

Invitation to Bid (ITB)

The Florida State University Facilities Purchasing will receive sealed bids until the dates and times shown for the following projects. Bids may be brought to the bid opening or sent to:

Florida State University
Facilities Maintenance, Purchasing
114F Mendenhall Building A
Tallahassee, Florida 32306

prior to bid opening. Bidder must reference bid number, opening date and time on outside of bid package to insure proper acceptance. **Bids submitted by facsimile are not acceptable.** For information relating to the Invitation(s) to Bid, contact the

Bid Number FAC30647-10
Procurement Associate: Betty-Jean (BJ) Lewis, Facilities
Mandatory PreBid: October 13, 2010 @ 2:00 P.M.,EST
Location: Florida Highway Patrol Building
2908 Ridgeway Street, Tallahassee, Fl
Public Bid Opening: October 28, 2010
Time: 2:00 p.m. EST
FSU-Facilities Maintenance
Facilities Maintenance Purchasing
969 Learning Way
125 Mendenhall, Building A
Tallahassee. Florida 32306-4150

Bid Documents: Asbestos and lead abatement basement and first floor
PROJECT MANAGER: JOE ADAMS

Contact Person: Betty-Jean (BJ) Lewis, Purchasing Agent
blewis@admin.fsu.edu
ALL QUESTIONS ONLY THROUGH EMAILS

NOTICE TO BIDDERS

THERE WILL BE A PUBLIC BID OPENING

BID NUMBER: FAC30647-10
Purchasing Agent: B.J. Lewis, Facilities Purchasing
Location: 969 Learning Way, 114 MMA, FSU Campus
Tallahassee, Florida 32306
TITLE: Asbestos and Lead Abatement
Public Bid Opening: October 28, 2010 @ 2:00 P.M., EST

Bids may be brought directly to the bid opening or delivered to the Facilities Purchasing Department, 969 Learning Way, 114 Mendenhall Building A, Tallahassee, Florida 32306 prior to the scheduled opening time. Bids, which for any reason, are not delivered to this location at the prescribed time will not be considered. **Delivery of a bid to the University Post Office or any other point on the University campus other than the Facilities Purchasing Department Office is not acceptable. It is the bidder's responsibility to insure that his/her bid is delivered at the proper time and place for the bid opening.** To insure your **BID** or **NO BID** response remains sealed until opening time, place **BID NUMBER, DATE, AND TIME OF OPENING ON OUTSIDE** envelope of Federal Express package, etc.

Please indicate on envelope if this is a "NO BID"

Failure to comply with any of the above conditions may be grounds to reject the offending vendor's bid.

I certify by the signing of this invitation to bid that the prices offered to Florida State University on the items included are less than or equal to those offered other stat universities for the same or similar items.

Betty-Jean (BJ) Lewis, Purchasing Agent
Facilities, Florida State University
969 Learning Way
114 Mendenhall, Building A
(P) 850-644-7639; (F) 850-644-5071
blewis@admin.fsu.edu

Schedule of Events:

- . **October 13, 2010, Wednesday, at 2:00 P.M. EST** - Mandatory Pre-Bid, Location: Florida Highway Patrol Bldg, 2908 Ridgeway Street, Tallahassee, Fl
- . **October 25, 2010, Monday at 3:00 P.M. EST** - Deadline no later than 4:00pm est. to have questions submitted. Questions must be emailed or faxed to B.J. Lewis, Purchasing Agent at blewis@admin.fsu.edu or 850-644-5071. Verbal questions to anyone or written questions to anyone other than Mrs. Lewis are non-existent and will not be part of the contract documents.
- . **October 26, 2010, Tuesday at 4:00 P.M. EST** - Answers to properly present questions available by: 2:00 pm EST.
- . **October 28, 2010** - Bid Opening, Thursday at 2:00 P.M.,EST - 969 Learning Way, Mendenhall Bldg A, room 125

RIGHTS OF TERMINATION: Either party for any reason or without cause damages or penalty can cancel this bid contract with a 30 day written notice to the other. However, during the (30) day period after such notice is given the rights, obligation, and liability of each party to this agreement will remain full force and affect. Such cancellation will end the obligations of both parties with regard to the purchase order.

FAILURE OF VENDOR TO PERFORM: In the event that the vendor violates any of the provisions of the agreement, the University may serve written notice upon such vendor of its intention to terminate the agreement. Such notice is to the state the reasons of such intention to terminate the agreement, and unless within (10) ten days after serving such notice upon the vendor. Such violation has ceased and satisfactory arrangements for correction is made, the agreement will upon expiration of said ten (10) days, cease and terminate. But the liability of such vendor and his surety for any and all such violation(s) will not be affected by any such termination.

TAX EXEMPTION: Florida State University does not pay Federal Excise or State Sales Tax on direct purchase of tangible personal property.

REQUIRED IN BID PACKAGE:

- PROOF OF INSURANCE
 - o General Liability
 - o Automobile Liability
 - o Excess/Umbrella Liability
 - o Workers Compensation and employers' liability
- BID BOND REQUIRED

The university reserves all administrative, contractual and legal remedies against the contractor or vendor who breaches any of the contract terms.

EQUAL OPPORTUNITY: The nondiscrimination clause contained in section 202, Executive Order 11246, as amended by Executive Order 11375, relative to Equal Employment Opportunity for all persons without regard to race, color, religion, sex or national origin and the implementing rules and regulations prescribed by the Secretary of Labor, are incorporated herein.

The employment of unauthorized aliens by any contractor is considered a violation of Section 274A(e) of the Immigration and Nationality Act. If the contractor knowingly employs unauthorized aliens, such violation shall be cause for cancellation of this purchase order.

If the total of this purchase exceeds \$100,000, acceptance of this order serves as certification that the vendor or its principals: (a) are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency; (b) have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state or local) transaction or contract under a public transaction; violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property; (c) are not presently indicted for or otherwise criminally or civilly charged by a government entity (federal, state or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and (d) have not within a three-year period preceding this application/proposal had one or more public transactions (federal, state or local) terminated for cause or default.

This purchase order shall be governed by and under the jurisdiction of the Laws of Florida and any provision in conflict herewith, shall be void and of no effect.

Unless specifically referenced in the body of this order, there are no attachments to this purchase order.



The Florida State University

Facilities Operations and Maintenance

Purchasing Agent

114F Mendenhall Building A

Tallahassee, Florida 32306-4150

P: (850) 644-7639 F: (850) 644-5071

BIDDER PRICING SHEET

BID NUMBER: FAC30647-10

DATE: October 28, 2010 @ 2:00 P.M.,EST

LOCATION: Florida State University

969 Learning Way, 125 MMA

COMPANY NAME

CONTACT PERSON

PHONE NUMBER

/ _____
FAX NUMBER

E-MAIL ADDRESS

DESCRIPTION:

BASE BID: _____

Print Individual or Firm Name
(Apply Seal if Corporation)

SIGNATURE: _____

TITLE: _____

MEI PROJECT NO. 004.150.000

**TECHNICAL SPECIFICATIONS
FOR
ASBESTOS AND LEAD ABATEMENT
BASEMENT AND FIRST FLOOR
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA**

Prepared For

FLORIDA STATE UNIVERSITY

Date Issued: 25 AUGUST 2010

**Reviewed by: Ajay Thakkar
Florida License No. IA 0000056**

Prepared By



**MIHIR ENVIRONICS INC.
3161 Eliza Road, Unit 2
Tallahassee, Florida 32308
850/422-1255**

TABLE OF CONTENTS
TECHNICAL SPECIFICATIONS

Division 1 - General Requirements

Section 01010 Summary of Work	01010 - 1 thru 01010 - 3
Appendix Section 01010	01010 - A1 thru A 2
Section 01012 General Work Requirements	01012 - 1 thru 01012 - 9
Section 01043 Project Coordination	01043 - 1 thru 01043 - 3
Appendix Section 01043	01043 - A1
Section 01061 Regulatory Requirements and Industry Standards	01061 - 1 thru 01061 - 5
Appendix Section 01061	01061 - A1 thru A2
Section 01071 Definitions	01071 - 1 thru 01071 - 7
Section 01301 Submittals	01301 - 1 thru 01301 - 2
Appendix Section 01301	01301 - A1 thru A4
Section 01410 Air Monitoring, Inspection and Testing Requirements - Asbestos Abatement	01410 - 1 thru 01410 - 4
Appendix Section 01410	01410 - A1
Section 01411 Air Monitoring, Inspection and Testing Requirements - LBP Abatement	01411 - 1 thru 01411 - 4
Section 01503 Temporary Facilities	01503 - 1 thru 01503 - 4
Section 01513 Temporary Pressure Differential System	01513 - 1 thru 01513 - 4
Section 01526 Work Area Enclosures - Asbestos Abatement	01526 - 1 thru 01526 - 8
Section 01527 Work Area Enclosures - LBP Abatement	01527 - 1 thru 01527 - 5
Section 01560 Worker Protection - Asbestos Abatement	01560 - 1 thru 01560 - 9
Appendix Section 01560	01560 - A1 thru A4
Section 01561 Worker Protection - LBP Abatement	01561 - 1 thru 01561 - 8
Appendix Section 01561	01561 - A1 thru A2
Section 01563 Decontamination Enclosure Systems	01563 - 1 thru 01563 - 4
Section 01714 Clean-up and Clearance Testing of Work Area - Asbestos Abatement	01714 - 1 thru 01714 - 6
Section 01715 Clean-up and Clearance Testing of Work Area - LBP Abatement	01715 - 1 thru 01715 - 3

Division 2 - Site Work

Section 02080 Removal of Asbestos Containing Materials	02080 - 1 thru 02080 - 2
Section 02082 Removal of Pipe Insulation	02082 - 1 thru 02082 - 2
Section 02083 Glove Bag Removal	02083 - 1 thru 02083 - 3
Section 02085 Removal of Asbestos Containing Floor Covering	02085 - 1 thru 02085 - 2
Section 02087 Removal of LBP	02087 - 1 thru 02087 - 4
Section 02088 Load-Out and Disposal of LBP Wastes	02088 - 1 thru 02088 - 5
Section 02089 Load-Out and Disposal of ACM	02089 - 1 thru 02089 - 5
Appendix Section 02089	02089 - A1 thru A3

TABLE OF CONTENTS
TECHNICAL SPECIFICATIONS (Cont.)

Drawing Notes	15 pages
Drawings	
1 Lead Abatement – Basement Floor	
2 Lead Abatement – First Floor	
3 Asbestos Abatement – Basement Floor	
4 Asbestos Abatement – First Floor	
Asbestos Survey Report	

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01010 - SUMMARY OF WORK- ASBESTOS AND LBP ABATEMENT

PART 1 - GENERAL

1.1 Project Identification:

- 1.1.1 The asbestos abatement and lead abatement in Florida Highway Patrol (FHP) Building, Basement and First Floors. The asbestos abatement and lead abatement specifications dated 25 August 2008 were prepared by Mihir Environics, Inc. (MEI).

1.2 Scope of Work - Asbestos Abatement:

- 1.2.1 Asbestos Abatement – FHP building is a three (3) story building with basement floor. Asbestos abatement work shall include removal of asbestos-containing or asbestos-contaminated material (ACM) from all floor levels in locations shown on the drawings. ACM scheduled for removal includes the following: asbestos flooring material and flooring mastic, thermal system insulation (TSI), and other miscellaneous ACM.
- 1.3.2 Lead Dust Decontamination: Decontamination of lead dust contaminated areas in the building as identified in this documents and drawings. Storage, transportation and hazardous waste disposal for all Lead dust decontamination waste material. The Owner's testing laboratory will characterize the LBP waste stream prior to shipment off-site. Wastes confirmed as hazardous waste shall be shipped and disposed accordingly.
- 1.2.2 The Scope of work is divided in multiple phases.

Option/Phases	Scope of work
Lead Abatement	• Lead dust decontamination in the designated areas Basement and First Floors. • Disposal of lead dust contaminated material including HVAC ducts in the basement floor.
Asbestos Abatement	• Abatement of all ACM and asbestos contaminated material from Basement and First Floors.

1.3 Approximate Quantities:

- 1.3.1 ACM Inventory: Approximate quantities of ACM included in the Work are noted on the Drawing Notes.
- 1.3.2 LBP Inventory: Approximate quantities of LBP abatement shall be estimated by the Contractor. The specifications and drawings outline the general locations of the lead abatement.

1.4 Phasing: Lead dust decontamination in the work area shall be completed prior to start of any other work. Lead decontamination work is divided in multiple phases and sequence. Phasing of the work will be determined by the Owner. The work will be performed in multiple phases. Multiple mobilizations may be required.

1.5 Intent of Project Manual for Asbestos and LBP Abatement:

- 1.5.1 General: The intent of the Contract Documents is to describe the general scope and character of the work required to perform a complete finished project. Any work, materials or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result shall be furnished and performed whether or not specifically called for in the Specifications. All work shall be accomplished in strict adherence to the Project Manual, and applicable federal, state and local regulations. The Contractor shall furnish all plant, labor, equipment, and materials for the performance of the Work as described in the Project Manual.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION - 01010

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01012 - GENERAL WORK REQUIREMENTS

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Pre-abatement site inspection requirements.
- 1.1.2 Trade coordination.
- 1.1.3 Key project personnel.
- 1.1.4 Bilingual communication.
- 1.1.5 Safety responsibilities.
- 1.1.6 Traffic control.
- 1.1.7 Contractor's use of the site.
- 1.1.8 Protection of State property.
- 1.1.9 Health and Safety.
- 1.1.10 Security.

1.2 General: The Contractor shall comply with all applicable federal, state, and local laws, ordinances, codes, rules, and regulations. All work installed shall comply with all applicable codes and regulations as amended. Before starting the work, the Contractor shall examine the Technical Specifications and Drawings for compliance with codes and regulations applicable to the work and shall immediately report any discrepancy to the Engineer.

1.3 Pre-Abatement Job Site Inspection: Prior to commencement of work, inspect areas where work will be performed. Prepare a listing of existing damage to the structure; finish surfaces, equipment, or surrounding properties that could be misconstrued as damage resulting from the Work. Photograph or videotape existing conditions as necessary to document conditions. Submit a list of existing damages to the Engineer prior to starting work (see Paragraph "Submittals" in this Section).

1.4 Plan of Action:

- 1.4.1 Site-Specific Plan of Action: Develop a plan of action detailing the procedures proposed for use in complying with the requirements of this Project Manual. Include the following:
 - 1.4.1.1 The sequence/phasing of work.
 - 1.4.1.2 Methods to be used to assure the safety of building occupants and visitors to the site.
 - 1.4.1.3 Interface of trades involved in the performance of work.

1.5 Trade Coordination: The Contractor shall conduct all operations on the project site in such manner as to avoid jurisdictional disputes that may arise regarding handling, installations, connections, etc. of various items in the several trades involved. The sequencing and performance of the work under contract shall be coordinated by the Contractor.

1.6 Key Project Personnel:

1.6.1 Site Superintendent: The Contractor shall have on-site a responsible and competent Site Superintendent. The Site Superintendent shall:

1.6.1.1 Meet the qualifications as required by Section 01560 WORKER PROTECTION - ASBESTOS ABATEMENT, or Section 01561 WORKER PROTECTION - LBP ABATEMENT, as appropriate.

1.6.1.2 Remain on duty during all working hours. Should the Site Superintendent leave the site while work is in progress, a temporary Site Superintendent shall be appointed.

1.6.1.3 Operate as the Contractor's representative at the site, have authority to act on behalf of the Contractor, and shall retain complete jurisdiction over all subcontract work.

1.6.1.4 Supervise, inspect and direct the Work competently and efficiently, devoting such skills and expertise as may be necessary to perform the Work in accordance with the Project Manual. The Site Superintendent shall be responsible to see that Work complies accurately with the Project Manual, and that all Work installed is of good quality and workmanship.

1.6.1.5 Monitor the Contractor's construction safety work practices for compliance with the OSHA regulations, and provide appropriate personnel protective equipment and training for his workers.

1.6.2 Foremen: The Contractor shall furnish one or more foremen who are familiar and experienced with asbestos removal and its related work, safety procedures, and equipment. The Foremen shall:

1.6.2.1 Meet the qualifications as required by Section 01560 WORKER PROTECTION - ASBESTOS ABATEMENT, or Section 01561 WORKER PROTECTION - LBP ABATEMENT, as appropriate.

1.6.2.2 Remain inside the work area whenever work (preparation, removal, or cleaning) is in progress.

1.7 Bilingual Communication: Where non-English speaking workers are employed for the Work the Site Superintendent or Foreman shall be bilingual (capable of fluent communication with his workers and shall speak fluent English).

1.8 Safety Responsibilities:

1.8.1 Contractor: The Contractor shall be responsible for monitoring his own construction safety work practices for compliance with the OSHA regulations,

and shall provide appropriate personnel protective equipment and training for his workers.

- 1.8.2 Owner: The Owner for the project is the Florida State University
- 1.8.3 Owner's Representative (Project Monitor) The Contractor's industrial hygiene practices during asbestos and lead abatement will be monitored by the Owner's Industrial Hygiene Consultant (IH Technician).
- 1.8.4 Monitoring Contractor's Workers Personal Air Samples - Asbestos Abatement: The Contractor shall be responsible for collection of the samples, analysis, compilation of data, and reporting requirements for daily exposure monitoring samples required by OSHA 29 CFR 1926.1101(f).
- 1.8.5 Monitoring Contractor's Workers Personal Air Samples - Lead Abatement: The Contractor shall be responsible for collection of the samples. The samples will be analyzed by IH Technician using Niton XRF analyzer.

1.9 Traffic Control:

- 1.9.1 Traffic Control: Traffic on FSU property is under the direction of the FSU Police Department (FSUPD) and the Parking Services Department. Parking Permits for construction personnel, use of streets for transportation of construction materials, and areas for stockpiling of equipment are to be handled in cooperation with FSU. Routing of traffic and vehicle speed is also under the control of the FSUPD and Parking Services and the Contractor must adhere to all conditions and restrictions.
- 1.9.2 Parking: Contractor parking shall be restricted to areas approved by FSU.

1.10 Contractor's Use Of Site:

- 1.10.1 Operations on Site: Operations at the site shall be confined to the areas permitted under the Contract. Portions of the site beyond areas where work is indicated are not to be disturbed. Compliance with all site rules and regulations shall be maintained while engaged in project construction.
- 1.10.2 Staging Areas: Areas designated for use by the Contractor will be identified by FSU during the Pre-Construction meeting. Use of other areas for parking, storage, and staging is prohibited.
- 1.10.3 Building Occupancy: The buildings will be occupied by other trade contractors during asbestos and lead abatement activities. Construction activities shall be performed in a manner that will minimize impact on day-to-day operation of occupied areas. Do not access the premises or otherwise disturb areas outside of the designated work areas.
- 1.10.4 Stockpiling: The Contractor shall not unreasonably encumber the site with materials or equipment. Stockpiling of materials shall be confined to the areas indicated by the Owner. If additional storage is necessary the Contractor shall obtain such storage off site.

- 1.10.5 Smoking and Fires: Smoking shall not be permitted on premises except in exterior areas designated for this purpose. Smoking is not permitted inside any FSU building. Open fires shall not be permitted on-site.
- 1.10.6 Entrances: Entrances serving the premises shall be kept clear and available at all times. Do not use these areas for storage of materials.
- 1.10.7 Use of Elevators: The Contractor shall coordinate with the FSU for use of elevator. Other restrictions are noted on the project drawings.
- 1.10.8 Access to Work: The Contractor shall use ladders, scaffolds, and other appropriate equipment for access to elevated or remote areas of work. The Contractor shall not stand on piping, conduit, controls or other surfaces not specifically designed for the purpose of support.

1.11 Protection of Owner's Property:

- 1.11.1 Damage to Existing Building Finish or Grounds: The Contractor shall accomplish at his expense the complete repair or replacement of any material, finish, or improvement (interior/exterior equipment, structures and/or site/landscape) which may have become inadvertently damaged by activities under this Contract. Damaged property shall be repaired to the Owner's satisfaction. The Owner will furnish details, as required, to restore damaged property to original condition.

1.12 Health And Safety:

- 1.12.1 General Requirements: The Contractor alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods and for any damage which may result from Contractor's improper construction, maintenance, or operation, respectively. He shall erect and maintain at all times adequate safeguards for the protection of workmen and the public and shall post danger warnings against hazards created by the construction operations.
- 1.12.2 Toxic Effects: The Contractor shall assume all responsibility for any toxic effects to workers from the air supplied to respirators, or from toxic or damaging vapors or residues resulting from the use of chemical stripping agents, encapsulants, wetting agents, or other substances used by the Contractor during the Work.
- 1.12.3 Chemical/Biological Hazards: The known chemical/biological hazards on site include asbestos-containing material, and surfaces coated with lead-based paint. The Contractor shall provide materials, equipment and training to his workers to ensure their protection from these and any other chemical/biological hazards, which may be identified during the Work.
- 1.12.4 Physical Hazards: Common physical hazards normally present on construction sites include: heat stress; contact with energized (hot) active equipment; noise; overhead bump hazards; trip/fall hazards; electrical shock; among others. The Contractor shall provide safety equipment and training to his workers to

ensure their protection from these and any other physical hazards that may be present during the Work.

