTSELL RECREATION CENTER  
 60 HARTSELL SCHOOL ROAD  
 CONCORD, NORTH CAROLINA**

FIGURE

**2**



Base Floor Plan Taken From Drawing Supplied by Morris Berg Architects



**LEGEND**

 Approximate Location of Floor Tile and Mastic to be removed

**UPPER LEVEL**  
NOT TO SCALE

ACES PROJ. NO.: 2016 - 06 - 050  
DATE: June 23, 2016

**ACM LOCATION  
PLAN**



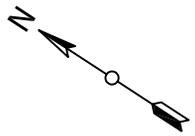
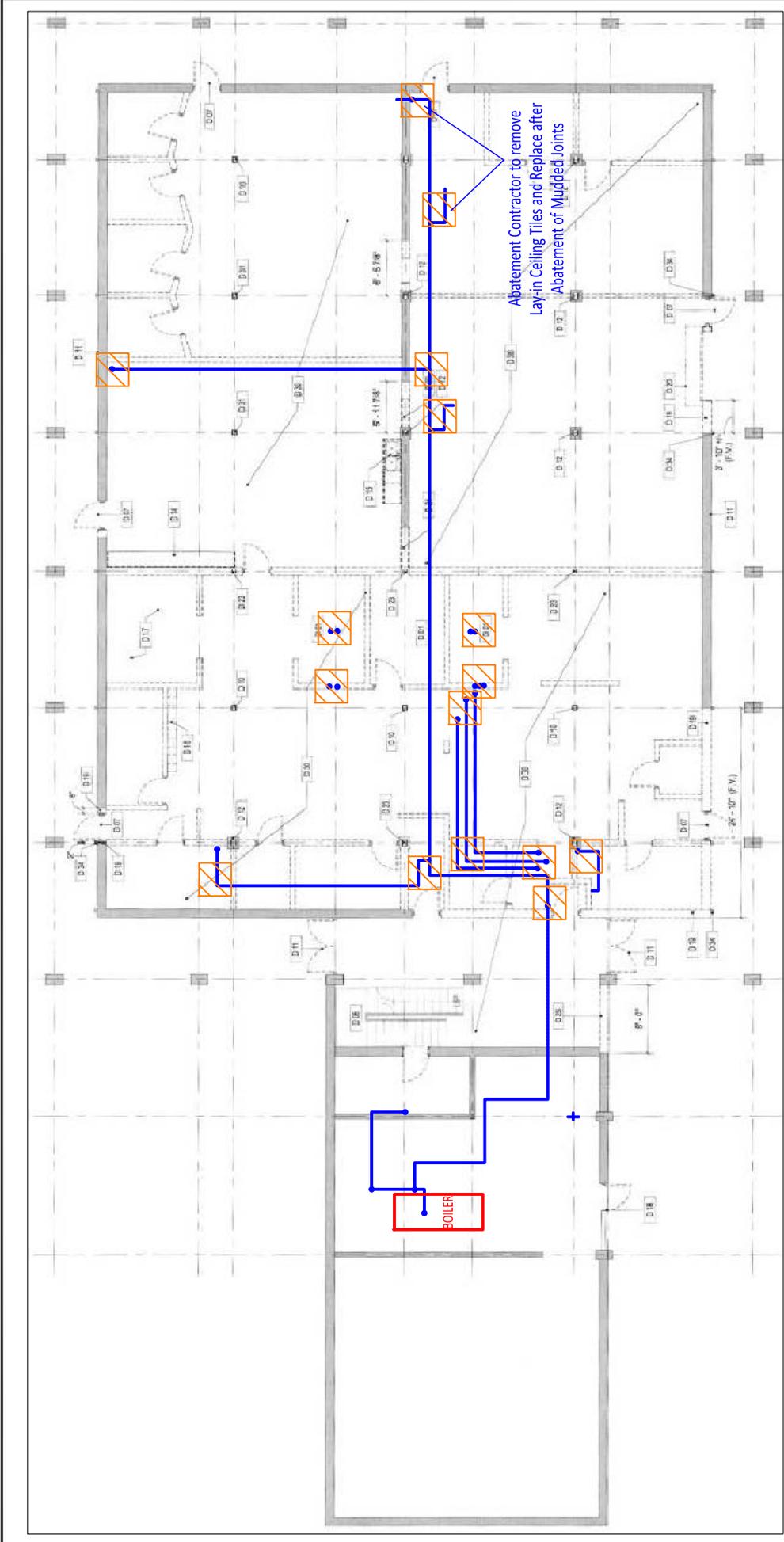
**ALLIED CONSULTING &  
ENVIRONMENTAL SERVICES**  
SHELBY, NORTH CAROLINA  
P.O. BOX 2426 (28151-2426) 704-600-6255  
409 E. MARION ST. (28150) FAX 704-482-5596

**ASBESTOS ABATEMENT DESIGN SPECIFICATIONS**

**HARTSELL RECREATION CENTER**  
**60 HARTSELL SCHOOL ROAD**  
**CONCORD, NORTH CAROLINA**

FIGURE

**3**



**LEGEND**

 Approximate Location of Thermal System Insulation to be removed

**LOWER LEVEL**

NOT TO SCALE

Base Floor Plan Taken From Drawing Supplied by Morris Berg Architects

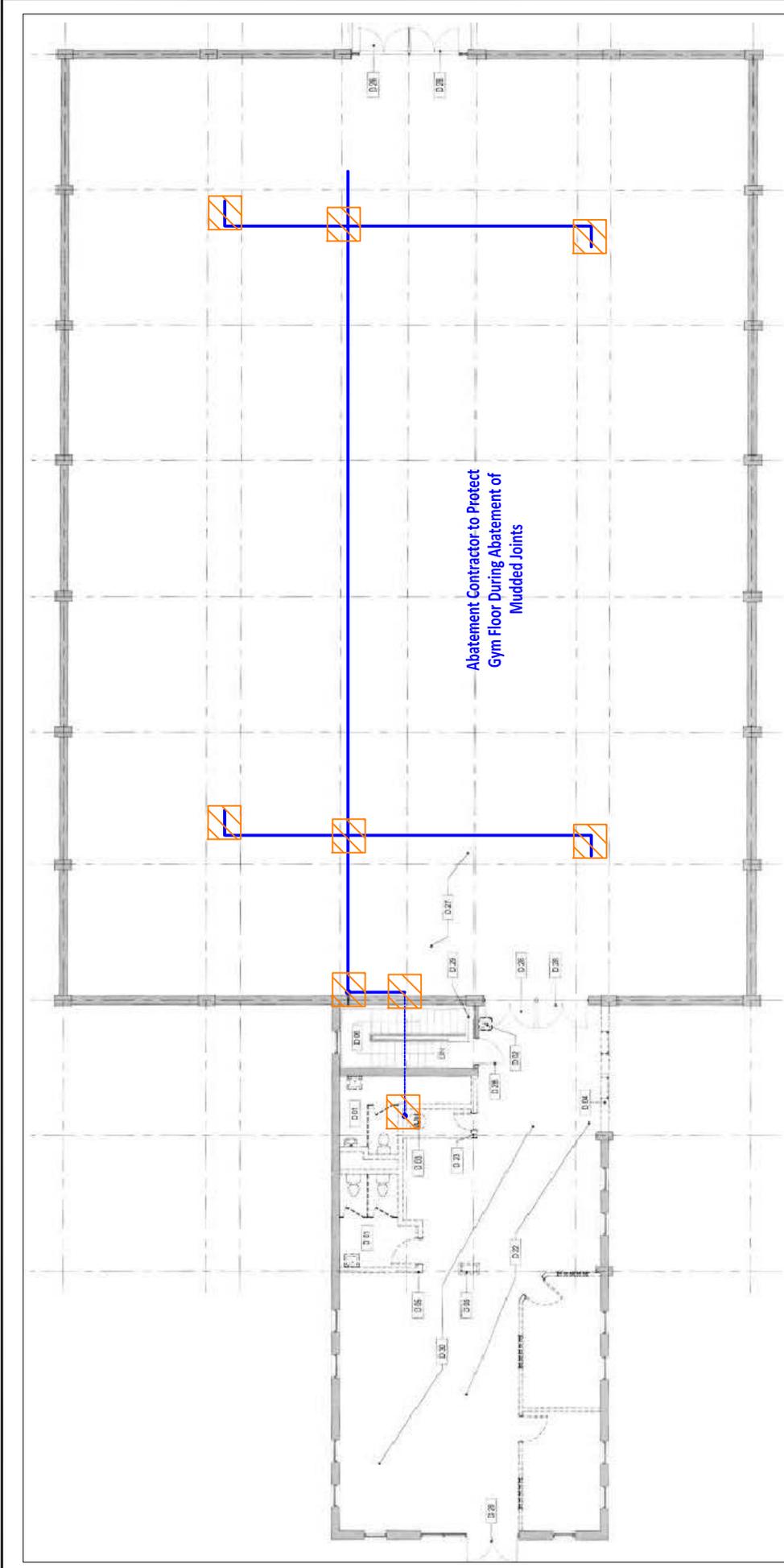
ACES PROJ. NO.: 2016 - 06 - 050  
 DATE: June 23, 2016