- 1.12.5 Emergency Response: The Contractor shall establish an Emergency Response Team made up of members of his work force. The Contractor shall designate a Team Leader and organize workers who are trained to respond in the event of an accident or other emergency. Members of the Emergency Response Team shall be knowledgeable in evacuation procedures and would be the first to respond in the event of an emergency.
- 1.12.6 Worker Safety: Occupational Safety and Health Administration (OSHA) regulations shall be strictly complied with during the course of the Work. OSHA regulations shall govern the conduct of the Contractor's workmen, tradesmen, material men, and subcontractors, and of visitors to the project site.
- 1.12.7 Protective Devices: During the construction period, the Contractor shall provide and maintain temporary access ladders or construction stairs, safety guardrails for scaffolding, safety harnesses, and other safety equipment as required or necessary to properly complete the work. He shall provide and maintain such barricades, warning signs and devices, temporary lighting, and other safety measures necessary to properly protect workmen.
- 1.12.8 Protection of Bystanders: During the performance of the Work the Contractor shall take appropriate continuous measures as necessary to protect all not-abatement workers from the potential hazard of exposure to airborne asbestos or lead dust. Such measures shall include the procedures and methods described herein, and compliance with regulations of applicable federal, state and local agencies.

1.13 Security:

- 1.13.1 Furnish 24-hour-per-day security during asbestos removal activities. Prevent unauthorized persons from entering abatement work areas. Security shall be provided by means of monitoring access into the work area during the day, and physically closing and locking the work area on completion of the day's work.
- 1.13.2 Provide the Owner with duplicate keys for every lock used to secure a work area decontamination enclosure system.
- 1.13.3 Existing building doors on the perimeter walls of a work area shall remain locked. Panic hardware shall remain operable to enable exit from the work area in the event of an emergency.

1.14 Asbestos Contractor's Insurance

PRODUCT DATA SHEET 0 - AUTOMOBILE LIABILITY INSURANCE. The Asbestos Contractor shall purchase and maintain at the Asbestos Contractor's expense automobile liability insurance for the life of this Contract from an insurer duly authorized to transact insurance in the State of Florida as defined by Florida Statute 724.09(1). Such automobile liability insurance

shall incorporate the following minimum provisions within the Contractor's automobile liability insurance policy.

- LIMITS OF LIABILITY shall not be less than \$500,000 combined single limit for bodily injury and property damage arising from any one accident. Split limits may be substituted for the combined single limits provided that such split limits applicable to any one accident are not less than \$500,000 bodily injury per person, and \$1,000,000 all bodily injury any one accident and \$250,000 property damage.

SCOPE OF COVERAGE of such insurance shall be equivalent to the Insurance Services Office, Inc. BUSINESS AUTO COVERAGE FORM NUMBER CA0001 including the provisions required in Paragraphs 11.5.1.2.1 and 11.5.1.2.2.

- 1) COVERED AUTOS as defined within such insurance shall include any auto owned or operated by the Asbestos Contractor including autos which are leased, hired, rented or borrowed by the Asbestos Contractor including autos owned by the Asbestos Contractor's employees which are used in connection with the Asbestos Contractor's business.
- 2) ADDITIONAL INSURED endorsement shall be included in such insurance naming the Owner, Contractor and/or Construction Manager as additional insured(s).

PRODUCT DATA SHEET 1 - WORKERS' COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE.

- STATUTORY WORKERS' COMPENSATION INSURANCE shall be secured and maintained at the Asbestos Contractor's expense by the Asbestos Contractor for the life of this Contract as required by Chapter 440, Florida Statutes.
- EMPLOYER'S LIABILITY INSURANCE shall be secured and maintained by the Asbestos Contractor at the Asbestos Contractor's expense for the life of this Contract with limits of insurance not less than:

BODILY INJURY BY ACCIDENT	\$100,000 each accident
BODILY INJURY BY DISEASE	\$100,000 each employee
BODILY INJURY BY DISEASE	\$500,000 policy limit

COVERAGE FOR ASBESTOS shall not be excluded from this insurance under STATUTORY WORKERS COMPENSATION INSURANCE and EMPLOYERS LIABILITY INSURANCE.

PRODUCT DATA SHEET 2 - COMMERCIAL GENERAL LIABILITY INSURANCE

- The Asbestos Contractor shall purchase at the Contractor's expense COMMERCIAL GENERAL LIABILITY INSURANCE coverage in which the Florida State University shall be a Named Insured. Such insurance shall provide coverage for claims arising from bodily injury and/or property damage and/or

personal injury resulting from the operations of the Asbestos Contractor on this Project at the Project site. Such insurance coverage shall be provided in a form commonly referred to as Occurrence Coverage. Such insurance shall be provided with limits of liability as stated in Paragraph 11.6.2. This insurance must be procured through underwriter with an A.M. Best rating of A- or better.

a. LIMITS OF LIABILITY:

EACH OCCURRENCE LIMIT	\$1,000,000
PERSONAL INJURY AND ADVERTISING INJURY LIMIT	\$1,000,000
FIRE DAMAGE LIMIT (any one fire)	\$ 50,000
MEDICAL EXPENSE LIMIT (any one person)	\$ 5,000
PRODUCTS AND COMPLETED OPERATIONS AGGREGATE LIMIT	\$1,000,000
GENERAL AGGREGATE LIMIT (other than Products/ Completed Operations)	\$1,000,000

- b. Asbestos Contractor agrees to hold the Owner harmless from any disputes, which may arise between the Asbestos Contractor and Insurance Company underwriting such COMMERCIAL GENERAL LIABILITY INSURANCE.

PRODUCT DATA SHEET 3 - CERTIFICATES OF INSURANCE PROVIDED BY THE ASBESTOS CONTRACTOR. Certificates of Insurance acceptable to the Owner shall be filed with Owner prior to commencement of the Work and shall evidence the insurance required in this Paragraph 11.5 of the Supplementary Conditions to the General Conditions of the Contract for Construction. The Certificates of Insurance must be provided and the Contractor must begin Work in accordance with the requirements of Paragraph 4.1 of the Owner-Contractor Agreement. These Certificates of Insurance shall contain a provision that coverage afforded by the policies identified by such certificates will not be canceled until at least 30 days prior written notice has been given to the Owner. The Asbestos Contractor shall furnish one copy of each Certificate of Insurance for each copy of the Contract. Each Certificate of Insurance shall be dated and will show the name of the insured Asbestos Contractor, the specific Project by name and/or job number, the name of the insurer, the policy number, and the policy effective date and termination date. The insurance certificates must specifically mention the Florida State University as also insured.

- 1.15 Stop Work Order:** The Contractor shall discontinue all work immediately upon receipt of a Stop Work Order issued by the Owner or Owner's designated representative. Do not recommence work until authorized in writing.

1.16 Submittals:

1.16.1 Pre-Work Submittal:

- 1.16.1.1 Health and Safety Plan: Provide a written Health and Safety Plan addressing procedures for work place safety. As a minimum, the following topics shall be addressed in the plan:

- a. Hazard Communication Program. Procedure on how physical and health hazards associated with the Work are identified and communicated to employees. Identify the person responsible for implementation of the Hazard Communication Program.
- b. Fall protection training program as specified in 29 CFR 1926.503. Fall protection program must be specific to job site conditions.
- c. Guidelines for assessment and prevention of heat stress.
- d. Procedures for using ladders safely.
- e. Guidelines for safety in the erection, use and dismantling of scaffolds.
- f. Electrical safety procedures.
- g. Guidelines for protection from overhead bump hazards and trip/fall hazards.

1.16.1.2 Contingency Plan: Provide a written Emergency Action Plan outlining the contingency actions to be performed for emergencies including fire, accident, power failure, supplied air system failure, breach of work area containment, and unexpected asbestos or lead dust contamination in the site area or on the adjoining grounds. This Plan shall identify the manner in which emergencies are announced, emergency escape procedures and routes, procedures to account for all employees after evacuation, the persons responsible for rescue and medical duties, the names and job titles of people responsible for fire prevention equipment and the control of fuel source hazards, and the members of the Emergency Response Team (see Paragraph Emergency Response of this Section).

1.16.1.3 Site-Specific Plan of Action: Provide a written plan addressing items required by this Section. Provide A written compliance program in accordance with 29 CFR 1926.62

1.16.1.4 Pre-Abatement Job Site Inspection: Provide a listing of existing property damage identified during the inspection carried out as required by this Section. Include copies of documentation (photographs, video tapes, etc.).

1.16.2 During-Work Submittals:

1.16.2.1 Provide two keys to the lock used to secure the work area decontamination enclosure system entrance.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION - 01012

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01043 - PROJECT COORDINATION - ASBESTOS AND LBP ABATEMENT

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Meetings.
- 1.1.2 Project Documentation.
- 1.1.3 Special Reports.
- 1.1.4 Emergency Telephone Numbers.

1.2 Meetings:

- 1.2.1 Pre-Construction Meeting: Prior the start of work the Contractor shall meet with the FSU, Asbestos Consultant, and other entities concerned with the asbestos abatement work. At this meeting the Contractor shall identify his Site Superintendent and Foreman. During the meeting the following items will be discussed and agreed upon:
 - 1.2.1.1 Entrances for use by the Contractor, Contractor parking, placement of site office trailers or assignment of on-site office spaces.
 - 1.2.1.2 Access route(s) to work area, use of toilets, and use of stairwells and elevators.
 - 1.2.1.3 Identification of equipment and other items to be removed from the work area by the Contractor, and temporary storage of these items.
 - 1.2.1.4 Availability of utilities for each work area.
 - 1.2.1.5 Location for placement of required equipment and temporary construction.
 - 1.2.1.6 Items designated for salvage.
 - 1.2.1.7 Any additional factors that may affect the work.

1.3 Project Documentation

- 1.3.1 Daily Log: Maintain on the project site a daily log documenting the dates, times, and brief discussion of the following:
 - 1.3.1.1 Personnel, by name, entering and leaving the work area.
 - 1.3.1.2 Air monitoring tests results (OSHA compliance monitoring).
 - 1.3.1.3 Comments section for documentation of the following: results of inspections; removal of waste materials from the work area; results of final inspection/final air test; and, any special or

unusual events (i.e. meetings, breach of containment barrier, equipment failures, accidents).

- 1.3.2 Progress Schedule: Prior to beginning work develop a schedule showing the order in which the Contractor proposes to carry on the Work, the date he will start the several salient features for each work area, and the contemplated date of completing same. The schedule shall be in the form of a conventional progress chart. The various work areas and/or tasks shall be listed on the vertical axis and the time scale on the horizontal axis. The following work items/checkpoints shall be provided for each work area or phase area:

- a. Project location and work area identification.
- b. Type of abatement to be conducted.
- c. Date to mobilize to the site.
- d. Date and time to start abatement work.
- e. Date and time to complete abatement work.
- f. Proposed daily work schedule, to include number of shifts per day, duration of each daily shift, and the start time of each daily shift.

- 1.3.3 Post Project Documentation: Provide a copy of documents required to be kept and maintained during the course of the work. Project documentation includes the following:

- a. Approved submittals.
- b. Daily logs.
- c. Special reports.
- d. Inspection certifications (Request for Services form).
- e. Waste disposal receipts.
- f. Daily work area strip charts.

1.4 Special Reports:

- 1.4.1 Accident Reports: When an accident, personal injury or an event of unusual and significant nature occurs at site (examples: failure of the pressure differential system, rupture of temporary enclosures, etc.) the Contractor shall prepare and submit a special report listing the chain of events, persons participating, response by the Contractor's personnel, evaluation of results of effects, and similar pertinent information.
- 1.4.2 Report Discovered Conditions: When an unusual condition of the building is discovered during the work (e.g. leaks, termites, corrosion, structural damage, etc.) prepare and submit a report indicating the condition discovered.

1.5 Emergency Telephone Numbers:

- 1.5.1 Post: Prepare and post the emergency telephone number listing on the exterior door of the personnel decontamination enclosure system. The emergency telephone numbers list shall include the following: CM representative, fire department, ambulance, doctor, hospital, police, power company, FSUPD, and FSU Maintenance. Refer to Emergency Telephone Numbers form in the Appendix to this Section.

1.6 Submittals

- 1.6.1 Pre-Work Submittal:
 - 1.6.1.1 Specimen of the Daily Log proposed for use.
 - 1.6.1.2 Progress Schedule for the work.
 - 1.6.1.3 Completed Emergency Telephone Numbers form.
- 1.6.2 During-Work Submittal:
 - 1.6.2.1 Any changes in the Progress Schedule proposed by the Contractor for the work shall be submitted for approval seven (7) days prior to the commencement date of the proposed change, or as soon as practicable after a change in schedule is required. A revised Progress Schedule reflecting actual progress of the work and corrections for the remaining schedule shall be submitted at the end of each week.
 - 1.6.2.2 Special Reports shall be submitted as soon as practicable following the incident.
- 1.6.3 Post Project Submittal:
 - 1.6.3.1 Provide post project documentation within 10 days of receipt of Substantial Completion.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not-Applicable)

END OF SECTION - 01043

SECTION 01043

APPENDIX

Emergency Telephone Numbers

A1

EMERGENCY TELEPHONE NUMBERS

Date: _____

Protect Name: _____ Project No. _____

The following are the business and home telephone numbers where project key personnel can be reached at all times. In addition, the emergency telephone numbers of other vital agencies are listed as shown. All key personnel should have a filled out copy of this form and a copy should be posted at the job site.

	Name	Business	Residence
Construction Manager Rep:	_____	_____	_____
Contractor's Superintendent:	_____	_____	_____
Contractor's Project Rep.:	_____	_____	_____
FSU Maintenance:	_____	_____	_____
FSU Project Manager:	_____	_____	_____
A&E Project Representative:	_____	_____	_____
Industrial Hygienist:	_____	_____	_____

OTHER EMERGENCY TELEPHONE NUMBERS

OSHA REPRESENTATIVE.....	_____
DEP REPRESENTATIVE	_____
FIRE.....	_____
AMBULANCE.....	_____
EMERGENCY MEDICAL.....	_____
POLICE.....	_____
GAS COMPANY	_____
ELECTRIC COMPANY.....	_____
WATER COMPANY.....	_____
TELEPHONE COMPANY.....	_____
INSURANCE CARRIER.....	_____
OTHER.....	_____

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01061 - REGULATORY REQUIREMENTS AND INDUSTRY STANDARDS - ASBESTOS AND LBP ABATEMENT

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Governmental regulations that are included and incorporated herein by reference and made a part of the Specification.
- 1.1.2 Industry standards and guide documents that are included and incorporated herein by reference and made a part of the Specification.
- 1.1.3 Requirements for notices and permits which either must be applied for and received, or which must be given to governmental agencies before starting Work.

1.2 Copies of Codes, Regulations, and Standards: The Contractor is required to be familiar with codes, regulations and industry standards applicable to the WORK. Copies of applicable documents are not bound with the Contract Documents. Where copies of documents are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.

1.3 Applicability: The most recent issue of each document shall govern. Where conflict exists among various requirements or with these specifications, the more stringent requirements shall apply.

1.4 Federal Regulations: Publications listed below form a part of this specification to the extent referenced. Publications are referred to in the text by the basic designation only.

- 1.4.1 TITLE 29, CODE OF FEDERAL REGULATIONS, U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS.
 - Part 1910.20 Access to Employee Exposure and Medical Records
 - Part 1910.120 Hazardous waste operations and emergency response
 - Part 1910.134 Respiratory Protection
 - Part 1910.146 Confined Space
 - Part 1926.21 Safety Training and Education
 - Part 1926 Fall Protection
 - (Subpart M & Part 1926.500 through 1926.503)
 - Part 1926.59 Hazard Communication
 - Part 1926.1101 Occupational Exposure to Asbestos; Asbestos
 - Part 1926.62 Lead

1.4.2 TITLE 40, CODE OF FEDERAL REGULATIONS, U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) STANDARDS.

- Part 61, National Emissions Standard for Hazardous
- Subpart A Air Pollutants - General Provisions
- Part 61, National Emission Standards for Hazardous Air
- Subpart M Pollutants - National Emission Standard for Asbestos
- Part 260 Hazardous Waste Management Systems - General
- Part 261 Identification and Listing of Hazardous Waste
- Part 262 Generators of Hazardous Waste
- Part 263 Transporters of Hazardous Waste
- Part 265 Interim Status Standards for Owners and Operators of Hazardous Waste TSD Facilities.
- Part 268 Land Disposal Restrictions
- Part 763 Asbestos-Containing Materials in Schools

1.4.3 TITLE 49, CODE OF FEDERAL REGULATIONS, U.S. DEPARTMENT OF TRANSPORTATION (DOT) STANDARDS.

- Part 171 Hazardous Substances
- Part 172, Hazardous Materials Tables and Hazardous
- Subpart B & C Materials Communications Regulations
- Part 173 Shippers - General Requirements for Shipments and Packaging
- Part 178 Specifications for packaging

2.1.4 U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD).

24 CFR 35, 905, Lead Based Paint Hazard Elimination, Interim Rule
941, 965, 968

1.5 State of Florida Applicable Laws and Regulations: In addition to detailed requirements of Federal regulations and this specification, comply with those applicable laws, ordinances, criteria, rules, and regulations of state, regional, and local authorities regarding handling, storing, transporting, and disposing of asbestos waste materials. State, regional and local laws, ordinances, criteria, rules and regulations that apply to asbestos abatement work include but are not limited to the following:

- 1.5.1 Florida Asbestos Act, Chapter 87-394, Florida Statutes Sections 255.551-255.565 as amended.
- 1.5.2 Florida Asbestos Act, Chapter 87-394, Florida Statutes Sections 469.001-469.015 as amended.
- 1.5.3 Florida Air Pollution and Control Act, Florida Statutes Section 403 as amended (Florida Statutes, Chapter 403).
- 1.5.4 Florida Department of Environmental Regulation, Resource Recovery and Management Regulations, Chapter 17-7.

1.5.5 Florida Administrative Code Rule 62-730, Hazardous Waste.

1.6 Industry Standards: Except where Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into Contract Documents. Such standards are made a part of the Contract Documents by reference. The following Standards shall apply, as referenced:

1.6.1 AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
PUBLICATIONS:

ANSI Z9.2 (1979, R 1991) Fundamentals Governing the Design
and Operation of Local Exhaust Systems

ANSI Z88.2 (1992) Practice for Respiratory Protection

1.6.2 AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
PUBLICATION:

ASTM E 119 (1988) Fire Tests of Building Construction and
Materials

ASTM D1331 (1989) Surface and Interfacial Tension of Solutions
of Surface-Active Agents

ASTM E1368 (1990) Standard Practice for Visual Inspection of
Asbestos Abatement Projects

1.6.3 COMPRESSED GAS ASSOCIATION (CGA):

CGA G-7 (1990) Compressed Air for Human Respiration

CGA G-7.1 (1989) Commodity Specification for Air

1.6.4 NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
PUBLICATION.

NFPA 10-1990 Portable Fire Extinguishers

NFPA 70-1993 National Electrical Code (NEC)

NFPA 241-1993 Safeguarding Construction, Alteration, and
Demolition Operations

1.6.5 UNDERWRITERS LABORATORIES INC. (UL) PUBLICATIONS.

UL 467 Grounding and Bonding Equipment

UL 586 (1977) Test Performance of High Efficiency Particulate Air
Filter Units

UL 586 (1990) Standard for High-Efficiency Particulate Air Filter
Units

1.7 Guidance Documents: Documents that discuss procedures and/or equipment related to asbestos abatement work are listed below and are made a part of the Contract Documents to the extent referenced in the Specifications.

1.7.1 Asbestos/NESHAP Regulated Asbestos Containing Materials Guidance.
EPA 340/1-90-018.

1.7.2 Asbestos/NESHAP Adequately Wet Guidance. EPA 340/1-90-019.

- 1.7.3 Guidance for Controlling Asbestos-Containing Materials in Buildings (Purple Book) EPA 560/5-85-024.
- 1.7.4 A Guide to Respiratory Protection for the Asbestos Abatement Industry. EPA 560-OPTS-86-001.
- 1.7.5 Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, June 1995. Department of Housing and Urban Development.

1.8 Permits and State Licenses: The Contractor shall be responsible for obtaining necessary permits, state licenses, and certifications of personnel in conjunction with asbestos removal, hauling, and disposal. Fees and/or charges for these licenses, permits and certifications shall be paid by the Contractor. The following are required:

- 1.8.1 Current license with the Florida Department of Business and Professional Regulations as an asbestos contractor.
- 1.8.2 Current license with the Florida Department of Business and Professional Regulations as an asbestos roofing contractor.
- 1.8.3 Certifications as noted in Section 01560 WORKER PROTECTION - ASBESTOS ABATEMENT, and Section 01561 WORKER PROTECTION LBP ABATEMENT.

1.9 Notifications: Prior to commencement of asbestos abatement work the Contractor shall send written notice of the proposed abatement work to the agencies and offices listed below. Notification must be submitted on the "Notification of Demolition & Renovation" form. The listing of applicable agencies and offices is as follows:

- a. Asbestos Coordinator
Florida Department of Environmental Protection
2815 Remington Green Circle
Tallahassee, FL 32308
(904) 488-3704
- b. Mr. Mark Klawinski, CIH, CSP
Coordinator, Environmental Health & Safety
Department of Environmental Health and Safety
The Florida State University
Tallahassee, FL 32306-4154
(904) 644-6895
- c. Project Manager
Mihir Environics, Inc.
3161 Eliza Road, Unit 2
Tallahassee, FL 32308
(850) 422-1255

- 1.9.1 Original Notification: Notification must be submitted on the "Notification of Demolition and Renovation" form provided in Appendix A to this

Section. The notice shall be received by each party at least ten (10) working days before the start of asbestos abatement work.

- 1.9.2 Revising Notifications: The Contractor shall also provide written notification of schedule changes to the agencies and offices requiring notification under this Section.
- 1.9.3 Project Completion Notification: Upon completion of the asbestos removal/demolition construction, submit notification of project completion to the agencies and offices requiring notification under this Section.
- 1.9.4 Police and Fire Department Notification: The Contractor shall provide written notification of the proposed abatement work to the local police and fire departments. As a minimum, the notification letter shall include the address of the facility, dates work is to be performed, and drawings indicating the areas to undergo abatement.

1.10 Submittals:

- 1.10.1 Pre-Work Submittal:
 - 1.10.1.1 Proof of written pre-work notification for offices and agencies requiring notification under Paragraph "Notifications" of this Section.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION - 01061

SECTION 01061

APPENDIX

NOTIFICATION OF DEMOLITION AND RENOVATION FORM

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01071 - DEFINITIONS

PART 1 - GENERAL

1.1 Terminology - General: The following commonly used terms are defined in the context of these specifications. Terms specific for lead-based paint abatement and asbestos abatement are included under a separate paragraph.

- 1.1.1 Air Filtration Device (AFD) - A portable local exhaust system equipped with HEPA filtration, capable of maintaining a constant low velocity air flow into contaminated areas from adjacent, uncontaminated areas and capable of maintaining a negative air pressure with respect to the adjacent, uncontaminated areas.
- 1.1.2 Air Lock: A system for permitting ingress or egress to the work area while permitting minimal air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways placed a minimum of three feet apart.
- 1.1.3 Air Monitoring: The process of measuring the fiber content of a specific volume of air in a stated period of time. Personal air sampling results shall be calculated to reflect the employee's eight-hour time weighted average (TWA) exposure. Area sampling results are reported directly, without calculating the TWA.
- 1.1.4 Approximate Quantity: The term "approximate quantity" when used to describe the quantities of materials scheduled for asbestos abatement or replacement shall mean the quantity stated plus or minus 5 percent.
- 1.1.5 Authorized Visitor: The Owner or the Owner's representatives or representatives of any regulatory or other agency having jurisdiction over the project.
- 1.1.6 Barrier: Any surface that seals off the work area to inhibit the movement of air.
- 1.1.7 Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.
- 1.1.8 Critical Seal: An airtight seal that covers openings along the perimeter walls, ceiling and floor of the work area. The critical seals consist of one layer of reinforced fire-retardant plastic sheeting that covers each opening. Critical seals are established prior to plasticizing the work area.
- 1.1.9 Curtained Doorway: A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms.
- 1.1.10 Decontamination Enclosure System: A series of connected rooms for the decontamination of workers (a Personnel Decontamination Enclosure

System) or of materials and equipment (Equipment Decontamination Enclosure System).

- 1.1.11 Differential Air Pressure Recording Device: A device capable of producing a continual strip record, in increments of 0.001 inches of water of the pressure differential between the containment area (work area) and the ambient air pressure.
- 1.1.12 Equipment Decontamination Enclosure System: A decontamination system for waste materials and equipment, typically consisting of a designated area of the work area, a washroom, and a holding area, with an air lock between any two adjacent rooms and a curtained doorway between the holding area and the non-work area. Not to be used for personnel entry/exit.
- 1.1.13 Engineer: The Owner's representative who is authorized to exercise general administration and supervision of the work under the direction of the Owner.
- 1.1.14 Fixed Object: A unit of equipment or furniture in the work area which cannot be removed from the work area.
- 1.1.15 Full Facepiece High Efficiency Respirator (FFHER): A respirator which covers the wearer's entire face from the hairline to below the chin and which is equipped with a HEPA filter.
- 1.1.16 Half Mask High Efficiency Respirator (HMHER): A respirator which covers one-half of the wearer's face, from the bridge of the nose to below the chin, and is equipped with HEPA filters.
- 1.1.17 HEPA Filter: A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97% of fibers 0.3 microns in diameter.
- 1.1.18 HEPA Vacuum Equipment: High efficiency particulate air (HEPA) filtered vacuuming equipment having a UL 586 filter system.
- 1.1.19 Movable Object: A unit of equipment or furniture which can be removed from the work area.
- 1.1.20 Negative Pressure Respirator: 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.
- 1.1.21 Negative Pressure Ventilation System: A pressure differential and ventilation system.
- 1.1.22 Personnel Decontamination Enclosure System: A decontamination system for personnel and limited equipment, typically consisting of an equipment room, shower room, and clean room, with an air lock between any two adjacent rooms, and a curtained doorway between the equipment room and the work area, and a curtained doorway between the clean room and the

non-work area. The decontamination system serves as the only entrance/exit for the work area.

- 1.1.23 Personal Monitoring: Sampling within the breathing zone of an employee for asbestos fibers or lead dust.
- 1.1.24 Plasticize: To cover floors and walls with plastic sheeting as herein specified.
- 1.1.25 Powered Air Purifying Respirator (PAPR): Either a full facepiece, helmet, or hooded respirator that powers breathing air to the wearer after the air has been purified through a HEPA filter.
- 1.1.26 Pressure Differential and Ventilation System: A local exhaust system, utilizing HEPA filtration capable of maintaining a pressure differential with the inside of the Work Area at a lower pressure than any adjacent area, and which cleans recirculated air or generates a constant air flow from adjacent areas into the Work Area.
- 1.1.27 Protection Factor: The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.
- 1.1.28 Physician's Statement: A written statement from the examining physician that includes:
- Physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos or lead-containing materials;
 - Any recommended limitations on the employee or on the use of personal protective equipment such as respirators; and
 - A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions that may result from exposure to asbestos or lead-containing wastes.
- 1.1.29 Removal: The act of removing and transporting asbestos or LBP materials from the work area to a suitable disposal site.
- 1.1.30 Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.
- 1.1.31 Testing Laboratory IH Technician: The Testing Laboratory Technician (IH Technician) is the Owner's representative authorized to perform work related to asbestos sample collection and analysis.
- 1.1.32 Time Weighted Average (TWA): The average concentration of a contaminant in air during a specific time period.

- 1.1.33 Type C Respirator: A respirator which supplies air to the wearer from a source outside the work area by means of a compressor.
- 1.1.34 Work Area: Designated rooms, spaces, or areas of the project where asbestos or LBP abatement actions are to be undertaken or which may become contaminated as a result of such abatement actions. A Contained Work Area has been sealed, plasticized, and equipped with a decontamination enclosure system. A Non-Contained Work Area is an isolated or controlled-access area which has not been plasticized.

1.2 Terminology - Asbestos Abatement: The following commonly used terms for asbestos abatement are defined in the context of these specifications:

- 1.2.1 Adequately Wet: A term as defined in CFR 40 Part 61, Subpart M and EPA 340/1-90-019 that means to sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material (ACM), then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wetted.
- 1.2.2 Aggressive Sampling: Air monitoring samples collected while a leaf blower, fans, or other such devices are used to generate air turbulence within the work area.
- 1.2.3 Amended Water: Water to which a surfactant has been added to decrease the surface tension to 35 or less dynes.
- 1.2.4 Asbestos: The asbestiform varieties of serpentine (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite (amosite), anthophyllite, and actinolite-tremolite. For purposes of determining respiratory and worker protection both the asbestiform and non-asbestiform varieties of the above minerals and any of these materials that have been chemically treated and/or altered shall be considered as asbestos.
- 1.2.5 Asbestos Abatement: Procedures to control or decrease fiber release from asbestos-containing building materials or insulation material containing asbestos. Includes removal, enclosure, and encapsulation.
- 1.2.6 Asbestos-Containing Material (ACM): Any material containing more than 1% by weight of asbestos of any type or mixture of types.
- 1.2.7 Asbestos-Containing Building Material (ACBM): Surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a building.
- 1.2.8 Asbestos-Containing Waste Material: Any material which is or is suspected of being or any material contaminated with an asbestos-containing material which is to be removed from a work area for disposal.
- 1.2.9 Asbestos Debris: Pieces of ACBM that can be identified by color, texture, or composition, or means dust if determined by an accredited inspector to be ACM.

- 1.2.10 Asbestos Removal Encapsulant: A chemical solution used in place of amended water during asbestos removal to penetrate, bind, and encapsulate the asbestos-containing material.
- 1.2.11 Competent Person for Asbestos Abatement: Definition and responsibilities as set down in 29 CFR 1926.1101(b) and as outlined herein.
- 1.2.12 Disposal Bags: Properly labeled 6-mil thick leak-tight plastic bags used for transporting asbestos waste from regulated area to the disposal site.
- 1.2.13 Encapsulant (Sealant): A liquid material which can be applied to ACM and which controls the possible release of asbestos fibers from the material, either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).
- 1.2.14 Encapsulation: Application of an encapsulant to asbestos-containing building materials to control the possible release of asbestos fibers into the ambient air.
- 1.2.15 Friable ACM: A term as defined in CFR 40 Part 61, Subpart M and EPA 340/1-90-018 that means any material containing more than 1 percent asbestos as determined using the method specified in CFR 40 Part 763, Appendix A, Subpart F, Section 1, Polarized Light Microscopy, that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.
- 1.2.16 Glove Bag Technique: A method of limited application for removing small amounts of ACM from HVAC ducts, short piping runs, valves, joints, elbows, and other non-planar surfaces. The glove bag assembly is a manufactured or fabricated device typically constructed of 6-mil transparent plastic with two inwardly projecting, long-sleeved rubber gloves, one inwardly projecting waterwand sleeve, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glove bag is constructed and installed in such a manner that it surrounds the object or area to be decontaminated and contains all asbestos fibers released during the removal process. All workers who are permitted to use the glove bag technique must be highly trained, experienced, and skilled in this method.
- 1.2.17 Lockdown: Procedure of applying an encapsulant as a protective coating or sealant to a surface from which ACM has been removed in order to control and minimize airborne asbestos fiber generation that might result from residual asbestos-containing debris.
- 1.2.18 Negative Initial Exposure Assessment: A demonstration by the employer that employee exposure during an operation is expected to be consistently below the PEL.
- 1.2.19 Nonfriable ACM: A term as defined in CFR 40 Part 61, Subpart M and EPA 340/1-90-018 that means any material containing more than 1 percent asbestos as determined using the method specified in CFR 40 Part 763,

Appendix A, Subpart F, Section 1, Polarized Light Microscopy, that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

1.2.19.1 Category I Nonfriable ACM: A term as defined in CFR 40 Part 61, Subpart M and EPA 340/1-90-018 that means asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in CFR 40 Part 763, Appendix A, Subpart F, Section 1, Polarized Light Microscopy.

1.2.19.2 Category II Nonfriable ACM: A term as defined in CFR 40 Part 61, Subpart M and EPA 340/1-90-018 that means any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos as determined using the methods specified in Appendix A, Subpart F, CFR 40 Part 763, Section 1, Polarized Light Microscopy, that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

1.2.20 Permissible Exposure Limits (PELs): PELs shall be as determined using the SAMPLING AND ANALYTICAL PROCEDURE as promulgated in 29 CFR 1926.1101, Appendix A.

1.2.20.1 Time Weighted Average Limit: No employee shall be exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight (8) hour time-weighted average (TWA).

1.2.20.2 Excursion Limit: No employee shall be exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air as averaged over a sampling period of thirty (30) minutes.

1.2.21 Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with amended water or asbestos removal encapsulant and by afterwards disposing of these cleaning tools as asbestos-contaminated waste.

1.3 Terminology - Lead-Based Paint Abatement: The following commonly used terms for lead-based paint abatement are defined in the context of these specifications:

1.3.1 Action Level: Employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air ($30 \mu\text{g}/\text{m}^3$) averaged over an 8-hour period (eight (8) hour time-weighted average (TWA)).

1.3.2 Air Monitoring: The process of measuring lead content of a known volume of air in a stated period of time. The analytical method used to measure lead content by Flame Atomic Absorption (FAA) is the NIOSH 7082 or NIOSH 7300 Methods or XRF analysis.

- 1.3.3 Competent Person for LBP Abatement: One who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them.
- 1.3.4 Lead: A soft, very dense, malleable and ductile metallic element often used as a component in paint, pipe solder, and roof flashing.
- 1.3.5 Lead-Based Paint: Any paint layer containing greater than 600 parts per million (ppm) lead, or 1.0 milligrams per square centimeter.
- 1.3.6 Permissible Exposure Limits (PELs): An airborne concentration of lead of (50 µg/m³) calculated as an eight (8) hour time-weighted average (TWA).
- 1.3.7 Ventilation System: A local exhaust system, utilizing HEPA filtration capable of generating a constant air flow from adjacent areas into the Work Area, and discharging filtered exhaust from the Work Area.
- 1.3.8 Wet Cleaning: The process of eliminating lead dust contamination from surfaces and objects by using cloths, mops, or other cleaning tools with the use of phosphate cleaning detergent and by afterwards disposing of these cleaning tools as lead-contaminated waste.
- 1.3.9 Wipe Sampling: A sampling method used to determine if lead is present on horizontal surfaces. Samples are collected by gently wiping a commercial non-alcoholic moisture cloth in a “S” pattern over a predetermined square area and submitted for laboratory analysis. Clearance levels of lead on wipe samples shall be as indicated in the project documents. Wipe sample analysis is by Niton XRF or Atomic Absorption Spectrophotometry (AAS).

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION - 01071

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01301 - SUBMITTALS

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Administrative and procedural requirements for submittals required by technical specification sections for performance of the Work.
- 1.1.2 Summary of required submittals (included as an Appendix to this Section).

1.2 Administrative Submittals: Refer to Bidding Conditions and Conditions of the Contract for administrative submittal requirements.

1.3 Technical Submittal Document Requirements:

- 1.3.1 General Requirements: All submittals shall be made to the Engineer. Deviations and variations from the contract requirements contained in the submittal can be approved only by the Engineer. No delays in construction occasioned by the Contractor's failure to submit material for approval in accordance with this Section will be excused. Receipt of post project submittals is required before final payment can be authorized.
- 1.3.2 Copies: Unless noted otherwise, the Contractor shall submit to the Engineer one copy of each submittal for review and/or approval.
- 1.3.3 Type and Schedule of Submittals:
 - 1.3.3.1 Pre-Work Submittal - Provide pre-work submittal information within **7 calendar days** following date for Award of the Contract. Pre-Work submittal approval from the Engineer is required prior to mobilization to the project site.
 - 1.3.3.2 During-Work Submittal - Provide during the course of the work as required by respective specification submittal sections
 - 1.3.3.3 Post Project Submittal - Provide post project submittals within 14 calendar days of Substantial Completion.
- 1.3.4 Action on Submittals: The Engineer will review each submittal and where possible return within seven days of receipt. Each submittal will be marked and work may proceed as indicated below:

"Approved" - Work may proceed, provided it complies with contract documents, when submittal is marked "Approved".

"Approved As Noted" - Work may proceed, provided it complies with notations and corrections on submittal and with contract documents, when submittal is returned marked "Approved As Noted".

"Disapproved" - Do not proceed with work. Revise submittal in accordance with notations thereon, and resubmit without delay to obtain a different action marking.

"Action Not Required" - Where submittal is returned for other reasons it will be marked "Action Not Required".

- 1.3.5 Preparation of Submittal: Provide permanent marking on each submittal to identify project, date, Contractor, subcontractor, submittal name and similar information to distinguish it from other submittals. Package submittals in the order that they are requested. Provide an index page listing in order all submittals enclosed in the package.
- 1.3.6 Project Site Submittals: The Contractor shall have available for inspection on the project site one bound copy of all submittals required by the Contract Documents.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION - 01301

SECTION 01301
APPENDIX

SUMMARY OF REQUIRED SUBMITTALS

**APPENDIX
SECTION 01301
SUMMARY OF REQUIRED SUBMITTALS**

Following is a summary of submittals required by all Specification Sections included in the Project Manual. Use this summary as a checklist to insure you provide required submittals in a timely manner. Refer to respective Specification Section for specific information concerning content of submittals.

<u>PRE-WORK SUBMITTALS</u>		
<u>SPECIFICATION SECTION</u>	<u>PARAGRAPH</u>	<u>DESCRIPTION OF SUBMITTAL</u>
<u>Section 01012</u> General Work Requirements	1.16.1.1 1.16.1.2 1.16.1.3 1.16.1.4	Health and Safety Plan. Contingency Plan Site Specific Plan of Action Pre-Abatement Job Inspection Report .
<u>Section 01043</u> Project Coordination - Asbestos and LBP Abatement	1.6.1.1 1.6.1.2 1.6.1.3	Example Daily Log Form. Progress Schedule. Completed Emergency Telephone Numbers.
<u>Section 01061</u> Regulatory Requirements and Industry Standards - Asbestos and LBP Abatement	1.10.1.1	Proof of Pre-Abatement Notifications to Required Agencies.
<u>Section 01503</u> Temporary Facilities	1.3.1.1	Site plan indicating location of staging areas, fencing, and pedestrian barricades.
<u>Section 01513</u> Temporary Pressure Differential System	1.2.1.1	Descriptions and Numbers of AFDs.
<u>Section 01526</u> Work Area Enclosures - Asbestos Abatement	1.2.1.1 1.2.1.2	Material Safety Data Sheets (MSDS). Shop drawings of proposed work area layout and placement of equipment.
<u>Section 01527</u> Work Area Enclosures - LBP Abatement	1.2.1.1	Shop drawings of proposed work area layout and placement of equipment.

PRE-WORK SUBMITTALS (CONTINUED)

<u>SPECIFICATION SECTION</u>	<u>PARAGRAPH</u>	<u>DESCRIPTION OF SUBMITTAL</u>
<u>Section 01560</u> Worker Protection - Asbestos Abatement	1.4.1.1	Respiratory Protection Program
	1.4.1.2	Personnel Documentation and Training certificates.
	1.4.1.3	Physician's Statement
	1.4.1.4	Certificates of Worker's Release
	1.4.1.5	Respirator Fit Test Records
	1.4.1.6	Respiratory protection justification form.
	1.4.1.7	Compressor maintenance program.
<u>Section 01561</u> Worker Protection - LBP Abatement	1.4.1.1	Personnel Documentation, Training Certificates, Physician's Statement and Respirator Fit Test.
	1.4.1.2	Certificates of Worker's Release
<u>Section 01563</u> Decontamination Enclosure Systems	1.3.1.1	Shop drawings of proposed decontamination facilities.
<u>Section 02080</u> Removal of Asbestos Containing Materials	1.3.1.1	Manufacturer's literature on job related equipment and products.
<u>Section 02087</u> Removal of LBP	1.3.1.1	Manufacturer's literature on job related equipment and products.
<u>Section 02088</u> Load-Out and Disposal of LBP Wastes	1.2.1.1	Description of the plan for LBP waste disposal.
	1.2.1.2	Proof of Contractor's U.S. EPA Identification Number for storage, transportation, and disposal of hazardous waste.
<u>Section 02089</u> Load-Out and Disposal of ACM	1.2.1.1	Plan for ACM waste disposal.