**TSI & PIPING  
 LOCATION PLAN**

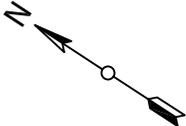
  
**ALLIED CONSULTING &  
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 P.O. BOX 2426 (28151-2426) 704-600-6255  
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**ASBESTOS ABATEMENT DESIGN SPECIFICATIONS  
 HARTSELL RECREATION CENTER  
 60 HARTSELL SCHOOL ROAD  
 CONCORD, NORTH CAROLINA**

FIGURE  
**4**



Abatement Contractor to Protect Gym Floor During Abatement of Mudded Joints



Base Floor Plan Taken From Drawing Supplied by Morris Berg Architects

**LEGEND**



Approximate Location of Thermal System Insulation to be removed

**UPPER LEVEL**

NOT TO SCALE

ACES PROJ. NO.: 2016-06-050  
 DATE: June 23, 2016

**TSI & PIPING  
 LOCATION PLAN**



**ALLIED CONSULTING &  
 ENVIRONMENTAL SERVICES**  
 SHELBY, NORTH CAROLINA  
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 409 E. MARION ST. (28150) FAX 704-482-5596

**ASBESTOS ABATEMENT DESIGN SPECIFICATIONS**  
**HARTSELL RECREATION CENTER**  
**60 HARTSELL SCHOOL ROAD**  
**CONCORD, NORTH CAROLINA**

FIGURE

**5**



# **APPENDIX 2**

## **SURVEY REPORT FOR ACM**



# **SURVEY REPORT FOR ASBESTOS CONTAINING MATERIALS**

**PROPOSED RENOVATION OF HARTSELL RECREATION CENTER  
60 HARTSELL SCHOOL ROAD  
CONCORD, NORTH CAROLINA**

**PREPARED FOR:**

**CITY OF CONCORD  
POST OFFICE BOX 308  
CONCORD, NORTH CAROLINA 28026-308**

**PREPARED BY:**

**ALLIED CONSULTING & ENVIRONMENTAL SERVICES, LLC  
POST OFFICE BOX 2426  
SHELBY, NORTH CAROLINA 28151  
PHONE (704) 600-6255  
FAX (704) 482-5596**

**ISSUE DATE: MAY 18, 2016**

**ACES PROJECT: 2016-04-026**



# **SURVEY REPORT FOR ASBESTOS CONTAINING MATERIALS**

**PROPOSED RENOVATION OF HARTSELL RECREATION CENTER  
60 HARTSELL SCHOOL ROAD  
CONCORD, NORTH CAROLINA**

**PREPARED FOR:**

**CITY OF CONCORD  
POST OFFICE BOX 308  
CONCORD, NORTH CAROLINA 28026-308**

**PREPARED BY:**

**ALLIED CONSULTING & ENVIRONMENTAL SERVICES, LLC  
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SHELBY, NORTH CAROLINA 28151  
PHONE (704) 600-6255  
FAX (704) 482-5596**

**ISSUE DATE: MAY 18, 2016**

**ACES PROJECT: 2016-04-026**

**PREPARED BY:**

**DEWITT WHITTEN, REM, CES, REPA, CESCO  
GENERAL MANAGER  
NC LICENSED ASBESTOS INSPECTOR #10706**

**REVIEWED BY:**

**ROBERT L. SMITH, AIA, LEED AP  
MANAGING PARTNER**



## TABLE OF CONTENTS

1.0	EXECUTIVE SUMMARY .....	1
2.0	INTRODUCTION .....	1
3.0	GENERAL BACKGROUND INFORMATION SITE DESCRIPTION .....	1
3.1	ASBESTOS .....	1
3.2	PROJECT SCOPE .....	3
4.0	METHODOLOGY .....	4
4.1	ASBESTOS .....	4
5.0	FINDINGS AND RECOMMENDATIONS .....	4
5.1	NON-ASBESTOS CONTAINING MATERIALS - FINDINGS.....	4
5.2	ASBESTOS CONTAINING MATERIALS - FINDINGS .....	4
5.3	RECOMMENDATIONS - ASBESTOS CONTAINING MATERIALS.....	5
6.0	LIMITATIONS .....	6
APPENDIX 1	- Figures	
APPENDIX 2	- Asbestos Analytical Results Chain of Custody Forms	
APPENDIX 3	- Photographs	



## **SURVEY REPORT FOR ASBESTOS CONTAINING MATERIALS**

### **PROPOSED RENOVATION OF HARTSELL RECREATION CENTER**

**60 HARTSELL SCHOOL ROAD**

**CONCORD, NORTH CAROLINA**

#### **1.0 EXECUTIVE SUMMARY**

Allied Consulting and Environmental Services, LLC (ACES) has completed an asbestos survey of the structure located at 60 Hartsell School Road in Concord, North Carolina. ACES personnel obtained samples of suspect asbestos containing materials (ACM) on April 14 and 15, 2016 and also visited the project site on May 3 and 10, 2016.

Seventy (70) samples of suspect ACM were obtained and submitted to a NVLAP (National Voluntary Laboratory Accredited Program) asbestos laboratory for analysis by the Polarized Light Microscopy (PLM) method. Due to some materials consisting of more than one layer, a total of one hundred and thirty-nine (139) samples were analyzed by the laboratory. Samples included the following materials: thermal system insulation (TSI), window glazing, window caulk, lay-in ceiling tile, floor tile and associated mastic, plaster ceiling and column sections, and drywall/spackling (joint compound). Laboratory analysis of the suspect ACM did identify the presence of asbestos in seventeen (17) of the samples analyzed. The asbestos containing materials (ACM) included floor tile and associated mastic, TSI, and window glazing. Asbestos was not identified in the remaining samples analyzed.

#### **2.0 INTRODUCTION**

In accordance with proposal dated February 21, 2016, the City of Concord's Agreement for Professional Services dated March 29, 2016, and authorization to proceed provided by Mr. Enrique Blat, P.E. on April 6, 2016, ACES personnel performed a survey for suspect asbestos containing materials (ACM) at the Hartsell Recreation Center located at 60 Hartsell School Road in Concord, North Carolina (Figure 1). The survey was conducted on April 14 and 15, 2016 for the purpose of identifying asbestos containing materials that may be present at the building.

#### **3.0 GENERAL BACKGROUND INFORMATION**

##### **3.1 Asbestos**

The term "asbestos" refers to a group of naturally-occurring, fibrous minerals that are commercially mined throughout the world, primarily in Canada, Russia, and South Africa. Asbestos has been used in hundreds of products. Collectively, these products are referred to as asbestos-containing materials (ACMs). Asbestos gained wide use because it is plentiful, readily available, low in cost, and because of its unique properties – fire resistance, high tensile strength, resistance, and insulating characteristics.



As an insulator, asbestos received widespread use for thermal insulation and condensation control. Asbestos is added to a variety of building materials to enhance strength. It is found in concrete and concrete-like products. Asbestos cement products are used as siding and roofing shingles, wallboard, as corrugated or flat sheets for roofing and partition walls, and as piping. Asbestos has also been added to asphalt, vinyl, and other materials to make products like roofing cements, felts and shingles, exterior siding materials, floor tiles, joint compounds, and mastics/adhesives. Asbestos also proved valuable as a component of acoustical plaster. This material was troweled on or sprayed on to ceilings or walls. As a decorative product, asbestos was frequently used to texture ceilings, walls, and other painted surfaces. Asbestos is still mined commercially and used in many common products, including brake shoes, roofing materials, and flooring products. It is important to realize that commercially available products containing asbestos can still be purchased. It is a common misconception that asbestos is no longer used.

The three most commonly encountered types of asbestos are sometimes referred to by their predominant color. Chrysotile (white) is by far the most frequently used asbestos mineral, constituting approximately 95% of all commercial and industrial applications. Chrysotile fibers are long and flexible and can be spun or woven into cloth. Amosite (brown) and crocidolite (blue) are used in approximately 4-5% of asbestos-containing products.

The U.S. Environmental Protection Agency promulgated the National Emission Standards for Hazardous Air Pollutants (NESHAP) [40 CFR Part 61], which addresses the application, removal, and disposal of asbestos-containing materials (ACM). Under NESHAP the following categories are defined for asbestos-containing materials:

Friable - When dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

Nonfriable - When dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Category I Nonfriable ACM - Packings, gaskets, resilient floor coverings, and asphalt roofing products containing more than 1% asbestos.

Category II Nonfriable ACM - Any material excluding Category I Nonfriable ACM containing more than 1% asbestos.

Regulated Asbestos Containing Material (RACM) – One of the following:

1. Friable ACM
2. Category I Nonfriable ACM that has become friable.
3. Category I Nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading.
4. Category II Nonfriable ACM that has a high probability of becoming, or has become, friable by the forces expected to act on the material in the course of demolition or renovation operations.



Under NESHAP, the following actions are required:

1. Prior to the commencement of demolition or renovation activities, the building owner must inspect the affected facility or part of the facility where the demolition or renovation activities will occur for the presence of asbestos.
2. Remove all RACM from the facility before any activity begins that would break up, dislodge, or similarly disturb the material or preclude access for subsequent removal.
3. RACM need not be removed if:
  - a) It is Category I nonfriable ACM that is not in poor condition.
  - b) It is on a facility component that is encased in concrete or other similar material and is adequately wet whenever exposed.
  - c) It was not accessible for testing and was therefore not discovered until after demolition began and because of the demolition the material cannot be safely removed.
  - d) It is Category II nonfriable ACM and the probability is low that the material will become crumbled, pulverized, or reduced to powder during demolition.