DURING-WORK SUBMITTALS

<u>SPECIFICATION SECTION</u>	<u>PARAGRAPH</u>	<u>DESCRIPTION OF SUBMITTAL</u>
<u>Section 01012</u> General Work Requirements	1.16.2.1	Keys to the decontamination enclosure entrance.
<u>Section 01043</u> Project Coordination - Asbestos and LBP Abatement	1.6.2.1	Progress Schedule Update
	1.6.2.2	Special Reports. • Accident Reports • Discovered Conditions
<u>Section 01410</u> Air Monitoring, Inspection and Testing Requirements for Asbestos Abatement	1.7.1.1	Request For Services form for clearance air monitoring tests and milestone visual inspections.
<u>Section 01411</u> Air Monitoring, Inspection and Testing Requirements for LBP Abatement	1.8.1.1	Request For Services form for clearance air monitoring tests and milestone visual inspections.
<u>Section 01503</u>	1.3.2.2	Certification of temporary electrical services.
<u>Section 01513</u> Temporary Pressure Differential System	1.2.2.1	Strip chart record of the past 24-hour work activity.
<u>Section 01560</u> Worker Protection - Asbestos Abatement	1.4.2.1	Update of personnel documentation of new personnel.
<u>Section 01561</u> Worker Protection - LBP Abatement	1.4.2.1	Update of personnel documentation of new personnel.
<u>Section 01714</u> Clean-Up and Clearance Testing of Work Area - Asbestos Abatement	1.3.1.1	Request For Services form for milestone inspections and clearance air monitoring.
<u>Section 01715</u> Clean-Up and Clearance Testing of Work Area - LBP Abatement	1.3.1.1	Request For Services form for milestone inspections and clearance air monitoring.

POST PROJECT SUBMITTALS

<u>SPECIFICATION SECTION</u>	<u>PARAGRAPH</u>	<u>DESCRIPTION OF SUBMITTAL</u>
<u>Section 01043</u> Project Coordination - Asbestos and LBP Abatement	1.6.3.1	Post Project Documentation • Approved submittals. • Daily logs. • Special reports. • Inspection certifications. • Waste disposal receipts. • Daily work area strip charts.
<u>Section 01561</u> Worker Protection - LBP Abatement	1.4.3.1	personnel monitoring and employee exposure assessment
<u>Section 02088</u> Load-Out and Disposal of LBP Wastes	1.2.2.1 1.2.2.2	Receipts from the disposal facility operator. Copy of all hazardous waste manifests used for shipment.
<u>Section 02089</u> Load-Out and Disposal of ACM	1.2.2.1 1.2.2.2	Receipts from the landfill operator. Completed Waste Shipment Record forms.

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01410 - AIR MONITORING, INSPECTION AND TESTING REQUIREMENTS FOR ASBESTOS ABATEMENT

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Requirements for work area inspections.
- 1.1.2 Requirements for ambient air and clearance air monitoring.
- 1.1.3 Guideline criteria for issuance of a Stop Work Order.
- 1.1.4 Definition of time requirements for performance of required inspections, clearance sampling, and sample analysis.

1.2 Related Section:

- 1.2.5 Requirements for asbestos personal air monitoring - Section 01560 AIR MONITORING, INSPECTION AND TESTING REQUIREMENTS FOR ASBESTOS ABATEMENT.

1.3 Inspection Requirements And Responsibilities: Visual inspections are required to be performed at specified intervals to evaluate completeness of the Work. The Engineer will conduct the inspection and evaluate the work to see if it meets the criteria of the inspection. The Contractor shall be responsible for achieving the level of completeness of the Work necessary to meet the criteria of the inspection. The following paragraphs identify specific responsibilities for the Engineer and the Contractor.

1.3.1 Engineer:

- 1.3.1.1 The Owner will employ an Engineer to perform visual inspections to assess completeness of the Work. The Engineer will perform inspections, at his discretion, to evaluate the progress of the Work. The Engineer will perform specified milestone inspections upon written request by the Contractor.
- 1.3.1.2 The Engineer shall advise the Contractor of inspection results whenever questions arise concerning compliance with standards of quality and completeness of the Work.

1.3.2 Contractor:

- 1.3.2.1 The Contractor shall notify the Engineer in writing at least 24 hours in advance of required milestone visual inspections. The request shall be submitted on a Request for Services form. An example Request for Services form is included as an Appendix to this Section.
- 1.3.2.2 The Contractor is responsible for insuring the Work is complete to the level to meet the criteria of the inspection. The Contractor

shall perform an inspection of the Work to evaluate completeness prior to requesting an inspection by the Engineer.

1.3.2.3 By submission of a Request for Services form the Contractor attests he has inspected the Work and that the Work meets the criteria of the inspection.

1.3.2.4 The Contractor will be advised whenever questions arise concerning compliance with standards of quality and completeness of the Work, and shall use his best efforts to resolve any such questions to the satisfaction of the Engineer.

1.4 Work Area Air Monitoring Requirements And Responsibilities: Air monitoring will be performed before, during, and after asbestos abatement to document airborne asbestos fiber concentrations. In general, the Owner will be responsible for air monitoring outside the work area and for performing clearance testing. Additionally, the Owner may collect air samples inside the work area as he so desires. The following paragraphs identify specific responsibilities.

1.4.1 Owner:

1.4.1.1 The Owner will employ an industrial hygiene (IH) testing laboratory for air monitoring and clearance testing. The IH Technician(s) assigned to the monitoring will be supervised by a State of Florida licensed asbestos consultant (FLAC).

1.4.1.2 The IH Technician will collect ambient air samples during each shift from the work area at: the AFD exhaust, the decontamination enclosure clean room, and in adjacent non-work areas. Samples shall be collected and analyzed using NIOSH Method 7400.

1.4.1.3 The IH Technician will perform clearance air sampling at the written request of the Contractor. Air samples will be collected to demonstrate final re-occupancy clearance. The fiber concentration of each sample must comply with the specified clearance level when aggressive sampling techniques are used.

1.4.1.4 The IH Technician will conduct final re-occupancy clearance test sample analysis using Transmission Electron Microscopy (TEM) for gross removal areas and Phase Contrast Microscopy (PCM) or TEM for glove bag removal areas. Refer to Specification Section CLEAN-UP AND CLEARANCE TESTING OF WORK AREA.

1.4.1.5 The IH Technician will advise the Contractor of air monitoring test results upon receipt of the results from the IH Testing Laboratory. A copy of the IH Technician's air monitoring test results will be accessible to the Contractor, on request.

1.4.2 Contractor:

- 1.4.2.1 Where clearance area air monitoring tests are specified to be performed by the CIH or IH Technician, the Contractor shall notify the Engineer in writing at least 24 hours in advance of the required test. The request shall be submitted on a Request for Services form. An example Request for Services form is included as an Appendix to this Section.
- 1.4.2.2 By submission of a Request for Services form the Contractor attests he has prepared and inspected the work area, and that the Work meets the level of completeness required to perform clearance air monitoring.

1.5 Time Requirements For Owner's Inspections And Testing: Where visual inspections, air testing, or bulk sampling are required to be performed by the CIH or IH Technician, the Contractor shall allow for the following response/analytical time for completion of the inspection/test.

- 1.5.1 Visual Inspections: Allow 24 hours beginning from the time the Contractor's written request is received by the CIH or IH Technician for the performance of the inspection.
- 1.5.2 PCM Clearance: Allow 24 hours beginning from the time the Contractor's written request is received by the CIH or IH Technician to the beginning of the air test. Allow an additional six (6) hours after beginning the test for sample collection and analysis.
- 1.5.3 TEM Clearance: Allow 24 hours beginning from the time the Contractor's written request is received by the CIH or IH Technician to the beginning of the air test. Allow an additional two working days after beginning the test for sample collection and analysis.
- 1.5.4 Bulk Samples: Allow 24 hours beginning from the time the Contractor's written request is received by the CIH or IH Technician to the beginning of the bulk sampling. Allow an additional two working days after sample collection for report of analytical results.

1.6 Stop Work Order

- 1.6.1 Inside Work Area: The CIH shall issue a stop work order should the fiber count in work areas exceed the maximum allowable fiber concentrations specified for the type material being abated. Refer to Specification Section REMOVAL OF ASBESTOS-CONTAINING MATERIALS
- 1.6.2 Adjacent Non-Work Area: The CIH shall stop work in work areas should the fiber count in adjacent non-work areas exceed 0.01 f/cc of air or the background count (the greater of these two values will be used as the reference). Work shall not resume until the condition(s) causing the increase are corrected by the Contractor, affected areas have been cleaned as directed by the Engineer, and the Contractor receives written notice from the Engineer to resume work.

1.7 Submittals:

1.7.1 During-Work Submittal:

- 1.7.1.1** Notification submitted at least 24 hours in advance of required inspections or air monitoring tests to be performed by the Engineer.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

- 3.1 Pre-Removal Inspection:** Notify the CIH or IH Technician and request a pre-removal inspection prior to removal of any ACM. Requests shall be made for each work area. See Specification Section 01526 WORK AREA ENCLOSURES.
- 3.2 Background And Work Area Air Monitoring:** The CIH or IH Technician will perform ambient air monitoring of the work area as required by the Specifications.
- 3.3 Clearance Inspection And Air Monitoring:** Refer to Specification Section 01714 CLEANUP AND CLEARANCE TESTING OF WORK AREA for clearance inspections and testing to be performed by the CIH or IH Technician.

END OF SECTION - 01410

SECTION 01410

APPENDIX

REQUEST FOR SERVICES FORM



CONTRACTOR _____ MEI PROJECT NO. _____
PROJECT LOCATION _____ MEI IH TECH _____
BUILDING _____ WORK AREA _____

1. Request is made to provide the following service(s) at the time indicated:

Type of Service Requested	Schedule		Performed	
	Date	Time	Date	Time
Pre-Removal Inspection				
Preliminary Clean-up Inspection				
Initial Clearance Air Test				
Final Reoccupancy Inspection				
Final Reoccupancy Air Test				
For The Contractor:			For MEI:	
(Requested by)	(Received by)			
(Date)	(Time)	(Date)	(Time)	

2. Results of the above-requested service(s) are as follows: Pass Fail

For WESTON: Signature _____ Date _____ Time _____

3. I have been informed of the above results on _____ (date) _____ (time). I understand that if the results of the service(s) do not meet the specified criteria, the Contractor will be responsible for the cost of additional preparation, cleaning, and reperformance of the service at no additional cost to the Owner.

_____ yes _____ no

For The Contractor: Signature _____ Date _____ Time _____

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01411 - AIR MONITORING, INSPECTION AND TESTING REQUIREMENTS LBP ABATEMENT

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Requirements for work area inspections.
- 1.1.2 Requirements for ambient air monitoring.
- 1.1.3 Requirements for post-abatement wipe sample collection and testing.
- 1.1.4 Guideline criteria for issuance of a Stop Work Order.
- 1.1.5 Time requirements for performance of required inspections, clearance sampling, and sample analysis.

1.2 Related Section:

- 1.2.6 Requirements for lead personal air monitoring - Section 01561 AIR MONITORING, INSPECTION AND TESTING REQUIREMENTS FOR LEAD ABATEMENT.

1.3 Inspection Requirements And Responsibilities: The CIH or delegated representative is responsible for performance of visual inspections as required to evaluate completeness of the Work. The following paragraphs identify specific inspection requirements and responsibilities for the CIH and the Contractor.

- 1.3.1 CIH or delegated representative:
 - 1.3.1.1 The CIH or delegated representative shall perform visual inspections, at his discretion, to evaluate the progress of the work. The CIH or delegated representative will perform specified milestone inspections upon written request by the Contractor.
 - 1.3.1.2 The CIH or delegated representative shall advise the Contractor of inspection results whenever questions arise concerning compliance with standards of quality and completeness of the Work.
- 1.3.2 Contractor:
 - 1.3.2.1 The Contractor shall notify the CIH or delegated representative in writing at least 24 hours in advance of required milestone visual inspections.
 - 1.3.2.2 The Contractor is responsible for insuring the Work is complete to the level to meet the criteria of the inspection. The Contractor shall perform an inspection of the Work to evaluate

completeness prior to requesting an inspection by the CIH or delegated representative.

1.4 Post-Abatement Sampling Requirements And Responsibilities: Testing for lead shall be conducted on completion of abatement to determine whether abatement and cleanup is complete. The following paragraphs identify specific requirements and responsibilities for the Engineer and the Contractor.

1.4.1 Engineer:

1.4.1.1 The CIH or IH Technician shall conduct post-abatement wipe sampling for collection of dust from surfaces requiring abatement.

1.4.1.2 The CIH or IH Technician shall provide documentation of sample collection and analysis, and provide a statement of Contractor's compliance with LBP abatement clearance requirements. A copy of the Engineer's test results will be accessible to the Contractor on request.

1.4.2 Contractor:

1.4.2.1 The Contractor shall notify the CIH or IH Technician in writing at least 24-hours in advance of the required clearance sample collection.

1.4.2.2 The Contractor shall immediately correct deficiencies as noted by the CIH or IH Technician during inspection and testing of the work area.

1.5 Air Monitoring Requirements: Ambient air monitoring shall be conducted during the course of abatement to document air quality outside the abatement work area. The following paragraphs identify specific requirements and responsibilities for the CIH.

1.5.1 Engineer:

1.5.1.1 The CIH or IH Technician shall collect ambient air samples during each work shift. Requirements for sample collection and methods of analysis are defined in this Section.

1.5.1.2 The CIH or IH Technician will advise the Contractor of ambient air monitoring results upon receipt of the results from the Testing Laboratory. A copy of the Engineer's test results will be accessible to the Contractor, on request.

1.5.2 Contractor:

1.5.2.1 If the CIH or IH Technician reports unacceptable levels of lead particulate detected in ambient air the Contractor shall take immediate measures to locate and eliminate the source of emissions, and to clean areas that may have become contaminated as a result of LBP abatement work.

1.6 Time Requirements For Engineer's Inspections And Testing: Where visual inspections, bulk sampling, or dust sampling are required to be performed by the CIH or IH Technician, the Contractor shall allow for the following response/analytical time for completion of the inspection/test.

1.6.1 Visual Inspections: Allow 24 hours beginning from the time the Contractor's written request is received by the CIH or IH Technician for the performance of the inspection.

1.6.2 Wipe Samples: Allow 24 hours beginning from the time the Contractor's written request is received by the CIH or IH Technician to the beginning of the wipe sample test. Allow an additional one working day after beginning the test for sample collection and analysis.

1.7 Stop Work Order

1.7.1 Elevated Lead Emissions: The CIH shall issue a stop work order should the level of lead emissions in non-work areas adjacent to the de-leading work exceed one-tenth the Action Level ($3 \mu\text{g}/\text{m}^3$). Work shall not resume until the condition(s) causing the elevated lead emission levels are corrected by the Contractor, affected areas have been cleaned as directed by the Engineer, and the Contractor receives written notice from the Engineer to resume work.

1.8 Submittals:

1.8.1 During-Work Submittal:

1.8.1.1 Notification submitted at least 24 hours in advance of required inspections, air monitoring, or clearance sampling to be performed by the Engineer.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 Inspections: Notify the Engineer and request an inspection of the work area for the following:

3.1.1 Pre-Removal Inspection: Prior to removal of any lead-based paint request an inspection to be conducted by the Engineer. Requests shall be made for each work area. See Specification Section 01526 WORK AREA ENCLOSURES.

3.1.2 Post Abatement Inspection: On completion of abatement, and prior to final clearance dust wipe sample collection, request an inspection to be conducted by the Engineer. Requests shall be made for each work area to undergo clearance. See Specification Section 01715 CLEAN-UP AND CLEARANCE TESTING OF LBP WORK AREAS.

3.2 Owner's Ambient Air Monitoring: The Engineer or IH Technician will perform ambient air monitoring of the work area as required below:

3.2.1 LBP Removal: During de-leading operations the Engineer will collect ambient air samples. Air samples will be collected in the decontamination enclosure clean room, and from non-work areas that are directly adjacent to areas where lead abatement is being conducted.

3.2.1.1 Samples will be collected and analyzed using XRF analyzer or NIOSH Method 7082.

3.2.1.2 Sample results will be reported in $\mu\text{g}/\text{m}^3$.

3.3 Post-Abatement Clearance Sampling of LBP Abatement Surfaces: The Engineer will collect samples from surfaces included in the LBP abatement. For dust wipe samples use the “Single Surface Sampling” and “soil sampling” technique in accordance with HUD’s Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing” Chapter 15.

3.3.1 Clearance Wipe Sampling: The CIH or IH Technician will perform wipe sampling of surfaces included in the lead abatement work.

3.3.2 Sample Analysis: Dust samples will be analyzed by XRF analyzer or atomic absorption spectroscopy or inductively coupled plasma-emission spectroscopy, or other equivalent analytical methods. Sample results shall be reported in $\mu\text{g}/\text{ft}^2$.

3.3.3 Wipe Sample Clearance Levels: Final clearance wipe sample results shall be equal to following levels.

- 40 $\mu\text{g}/\text{ft}^2$ for all surfaces.

3.3.3 Wipe Sample Clearance Levels: Final clearance wipe sample results shall be equal to following levels.

- 400 $\mu\text{g}/\text{gm}$ (ppm) for soil sample.

END OF SECTION - 01411

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01503 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Requirements for providing temporary connection to existing building utilities.
- 1.1.2 Requirements for temporary staging facilities required for performance of the Work.

1.2 Utilities: Provide cutoffs and temporary utilities as necessary to perform the work.

- 1.2.1 Coordination: The Contractor shall coordinate all utility hook-up and cutoffs with FSU.
 - 1.2.1.1 Provide a minimum 48-hour advanced notice to CM for assistance in locating building utility cutoffs, location of emergency valve cutoffs, and tie-ins to existing building service.
- 1.2.2 Payment: Building utilities used by the Contractor during this work shall be paid for by the Owner.
- 1.2.3 Contractor's Qualifications: Use qualified tradesmen for utility cutoffs and installation of temporary service. Work shall be performed in a competent manner by qualified and appropriately trained and licensed tradesmen. Work involving electrical services shall be performed by a licensed electrician.
- 1.2.4 Location of Utilities: Locate temporary services where they will serve the entire project area and result in minimum interference with the performance of the Work.

1.3 Submittals:

- 1.3.1 Pre-Work Submittal:
 - 1.3.1.1 Site plan that indicates the location of proposed staging areas, fencing, pedestrian barricades.
- 1.3.2 During-Work Submittal:
 - 1.3.2.1 Provide within 24 hours after mobilization to the site a general area site plan showing the location of electrical, water, and wastewater tie-ins to be used by the Contractor. Also note the location(s) of any emergency cutoff valves in the work area.
 - 1.3.2.2 Provide certification within 24 hours after hook-up of temporary electrical service that connection to building utilities were made by a licensed electrician in accordance with NFPA 70, National Electric Code (NEC).

1.3.3 Post-Work Submittal:

- 1.3.3.1 Written certification that mechanical and electrical systems disturbed by the Contractor during work under contract have been reinstalled and are in proper working order.

PART 2 - PRODUCTS

2.1 Products: Provide materials and equipment required to satisfactorily perform the intended work.

- 2.1.1 Pedestrian Barricades: Barricades with signs designating area as a construction area. Barricades shall have an audible warning beeper and a barricade flasher light.
- 2.1.2 Water Hoses: Heavy-duty abrasion-resistant hoses. Provide fittings as required to allow for connection to existing wall hydrants or spouts, as well as temporary water heating equipment, branch piping, showers, shut-off nozzles and equipment.
- 2.1.3 Ground Fault Protection: Ground fault circuit interrupters (GFI) equipped with test button and reset switch.
- 2.1.4 Hot Water Heater: UL rated electric hot water heater to supply hot water for the decontamination enclosure system shower. Activate from circuit located on the GFI sub-panel. Provide with relief valve, drain pipe and drip pan compatible with water heater operation. Wiring of the hot water heater shall be in compliance with NFPA's National Electric Code (NEC).
- 2.1.5 Electrical Power Cords: Grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Use single lengths or use waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas of work.
- 2.1.6 Lamps and Light Fixtures: General service incandescent lamps or fluorescent lamps of wattage required for adequate illumination as required by the work, or as specified by this Section. Protect lamps with guard cages or tempered glass enclosures where fixtures are exposed to breakage by construction operations. Provide vapor tight fixtures in work area and decontamination units. Provide exterior fixtures where fixtures are exposed to the weather or moisture.
- 2.1.7 Self-Contained Toilet Units: Self-contained toilet units of the chemical type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar non-absorbent material.
- 2.1.8 Water Filtration System: System capable of filtering and retaining particles larger than 5.0 microns in size.
- 2.1.9 Water Storage Tank: Provide a tank to store all wastewater generated in the LBP abatement areas.

PART 3 - EXECUTION

3.1 Electrical Service: The Contractor shall contact CM to determine an acceptable location to access power service. The Contractor shall be responsible for connection to the service and distribution of electrical power to his work areas.

- 3.1.1 Electrical Service: Insure compliance with applicable standards of NFPA 70, NEC; local building codes; and regulations governing equipment, materials, layout, and installation of temporary electric service.
- 3.1.2 Lockout: Lockout all existing power to or through the work area as described below. Unless specifically noted otherwise, existing power and lighting circuits to the work area are not to be used. All power and lighting to the work area and decontamination facilities are to be provided from a temporary electrical panel described below.
 - 3.1.2.1 Lockout power to work area by switching off all breakers serving power or lighting circuits in work area. Label breakers with tape over breaker with notation "DANGER - CIRCUIT BEING WORKED ON". Lock panel and have all keys under control of the Site Superintendent and CM.
- 3.1.3 Ground Fault Protection: Provide ground fault circuit interrupters (GFIs) for all circuits to be used for any purpose during the Work.
- 3.1.4 Temporary Electrical Sub-Panel: Provide temporary electrical sub-panel sized and equipped to accommodate all electrical equipment and lighting required by the work. Connect temporary sub-panel to existing building electrical system. Protect all circuits on temporary sub-panel with GFIs. Locate sub-panel outside the work area.
- 3.1.5 Electrical Service for IH Technician: Provide three wire grounded 110 volt outlets (up to five (5) outlets) within 50 feet of any location inside or adjacent the work area the IH Technician is required to monitor. The Contractor shall coordinate with the IH Technician to determine outlet placement requirements.
- 3.1.6 Lighting: Provide sufficient temporary lighting within the work area and decontamination enclosure system to insure good working conditions. All temporary service shall originate from the temporary electrical sub-panel described above.

3.2 Water/Sewer Hookup:

- 3.2.1 Water Service: The Owner will provide one water service hookup for use by the Contractor. CM will indicate the tap location. The Contractor shall be responsible for connection to the service and distribution of water to his work areas.
- 3.2.2 Wastewater from Asbestos Abatement Work Area: All water used by the Contractor during asbestos abatement activities shall be collected and passed through a water filtration system prior to being discharged into the

sanitary sewer. The Contractor shall contact CM to determine the acceptable location(s) to access the sanitary sewer. The Contractor shall be responsible for connection to the sanitary sewer, and for providing piping, pumps, water filtration systems, and other items necessary to collect, transport, filter, and dispose of the wastewater.

- 3.2.3 Wastewater from LBP Abatement Work Area: Water used inside the abatement work area shall be collected, passed through a water filtration system, and pumped into a storage tank for characterization prior to disposal. The Contractor shall be responsible for providing piping, pumps, water filtration systems, portable tanks, and other items necessary to collect, transport, filter, store, and dispose of the wastewater.

- 3.3 Emergency Cutoffs:** Request assistance from FSU to locate cutoff valves for utilities in the work area. Locate, record, and post location of cutoffs for natural gas, water, chilled water, and heating system piping. In the event of a leak or line rupture, shut off valve to respective line.

END OF SECTION - 01503

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01513 - TEMPORARY PRESSURE DIFFERENTIAL SYSTEM

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Equipment specification and use of pressure differential systems related to asbestos abatement.

1.2 Submittals:

1.2.1 Pre-Work Submittal:

- 1.2.1.1 Description and number of AFDs to be used. Calculations to determine the number of machines needed to provide specified number of air changes for each work area.

1.2.2 During-Work Submittal:

- 1.2.2.1 Strip chart record of the work area differential air pressure readings. Submit chart each day for the previous 24-hour period.

PART 2 - PRODUCTS

2.1 Equipment:

- 2.1.1 Air Filtration Device (AFD): Provide AFDs for local exhaust ventilation and work area air filtration. AFDs shall be equipped with high efficiency particulate air (HEPA) filtration systems that comply with ANSI Z9.2. Provide units equipped with:

- 2.1.1.1 Magnehelic gauge or manometer to measure the pressure drop across filters and indicate when filters have become loaded and need to be changed. A table indicating the usable air-handling capacity for various static pressure readings on the Magnehelic gauge shall be affixed near the gauge for reference, or the Magnehelic reading indicating at what point the filter should be changed, noting cubic feet per minute (CFM) air delivery at that point.
- 2.1.1.2 Electrical (or mechanical) lockout to prevent fan from operating without a HEPA filter.
- 2.1.1.3 Automatic shutdown system to stop fan in the event of a rupture in the HEPA filter or blocked air discharge.
- 2.1.1.4 Audible alarm if unit shuts down due to operation of safety systems.
- 2.1.1.5 Equipment provided shall carry approval of the National Electrical Manufacturers Association (NEMA) and Underwriter's Laboratories (UL). Each unit is to be equipped

with overload protection. The motor, fan, fan housing, and cabinet are to be grounded.

- 2.1.2 Differential Air Pressure Recording Device: Provide a differential pressure meter equipped with a continuous strip recorder. The meter shall be equipped with a warning buzzer which will sound if pressure differential drops below 0.02" of water. Differential Air Pressure Recorders shall carry a label indicating the last date of factory calibration.
- 2.1.3 HEPA Filters: AFD equipment shall have new unused HEPA and pre-filters installed prior to mobilization to project site.

PART 3 - EXECUTION

3.1 General: Negative pressure systems shall be operated in accordance with "Specifications and Operating Procedures for the use of Negative Pressure Systems for Asbestos Abatement," Guidance for Controlling Asbestos-Containing Materials in Buildings, EPA Document 560/5-85/024 (June 1985).

3.2 Negative Air Pressure Requirements:

- 3.2.1 Pressure Differential Requirements: Provide a fully operational negative pressure/pressure differential system with any contained work area. The system shall be capable of maintaining a continuous pressure differential of -0.02 to -0.05 inches of water relative to any surrounding non-work area building space when measured across work area enclosures.
- 3.2.2 Ventilation Requirements: Provide fully operational negative pressure/pressure differential systems supplying a minimum of a one air change every 15.0 minutes (4 air changes per hour) during removal of friable and non-friable ACM.
- 3.2.3 Number of Units: Determine number of units needed to achieve ventilation requirement using the following calculation:
 - 3.2.3.1 Calculate the total air flow movement required:
$$\text{Required Ventilation (CFM)} = \frac{\text{Vol. of work area in ft}^3}{\text{minutes for each air change}}$$
 - 3.2.3.2 Calculate the number of AFDs needed for the abatement:
$$\text{No. of AFDs required} = \frac{\text{Required Ventilation CFM}}{\text{capacity of AFD in CFM}}$$
 - 3.2.3.3 Provide one additional unit as a backup in case of equipment failure or machine shutdown for filter changing. The backup AFD unit shall be completely installed and ready for operation.

3.3 Use And Operation Of Negative Pressure System:

- 3.3.1 Electrical Requirements: AFDs shall be serviced by a dedicated minimum 115V-20A circuit with ground fault circuit interrupter (GFI) supplied from

temporary power supply installed under requirements of Specification Section 01503 TEMPORARY FACILITIES.

3.3.2 System Setup: The following guidelines shall be used during installation of the negative pressure/pressure differential system:

- 3.3.2.1 AFDs shall have new filters prior to mobilization to project site.
- 3.3.2.2 Install AFDs after sealing and plasticizing the enclosed work area and before any disturbance of ACM.
- 3.3.2.3 Arrange location of AFDs and the decontamination enclosure system location so that the majority of makeup air comes through the decontamination enclosure unit.
- 3.3.2.4 Provide supplemental makeup air inlets where required for proper air flow through the work area. Make openings in the plastic sheeting to allow air from outside the building into the work area. Insert HEPA filters in openings to minimize potential for a fiber release through openings. Locate auxiliary makeup air inlets as far as possible from AFDs, and away from barriers separating occupied non-work areas.
- 3.3.2.5 Mount units to exhaust directly to the outdoors. Remove window or door. Cut and install plywood barrier to fit securely inside the opening. Cut hole in plywood and mount AFD exhaust duct into hole to permit discharge of AFD exhaust to the outside air.
- 3.3.2.6 AFD exhaust discharge shall be located at a place where it will not be re-entrained in the HVAC system makeup air stream.
- 3.3.2.7 The Contractor is responsible for isolating the work areas and obtaining clean air as make-up air for the negative air pressure system so that other ACM in adjacent building areas will not adversely affect daily work proceedings or final clearance testing.
- 3.3.2.8 Use inflatable, disposable plastic ductwork or spiral wire-reinforced flex duct if necessary for discharge of exhaust air to the outside. Use lengths not greater than 100 feet. Use only new disposable ductwork of the same diameter or larger than discharge connection on fan unit.
- 3.3.2.9 Differential pressure recorders shall be placed outside the work area. Locate unit(s) on the opposite side of the work area from AFD(s), if practicable. Provide two (2) differential pressure recorders for work areas greater than 1,000 square feet floor area.

3.3.3 Testing of System: Test pressure differential system before any asbestos-containing material is wetted or removed. After the work area has

been prepared, the decontamination facility set up, and the AFD(s) installed, start the unit(s) one at a time. Demonstrate operation and testing of pressure differential system to the Engineer during the Pre-Removal Inspection.

3.3.4 Operation of System: The following guidelines shall be used during operation of the negative pressure/pressure differential system:

3.3.4.1 AFD exhaust from the work area shall be sufficient to provide specified work area ventilation, and to maintain the required negative pressure (vacuum) in the work area with respect to the adjacent surrounding non-work areas.

3.3.4.2 Start AFDs prior to disturbance of any asbestos-containing material. After abatement work has begun, AFDs shall not be shut down until the work area is released to the Owner following completion of final clearance procedures.

3.3.4.3 Provisions shall be made to change filters without releasing captured asbestos fibers to the surroundings.

3.3.4.4 Continuously monitor and record the pressure differential between the work area and the building outside of the work area. Provide strip chart record that covers the previous 24-hour period. Mark record with work area name, location of chart recorder, date of recording, and start of time for the recording. Indicate on the chart record, for each day, time for starting and stopping abatement work, and type(s) of work in progress. Cut printout into segments by day and attach to 8 1/2" by 11" paper (see Paragraph "Submittals" this Section).

3.3.5 AFD Failure or Power Outage: On loss of negative pressure, failure of AFD equipment, or electric power outage, abatement shall stop immediately and shall not resume until power is restored and AFDs are operating again. When power failure or loss of AFD equipment lasts or is expected to last longer than one hour, perform the following:

3.3.5.1 Seal make-up air inlets airtight

3.3.5.2 Seal the decontamination enclosure systems airtight after evacuation of workers and/or authorized visitors from the work area.

3.3.6 Dismantling the System: AFDs may be removed from the work area after Final Re-occupancy clearance has been granted. Decontaminate exterior of machine and seal intake to the machine with 6-mil polyethylene sheeting and tape to prevent environmental contamination from the filters. Plastic flexible ductwork shall be disposed as ACM.

END OF SECTION - 01513

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01526 - WORK AREA ENCLOSURES - ASBESTOS ABATEMENT

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Specification of material, equipment, and procedures for construction of:
 - 1.1.1.1 Glove bag removal work areas;
 - 1.1.1.2 Floor tile and mastic removal work areas;
 - 1.1.1.3 Gross removal work areas;
 - 1.1.1.4 Exterior contained work areas

1.2 Submittals:

- 1.2.1 Pre-Work Submittal:
 - 1.2.1.1 Material safety data sheets for all chemicals to be used during the work.
 - 1.2.1.2 Shop drawings showing the locations of proposed work, the limits of the work area(s), and the work area layout. Drawings shall indicate routes for access to the work area, routes for ACM waste load-out, staging areas, and proposed location of the decontamination systems, fire control equipment, and location of the AFDs and pressure differential recorders.

1.3 Work Area Construction Requirements:

- 1.3.1 Regulation Requirements: Materials and methods used during construction of an asbestos abatement work area shall conform to requirements as specified in OSHA 29 CFR 1926.1101; EPA Standard 40 CFR 61, Subpart M; NFPA 241; applicable state and local building codes; and requirements specified herein.
- 1.3.2 Construction Materials:
 - 1.3.2.1 Flame-retardant plastic sheeting shall be used whenever plastic sheeting is specified for installation on an interior building surface. Waste disposal bags or wrappings are not required to be flame retardant.
- 1.3.3 Signage: All required signs shall be provided in English. Provide additional warning signs and emergency exit signs with text in a language(s) to accommodate and be clearly understood by the Contractor's workers that do not speak English.

PART 2 - PRODUCTS

2.1 Materials: Materials furnished under this section shall be standard products of manufacturers regularly engaged in the production of the items.

- 2.1.1 Fire-Retardant Plastic: Plastic or polyethylene sheet used for general work area plasticizing shall be minimum 6-mil flame retardant plastic sheeting that meets the NFPA 701 Large-Scale test requirements.
- 2.1.2 Duct Tape: Duct tape shall be capable of sealing joints of adjacent sheets of plastic sheeting and shall be capable of adhering under both dry and wet conditions. Minimum physical properties: adhesion to steel - 45 oz./in width ASTM D-3330; tensile strength at break - 36 lbs./in. width ASTM D-3759; elongation at break - 10% ASTM D-3759.
- 2.1.3 Foam Sealant: Foam Sealant shall be expanding urethane Class 1 foam sealant with a Underwriters Laboratories, Inc. (U.L. 723) flame spread index of 25 or less, smoke developed index of 0, and a minimum operating temperature range between -100°F and 250°F.
- 2.1.4 Silicone Sealant: Silicone Sealant shall be single component, solvent curing silicone sealant with 25% elongation capacity.
- 2.1.5 Caulking Sealant: Caulking sealant shall be single component, non-sag elastomer, and shall meet the requirements of Federal Specification TT-S-00230C, Class A Type II.
- 2.1.6 Plywood: Plywood used for temporary partitions shall be minimum 3/8-inch C-D exterior grade.
- 2.1.7 Spray Adhesive: Spray Aerosol Adhesive shall be specially formulated to stick to sheet polyethylene. The product shall contain no methylene chloride or restricted chlorofluorocarbons (CFCs).
- 2.1.8 Signs:
 - 2.1.8.1 Warning Signs shall be posted at the perimeter of the work area prior to abatement operations in accordance with OSHA Standard 29 CFR 1926.1101. Danger sign format and color shall conform to OSHA Standard 29 CFR 1926.200. The signs shall display the legend indicated below:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE
CLOTHING ARE REQUIRED IN THIS AREA
 - 2.1.8.2 Warning Signs printed in an alternate language(s) shall be provided to accommodate the Contractor's non-English speaking workers.

2.1.9 Other Materials: All other materials, such as lumber, plywood, tools, adhesive, nails, hardware, etc., required to perform the work described in this Section shall be provided. Materials and equipment shall be new or used, uncontaminated by asbestos, in serviceable condition, and appropriate for the intended purpose.

2.2 Equipment: Equipment furnished under this section shall conform to applicable federal and state regulations, local codes, and the requirements specified herein.

2.2.1 Communication Equipment: Devices suitable for inter-room communications, such as "walkie-talkies" or "radio band" communicators shall be provided.

2.2.2 Fire Extinguisher: Type "ABC" dry chemical extinguisher or a combination of several extinguishers of NFPA recommended types for the fire hazard exposures in each extinguisher location shall be provided. Minimum size of extinguisher shall be 4-A, and 40-B:C.

2.2.3 Smoke Detectors: Smoke detectors of the battery powered ionization type.

2.3 Facilities:

2.3.1 Temporary Partitions: Temporary partitions shall extend from the floor to the ceiling and form an airtight seal. They shall be built using wood or metal framing at 24-inch on-center faced with plywood sheathing on both sides, and shall be braced as necessary. Both sides of the temporary partition shall be covered with a double layer of 6-mil plastic sheeting, with joints staggered and sealed with tape. Edges of the temporary partition at the floor, walls, and ceiling shall be taped and caulked airtight.

2.3.2 Temporary Enclosures: Construct using wood, metal or plastic pipe framing with plastic sheeting mounted on the interior of the work area. Provide curtain doors for entrance into temporary enclosures.

PART 3 - EXECUTION

3.1 Preparation of Work Area: The following Subparagraph "General Preparations" outlines procedures applicable to all contained work areas.

3.1.1 General Preparations: General preparations shall be performed in the sequence as listed below. Coordinate with work area preparation requirements for floor tile removal, gross removal, glove bag removal or non-contained work areas, as appropriate.

3.1.1.1 Request that the IH Technician perform area monitoring and establish a background count prior to the masking and sealing operations for each removal area.

3.1.1.2 Establish a non-contained regulated area. Totally restrict access into the work area. Provide Warning Signs at each locked door leading to the work area. Erect barricades and post notices,

directional signs, and warning signs as necessary to inform building occupants and pedestrians of construction hazards.

- 3.1.1.3 Provide and install decontamination enclosure systems (see Specification Section 01563 DECONTAMINATION ENCLOSURE SYSTEMS). Coordinate the location of the facility with the Engineer.
- 3.1.1.4 Shut down, disconnect, and lock out or tag all electric power to the work area so that there is no possibility of its reactivation until after clearance testing of the work area. Hook-up temporary power.
- 3.1.1.5 Install temporary lighting within the work area and decontamination enclosure systems.
- 3.1.1.6 Shut down, isolate, and lock out or tag heating, ventilating, and air conditioning (HVAC) systems which serve or which pass through the work area. Install critical seals on HVAC registers, grills and diffusers.
- 3.1.1.7 Install critical seal plastic sheeting on window and door openings along the perimeter walls of the work area.
- 3.1.1.8 Seal floor drains, sumps and other collection devices with plastic sheeting and plywood, as necessary, and provide a system to collect all water used by the Contractor. Collected water shall be passed through a water filtration system prior to being discharged into the sanitary sewer (see Specification Section 01503 TEMPORARY FACILITIES).
- 3.1.1.9 Ensure that the Contractor's communication equipment is in place, in operating condition, and in operation during the Work.
- 3.1.1.10 Separate by means of airtight barriers (temporary partitions) parts of the building that are not included in the work area(s) from parts of the building that will undergo asbestos abatement. Install temporary partitions in open doorways, cased openings, and corridors that will not be used for passage during work.
- 3.1.1.11 Isolate elevators shafts by installing an air tight barrier to seal the door on each floor level.
- 3.1.1.12 Completely seal airtight and isolate the work area. All openings, including but not limited to doorways, windows, tunnels, ducts, grilles, and diffusers shall be covered with plastic sheeting and taped airtight. Smaller openings through which pipe conduit passes, cracks, and other small penetrations of the work area shall be sealed using foam sealant.
- 3.1.1.13 Maintain emergency and fire exits from the work areas or establish alternative exits satisfactory to the local fire officials.

Mark with luminescent paint on work area plastic barriers an outline of exit door(s). Hang a razor knife on a string beside outline. Paint words "EMERGENCY EXIT" with luminescent paint inside the door outline. Modify emergency exit door as necessary so it is secure from outside the work area but permits exiting from the work area. Exits shall be checked daily against exterior blockage or impediments to exiting.

3.1.1.14 Piping systems designated for abatement work are to be shut down, cooled, and de-pressurized during removal work.

3.1.2 Gross Removal Area Preparations: To prepare a contained work area for gross removal asbestos abatement perform the following preparations in conjunction with those outlined in Paragraph "General Preparations" of this Section.

3.1.2.1 Work Area Precleaning Procedures: After establishing the decontamination enclosure systems, preclean and prepare the work area:

- a. Movable and loose items not removed by the Owner from work areas shall be removed and discarded as non-asbestos waste.
- b. Joints of covers or casings shall be sealed with tape and fixed objects enclosed with a minimum of two layers of 6-mil plastic sheeting and sealed airtight with tape. Disassembly of these fixed objects is not required unless otherwise noted.
- c. The work areas shall be cleaned using HEPA vacuum equipment and/or wet cleaning methods, as appropriate, prior to being plasticized.

3.1.2.2 Plasticize the work area after precleaning using the following procedure:

- a. Cover floor with one layer of plastic sheet, turning layer a minimum of 16 inches up wall, and sealing to the wall.
- b. Cover walls with one layer of plastic sheet, lapping wall layer a minimum of 16 inches over floor layer, and sealing wall layer to floor layer.
- c. Repeat procedure for second layer. All joints in plastic sheets shall be glued and taped in such a manner as to prohibit air passage. Joints on plastic layers shall be staggered to reduce the potential for water to penetrate.
- d. Mechanically support sheet plastic at top of walls with plywood squares or tack strips. Support plastic sheeting at

each end seam, each room corner, and at a maximum four (4) feet on-center.

- e. Form sharp right angle bends in plastic sheeting at junction of floor and wall. Spray-glue and duct tape all seams in plastic sheeting covering floor. Install sheeting so that top layer can be removed independently of bottom layer.
- f. Acoustical ceilings not scheduled for demolition, or other ceiling finishes likely to become contaminated, shall be covered with one layer of plastic sheet.