The Occupational Safety and Health Administration (OSHA) has established three sets of regulatory standards pertaining to asbestos exposure:

29 CFR 1910.1001	General Industry
29 CFR 1926.1101	Construction Industry
29 CFR 1910.134	Respiratory Protection

The construction industry standard covers activities involving asbestos demolition, removal, alteration, repair, maintenance, installation, cleanup, transportation, disposal, and storage. The general industry standard covers other activities where asbestos exposure is possible. Addressed under the OSHA standards are building owner / employer responsibilities regarding the identification of identified or presumed asbestos containing materials (PACM), notification to tenants / employees of the presence of asbestos, employee training, and work procedures.

### **3.2 Project Scope**

The project site is located at 60 Hartsell School Road in Concord, North Carolina (Figure 1 in Appendix 1). The building is utilized as a recreational center for the City of Concord and it is our understanding that the building will be renovated in the near future. The building is two-story, steel and concrete-framed structure with an exterior masonry (brick) veneer. The lower level of the building utilizes a concrete slab-on-grade floor system. Reportedly, the structure contains approximately 20,900 square feet. Based upon a review of readily available information on the government website for Cabarrus County, it appears that the earliest portion of the building was constructed in the 1950's with an addition constructed in the 1960's. In addition, it is our understanding that that a number of renovations have also been performed inside the building. Proposed demolition plans were provided by Morris Berg Architects of Charlotte, North



Carolina in a meeting with Mr. Tarik Hameed on April 12, 2016. Based upon a review of the furnished plans and our conversation with Mr. Hameed, it is our understanding that the majority of the interior walls on the lower level of the building will be removed, however, the existing plaster ceiling will remain. In addition, the existing piping for the heating system will be removed from the locations where it is presently exposed or will be exposed as a result of the removal of existing walls. Also, the existing floor finishes, where present, will be removed and replaced. Based upon our site visit, the following materials were identified as suspect asbestos containing materials (ACM): thermal system insulation (TSI), window glazing, window caulk, lay-in ceiling tile, floor tile and associated mastic, plaster ceiling and column sections, and drywall/spackling (joint compound) and bulk samples of the suspect ACM were obtained. Once the bulk samples had been obtained, they were submitted in person to an accredited laboratory (EMSL) in Charlotte, North Carolina for analysis by the Polarized Microscopy Method (PLM).

#### **4.0 METHODOLOGY**

##### **4.1 Asbestos**

For this project, a visual and invasive survey and sampling for suspect asbestos containing materials (ACM) was conducted for the building. Samples were collected by a NC Licensed Asbestos Inspector (DeWitt Whitten - #10706) and submitted to a NVLAP Accredited Asbestos Laboratory (EMSL in Charlotte, NC). Samples were analyzed using Polarized Light Microscopy (PLM) by EPA Method 600/R-93/116. A total of seventy (70) bulk samples were submitted and analyzed by the laboratory by the PLM method. Due to some materials consisting of more than one layer, one hundred and thirty-nine (139) samples were analyzed. Please refer to the Sample Location Plans (Figure Nos. 2 & 3) and the Chain of Custody sheet in Appendices 1 and 2, respectively, for the approximate sample locations and the specific materials sampled.

#### **5.0 FINDINGS AND RECOMMENDATIONS**

##### **5.1 Non-Asbestos Containing Materials - Findings**

One hundred and twenty-two (122) of the one hundred and thirty-nine (139) samples analyzed by the PLM method did not contain asbestos, (i.e. greater than one percent asbestos).

##### **5.2 Asbestos Containing Materials - Findings**

Asbestos was detected by PLM analysis in seventeen (17) of the one hundred and thirty-nine (139) samples analyzed by EMSL as shown in Table 1.

<b>TABLE 1 - SUMMARY OF IDENTIFIED ACM</b>				
<b>SAMPLE ID</b>	<b>SAMPLE DESCRIPTION</b>	<b>% ASBESTOS</b>	<b>FRIABLE<sup>1</sup></b>	<b>EST. QUANTITY</b>
FT-1	9" x 9" Floor Tile	4 (Chrysotile)	No	1,122 sq. ft.
FT-1	Mastic associated with 9" x 9" Floor Tile	5 (Chrysotile)	No	1,112 sq. ft.



TABLE 1 CONTINUED - SUMMARY OF IDENTIFIED ACM				
SAMPLE ID	SAMPLE DESCRIPTION	% ASBESTOS	FRIABLE <sup>1</sup>	EST. QUANTITY
FT-2	9" x 9" Floor Tile	4 (Chrysotile)	No	----
FT-2	Mastic associated with 9" x 9" Floor Tile	5 (Chrysotile)	No	----
WG-1	Window glazing	2 (Chrysotile)	No	108 windows
TSIJ-1	TSI mudded joint	3 (Chrysotile)	Yes	55 joints <sup>2</sup>
TSIJ-2	TSI mudded joint	4 (Chrysotile)	Yes	----
TSIJ-3	TSI mudded joint	5 (Chrysotile)	Yes	----
FT-3	Floor Tile (Bottom Layer)	5 (Chrysotile)	No	820 sq. ft.
FT-3	Mastic associated with Floor Tile (Bottom Layer)	5 (Chrysotile)	No	820 sq. ft.
FT-6	Floor Tile (Bottom Layer)	5 (Chrysotile)	No	----
FT-6	Mastic associated with Floor Tile (Bottom Layer)	8 (Chrysotile)	No	----
TSI-5	Thermal System Insulation	35 (Chrysotile)	Yes	64 lin. ft.
TSI-6	Thermal System Insulation	40 (Chrysotile)	Yes	
TSIJ-4	TSI mudded joint	45 (Chrysotile)	Yes	----
TSIJ-5	TSI mudded joint	5 (Chrysotile)	Yes	----
FTM-1	Floor Tile Mastic	4 (Chrysotile)	No	----
FTM-2	Floor Tile Mastic	3 (Chrysotile)	No	----
FT-9	Floor Tile Mastic	3 (Chrysotile)	No	27 sq. ft.
FT-10	Floor Tile Mastic	2 (Chrysotile)	No	----
TSIJ-6	TSI mudded joint	35 (Chrysotile)	Yes	----

NOTE: 1) In material's current condition  
 2) Estimated number of mudded joints that will require abatement due to renovations

Based upon our observations during the sampling events, it was noted that the thermal system insulation on the piping could extend into or through the existing walls. After meeting with Mr. Enrique Blat at the site on May 3, 2016, ACES personnel returned to the site on May 10, 2016 and observed the piping behind walls and going through the walls at a number of locations (see photos 7 - 12 in Appendix 3). The main feed pipe going from the lower level to the upper level which is located behind the wall of the men's restroom on the upper level (photo 7) appears to be insulated with fiberglass, however, it appears that the piping going through and inside the walls on the lower level is not insulated (photos 8 – 12). It is our understanding that the plaster ceiling on the lower level will not be disturbed or removed, therefore, ACES personnel did not attempt to observe piping insulation that may be present above the ceiling areas on the lower or upper levels.

### 5.3 Recommendations - Asbestos Containing Materials

As shown in Table 1, seventeen (17) of the suspect asbestos containing materials (ACM) sampled in the structure contains asbestos. The materials included Category I Non-friable ACM



(floor tile and mastic, window glazing) and Friable ACM (TSI mudded joints and thermal system insulation). For the purposes of renovation, the identified non-friable ACM and friable ACM should be considered Regulated Asbestos Containing Materials (RACM).

The non-friable Category I ACM and friable ACM should be abated prior to renovation by accredited personnel in accordance with applicable local, state, and federal regulations and guidelines. An asbestos abatement design and air monitoring plan will be required prior to the removal of the ACM and the removal of RACM will require permitting prior to removal in accordance with the applicable North Carolina regulations. Disposal of the removed ACM should be in accordance with applicable local, state, and federal regulations and/or guidelines.