3.1.2.3 Install and initiate operation of air filtration devices (see Specification Section 01513 TEMPORARY PRESSURE DIFFERENTIAL SYSTEM).

3.1.2.4 Where areas above finish ceilings are considered contaminated, complete all work area preparations and perform a pre-finish ceiling removal inspection prior to breaching the ceiling. After approval from the CIH or IH technician, remove the ceiling to the extent necessary to complete sealing and plasticizing the work area.

3.1.3 Flooring Removal Area Preparations: To prepare a contained work area for removal of asbestos-containing floor tile and mastic adhesive, perform the following preparations in conjunction with those outlined in Subparagraph "General Preparations" of this Section. This requirements are in the area where only flooring material will be removed, when other ACM to be removed is present in the work area, gross removal work area preparation requirements will apply.

3.1.3.1 Establish a contained work area using temporary partitions or plastic barriers, as appropriate.

3.1.3.2 Remove base board and carpet for and disposal as non-asbestos waste if no flooring material is removed with carpet.

3.1.3.3 Install and initiate operation of air filtration devices (see Specification Section 01513 TEMPORARY PRESSURE DIFFERENTIAL SYSTEM).

3.1.3.4 Plasticizing of the work area other than critical seals over openings are not required.

3.1.4 Glove Bag Removal Area Preparations: To prepare a contained work area for asbestos removal using the glove bag technique performs the following preparations in conjunction with those outlined in Subparagraph "General Preparations" of this Section.

3.1.4.1 Establish a contained work area using temporary partitions or plastic barriers, as appropriate.

- 3.1.4.2 Preclean any gross contamination from the immediate work areas using HEPA vacuum equipment and/or wet cleaning methods as appropriate.
- 3.1.4.3 Cover the floor and other horizontal surfaces within ten feet of the glove bag operation with one layer of 6-mil plastic sheet.
- 3.1.4.4 Prepare insulation sections to be removed by placing one layer of duct tape securely over punctures through pipe lagging, or other areas of damage. Then place one layer of duct tape around the pipe at each location where the glove bag will be attached.
- 3.1.4.5 Prepare damaged insulation or pipe sections to be removed by wrapping the entire length of the pipe in 6-mil plastic sheet and "candy-stripe" it with duct tape.
- 3.1.4.6 Install and initiate operation of air filtration devices (see Specification Section 01513 TEMPORARY PRESSURE DIFFERENTIAL SYSTEM).
- 3.1.5 Exterior Enclosure Contained Work Area Construction: Construct exterior enclosures by using temporary barriers as necessary to completely enclose the work. Attach to existing building components or brace as necessary for lateral stability. Construct walls to meet building code requirements for construction of temporary buildings. As a minimum, construct to resist a wind velocity pressure of 17 pounds per square foot. Slope ceiling to permit drainage of rain water.

3.2 Fire Protection Equipment:

- 3.2.1 Fire Extinguisher: A minimum of one extinguisher shall be provided for every 1,500 square feet of floor area, with a maximum travel distance to an extinguisher of 75-feet. At least one extinguisher shall be provided in each decontamination enclosure. The extinguisher shall be placed in the clean room.
- 3.2.2 Smoke Detectors: Provide at a rate of one per 5,000 square feet, with a minimum of one smoke detector in the decontamination enclosure clean room, and one in the work area.

3.3 Pre-Removal Inspections: Notify the Engineer and request a Pre-Removal inspection after completion of work area preparations.

- 3.3.1 Pre-Finish Ceiling Removal Inspection: In areas where the plenum above the finish ceiling is considered contaminated, the finish ceiling shall remain intact until the work area preparations below the ceiling level are complete. Prior to the removal of any finish ceiling in the work area the Contractor shall notify the CIH or IH technician and request a Pre-Finish Ceiling removal inspection. Posting of warning signs, construction of temporary partitions, plasticizing of the work area, building of personnel and equipment decontamination enclosure systems, activation of AFDs, and all

other preparatory steps shall have been completed prior to notification of the Engineer.

- 3.3.2 Pre-Removal Inspection: Prior to removal of any ACM the Contractor shall notify the Engineer and request a pre-removal inspection. Posting of warning signs, construction of temporary partitions, plasticizing of work area, building of personnel and equipment decontamination enclosure systems, and all other preparatory steps shall have been taken prior to notification of the Engineer. The Contractor shall not begin asbestos removal until the Engineer approves the work area preparations.

3.4 Maintenance of Contained Work Area and Decontamination Enclosure Systems:

- 3.4.1 Inspection of Barriers: Ensure that barriers and plastic linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon their discovery. Visually inspect enclosures at the beginning and end of each work period. Use smoke methods to test effectiveness of barriers.
- 3.4.2 Repair of Damaged Polyethylene Sheeting: Remove and replace plastic sheeting which has been damaged by removal operations or where the seal has failed allowing water to seep between layers. Remove affected sheeting and wipe down entire area. Install new sheet plastic only when area is completely dry.
- 3.4.3 Thoroughly clean the decontamination enclosure systems at the end of each 8-hour work shift, and more frequently if required.

END OF SECTION - 01526

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01527 - WORK AREA ENCLOSURES - LBP ABATEMENT

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Specification of material, equipment, and procedures for construction of a non-contained Lead removal work area.
- 1.1.2 Specification of material, equipment, and procedures for construction of a contained Lead removal work area.

1.2 Submittals:

- 1.2.1 Pre-Work Submittal:
 - 1.2.1.1 Shop drawings showing the locations of proposed work, the limits of the work area, and the work area layout. Drawings shall indicate routes for access to the work area, routes for Lead waste load-out, staging areas, and proposed location of the decontamination systems.

1.3 Work Area Construction Requirements:

- 1.3.1 Regulation Requirements: Materials and methods used during construction of lead abatement work area shall conform to requirements as specified in OSHA 29 CFR 1926.62; NFPA 241; applicable state and local building codes; and requirements specified herein.
- 1.3.2 Construction Materials: Flame-retardant plastic sheeting shall be used whenever plastic sheeting is specified. Waste disposal bags or wrappings are not required to be flame retardant.
- 1.3.3 Signage: All required signs shall be provided in English. Provide additional warning signs and emergency exit signs with text in a language(s) to accommodate and be clearly understood by the Contractor's workers that do not speak English.

PART 2 - PRODUCTS

2.1 Materials: Materials furnished under this section shall be standard products of manufacturers regularly engaged in the production of the items.

- 2.1.1 Fire-Retardant Plastic: Plastic or polyethylene sheet used for general work area plasticizing shall be minimum 6-mil flame retardant plastic sheeting that meets the NFPA 701 Large-Scale test requirements. Plastic sheet used for a visual barrier shall be opaque.
- 2.1.2 Duct Tape: Duct tape shall be capable of sealing joints of adjacent sheets of plastic sheeting and shall be capable of adhering under both dry and wet conditions. Minimum physical properties: adhesion to steel - 45 oz./in

width ASTM D-3330; tensile strength at break - 36 lbs./in. width ASTM D-3759; elongation at break - 10% ASTM D-3759.

2.1.3 Plywood: Plywood used for temporary partitions shall be minimum 3/8-inch C-D exterior grade.

2.1.4 Spray Adhesive: Spray Aerosol Adhesive shall be specially formulated to stick to sheet polyethylene. The product shall contain no methylene chloride or restricted chlorofluorocarbons (CFCs).

2.1.5 Signs:

2.1.5.1 Warning Signs shall be posted at the perimeter of the work area prior to abatement operations in accordance with OSHA Standard 29 CFR 1926.62. Danger sign format and color shall conform to OSHA Standard 29 CFR 1926.200. The signs shall display the legend indicated below:

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING

2.1.5.2 Warning Signs printed in an alternate language(s) shall be provided to accommodate the Contractor's non-English speaking workers.

2.1.6 Other Materials: All other materials, such as lumber, plywood, tools, adhesive, nails, hardware, etc., required to perform the work described in this Section shall be provided. Materials and equipment shall be new or used, uncontaminated, in serviceable condition, and appropriate for the intended purpose.

2.2 Equipment: Equipment furnished under this section shall conform to applicable federal and state regulations, local codes, and the requirements specified herein.

2.2.1 Fire Extinguisher: Type "ABC" dry chemical extinguisher or a combination of several extinguishers of NFPA recommended types for the fire hazard exposures in each extinguisher location shall be provided. Minimum size of extinguisher shall be 4-A, and 40-B:C.

PART 3 - EXECUTION

3.1 Preparation of LBP Abatement Work Area

3.1.1 Non-Contained Work Area: Establish a non-contained LBP abatement area where contaminated soil and removal will be performed. The following preparations shall be performed in the sequence noted.

3.1.1.1 Establish a regulated area by providing a roped-off perimeter around the area where the soil is to be removed and handled. A minimum distance of 25-feet in any direction from the subject item shall be designated as the regulated area. Erect barricades

and post notices and warning signs around the perimeter of the regulated area as necessary to inform pedestrians and motorists of construction hazards.

- 3.1.1.2 Provide and install a remote decontamination enclosure system (see Specification Section 01563 DECONTAMINATION ENCLOSURE SYSTEM). Coordinate the location of the decontamination enclosure with the CIH or IH technician.
- 3.1.2 Contained Work Area: Perform preparatory steps as listed above for non-contained work areas. Then proceed with the following preparations in the sequence noted.
 - 3.1.2.1 Separate by means of airtight barriers (temporary partitions) parts of the building that are not included in the work area(s) from parts of the building that will undergo lead abatement. Install temporary partitions in open doorways, cased openings, and corridors that will not be used for passage during work.
 - 3.1.2.2 Completely seal airtight and isolate the work area. All openings, including but not limited to doorways, windows, tunnels, ducts, grilles, and diffusers shall be covered with plastic sheeting and taped airtight.
 - 3.1.2.3 Maintain emergency and fire exits from the work areas or establish alternative exits satisfactory to the local fire officials. Mark with luminescent paint on work area plastic barriers an outline of exit door(s). Hang a razor knife on a string beside outline. Paint words "EMERGENCY EXIT" with luminescent paint inside the door outline. Modify emergency exit door as necessary so it is secure from outside the work area but permits exiting from the work area. Exits shall be checked daily against exterior blockage or impediments to exiting.
 - 3.1.2.4 The work areas shall be cleaned using HEPA vacuum equipment and/or wet cleaning methods, as appropriate, prior to being plasticized.
 - 3.1.2.5 Seal all critical openings in the work area after pre-cleaning using two layers of plastic sheeting.
 - 3.1.2.6 Install and initiate operation of air ventilation devices (see Specification Section 01513 TEMPORARY AIR VENTILATION SYSTEM).

3.2 Fire Protection Equipment:

- 3.2.1 Fire Extinguisher: Provide a extinguisher in the decontamination enclosure clean room.

3.3 Pre-Removal Inspections:

- 3.3.1 Pre-Removal Inspection: Prior to removal of any LBP the Contractor shall notify the CIH or IH technician and request a pre-removal inspection. Posting of warning signs, construction of visual barriers, plasticizing of work area, building of decontamination enclosure systems, and all other preparatory steps shall have been taken prior to notification of the Engineer. The Contractor shall not begin lead removal until the CIH or IH technician approves the work area preparations.

3.4 Maintenance Of Decontamination Enclosure System:

- 3.4.1 Thoroughly clean the decontamination enclosure systems at the end of each 8-hour work shift, and more frequently if required.

END OF SECTION - 01527

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01560 - WORKER PROTECTION - ASBESTOS ABATEMENT

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Training requirements for Contractor's asbestos abatement workers.
- 1.1.2 Personnel protective equipment to be provided for asbestos abatement work.
- 1.1.3 Respiratory protection requirements.
- 1.1.4 Record keeping requirements.
- 1.1.5 OSHA compliance personal air monitoring requirements.

1.2 Requirements And Qualifications:

- 1.2.1 Experience and Training: The Contractor's Site Superintendent, Foremen, and workers shall be adequately trained and knowledgeable in the field of asbestos abatement. All phases of the work shall be executed by skilled craftsmen experienced in each respective trade. Proof of such experience shall be submitted upon request by the CIH. Improperly trained, untrained, or inexperienced personnel shall not be allowed in the work area(s). Personnel shall meet minimum training and experience requirements outlined in this Section.
 - 1.2.1.1 The Site Superintendent and Foreman shall have successfully completed training equivalent to the EPA Model Accreditation Plan asbestos contractor and supervision course (40 CFR Part 763, Subpart E, Appendix C). An acceptable course and training provider shall be approved by The State of Florida Department of Business and Professional Regulation.
 - 1.2.1.2 The Site Superintendent and Foremen shall be thoroughly familiar with and experienced in asbestos removal and related work and shall meet the requirements of a competent person set down in OSHA Standard 29 CFR 1926.1101(o).
 - 1.2.1.3 All asbestos abatement workers shall be knowledgeable, qualified, and trained in the removal, handling, and disposal of asbestos material and in subsequent cleaning of the affected environment. All asbestos abatement workers shall have successfully completed training equivalent to the EPA Model Accreditation Plan asbestos worker training course (40 CFR Part 763, Subpart E, Appendix C). An acceptable course and training provider shall be approved by The State of Florida Department of Business and Professional Regulation.

- 1.2.2 Worker Medical Examinations: The Contractor shall provide medical examinations for all employees engaged in asbestos removal and disposal operations, in accordance with OSHA Standards 29 CFR 1910.134(b), 1926.1101, and applicable State regulations. The Contractor shall ensure that all employee examination results are on file in his office and available for review and are maintained in accordance with OSHA Standard 29 CFR 1926.1101(n)(3).
- 1.2.3 Certificate of Worker's Acknowledgment - Asbestos Abatement: Each worker or supervisor who enters the contaminated work area shall submit a Certificate of Worker's Acknowledgment, as required in the Section "Submittals". An example form is presented in the Appendix to this Section.

1.3 Respiratory Protection Requirements:

- 1.3.1 Respiratory Protection Program: The Contractor shall develop a written standard operating procedure to govern selection and use of respirators. As a minimum the program shall address components as required by OSHA 29 CFR 1910.134. Program components shall include: written standard operating procedures; medical surveillance; training in selection and use of respirators; proper fitting and fit testing; procedures for inspection, cleaning, maintenance and storage; requirements for surveillance of work area conditions and worker exposures; and respirator program evaluation requirements.
- 1.3.2 Negative Exposure Assessment: The Contractor shall produce a negative exposure assessment for each asbestos job to be performed on the project. The assessment may be developed using historical air monitoring data produced within the last 12 months and combined with daily personnel monitoring, or by providing an initial exposure assessment, and daily monitoring. Requirements for initial exposure assessments, daily monitoring, and negative exposure assessments are outlined in this Section.
- 1.3.3 Respiratory Protection Justification: Provide historical exposure monitoring data from previous asbestos jobs. Historical data shall have been collected within the last 12 months from the date of the current project. Data will be used as justification for respirator selection prior to completion of initial exposure monitoring. Historical data that meets the requirements of 29 CFR 1926.1101(f)(iii) may also be used for the negative exposure assessment.
- 1.3.4 Personal Sample Analysis: The Owner's IH Testing Laboratory will provide PCM analysis of the Contractor's OSHA compliance personal air monitoring samples. Sample analysis results will be provided to the Contractor within 24-hours of collection for posting.

1.4 Submittals:

1.4.1 Pre-Work Submittal:

- 1.4.1.1 Respiratory protection program.
- 1.4.1.2 Names of site superintendent, foremen and workers to be assigned to this project. Course certificates for listed asbestos abatement personnel that demonstrate completion of required asbestos training.
- 1.4.1.3 Copies of current Physician's statement for each employee assigned to perform asbestos abatement work for this project.
- 1.4.1.4 Completed and notarized Certificate of Worker's Release for each employee involved in asbestos abatement.
- 1.4.1.5 Respirator fit test verification for asbestos abatement workers.
- 1.4.1.6 Respiratory Protection Justification Form (see Appendix to this Section).
- 1.4.1.7 Compressor maintenance program. Provide a copy of the maintenance program if Type C respiratory protection is used.

1.4.2 During-Work Submittal:

- 1.4.2.1 Names of new personnel assigned to the project during the course of the work. Submit: copies of current Physician's statement; completed and notarized Certificate of Worker's Release; and respirator fit test verification. Submit required documentation 24-hours in advance of mobilization of new personnel to project site.

1.5 Record-Keeping:

- 1.5.1 Medical and Exposure Records: Complete and accurate records shall be maintained of each employee's medical examinations, medical records and exposure data as required by 29 CFR 1101 for a period of 50 years after termination of employment. Records of the required medical examinations and exposure data shall be made available for inspection and copying to: The Assistant Secretary of Labor for Occupational Safety and Health (OSHA) or authorized representatives of the employee and employee's physician upon request of the employee or former employee. Maintain on file at the work site for review a copy of the required medical certification for each employee.

PART 2 - PRODUCTS

2.1 Products:

- 2.1.1 Disposable Towels: Provide paper or cloth disposable towels for use by personnel when exiting the decontamination enclosure system shower.

- 2.1.2 Personal Hygiene Products: Provide soap and shampoo in the decontamination enclosure system shower room.

2.2 Worker Protective Clothing And Equipment:

- 2.2.1 Protective Clothing: Full-body, disposable coveralls, head covers, gloves, and boot-type foot covers constructed of spun-bonded olefin fibers. Triple-layer polypropylene fabrics are acceptable alternate materials. Protective clothing shall conform to requirements of OSHA Standard 29 CFR 1926.1101.
- 2.2.2 Equipment: Eye protection, ear protection, protective gloves, non-slip steel toe shoes, and hard hats as required for job conditions or by applicable safety regulations.
- 2.2.3 Respiratory Protection: Respirators shall be selected in accordance with OSHA Standard 29 CFR 1926.1101(h) from those approved as being acceptable for protection by the National Institute for Occupational Safety and Health (NIOSH). The maximum work area fiber level (8-hour TWA) is listed below based on the "protection factors" given for various types of respirators:

Respirator Type	Protection Factor	Maximum Work Area Fiber Level (8-hr TWA)
Air purifying: Negative-pressure respirator, High efficiency HEPA filter, Half-facepiece	10	.1 f/cc
Air purifying: Negative-pressure respirator, High efficiency HEPA filter, Full-facepiece (qualitatively fit tested)	10	.1 f/cc
Powered air purifying (PAPR): Positive pressure respirator High efficiency HEPA filter, Full-facepiece	50	.5 f/cc
Type C supplied air: Continuous flow Full-facepiece with HEPA escape	50	.5 f/cc

Note: Respirators assigned for high airborne fiber level concentrations may be used at lower concentrations, or when required respirator use is independent of concentration.

- 2.2.4 Provide workers with individually issued and marked respiratory equipment. Respiratory equipment shall be suitable for the asbestos exposure level(s) in the work area(s), as specified in OSHA Standard 29 CFR 1926.1101, and as more stringently specified otherwise herein.
- 2.2.5 Where respirators with disposable filter parts are employed, the Contractor will provide sufficient filter parts for replacement as necessary or as required by the applicable regulation.
- 2.2.6 Supply Air Respiratory Protection: Breathing air supply systems shall conform to the USEPA NIOSH Document EPA-560-OPTS-86-001 (September 1986) entitled "A Guide to Respiratory Protection for the Asbestos Abatement Industry".

PART 3 - EXECUTION

3.1 On-Site Worker Training: Prior to commencement of work, all personnel who are to enter the work area shall be instructed in and shall be knowledgeable of the appropriate procedures for personnel protection and asbestos abatement. On-site training in the use of equipment and facilities unique to this job site shall be performed. Emergency evacuation procedures from the work area shall be included.

3.2 Personnel Protection:

- 3.2.1 General: The Contractor shall take all safety measures and precautions necessary to protect his employees and building occupants in accordance with 29 CFR Part 1926.1101, 40 CFR Part 61 Subpart M, and applicable State requirements.
 - 3.2.1.1 The Contractor shall provide the Owner and authorized representatives suitable properly fitting protective clothing, headgear, hard hats, eye protection, and footwear whenever they are required to enter the work area (up to two sets per 8-hour shift).
 - 3.2.1.2 Workers shall be fully protected with respirators and protective clothing from the time prior to the first disturbance of asbestos-containing or asbestos-contaminated materials through the time final re-occupancy clearance is achieved.
 - 3.2.1.3 Workers or authorized visitors shall not eat, smoke, drink, or chew gum or other substances while in the work area(s) or decontamination area(s).
 - 3.2.1.4 Contaminated worker footwear, eye protection, and hard hats shall be stored in the equipment room when not in use in the work area and, upon completion of asbestos abatement, disposed of as asbestos-contaminated waste or decontaminated for reuse.

- 3.2.1.5 Except for government inspectors with jurisdiction, no visitors except those authorized by the Owner shall be allowed in work area.
- 3.2.2 Respiratory Protection: The Contractor shall be solely responsible for providing adequate respiratory protection at all times for all individuals in the work area.
 - 3.2.2.1 Provide workers with individually issued and marked respiratory equipment. Respiratory equipment shall be suitable for the asbestos exposure level(s) in the work area(s), as specified in OSHA Standard 29 CFR 1926.1101.
 - 3.2.2.2 Where respirators with disposable filter parts are employed provide sufficient filter parts for replacement as necessary or as required by applicable regulation.
 - 3.2.2.3 During the use of supplied air systems provide the Owner and authorized visitors with individually issued and marked respiratory equipment (up to four units). Respiratory equipment shall be compatible with the supplied air system in use, and shall offer protection suitable for the asbestos exposure level(s) in the work area(s). Provide a minimum of two spare air hoses with connectors to permit the Owner and authorized visitors to connect assigned Type C respirators to the air system at any time without having to wait for personnel to exit the work area in order to obtain a spare hose.
- 3.2.3 Hazardous Materials: Review material safety data sheets (MSDSs) for products to be used during the work. Follow recommendations as given by the product manufacturer for personnel protection required to be worn during product application.

3.3 Respirator Selection:

- 3.3.1 Initial Respirator Selection: Historical airborne fiber level data may serve as the basis for selection of the level of respiratory protection to be used for the time interval prior to the Contractor performing an initial exposure assessment and establishing the 30-minute short term exposures and the eight-hour time weighted average (TWA) for an abatement task. Historical data provided by the Contractor shall be based on personal air monitoring of the "breathing zone" of his employees for other asbestos abatement projects. The data shall be obtained during work operations conducted under work place conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the Contractor's current operations. Documentation of aforementioned results shall be presented to the Engineer for review of applicability. See the Appendix to this Section for the Respiratory Protection Justification Form.

- 3.3.2 Initial Exposure Assessment: The Contractor shall perform an initial exposure assessment for work tasks where a negative exposure assessment was not provided through suitable historic airborne fiber level data. Refer to Paragraph "Personal Monitoring - Contractor's Workers" in this Section.
- 3.3.3 Negative Exposure Assessment: For each specific asbestos job performed the Contractor shall develop a negative exposure assessment. Refer to Paragraph "Personal Monitoring - Contractor's Workers" in this Section.
- 3.3.3.1 The Contractor shall furnish for use by his workers a tight-fitting powered air purifying respirator equipped with high efficiency filters or a full facepiece supplied air respirator operated in the pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus for all employees within the regulated area for which a negative exposure assessment has not been produced.

3.4 Personal Monitoring - Contractor's Workers

- 3.4.1 Air Monitoring Requirements: The Contractor shall be responsible for development and implementation of an air monitoring program in accordance with OSHA Standard 29 CFR 1926.1101 and good industrial hygiene practices. Documentation of air sampling shall include as a minimum, calculations of minimum sample volume to achieve necessary detection limits; sampling time; sampling location (or subject); evidence of periodic inspection of sampling equipment; documentation of daily pre- and post-calibration of sampling equipment; detailed description of workers personnel protection equipment; description of any atypical environmental conditions; and a description of work practices/procedures/controls in operation during the sampling period. Documentation of sample analysis shall include, as a minimum, sample identification; total sample duration, sample flow rate; the "Limit of Reliable Quantitation"; total air volume; total fibers counted (with work sheets); total fields counted; blank filter analysis; and reticule field area. Airborne fiber concentrations in fibers per cubic centimeter (f/cc) shall be calculated and reported at the 95 percent confidence level.
- 3.4.2 Initial Exposure Assessment: The Contractor shall conduct an exposure assessment immediately before or at the initiation of the abatement work. The assessment shall be based on data from the following sources: 1) initial exposure monitoring made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee; or 2) a Negative Exposure Assessment that demonstrates employee exposures will be below the PELs.
- 3.4.2.1 Full-shift personal exposure air sampling of workers shall be performed to establish the 8-hour (TLV-TWA) exposure. Such sampling shall be conducted for each employee (or representative group of employees) expected to evidence the

highest exposure in each work area for each type of activity on the first shift that site preparation, removal, or cleanup activities occur.

3.4.2.2 Excursion (30-minute) personal exposure air sampling shall be conducted during activities anticipated to produce the highest airborne concentrations to determine the Excursion Limit.

3.4.2.3 Negative Exposure Assessment (NEA) shall demonstrate that employee exposures will be below the PEL. As a minimum the NEA shall consist of historical exposure monitoring data from previous asbestos jobs. Historical data shall have been collected within the last 12 months from the date of this current project. Historical monitoring and analysis shall have been conducted to comply with present standards as outlined in this Section. Historical exposure data shall be representative of work-place conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the Contractor's current operations. Historical exposure data shall have been conducted on employees whose training and experience are no more extensive than that of employees performing the current job.

3.4.3 Daily Monitoring: Collect personal exposure samples on a daily basis. Determine the 30-minute short-term exposures and 8-hour TWA for each abatement activity. Collect samples sufficient to represent the exposure of each employee assigned to work in the regulated area. Sampling shall be conducted on a more frequent basis any time conditions indicate to the Contractor that the most recent personal sampling results are no longer indicative of employee exposure. Sampling and analysis shall be performed in accordance with the OSHA Reference Method in 29 CFR 1926.1101, Appendix A. The Owner's IH testing laboratory will provide PCM analysis of the Contractors OSHA compliance samples.

3.5 Worker Decontamination Procedures:

3.5.1 Personnel Entrance and Decontamination Procedures for Gross Removal and Floor Tile Removal Operations: The following entry/exit procedures shall be used:

3.5.1.1 All workers and authorized visitors shall enter the work area through the worker decontamination enclosure system.

3.5.1.2 All individuals who enter the work area shall sign the entry log, located in the clean room, upon each entry and exit. The log shall be permanently bound and shall identify fully the facility, agents, contractor(s), the project, each work area, and worker respiratory protection employed.

- 3.5.1.3 Each worker or authorized visitor shall, upon entering the job site, remove street clothes in the clean room and put on a clean respirator (with new filters, if appropriate) and clean protective clothing before entering the work area through the shower room and equipment room.
- 3.5.1.4 Each worker or authorized visitor shall, each time he leaves the work area: remove gross contamination from clothing before leaving the work area; proceed to the equipment room and remove all clothing except the respirator; proceed to the shower room still wearing the respirator; clean the outside of the respirator with soap and water while showering; wet, remove, and dispose of filters in the container provided for that purpose; wash and rinse the inside of the respirator; and thoroughly shampoo and wash himself.
- 3.5.1.5 Each worker or authorized visitor shall proceed directly to the clean room following showering and drying off, dress in street clothes, and immediately exit the decontamination enclosure system. Disposable clothing of the type worn inside the work area is not permitted outside the work area.
- 3.5.2 Personnel Entrance and Decontamination Procedures for Glove Bag Removal Operations: The entry/exit procedures used for areas prepared as glove bag removal work areas shall be as noted under Paragraph "Personnel Entrance and Decontamination Procedures for Gross Removal Operations", with the following modifications applicable:
 - 3.5.2.1 The requirement for a shower may be waived by the Engineer. The conditions for waiver shall be that the worker did not contact ACM, a proper glove bag technique was executed, and the ACM within the work area is in good condition.
 - 3.5.2.2 Authorized visitors are not required to remove street clothes and shower each time they enter and leave the work area if they only observe the work in progress and do not make contact with ACM. They are required to wear appropriate respiratory protection and protective clothing over their street clothing while in the work area. If they do make contact with ACM, they are required to follow the decontamination procedures for workers.

END OF SECTION 01560

SECTION 01560

APPENDIX - TABLE OF CONTENTS

Certificate of Worker's Acknowledgment - Asbestos Abatement	A1
Respiratory Projection Justification	A3
Minimum Personal Protection Requirements for Asbestos Abatement	A4

**CERTIFICATE OF WORKER'S ACKNOWLEDGMENT
ASBESTOS ABATEMENT WORKERS**

page 1 of 2

PROJECT NAME/CONTRACT NUMBER: _____
PROJECT ADDRESS _____
CONTRACTOR'S NAME _____
EMPLOYEE'S NAME _____

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAVE BEEN LINKED WITH TYPES OF LUNG DISEASE AND CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS, THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PUBLIC.

Your employer's contract for the above project requires that: you be provided with and complete formal and project specific training, you be supplied with proper personal protective equipment including respirators, that you be trained in its use and that you receive a medical examination to evaluate your physical capacity to perform your assigned work tasks, under the environmental conditions expected, while wearing the required personal protective equipment. These things are to be done at no cost to you. By signing this certification, you are acknowledging that your employer has met these obligations to you.

INITIAL TRAINING: I have completed a formal asbestos abatement training course for Workers; Contractor/Supervisor (circle one) that meets EPA and this state's requirements.
Date Completed _____

REFRESHER TRAINING: I have completed annual refresher as required by EPA and this state's requirements.
Date Completed _____

PROJECT SPECIFIC TRAINING: I have been provided and have completed the project specific training required by this Contract. My employer's industrial hygienist and competent person supervisor conducted the training.
Date Completed _____

RESPIRATORY PROTECTION: I have been trained in accordance with the criteria in the Contractor's Respiratory Protection program. I have been trained in the dangers of handling and breathing asbestos dust and in the proper work procedures and use and limitations of the respirator(s) I will wear. I have been trained in and will abide by the facial hair policy of my employer

RESPIRATOR FIT-TEST TRAINING: I have been trained in the proper selection, fit, use, care, cleaning, and maintenance, and storage of the respirator(s) that I will wear. I have been fit-tested in accordance with the criteria in the Contractor's Respiratory Program and have received a satisfactory fit. I have been assigned my individual respirator. I have been taught how to properly perform positive and negative pressure fit-check upon donning negative pressure respirators.

**CERTIFICATE OF WORKER'S ACKNOWLEDGMENT
ASBESTOS ABATEMENT WORKERS**

page 2 of 2

MEDICAL EXAMINATION: I have had a medical examination within the last twelve months which was paid for by my employer. The examination included: health history, pulmonary function tests, and may have included an evaluation of a chest x-ray. A physician made determination regarding my physical capacity to perform work tasks on the project while wearing personal protective equipment including a respirator. I was personally provided a copy and informed of the results of that examination. My employer's industrial hygienist evaluated the medical certification provided by the physician and checked the appropriate blank below. The physician determined that there:

_____ were no limitations to performing the required work tasks;

_____ were identified physical limitations to performing the required work tasks.

Employee

Signature _____ date _____

Printed Name _____

Social Security Number _____

Contractor's Industrial Hygienist

Signature _____ date _____

Printed Name _____

Social Security Number _____

Date medical exam was performed _____

RESPIRATORY PROJECTION JUSTIFICATION

Project Name _____

Location _____

Date of Submittal _____

Date(s) Historic Monitoring Data Was Collected _____

Based upon airborne asbestos fiber counts encountered on previous projects of a similar type under work place conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the Contractor's current operations, the following level of respiratory protection is proposed for the indicated operations to maintain an airborne fiber concentration below 0.01 fibers per cubic centimeter (f/cc) exposure limit inside the respirator facepiece of the abatement worker.

Operation	Anticipated F/CC	Respiratory Protection	Protection Factor	F/CC in Mask
Work area preparation				
Gross removal of pipe and fitting insulation				
Gross removal of vinyl floor tile and floor tile mastic				
Roofing removal				
Cleaning "primary" sheet plastic				
Final Cleaning				
Disposal at landfill				
Other				

The Contractor certifies that to the best of his knowledge and belief the above represent a true and accurate representation of airborne fiber concentrations expected for the operations indicated, and are based upon airborne fiber data from projects with similar materials and operations performed within the past one year period. If requested by the Engineer, the Contractor shall provide backup documentation for verification of the above data.

CHECK ONE:

_____ Data will serve as Negative Exposure Assessment

_____ Data will serve as historic data only

Contractor _____

Signature _____ Date _____

Table A-1
Minimum Personal Protection Requirements for Asbestos Abatement^A

Activity	Respiratory Protection^{b,c}	Disposable Clothing	Shower Required	Decontamination Unit
1. Removal of “loose items” prior to work - no potential asbestos exposure	None	No	No	No
2. Removal of “loose items” prior to work - potential asbestos exposure	HMHER	Yes	Yes	Yes
3. Precleaning prior to abatement	HMHER	Yes	No	No
4. Sealing openings prior to abatement - no potential asbestos exposure	None	No	No	No
5. Plasticizing prior to abatement - no potential asbestos exposure	None	No	No	No
6. Plasticizing prior to abatement - potential asbestos exposure	PAPR	Yes	Yes	Yes
7. Gross removal	PAPR	Yes	Yes	Yes
8. Floor tile removal	HMHER	Yes	Yes	Yes
9. Roofing Removal	HMHER	Yes	Yes	Yes
10. Preliminary cleanup (after gross removal)	PAPR	Yes	Yes	Yes
11. Plastic removal after initial clearance	PAPR	Yes	Yes	Yes
12. Lockdown	PAPR	Yes	Yes	Yes
13. Cleaning and plastic removal after lockdown before final clearance	FFHER	Yes	Yes	Yes
14. Activities after final clearance	None	No	No	No
15. Loading ACM on truck - (outside work area)	HMHER	Yes	No	No

^a These are minimum requirements only. The Contractor is fully responsible for the personal protection of all workers at the site. Where conflict or interpretational differences arise, the text of the specifications apply.

^b These are minimum requirements. The Contractor shall produce Initial Exposure Assessments and Daily Monitoring to document validity of respirator selection.

^c Where a Negative Exposure Assessment has not been produced, the Contractor shall furnish for use by his workers PAPRs, or Type C supplied air pressure demand respirators equipped with an auxiliary positive pressure self-contained breathing apparatus.

PAPR Full face mask powered air purifying respirator.

HMHER Half face mask high efficiency respirator.

FFHER Full face mask high efficiency respirator.

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01561 - WORKER PROTECTION - LEAD ABATEMENT

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Training requirements for Contractor's lead abatement workers.
- 1.1.2 Medical surveillance requirements for Contractor's lead abatement workers.
- 1.1.3 Personnel protective equipment to be provided for lead abatement work.
- 1.1.4 Respiratory protection requirements.
- 1.1.5 OSHA compliance personal air monitoring requirements.
- 1.1.6 Record keeping requirements.

1.2 Requirements And Qualifications:

- 1.2.1 Experience and Training: The Contractor's Site Superintendent, Foremen, and workers shall be adequately trained and knowledgeable in the field of lead abatement. All phases of the work shall be executed by skilled craftsmen experienced in each respective trade. Proof of such experience shall be submitted upon request by the Owner. Improperly trained, untrained, or inexperienced personnel shall not be allowed in the work area(s). Personnel shall meet minimum training and experience requirements outlined in this Section.
 - 1.2.1.1 The Site Superintendent and Foreman shall meet the requirements of a competent person set down in OSHA Standard 29 CFR 1926.62(b).
 - 1.2.1.2 All lead abatement supervisors and workers shall be knowledgeable, qualified, and trained in the removal, handling, and disposal of lead material and in subsequent cleaning of the affected environment. All lead abatement workers shall have successfully completed training as set down in OSHA Standard 29 CFR 1926.62(l)(2), and applicable State regulations.
 - 1.2.1.3 All Contractor's employees exposed to or otherwise working with LBP hazardous waste, and their supervisors and management responsible for the site, shall receive training required under EPA regulation 40 CFR 265.16 and OSHA regulation 1910.120(e) prior to the start of the Project.
- 1.2.2 Documentation Requirements: Affected employees and supervisors shall complete and submit the "RCRA Required Hazardous Waste Awareness and Handling Training" form, and the "Certificate of Workers Acknowledgment" form. the "Certificate of Workers Acknowledgment" form is included as an Appendix to this Section. The RCRA Awareness

form is included as an Appendix to Attachment A to the SUPPLEMENTARY CONDITIONS TO THE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, GENERAL PROCEDURES FOR HAZARDOUS SUBSTANCES AND HAZARDOUS MATERIALS. The Contractor shall maintain on-site a copy of all applicable training certificates.

- 1.2.3 Worker Medical Examinations: The Contractor shall provide medical examinations for all employees engaged in lead removal and disposal operations, in accordance with OSHA Standards 29 CFR 1910.134(b), 1926.62(j), and applicable State regulations. The Contractor shall ensure that all employee examination results are on file in his office and available for review and are maintained in accordance with OSHA Standard 29 CFR 1926.62(n)(2).
- 1.2.4 Certificate of Worker's Acknowledgment - LBP Abatement: Each worker or supervisor who enters the contaminated work area shall submit a Certificate of Worker's Acknowledgment, as required in the Section "Submittals". An example form is presented in the Appendix to this Section.

1.3 Respiratory Protection Requirements:

- 1.3.1 The Contractor shall develop a written standard operating procedure to govern selection and use of respirators. As a minimum the program shall address components as required by OSHA 29 CFR 1910.134. Program components shall include: written standard operating procedures; medical surveillance; training in selection and use of respirators; proper fitting and fit testing; procedures for inspection, cleaning, maintenance and storage; requirements for surveillance of work area conditions and worker exposures; and respirator program evaluation requirements.
- 1.3.2 Personal Sample Analysis: The Owner's IH Testing Laboratory will provide lead aerosol sample analysis of the Contractor's OSHA compliance personal air monitoring samples. Sample analysis results will be provided to the Contractor within 1 day of collection for posting.

1.4 Submittals:

- 1.4.1 Pre-Work Submittal:
 - 1.4.1.1 Provide list of personnel assigned to work on the project. For each LBP worker indicate the date of expiration for the following:
 - a. Required training.
 - b. Physicians Statement.
 - c. Respirator fit test.

- 1.4.1.2 Provide completed and notarized Certificate of Worker's Acknowledgment for each employee involved in lead abatement.
- 1.4.2 During-Work Submittal:
 - 1.4.2.1 Provide documentation as required in the Pre-Work submittals 24-hours in advance of mobilization of new personnel to site.
- 1.4.3 Post-Work Submittal:
 - 1.4.3.1 Compilation of all record-keeping documentation for personal monitoring and employee exposure assessments during course of the project.

1.5 Record-Keeping:

- 1.5.1 Medical and Exposure Records: Complete and accurate records shall be maintained of each employee's medical examinations, medical records and exposure data as required by 29 CFR 62 (n) for a period of 30 years after termination of employment. Maintain on file at the work site for review a copy of the required medical certification for each employee.

PART 2 - PRODUCTS

2.1 Products:

- 2.1.1 Disposable Towels: Provide paper or cloth disposable towels for use by personnel when exiting the decontamination enclosure system shower.
- 2.1.2 Personal Hygiene Products: Provide soap and shampoo in the decontamination enclosure system shower room.

2.2 Worker Protective Clothing And Equipment:

- 2.2.1 Protective Clothing: Full-body coveralls, head covers, gloves, and boot-type foot covers. Protective Clothing shall be either cloth type materials cleaned and laundered, or constructed of spun-bonded olefin fibers. Triple-layer polypropylene fabrics are acceptable alternate materials. Protective clothing shall conform to requirements of OSHA Standard 29 CFR 1926.62(g).
- 2.2.2 Eye Wash: Provide a primary emergency eyewash station to meet ANSI Standard Z358.1 whenever LBP chemical strippers are used during the work. Eyewash stations shall deliver at least 0.4 gallons per minute for 15 minutes. Units shall activate in one second and allow "hands free" operation.
- 2.2.3 Equipment: Eye protection, ear protection, protective gloves, non-slip steel toe shoes, and hard hats as required for job conditions or by applicable safety regulations.
- 2.2.4 Respiratory Protection: Respirators shall be selected in accordance with OSHA Standard 29 CFR 1926.62(f) from those approved as being

acceptable for protection by the National Institute for Occupational Safety and Health (NIOSH). The Contractor shall provide a PAPR air-purifying respirator in lieu of the respirators specified in 29 CFR 1926.62(f) whenever: an employee chooses to use this type of respirator; and this respirator will provide adequate protection to the employee.

PART 3 - EXECUTION

3.1 On-Site Worker Training: Prior to commencement of work, all personnel who are to enter the work area shall be instructed in and shall be knowledgeable of the appropriate procedures for personnel protection and lead abatement. On-site training in the use of equipment and facilities unique to this job site shall be performed. Emergency evacuation procedures from the work area shall be included.