## **6.0 LIMITATIONS**

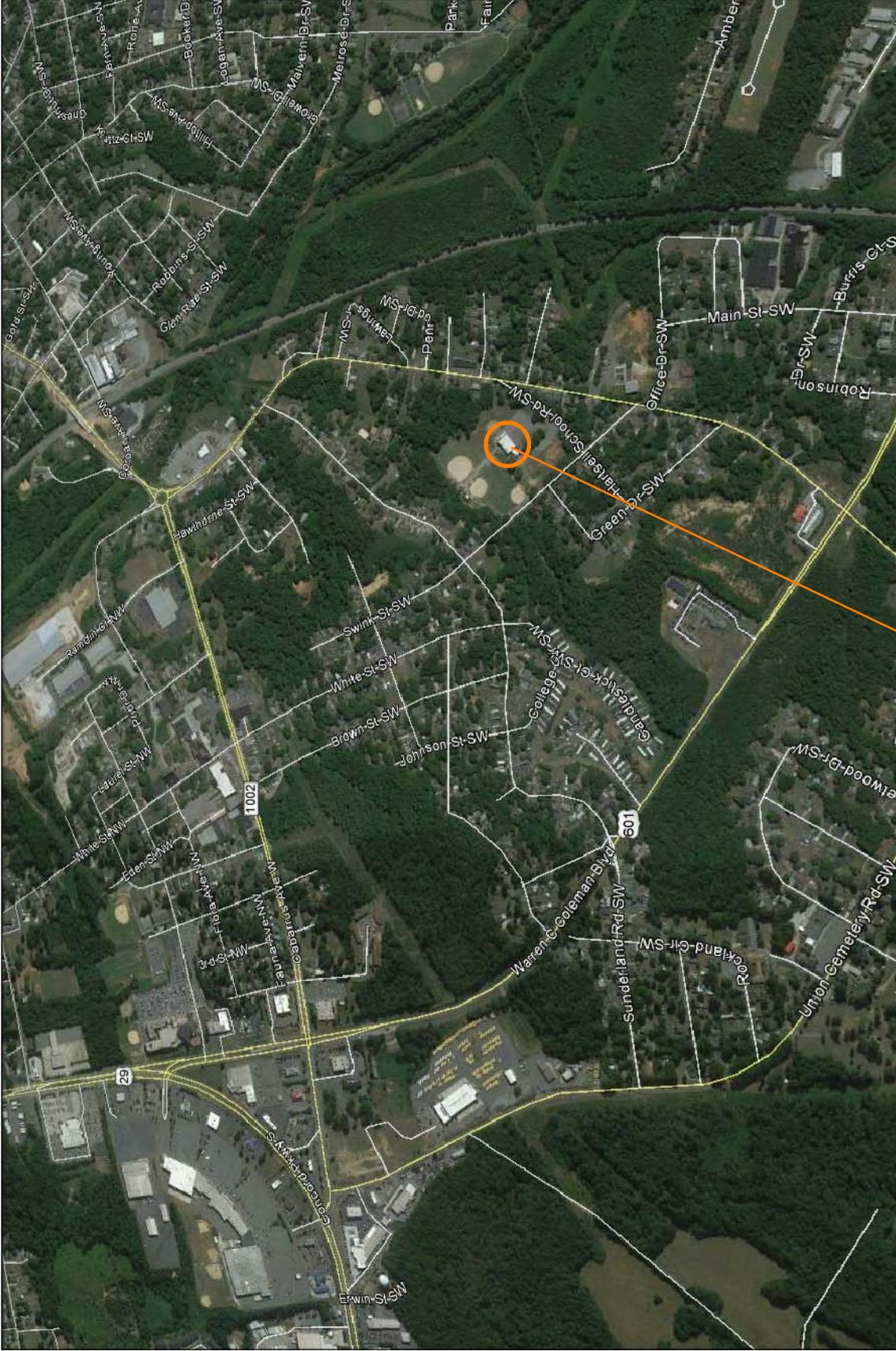
This report has been prepared for the exclusive use of the City of Concord and their agents for specific application to the proposed renovations of the Hartsell Recreation Center located at 60 Hartsell School Road in Concord, North Carolina. This report has been prepared in accordance with generally accepted environmental practices. No other warranty, expressed or implied, is made. Our observations are based upon conditions readily visible at the time of our site visit. We have not verified the completeness or accuracy of the information provided by others.

During the site visit, accessible areas were visually surveyed for the presence of suspect asbestos containing materials (ACM). Inaccessible areas, such as above ceilings or behind walls may have not been surveyed; therefore, all suspect ACM may not have been identified. Areas inspected were those designated by the scope of services. As with any similar survey of this nature, actual conditions exist only at the precise locations from which bulk samples were collected. Certain inferences are based on the results of this sampling and related testing to form a professional opinion of conditions in areas beyond those from which the samples were collected. No other warranty, expressed or implied, is made.

Under the scope of services, ACES assumes no responsibility regarding response actions (e.g. O&M Plan, encapsulation, abatement, removal, worker notification, etc.) initiated as a result of these findings. ACES assumes no liability for the duties and responsibilities of the Building Owner with respect to compliance with these regulations. Compliance with regulations and response actions are the sole responsibility of the Building Owner and should be conducted in accordance with local, state and/or federal requirements, and should be performed by appropriately qualified and licensed personnel, as warranted.



**APPENDIX 1**  
**FIGURES**



HARTSELL RECREATION CENTER

**REPORT OF ASBESTOS SURVEY  
HARTSELL RECREATION CENTER  
60 HARTSELL SCHOOL ROAD  
CONCORD, NORTH CAROLINA**

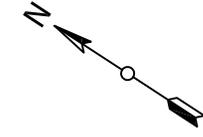
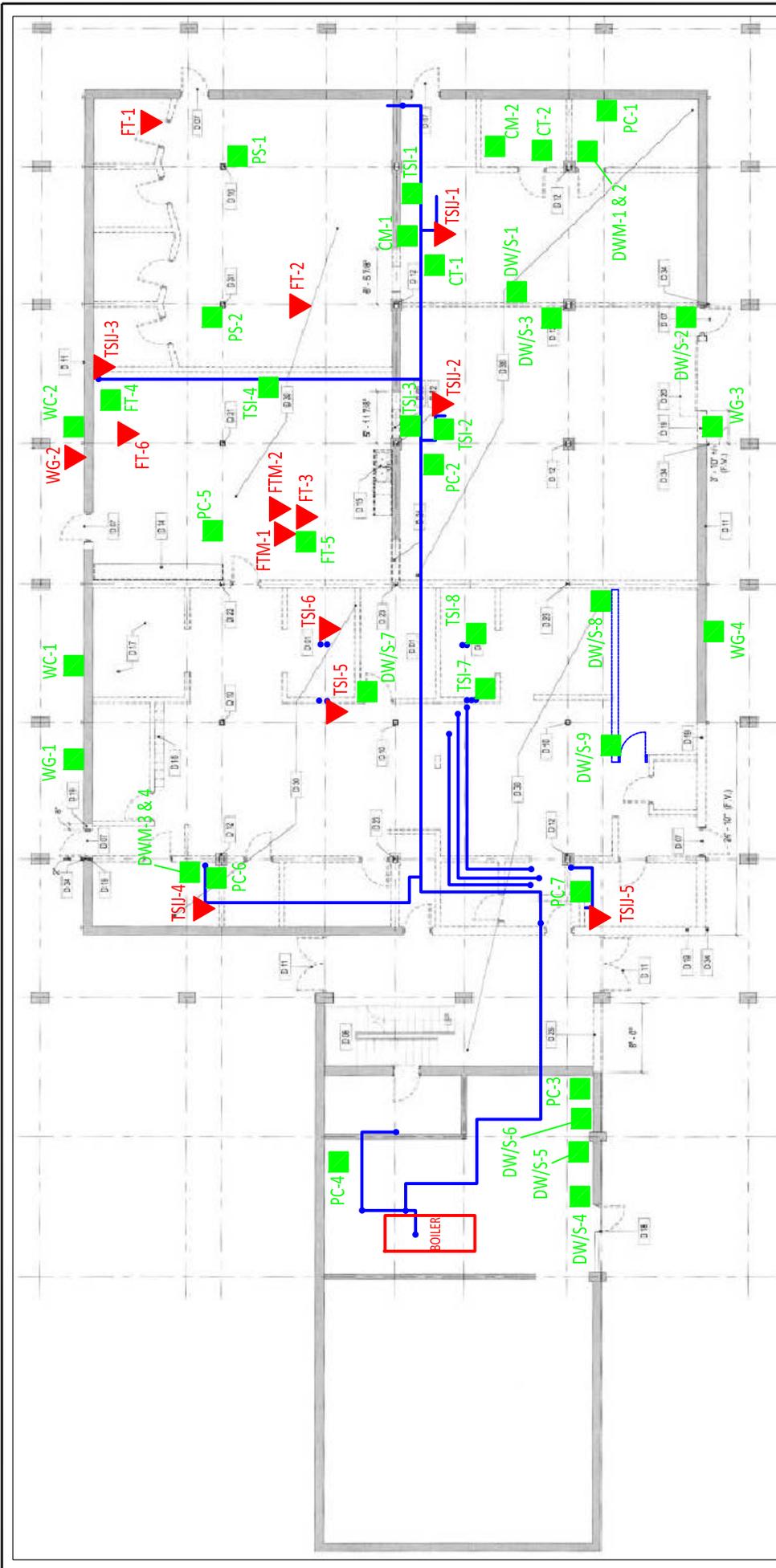
FIGURE  
**1**

**ALLIED CONSULTING &  
ENVIRONMENTAL SERVICES**  
SHELBY, NORTH CAROLINA  
P.O. BOX 2426 (28151-2426) 704-600-6255  
409 E. MARION ST. (28150) FAX 704-482-5596



ACES PROJ. NO.: 2016-04-026  
DATE: May 8, 2016

**SITE LOCATION  
PLAN**



**LEGEND**

-  Approximate Location of Stream Lines (Horizontal)
  -  Approximate Location of Stream Lines (Vertical)
  -  Approximate Sample Location - Asbestos Not Detected
  -  Approximate Sample Location - Asbestos Detected or Assumed
- Sample ID #  CT-2  FT-2

Base Floor Plan Taken From Drawing Supplied by Morris Berg Architects

**LOWER LEVEL**

NOT TO SCALE

ACES PROJ. NO.: 2016 - 04 - 026  
 DATE: May 8, 2016

**SAMPLE LOCATION  
 PLAN**

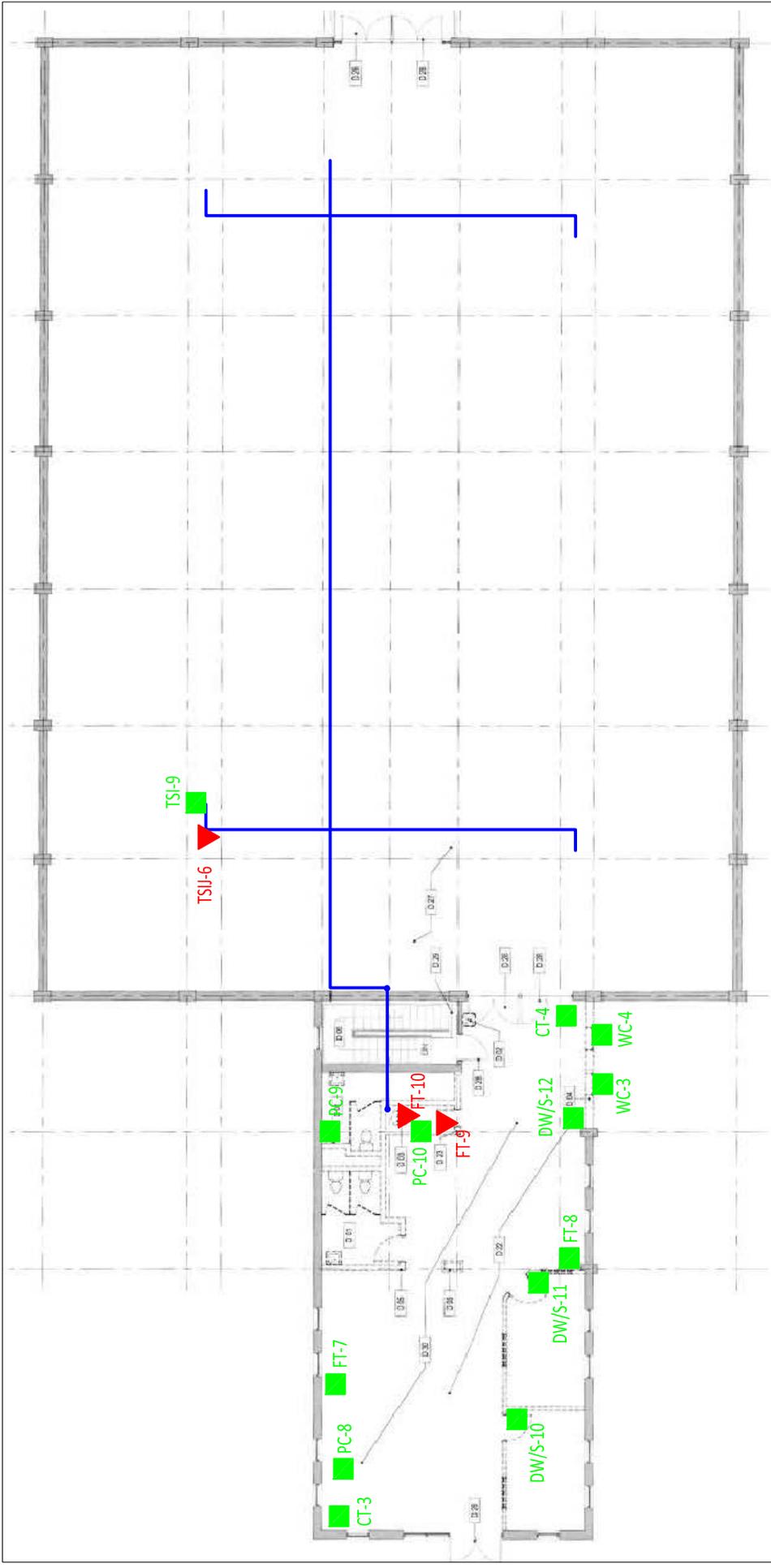


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**REPORT OF ASBESTOS SURVEY  
 HARTSELL RECREATION CENTER  
 60 HARTSELL SCHOOL ROAD  
 CONCORD, NORTH CAROLINA**

FIGURE

**2**



Base Floor Plan Taken From Drawing Supplied by Morris Berg Architects

**LEGEND**

- Approximate Location of Steam Lines (Horizontal)
  - Approximate Location of Steam Lines (Vertical)
  - CT-2
  - △ FT-2
  - FT-2
- Sample ID #

**UPPER LEVEL**  
NOT TO SCALE

ACES PROJ. NO.: 2016 - 04 - 026  
DATE: May 8, 2016

**SAMPLE LOCATION PLAN**

**ALLIED CONSULTING & ENVIRONMENTAL SERVICES**  
SHELBY, NORTH CAROLINA  
P.O. BOX 2426 (28151-2426) 704-600-6255  
409 E. MARION ST. (28150) FAX 704-482-5596

**REPORT OF ASBESTOS SURVEY**  
**HARTSELL RECREATION CENTER**  
**60 HARTSELL SCHOOL ROAD**  
**CONCORD, NORTH CAROLINA**



**APPENDIX 2**  
**ASBESTOS ANALYSIS RESULTS**  
**CHAIN OF CUSTODY FORMS**



# EMSL Analytical, Inc.

376 Crompton Street Charlotte, NC 28273  
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**EMSL Order:** 411603153  
**Customer ID:** ALLC25  
**Customer PO:**  
**Project ID:**

**Attention:** Dewitt Whitten  
Allied Consulting & Environmental Svcs  
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Shelby, NC 28151  
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**Received Date:** 04/15/2016 11:15 AM  
**Analysis Date:** 04/16/2016  
**Collected Date:** 04/14/2016  
**Project:** Hartsell Rec Center/ 2016-04-026

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
FT-1-Floor Tile <small>411603153-0001</small>	9x9 Gray Floor Tile	Gray Non-Fibrous Homogeneous		25% Ca Carbonate 71% Non-fibrous (Other)	4% Chrysotile
FT-1-Mastic <small>411603153-0001A</small>	9x9 Gray Floor Tile	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
FT-2-Floor Tile <small>411603153-0002</small>	9x9 Gray Floor Tile	Gray Non-Fibrous Homogeneous		20% Ca Carbonate 76% Non-fibrous (Other)	4% Chrysotile
FT-2-Mastic <small>411603153-0002A</small>	9x9 Gray Floor Tile	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
PS-1-Skim Coat <small>411603153-0003</small>	Column - Plaster Section	White Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
PS-1-Rough Coat <small>411603153-0003A</small>	Column - Plaster Section	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 8% Perlite 87% Non-fibrous (Other)	None Detected
WG-1 <small>411603153-0004</small>	NW Wall - Window Glazing	Gray/Tan Non-Fibrous Homogeneous		10% Ca Carbonate 88% Non-fibrous (Other)	2% Chrysotile
WG-2 <small>411603153-0005</small>	NW Wall - Window Glazing	Beige Non-Fibrous Homogeneous	5% Fibrous (Other)	95% Non-fibrous (Other)	None Detected
WC-1 <small>411603153-0006</small>	NW Wall - Window Caulk	White Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
WC-2 <small>411603153-0007</small>	NW Wall - Window Caulk	White Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
TSIJ-1-Wrap <small>411603153-0008</small>	TSI Joint	Tan Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
TSIJ-1-Insulation <small>411603153-0008A</small>	TSI Joint	Gray Fibrous Homogeneous	20% Min. Wool	5% Ca Carbonate 72% Non-fibrous (Other)	3% Chrysotile
TSI-1-Wrap <small>411603153-0009</small>	TSI Straight Run	Beige Fibrous Homogeneous	90% Cellulose	5% Ca Carbonate 5% Non-fibrous (Other)	None Detected
TSI-1-Insulation <small>411603153-0009A</small>	TSI Straight Run	Yellow Fibrous Homogeneous	98% Glass	2% Non-fibrous (Other)	None Detected
PC-1 <small>411603153-0010</small>	Plaster Ceiling	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 10% Perlite 85% Non-fibrous (Other)	None Detected
DWM-1 <small>411603153-0011</small>	Ductwork Mastic	Gray Non-Fibrous Homogeneous	<1% Cellulose	5% Ca Carbonate 95% Non-fibrous (Other)	None Detected

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Customer ID: ALLC25  
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Project ID:

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
DWM-2 411603153-0012	Ductwork Mastic	Gray Non-Fibrous Homogeneous		8% Ca Carbonate 92% Non-fibrous (Other)	None Detected
CT-1 411603153-0013	2x4 Lay-In Ceiling Tile	Gray/White Fibrous Homogeneous	70% Cellulose	15% Perlite 15% Non-fibrous (Other)	None Detected
CT-2 411603153-0014	2x4 Lay-In Ceiling Tile	Gray/White Fibrous Homogeneous	75% Cellulose 10% Min. Wool	15% Perlite	None Detected
CM-1-Carpet 411603153-0015	Carpet Mastic	Various Fibrous Homogeneous	85% Synthetic	15% Non-fibrous (Other)	None Detected
CM-1-Mastic 411603153-0015A	Carpet Mastic	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
CM-2 411603153-0016	Carpet Mastic	Tan Non-Fibrous Homogeneous	1% Synthetic	5% Ca Carbonate 94% Non-fibrous (Other)	None Detected
BBM-1 411603153-0017	Baseboard Mastic	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
BBM-2 411603153-0018	Baseboard Mastic	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
DW/S-1-Drywall 411603153-0019	Drywall/ Spackling	Brown/Gray Fibrous Homogeneous	10% Cellulose 1% Glass	89% Non-fibrous (Other)	None Detected
DW/S-1-Joint Compound 411603153-0019A	Drywall/ Spackling	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
DW/S-2-Drywall 411603153-0020	Drywall/ Spackling	Brown/Gray Fibrous Homogeneous	10% Cellulose 1% Glass	89% Non-fibrous (Other)	None Detected
DW/S-2-Joint Compound 411603153-0020A	Drywall/ Spackling	White Non-Fibrous Homogeneous		35% Ca Carbonate 65% Non-fibrous (Other)	None Detected
DW/S-2-Tape 411603153-0020B	Drywall/ Spackling	Tan Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
DW/S-3-Drywall 411603153-0021	Drywall/ Spackling	Gray Fibrous Homogeneous	8% Cellulose 1% Glass	91% Non-fibrous (Other)	None Detected
DW/S-3-Joint Compound 411603153-0021A	Drywall/ Spackling	White Non-Fibrous Homogeneous		35% Ca Carbonate 65% Non-fibrous (Other)	None Detected
TSI-2-Wrap 411603153-0022	TSI Straight Run	Tan Fibrous Homogeneous	90% Cellulose	5% Ca Carbonate 5% Non-fibrous (Other)	None Detected
TSI-2-Insulation 411603153-0022A	TSI Straight Run	Yellow Fibrous Homogeneous	98% Glass	2% Non-fibrous (Other)	None Detected
TSI-3-Wrap 411603153-0023	TSI Straight Run	White Fibrous Homogeneous	95% Cellulose	5% Ca Carbonate	None Detected



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## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
TSI-3-Insulation <i>411603153-0023A</i>	TSI Straight Run	Yellow Fibrous Homogeneous	99% Glass	1% Non-fibrous (Other)	None Detected
TSIJ-2-Wrap <i>411603153-0024</i>	TSI Joint	Tan Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
TSIJ-2-Insulation <i>411603153-0024A</i>	TSI Joint	Gray Fibrous Homogeneous	15% Min. Wool	5% Ca Carbonate 76% Non-fibrous (Other)	4% Chrysotile
PC-2 <i>411603153-0025</i>	Plaster Ceiling	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 10% Perlite 85% Non-fibrous (Other)	None Detected
WG-3 <i>411603153-0026</i>	SE Wall - Window Glazing	White Non-Fibrous Homogeneous	1% Fibrous (Other)	35% Ca Carbonate 64% Non-fibrous (Other)	None Detected
WG-4 <i>411603153-0027</i>	SE Wall - Window Glazing	Gray Non-Fibrous Homogeneous	1% Fibrous (Other)	50% Ca Carbonate 49% Non-fibrous (Other)	None Detected
PC-3-Skim Coat <i>411603153-0028</i>	Plaster Ceiling	White Non-Fibrous Homogeneous		5% Quartz 5% Ca Carbonate 90% Non-fibrous (Other)	None Detected
PC-3-Rough Coat <i>411603153-0028A</i>	Plaster Ceiling	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 10% Perlite 85% Non-fibrous (Other)	None Detected
PC-4-Skim Coat <i>411603153-0029</i>	Plaster Ceiling	White Fibrous Homogeneous		5% Quartz 5% Ca Carbonate 90% Non-fibrous (Other)	None Detected
PC-4-Rough Coat <i>411603153-0029A</i>	Plaster Ceiling	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 10% Perlite 85% Non-fibrous (Other)	None Detected
DW/S-4-Drywall <i>411603153-0030</i>	Drywall/ Spackling	Brown/Gray Fibrous Homogeneous	8% Cellulose 1% Glass	91% Non-fibrous (Other)	None Detected
DW/S-4-Joint Compound <i>411603153-0030A</i>	Drywall/ Spackling	White Non-Fibrous Homogeneous		35% Ca Carbonate 65% Non-fibrous (Other)	None Detected
DW/S-5-Drywall <i>411603153-0031</i>	Drywall/ Spackling	Brown/Gray Fibrous Homogeneous	8% Cellulose 1% Glass	91% Non-fibrous (Other)	None Detected
DW/S-5-Joint Compound <i>411603153-0031A</i>	Drywall/ Spackling	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
DW/S-5-Tape <i>411603153-0031B</i>	Drywall/ Spackling	Tan Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
DW/S-6-Drywall <i>411603153-0032</i>	Drywall/ Spackling	Gray Fibrous Homogeneous	8% Cellulose 1% Glass	91% Non-fibrous (Other)	None Detected
DW/S-6-Joint Compound <i>411603153-0032A</i>	Drywall/ Spackling	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
DW/S-6-Tape <i>411603153-0032B</i>	Drywall/ Spackling	Tan Fibrous Homogeneous	100% Cellulose		None Detected



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Project ID:

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
TSI-4-Wrap <i>411603153-0033</i>	TSI - Straight Run	Tan/Red Fibrous Homogeneous	90% Cellulose	5% Ca Carbonate 5% Non-fibrous (Other)	None Detected
TSI-4-Insulation <i>411603153-0033A</i>	TSI - Straight Run	Yellow Fibrous Homogeneous	98% Glass	2% Non-fibrous (Other)	None Detected
TSIJ-3-Wrap <i>411603153-0034</i>	TSI Joint	White/Red Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
TSIJ-3-Insulation <i>411603153-0034A</i>	TSI Joint	Gray Fibrous Homogeneous	20% Min. Wool	10% Ca Carbonate 65% Non-fibrous (Other)	5% Chrysotile
PC-5 <i>411603153-0035</i>	Plaster Ceiling	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 10% Perlite 85% Non-fibrous (Other)	None Detected
FT-3-Blue Floor Tile <i>411603153-0036</i>	12x12 White Floor Tile w/ 2nd Layer	Blue Non-Fibrous Homogeneous		35% Ca Carbonate 65% Non-fibrous (Other)	None Detected
FT-3-Mastic <i>411603153-0036A</i>	12x12 White Floor Tile w/ 2nd Layer	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
FT-3-Gray Floor Tile <i>411603153-0036B</i>	12x12 White Floor Tile w/ 2nd Layer	Gray Fibrous Homogeneous		25% Ca Carbonate 70% Non-fibrous (Other)	5% Chrysotile
FT-3-Mastic <i>411603153-0036C</i>	12x12 White Floor Tile w/ 2nd Layer	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
FT-4-Blue Floor Tile <i>411603153-0037</i>	12x12 White Floor Tile w/ 2nd Layer	Blue Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
FT-4-Mastic <i>411603153-0037A</i>	12x12 White Floor Tile w/ 2nd Layer	Tan Non-Fibrous Homogeneous	2% Cellulose	5% Ca Carbonate 93% Non-fibrous (Other)	None Detected
FT-4-Tan Floor Tile <i>411603153-0037B</i>	12x12 White Floor Tile w/ 2nd Layer	Brown/Tan Non-Fibrous Homogeneous		35% Ca Carbonate 65% Non-fibrous (Other)	None Detected
FT-5-Floor Tile <i>411603153-0038</i>	12x12 Dark Blue Floor Tile w/ 2nd Layer	Blue Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
FT-5-Mastic <i>411603153-0038A</i>	12x12 Dark Blue Floor Tile w/ 2nd Layer	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
FT-5-Leveler <i>411603153-0038B</i>	12x12 Dark Blue Floor Tile w/ 2nd Layer	Gray Non-Fibrous Homogeneous	<1% Cellulose	8% Ca Carbonate 92% Non-fibrous (Other)	None Detected
FT-6-Blue Floor Tile <i>411603153-0039</i>	12x12 Dark Blue Floor Tile w/ 2nd Layer	Blue Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
FT-6-Mastic <i>411603153-0039A</i>	12x12 Dark Blue Floor Tile w/ 2nd Layer	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
FT-6-Leveler <i>411603153-0039B</i>	12x12 Dark Blue Floor Tile w/ 2nd Layer	Gray Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
FT-6-Gray Floor Tile <i>411603153-0039C</i>	12x12 Dark Blue Floor Tile w/ 2nd Layer	Gray Non-Fibrous Homogeneous		15% Ca Carbonate 80% Non-fibrous (Other)	5% Chrysotile



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EMSL Order: 411603153  
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Project ID:

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
FT-6-Mastic <small>411603153-0039D</small>	12x12 Dark Blue Floor Tile w/ 2nd Layer	Black Non-Fibrous Homogeneous		92% Non-fibrous (Other)	8% Chrysotile
TSI-5-Wrap <small>411603153-0040</small>	TSI Straight Run	Tan Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
TSI-5-Gray Insulation <small>411603153-0040A</small>	TSI Straight Run	Gray Fibrous Homogeneous	15% Cellulose	50% Non-fibrous (Other)	35% Chrysotile
TSI-5-Brown Insulation <small>411603153-0040B</small>	TSI Straight Run	Brown Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
TSI-6-Wrap <small>411603153-0041</small>	TSI Straight Run	White Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
TSI-6-Gray Insulation <small>411603153-0041A</small>	TSI Straight Run	Gray/White Fibrous Homogeneous		60% Non-fibrous (Other)	40% Chrysotile
TSI-6-Brown Insulation <small>411603153-0041B</small>	TSI Straight Run	Brown Fibrous Homogeneous	99% Cellulose	1% Non-fibrous (Other)	None Detected
TSIJ-4-Wrap <small>411603153-0042</small>	TSI Joint	Tan Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
TSIJ-4-Insulation <small>411603153-0042A</small>	TSI Joint	Gray Fibrous Homogeneous		5% Ca Carbonate 50% Non-fibrous (Other)	45% Chrysotile
DWM-3 <small>411603153-0043</small>	Ductwork Mastic	Gray Non-Fibrous Homogeneous		8% Ca Carbonate 92% Non-fibrous (Other)	None Detected
DWM-4 <small>411603153-0044</small>	Ductwork Mastic	Gray Non-Fibrous Homogeneous	8% Cellulose	10% Ca Carbonate 82% Non-fibrous (Other)	None Detected
PC-6 <small>411603153-0045</small>	Plaster Ceiling	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 10% Perlite 85% Non-fibrous (Other)	None Detected
TSI-7-Wrap <small>411603153-0046</small>	TSI Straight Run	Tan Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
TSI-7-Insulation <small>411603153-0046A</small>	TSI Straight Run	Yellow Fibrous Homogeneous	98% Glass	2% Non-fibrous (Other)	None Detected
TSI-8-Wrap <small>411603153-0047</small>	TSI Straight Run	Black/Silver/Beige Fibrous Homogeneous	85% Cellulose	15% Non-fibrous (Other)	None Detected
TSI-8-Insulation <small>411603153-0047A</small>	TSI Straight Run	Yellow Fibrous Homogeneous	99% Glass	1% Non-fibrous (Other)	None Detected
DW/S-7-Drywall <small>411603153-0048</small>	Drywall/ Spackling	Brown/Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
DW/S-7-Joint Compound <small>411603153-0048A</small>	Drywall/ Spackling	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
DW/S-7-Tape <i>411603153-0048B</i>	Drywall/ Spackling	Tan Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
DW/S-8-Drywall <i>411603153-0049</i>	Drywall/ Spackling	Brown/Gray Fibrous Homogeneous	8% Cellulose	92% Non-fibrous (Other)	None Detected
DW/S-8-Joint Compound <i>411603153-0049A</i>	Drywall/ Spackling	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
DW/S-8-Tape <i>411603153-0049B</i>	Drywall/ Spackling	Tan Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
DW/S-9-Drywall <i>411603153-0050</i>	Drywall/ Spackling	Gray Fibrous Homogeneous	8% Cellulose 1% Glass	91% Non-fibrous (Other)	None Detected
DW/S-9-Joint Compound <i>411603153-0050A</i>	Drywall/ Spackling	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
DW/S-9-Tape <i>411603153-0050B</i>	Drywall/ Spackling	Tan Fibrous Homogeneous	100% Cellulose		None Detected
PC-7-Skim Coat <i>411603153-0051</i>	Plaster Ceiling	White Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
PC-7-Gray Rough Coat <i>411603153-0051A</i>	Plaster Ceiling	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 10% Perlite 85% Non-fibrous (Other)	None Detected
PC-7-Tan Rough Coat <i>411603153-0051B</i>	Plaster Ceiling	Tan Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
TSIJ-5 <i>411603153-0052</i>	TSI Joint	Gray/White Fibrous Homogeneous	20% Min. Wool	10% Ca Carbonate 65% Non-fibrous (Other)	5% Chrysotile
FTM-1 <i>411603153-0053</i>	Black Floor Tile Mastic	Black Non-Fibrous Homogeneous		5% Ca Carbonate 91% Non-fibrous (Other)	4% Chrysotile
FTM-2 <i>411603153-0054</i>	Black Floor Tile Mastic	Black Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
FT-7-Black Floor Tile <i>411603153-0055</i>	12x12 Black Floor Tile w/ 2nd Layer	Black Non-Fibrous Homogeneous		35% Ca Carbonate 65% Non-fibrous (Other)	None Detected
FT-7-Mastic <i>411603153-0055A</i>	12x12 Black Floor Tile w/ 2nd Layer	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
FT-7-White Floor Tile <i>411603153-0055B</i>	12x12 Black Floor Tile w/ 2nd Layer	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
FT-7-Mastic <i>411603153-0055C</i>	12x12 Black Floor Tile w/ 2nd Layer	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
FT-8-Black Floor Tile <i>411603153-0056</i>	12x12 Black Floor Tile w/ 2nd Layer	Black Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected



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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
FT-8-Mastic <small>411603153-0056A</small>	12x12 Black Floor Tile w/ 2nd Layer	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
FT-8-White Floor Tile <small>411603153-0056B</small>	12x12 Black Floor Tile w/ 2nd Layer	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
FT-8-Mastic <small>411603153-0056C</small>	12x12 Black Floor Tile w/ 2nd Layer	Tan Non-Fibrous Homogeneous	1% Cellulose	8% Ca Carbonate 91% Non-fibrous (Other)	None Detected
FT-9-Top Mastic <small>411603153-0057</small>	12x12 Gray Floor Tile	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
FT-9-Floor Tile <small>411603153-0057A</small>	12x12 Gray Floor Tile	Gray Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
FT-9-Bottom Mastic <small>411603153-0057B</small>	12x12 Gray Floor Tile	Black Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
FT-10-Floor Tile <small>411603153-0058</small>	12x12 Gray Floor Tile	Gray/White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
FT-10-Bottom Mastic <small>411603153-0058A</small>	12x12 Gray Floor Tile	Tan/Black Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile
CT-3 <small>411603153-0059</small>	2x2 Lay-In Ceiling Tile	Gray/White Fibrous Homogeneous	60% Cellulose 2% Min. Wool	15% Perlite 23% Non-fibrous (Other)	None Detected
CT-4 <small>411603153-0060</small>	2x2 Lay-In Ceiling Tile	Gray/White Fibrous Homogeneous	70% Cellulose 8% Min. Wool	15% Perlite 7% Non-fibrous (Other)	None Detected
PC-8-Skim Coat <small>411603153-0061</small>	Plaster Ceiling	White Non-Fibrous Homogeneous		5% Quartz 5% Ca Carbonate 90% Non-fibrous (Other)	None Detected
PC-8-Rough Coat <small>411603153-0061A</small>	Plaster Ceiling	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 10% Perlite 85% Non-fibrous (Other)	None Detected
PC-9-Skim Coat <small>411603153-0062</small>	Plaster Ceiling	White Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
PC-9-Rough Coat <small>411603153-0062A</small>	Plaster Ceiling	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 10% Perlite 85% Non-fibrous (Other)	None Detected
PC-10-Skim Coat <small>411603153-0063</small>	Plaster Ceiling	White Non-Fibrous Homogeneous		10% Quartz 10% Ca Carbonate 80% Non-fibrous (Other)	None Detected
PC-10-Rough Coat <small>411603153-0063A</small>	Plaster Ceiling	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 10% Perlite 85% Non-fibrous (Other)	None Detected
DW/S-10-Drywall <small>411603153-0064</small>	Drywall/ Spackling	Brown/Gray Fibrous Homogeneous	8% Cellulose	92% Non-fibrous (Other)	None Detected
DW/S-10-Joint Compound <small>411603153-0064A</small>	Drywall/ Spackling	White Non-Fibrous Homogeneous		35% Ca Carbonate 65% Non-fibrous (Other)	None Detected
DW/S-10-Tape <small>411603153-0064B</small>	Drywall/ Spackling	Tan Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected

Initial Report From: 04/21/2016 08:20:07



# EMSL Analytical, Inc.

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

EMSL Order: 411603153  
Customer ID: ALLC25  
Customer PO:  
Project ID:

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
DW/S-11-Drywall <small>411603153-0065</small>	Drywall/ Spackling	Brown/Gray Fibrous Homogeneous	8% Cellulose 1% Glass	91% Non-fibrous (Other)	None Detected
DW/S-11-Joint Compound <small>411603153-0065A</small>	Drywall/ Spackling	White Non-Fibrous Homogeneous		35% Ca Carbonate 65% Non-fibrous (Other)	None Detected
DW/S-12-Drywall <small>411603153-0066</small>	Drywall/ Spackling	Gray Fibrous Homogeneous	10% Cellulose 1% Glass	89% Non-fibrous (Other)	None Detected
DW/S-12-Joint Compound <small>411603153-0066A</small>	Drywall/ Spackling	White Non-Fibrous Homogeneous		35% Ca Carbonate 65% Non-fibrous (Other)	None Detected
DW/S-12-Tape <small>411603153-0066B</small>	Drywall/ Spackling	Tan Fibrous Homogeneous	100% Cellulose		None Detected
TSI-9-Wrap <small>411603153-0067</small>	TSI Straight Run	White Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
TSI-9-Insulation <small>411603153-0067A</small>	TSI Straight Run	Yellow Fibrous Homogeneous	99% Glass	1% Non-fibrous (Other)	None Detected
TSIJ-6-Wrap <small>411603153-0068</small>	TSI Joint	Brown/White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
TSIJ-6-Insulation <small>411603153-0068A</small>	TSI Joint	Gray Fibrous Homogeneous		65% Non-fibrous (Other)	35% Chrysotile
PS-2-Skim Coat <small>411603153-0069</small>	Plaster Section	White Non-Fibrous Homogeneous		20% Ca Carbonate 80% Non-fibrous (Other)	None Detected
PS-2-Rough Coat <small>411603153-0069A</small>	Plaster Section	Gray Non-Fibrous Homogeneous		5% Ca Carbonate 10% Perlite 85% Non-fibrous (Other)	None Detected
WC-3 <small>411603153-0070</small>	Window Caulk	Gray Non-Fibrous Homogeneous		8% Ca Carbonate 92% Non-fibrous (Other)	None Detected
WC-4 <small>411603153-0071</small>	Window Caulk	Gray Non-Fibrous Homogeneous		8% Ca Carbonate 92% Non-fibrous (Other)	None Detected

Lee Plumley, Laboratory Manager  
or Other Approved Signatory

Analyst(s)

Aaron Hartley (62)  
Erin Guzowski (77)

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

Samples analyzed by EMSL Analytical, Inc. Charlotte, NC NVLAP Lab Code 200841-0, VA 3333 00312

Initial Report From: 04/21/2016 08:20:07



Asbestos Lab Services Chain of Custody  
 EMSL Order Number (Lab. Use Only):

411603153

Charlotte, NC  
 376 Crompton Street  
 Charlotte, NC 28272  
 PHONE: (704) 525-2205  
 FAX: (704) 525-2362

Company: Allied Consulting & Environmental Services, LLC  
 Street: P. O. Box 2426  
 City/State/Zip: Shelby NC 28161  
 Report To (Name): DeWitt Whitten  
 Telephone: 7042320152  
 Project Name/Number: **Hartsell Rec Center / 2016-04-026**  
 Please Provide Results: Email Purchase Order: State Samples Taken: NC

Turnaround Time (TAT) Options\* - Please Check  
 3 Hour  6 Hour  24 Hour  48 Hour  72 Hour  96 Hour  1 Week  2 Week

\*For TEM: Air 3 hr through 6 hr, please call ahead to schedule. There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

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

Check For Positive Stop - Clearly Identify Homogenous Group Filter Pore Size (Air Samples):  0.8µm  0.45µm

Samplers Name: **DeWitt Whitten** Samplers Signature: *[Signature]*

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
FT-1,2	9x9 gray floor tile		14 APRIL 16 AM
PS-1	plaster section - column		"
WG-1,2	window glazing - NW wall		"
WC-1,2	window caulk - NW wall		"
TSIJ-1	TSI Joint		"
TSI-1	TSI Straight Run		"
PC-1	Plaster Ceiling		"
DWM-1,2	Ductwork mastic		"

Client Sample # (s): **see above & next page** Total # of Samples: ~~70~~ 70  
 Relinquished (Client): **DeWitt Whitten** Date: **15 APRIL 2016** Time: **1110**  
 Received (Lab): **Kyle N...** Date: **4/15/16** Time: **11:15 am W/In**

Comments/Special Instructions:

# HARTSOLL REC CENTER

2016-04-026

Asbestos Lab Services Chain of Custody  
 EMSL Order Number (Lab Use Only):

411603153

Charlotte, NC  
 376 Crompton Street  
 Charlotte, NC 28273  
 PHONE: (704) 525-2205  
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Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
CT-1,2	2x4 Lay-in Ceiling Tile		14 APRIL 16 AM
CM-1,2	Carpet Mastic		"
BBM-1,2	Baseboard Mastic		"
DW/S-1	Dry wall / Spackling		"
DW/S-2,3	Dry wall Spackling		"
TSE-2,3	TSE Straight run		"
TSIJ-2	TSE Joint		"
PC-2	Plaster ceiling		"
WG-3,4	Window glazing SE wall		"
PC-3,4	Plaster ceiling		14 APRIL 16 PM
DW/S-4,5,6	Dry wall / Spackling		"
<del>PC-3,4</del> TSIJ-4	TSE - straight run		"
<del>PC-3,4</del> TSIJ-3	TSE Joint		"
PC-5	Plaster Ceiling		"
FT-3,4	12x12 White Floor Tile in 2 <sup>nd</sup> layer		"
FT-5,6	12x12 Dark Blue Floor Tile in 2 <sup>nd</sup> layer		"
Comments/Special Instructions:			

# HARTSELL REC CENTER

2016-04-026  
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Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
TSI-5,6	TSI straight run		14 APRIL 16 PM
TSIJ-4	TSI Joint		"
DWM-3,4	Duct work mastic		"
PC-6	Plaster Ceiling		"
TSI-7,8	TSI straight run		"
DW/S- <del>7,8,9</del> 7,8,9	Drywall / Spackling		"
PC-7	Plaster Ceiling		"
TSIJ-5	TSI Joint		"
FTM-1,2	Black Floor Tile mastic		"
FT-7,8	12x12 Black Floor Tile w 2 <sup>nd</sup> layer		15 APRIL 16 AM
FT-9,10	12x12 Gray Floor Tile		"
CT-3,4	2x2 lay-in ceiling tile		"
PC-8,9,10	Plaster Ceiling		"
DW/S-10,11,12	Drywall / Spackling		"
TSI-9	TSI straight run		"
TSIJ-6	TSI joint		"

Comments/Special Instructions:

Created Document - Asbestos Lab Services COC - A1.0 - 11/23/2009

WC-3,4 window caulk - upper level

14 APRIL 16  
AM



**APPENDIX 3**  
**PHOTOGRAPHS**



1. Asbestos containing material (9" x 9" floor tile & associated mastic) identified



2. Asbestos containing material (window glazing) identified



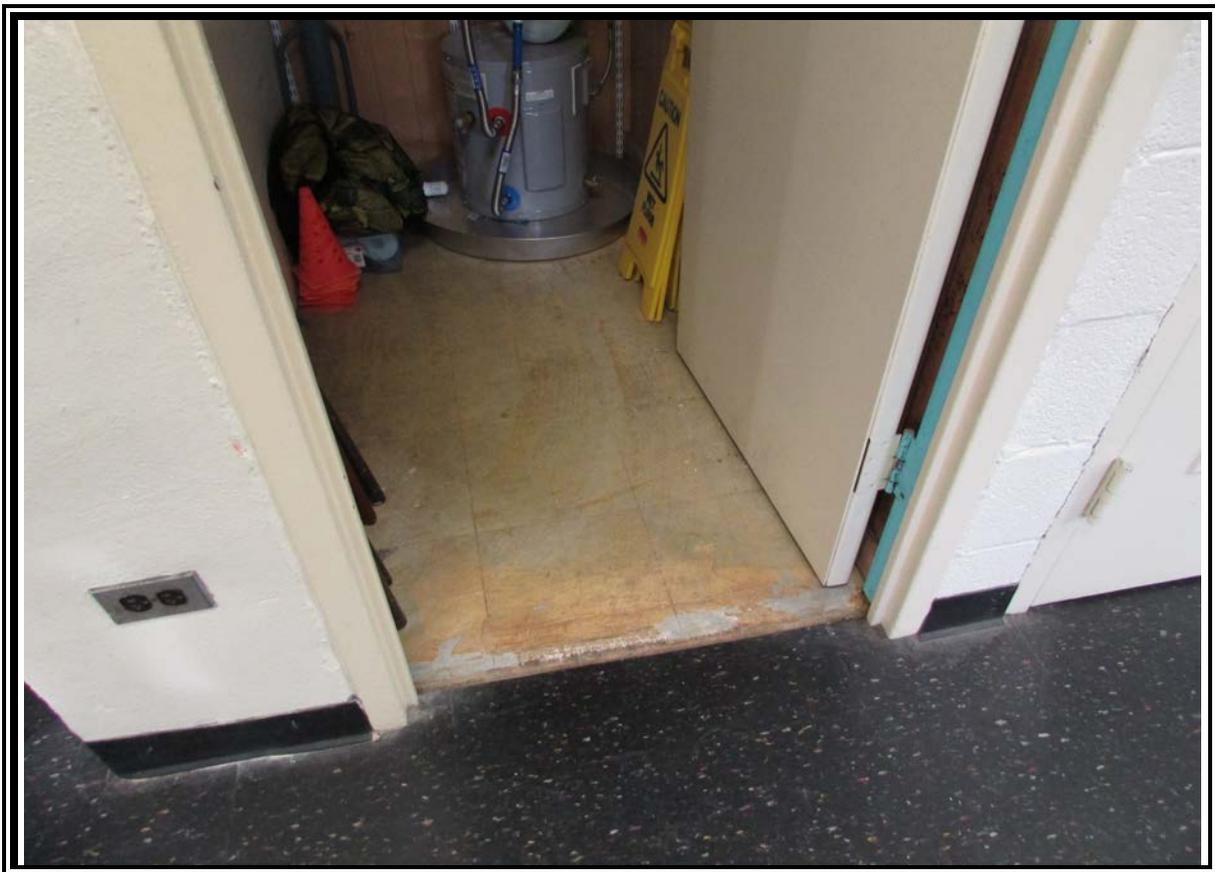
3. Asbestos containing material (TSI mudded joints) identified



4. Asbestos containing material (bottom layer of floor tile and mastic) identified



5. Asbestos containing material (TSI wrap) identified



6. Asbestos containing material (mastic associated with tile in custodial closet) identified



7. Fiberglass insulation noted on piping behind wall in men's restroom on the upper level



8. Un-insulated piping in walls of former shower areas on the lower level



9. Un-insulated piping going through wall on the lower level



10. Un-insulated piping going through wall on the lower level



11. Un-insulated piping going through wall on the lower level



12. Un-insulated piping feeding radiator on the lower level