3.2 Personnel Protection:

- 3.2.1 General: The Contractor shall take all safety measures and precautions necessary to protect his employees and pedestrians in accordance with 29 CFR Part 1926.62, 40 CFR Part 50, and applicable State requirements.
 - 3.2.1.1 The Contractor shall provide the Owner and authorized representatives suitable properly fitting protective clothing, headgear, hard hats, eye protection, and footwear whenever they are required to enter the work area (up to two sets per 8-hour shift).
 - 3.2.1.2 Workers shall be fully protected with respirators and protective clothing from the time prior to the first disturbance of lead-containing or lead-contaminated materials through the time final re-occupancy clearance is achieved.
 - 3.2.1.3 Food, beverages, and tobacco products shall not be present or consumed while in the work area(s) or decontamination area(s). Cosmetics shall not be present or applied in the work area(s) or decontamination areas(s).
 - 3.2.1.4 Contaminated worker footwear, eye protection, and hard hats shall be stored in the equipment room when not in use in the work area and, upon completion of lead abatement, disposed of as lead-contaminated waste or decontaminated for reuse.
 - 3.2.1.5 Except for government inspectors with jurisdiction, no visitors except those authorized by the Owner shall be allowed in work area.
- 3.2.2 Respiratory Protection: The Contractor shall be solely responsible for providing adequate respiratory protection at all times for all individuals in the work area.
 - 3.2.2.1 Provide workers with individually issued and marked respiratory equipment. Respiratory equipment shall be suitable for the lead

exposure level(s) in the work area(s), as specified in OSHA Standard 29 CFR 1926.62.

3.2.2.2 Where respirators with disposable filter parts are employed provide sufficient filter parts for replacement as necessary or as required by applicable regulation.

3.2.3 Hazardous Materials: Review material safety data sheets (MSDSs) for products to be used during the work. Follow recommendations as given by the product manufacturer for personnel protection required to be worn during product application.

3.3 Personal Monitoring and Respirator Selection:

3.3.1 Air Monitoring Requirements: The Contractor shall be responsible for development and implementation of an air monitoring program in accordance with OSHA Standard 29 CFR 1910.134(b)(d)(e), and(f).

3.3.2 Initial Respirator Selection: Provide initial respiratory protection for workers based on the Contractor's initial determination assessment and task related triggers. The Contractor shall perform additional employee exposure assessments as required by 29 CFR 1926.62(d). Documentation for the basis of initial respirator selection and subsequent exposure assessments shall presented to the Engineer for review of applicability.

3.3.3 Exposure Assessment: The Contractor shall conduct an exposure assessment at the initiation of the abatement work. The assessment shall be based on data from initial exposure monitoring made from breathing zone air samples that are representative of the 8-hour TWA exposures of workers expected to evidence the highest exposure in the work area for each type of activity.

3.3.4 Additional Exposure Assessments. Whenever there has been a change of equipment, process, control, personnel, or a new task has been initiated that may result in additional employees being exposed to lead at or above the action level, the Contractor shall conduct additional personnel monitoring.

3.3.5 Task Related Triggers: Until exposure assessments have been completed rely on task-related triggers provided in 29 CFR 1926.62 to determine appropriate controls and work practices. To begin work provide a minimum personal protection as if employee exposure were between 50 $\mu\text{g}/\text{m}^3$ to 500 $\mu\text{g}/\text{m}^3$.

3.3.6 Sample Analysis: The Owner's IH testing laboratory will provide aerosol lead sample analysis of the Contractors OSHA compliance personal monitoring samples.

3.3.7 Employee Notification. Within 5 working days after completion of the exposure assessment the Contractor shall notify each employee in writing of the results which represent that employee's exposure.

3.3.8 Record Keeping: The Contractor shall make a written record of exposure assessment monitoring. The record shall include:

- date and time of sample collection,
- location within the work-site,
- description of the work task and work methods,
- name and social security number of each employee monitored, and
- other relevant information (i.e. personal protection, problems encountered during work, time required to perform task, etc.)

3.4 Medical Surveillance:

3.4.1 General: The Contractor shall assure that all medical examinations and procedures are performed by a licensed physician prior to worker exposure to lead.

3.4.2 Biological Monitoring: Perform biological monitoring as required by 29 CFR 1926.62 (j) for each worker who is or may be exposed during the work at or above the action level for more than 30 days in any consecutive 12 months. The minimum frequency of monitoring shall be in accordance with 29 CFR 1926.62 (j)(2) as summarized:

3.4.2.1 For all workers exposed to lead - at least every 2 months for the first 6 months and every 6 months thereafter.

3.4.2.2 For workers whose last blood sampling and analysis indicated a blood lead level at or above 40 µg/dl - at least every 2 months until two consecutive blood samples and analysis indicate a blood lead level below 40 µg/dl.

3.4.2.3 For workers who are removed from exposure to lead due to an elevated blood lead level - at least monthly during the removal period.

3.4.2.4 For workers who blood lead level first exceeds the criterion for medical removal - perform a second test within two weeks of the receipt of the first blood sampling test.

3.4.3 Medical Removal:

3.4.3.1 The Contractor shall notify each worker whose blood lead level exceeds 40 µg/dl that the OSHA standard 29 CFR 1926.62 requires temporary medical removal with Medical Removal Protection benefits when an employee's blood lead level exceeds 50 µg/dl.

3.4.3.2 The Contractor shall implement a temporary medical removal for any employee where periodic and follow-up blood sampling indicate that the employee's blood lead level is at or above 50 µg/dl.

- 3.4.3.3 The Contractor shall implement a temporary medical removal for any employee where a final medical determination results in a medical finding, determination, or opinion that the employee has a detected medical conditions which places the employee at increased risk of material impairment to health from exposure to lead.

3.5 Worker Decontamination Procedures:

- 3.5.1 Personnel Entrance and Decontamination Procedures for LBP Removal Operations: The following entry/exit procedures shall be used:
- 3.5.1.1 All workers and authorized visitors shall enter the work area through the worker decontamination enclosure system.
 - 3.5.1.2 All individuals who enter the work area shall sign the entry log, located in the clean room, upon each entry and exit. The log shall be permanently bound and shall identify fully the facility, agents, contractor(s), the project, each work area, and worker respiratory protection employed.
 - 3.5.1.3 Each worker or authorized visitor shall, upon entering the job site, remove street clothes in the clean room and put on a clean respirator (with new filters, if appropriate) and clean protective clothing before entering the work area through the shower room and equipment room.
 - 3.5.1.4 Each time a worker leaves the work area: he shall remove gross contamination from clothing, remove his respirator and wash hands and face with soap and water.
 - 3.5.1.5 At the end of the day each worker to exit the work area shall remove gross contamination from clothing before leaving the work area; proceed to the equipment room and remove all clothing except the respirator; proceed to the shower room still wearing the respirator; clean the outside of the respirator with soap and water while showering; wet, remove, and dispose of filters in the container provided for that purpose; wash and rinse the inside of the respirator; and thoroughly shampoo and wash himself.
 - 3.5.1.6 Each worker or authorized visitor shall proceed directly to the clean room following showering and drying off, dress in street clothes, and immediately exit the decontamination enclosure system. Disposable clothing of the type worn inside the work area is not permitted outside the work area.
- 3.5.2 Laundry of Clothing: Provide for the cleaning, laundering and/or disposal of protective clothing and equipment. Contaminated protective clothing to be cleaned, laundered, or disposed of shall be placed in a closed container in the equipment room of the decontamination enclosure system. Containers

of contaminated protective clothing and equipment shall be labeled as follows:

Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead contaminated wash water in accordance with applicable local, state, or federal regulations.

END OF SECTION 01561

SECTION 01561

APPENDIX - TABLE OF CONTENTS

Certificate of Worker's Acknowledgment - LBP Abatement	A1
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**CERTIFICATE OF WORKER'S ACKNOWLEDGMENT
LBP ABATEMENT**

page 1 of 2

PROJECT NAME/CONTRACT NUMBER: _____
PROJECT ADDRESS _____
CONTRACTOR'S NAME _____
EMPLOYEE'S NAME _____

WORKING WITH LEAD CAN BE DANGEROUS. INHALATION OF DUST AND FUMES, AND INGESTION RESULTING FROM CONTACT WITH LEAD-CONTAMINATED ITEMS WILL EXPOSE YOU TO LEAD. ONCE ABSORBED, LEAD ACCUMULATES IN THE BLOOD, SOFT TISSUES, AND BONES AND MAY CAUSE TOXIC EFFECTS AS IT IS SLOWLY RELEASED OVER TIME. CHRONIC OVEREXPOSURE TO LEAD RESULTS IN DAMAGE TO THE KIDNEYS, THE GASTROINTESTINAL TRACT, THE PERIPHERAL AND CENTRAL NERVOUS SYSTEMS, THE REPRODUCTIVE SYSTEM, AND THE BLOOD-FORMING ORGANS.

Your employer's contract for the above project requires that: you be provided with and complete formal and project specific training, you be supplied with proper personal protective equipment including respirators, that you be trained in its use and that you receive a medical examination to evaluate your physical capacity to perform your assigned work tasks, under the environmental conditions expected, while wearing the required personal protective equipment. These things are to be done at no cost to you. By signing this certification, you are acknowledging that your employer has met these obligations to you.

TRAINING: I have the following formal training courses that meet OSHA's and EPA requirements:

OSHA's Lead Standard Training (29 CFR 1926.62)	Date Completed _____
EPA's RCRA Training (40 CFR 265.16) (Awareness)	Date Completed _____

RESPIRATORY PROTECTION: I have been trained in accordance with the criteria in my Employer's Respiratory Protection program. I have been trained in the proper work procedures and use and limitations of the respirator(s) I will wear.

SITE-SPECIFIC TRAINING: I have been provided and have completed the site-specific training required by this Contract. My Employer's site Safety and Health Officer conducted the training.

CHELATION CERTIFICATION: I certify that I do not engage in prophylactic chelation. If I am currently under chelation therapy I certify that it is being performed under the supervision of a licensed physician in a clinical setting with medical monitoring.

MEDICAL EXAMINATION: I have had a medical examination which was paid for by my employer that included blood sampling and analysis for lead and zinc protoporphyrin levels. Additionally, a physician

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT
LBP ABATEMENT

page 2 of 2

made determination regarding my physical capacity to perform work tasks on the project while wearing personal protective equipment including a respirator. I was personally provided a copy and informed of the results of that examination. My employer's industrial hygienist evaluated the medical certification provided by the physician and checked the appropriate blank below. The physician determined that there:

_____ were no limitations to performing the required work tasks;

_____ were identified physical limitations to performing the required work tasks.

I HAVE READ AND UNDERSTAND THE INFORMATION STATED ABOVE. I HAVE REVIEWED THE INFORMATION REQUIRED TO BE PROVIDED BY ME AND ATTEST TO ITS ACCURACY.

Employee Signature _____ date _____

Employee Printed Name _____ SSN _____

Contractor's Industrial Hygienist Signature _____ date _____

Contractor's Industrial Hygienist Printed Name _____

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01563 - DECONTAMINATION ENCLOSURE SYSTEMS

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Requirements for the construction of decontamination enclosure systems required for performance of the work.

1.2 Description Of Work:

- 1.2.1 General: Provide a personnel decontamination enclosure system and an equipment decontamination enclosure system in accordance with OSHA Standard 29 CFR 1926.1101, 29 CFR 1926.62, and as specified herein.
- 1.2.2 Fire-Retardant Materials: Plastic sheeting used for construction of enclosed work areas shall be fire-retardant.

1.3 Submittals:

- 1.3.1 Pre-Work Submittal:
 - 1.3.1.1 Shop drawings (with dimensions) of proposed decontamination facilities layout and construction. Provide information on trailer mounted units, modular or other pre-built units.

PART 2 - PRODUCTS

2.1 Products: Provide materials and equipment required to satisfactorily perform the intended work.

- 2.1.1 Fire-Retardant Plastic: Plastic or polyethylene sheet shall be minimum 6-mil flame retardant plastic sheeting that meets the NFPA 701 Large-Scale test requirements.
- 2.1.2 Duct Tape: Duct tape shall be capable of sealing joints of adjacent sheets of plastic sheeting and shall be capable of adhering under both dry and wet conditions. Minimum physical properties: adhesion to steel - 45 oz./in width, ASTM D-3330; tensile strength at break - 36 lbs./in. width, ASTM D-3759; elongation at break - 10 percent, ASTM D-3759.
- 2.1.3 Caulking Sealant: Caulking sealant shall be single component, non-sag elastomer and shall meet the requirements of Federal Specification TT-S-00230C, Class A Type II.
- 2.1.4 Plywood: Plywood used for decontamination enclosure systems shall be minimum 3/8-inch C-D exterior grade.
- 2.1.5 Decontamination Enclosure System Materials: Provide lumber, plywood, tools, piping, plastic sheeting, adhesive, nails, hardware, etc., required to construct the decontamination enclosure systems as specified herein.

Materials and equipment shall be new or used, uncontaminated by asbestos, in serviceable condition, and appropriate for the intended purpose.

- 2.2 Equipment:** Equipment furnished under this Section shall conform to applicable Federal and State regulations, local codes, and the requirements specified herein. Refer to Specification Section 01503 TEMPORARY FACILITIES and Section 01526 WORK AREA ENCLOSURES for water filtration systems, water heaters, lighting, fire extinguishers, and other equipment necessary for the decontamination enclosure systems.

PART 3 - EXECUTION

3.1 Decontamination Enclosure System Construction:

- 3.1.1 Structure: Use modular systems or build using wood or metal frame studs, joists, and rafters placed at a maximum of 24-inches on-center. One side shall be sheathed with 3/8-inch (minimum) plywood.
- 3.1.2 Airtight Seal: Caulking sealant shall be used to form an airtight seal along the seams of plywood sheathing. Apply duct tape over caulked seams. Interior walls, floor and ceiling shall be lined with two layers of six-mil plastic sheeting. Provide a minimum overlap of 16 inches at seams and seal airtight with duct tape.
- 3.1.3 Exterior Structures: Decontamination enclosure systems constructed outside shall be provided with plywood on exterior surfaces of the structure. Exterior structures shall be weatherproof and capable of withstanding a minimum lateral wind load of 17 pounds/ft². The roof of an exterior structure shall be capable of supporting a minimum live load of 25 pounds/ft². Compliance with local building codes and other regulations governing temporary structures shall be ensured by the Contractor.
- 3.1.4 Curtained Doorways: Construct using two overlapping sheets of six-mil polyethylene placed over a framed doorway and secured along the top of the doorway. Secure the vertical edge of the outer sheet along one vertical side of the doorway and the vertical edge of the second sheet along the opposite vertical side of the doorway. The sheets shall be weighted so that they close quickly after being released.
- 3.1.5 Air Locks: Install air locks between each chamber of the decontamination enclosure system. Air locks shall consist of two curtained doorways placed a minimum of three feet apart.

3.2 Decontamination Enclosure System Layout:

- 3.2.1 Personnel Decontamination Enclosure System: This system shall be the only entrance/exit for the work area. The decontamination enclosure system shall be placed adjacent to the work area and shall consist of three totally enclosed chambers as follows:
 - 3.2.1.1 Equipment Room: The equipment room shall have a curtained doorway to separate it from the work area, and share a common

air lock with the shower room. The equipment room shall be large enough to accommodate at least one worker (allowing worker enough room to remove protective clothing and footwear), a six-mil disposal bag, and any other equipment the Contractor wishes to store when not in use.

3.2.1.2 Shower Room: The shower room shall have two common air locks: one that separates it from the equipment room and one that separates it from the clean room. The shower room shall contain at least one shower head with hot and cold water per six (6) workers. Careful attention shall be given to the shower to ensure against leaking of any kind. Provide shampoo and soap in the shower room at all times.

3.2.1.3 Clean Room: The clean room shall share a common air lock with the shower room and shall have a curtained doorway to separate it from outside non-contaminated areas. The clean room shall be sized to adequately accommodate the work crew. Benches for seating, lockable lockers for storage of workers' street clothing, shelves for storing respirators, and a location for posting shall be provided in this area. Clean disposable clothing, replacement filters for respirators, clean dry towels, and other necessary items shall also be provided in the clean room. A hinged, lockable door shall be placed at the entrance into the clean room. The clean room shall not be used for storage of tools, equipment, or materials or as office space.

3.2.2 Equipment Decontamination Enclosure System: This system is located adjacent to the work area. The equipment decontamination enclosure system, consisting of two totally enclosed spaces, shall be constructed as follows:

3.2.2.1 Equipment Washroom: An equipment washroom shall have two air locks: one adjacent to the work area and one common air lock that separates it from the holding area. The washroom shall have facilities for washing material containers and equipment. Gross removal of dust and debris from contaminated material containers and equipment shall be accomplished in the work area, prior to moving to the washroom.

3.2.2.2 Holding Area: A holding area shall share a common air lock with the equipment washroom and shall have a curtained doorway to outside areas. A hinged, lockable door shall be placed at the holding area entrance to prevent unauthorized access into the work area.

3.2.3 Decontamination Enclosure System Utilities: Lighting, heat, and electricity shall be provided as necessary by the Contractor, and as specified herein (refer to Specification Section 01503 TEMPORARY FACILITIES).

- 3.2.4 Temperature Control: Maintain a minimum temperature of 70 degrees F in the personnel decontamination enclosure system clean room and shower areas.
- 3.2.5 Hand Washing Facilities: Provide adequate hand washing facilities in accordance with 29 CFR 1926.51(f). Locate facilities in or near the shower room.

END OF SECTION - 01563

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01714 - CLEAN-UP AND CLEARANCE TESTING OF WORK AREA - ASBESTOS ABATEMENT

PART 1 - GENERAL

1.1 Section Includes

- 1.1.1 Cleaning and clearance procedures for gross removal work areas.
- 1.1.2 Cleaning and clearance procedures for glove bag removal work areas.
- 1.1.3 Cleaning and clearance procedures for non-contained work areas.

1.2 Final Clearance Method Of Sample Analysis: The analytical method used to test for final re-occupancy clearance will include TEM sample analysis for gross removal and glove bag removal areas, and PCM analysis for limited floor tile removal and small glovebag removal areas.

1.3 Submittals:

- 1.3.1 During-Work Submittal:
 - 1.3.1.1 A formal written request shall be submitted at least 24 hours in advance of required milestone inspections or clearance air monitoring performed by the Engineer.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 Clearance Of Work Areas: Visual inspections and clearance testing of the work area will be performed by the Engineer upon request from the Contractor.

3.2 Clearance Procedure - Gross Removal Areas including tunnel: Cleaning of the work areas prepared as "gross removal" areas shall be conducted in accordance with the four-step procedure described below.

- | | |
|--------------------------------------|--|
| Step 1. Preliminary Cleanup | Visual inspection |
| Step 2. Initial Clearance Testing | Visual inspection and fiber count of <0.05 fibers per cubic centimeter of air (f/cc), using NIOSH Method 7400. |
| Step 3. Lockdown | ---- |
| Step 4. Final Re-occupancy Clearance | Visual Inspection and PCM and/or TEM clearance testing as specified for a work area. PCM fiber count shall be ≤ 0.01 f/cc for <u>EACH</u> sample, using NIOSH Method 7400. TEM fiber count shall be equivalent to <0.01 s/cc for <u>EACH</u> sample, using EPA AHERA TEM analysis procedures. |

For crawl space work area, Visual Inspection, Polarized Light Microscopy (PLM) and TEM clearance testing as specified for a work area. PLM analysis result shall be <1% asbestos for EACH sample, using EPA/600/R-93/116 Method. TEM fiber count shall be equivalent to <0.01 s/cc for EACH sample, using EPA AHERA TEM analysis procedures

- 3.2.1 Step 1. Preliminary Cleanup:
 - 3.2.1.1 Remove any visible accumulation of asbestos material and debris. Wet clean all surfaces and objects in the work area. Remove asbestos waste from the work area in impermeable containers.
 - 3.2.1.2 After cleaning the work area, wait 24 hours to allow for the settling of dust. Wet clean, or clean with HEPA vacuum equipment, all surfaces in the work area. Waiting time of 24 hours may be waived by the Engineer at the Contractor's request. After completion of the second cleaning operation, perform a complete visual inspection of the work area to ensure that it is free of visible contamination.
 - 3.2.1.3 The Engineer will perform a visual inspection upon receipt of a written request for inspection from the Contractor. If the Engineer finds visible accumulations of dust in the work area, the Contractor shall repeat the wet cleaning as heretofore specified.
- 3.2.2 Step 2. Initial Clearance Testing:
 - 3.2.2.1 The Engineer or IH Technician will perform Initial Clearance testing upon receipt of a written request for air testing from the Contractor.
 - 3.2.2.2 The Contractor shall continue to clean areas that do not comply with Initial Clearance Testing criteria until the specified standard of cleaning is achieved.
 - 3.2.2.3 When the fiber count is acceptable, one layer of plastic sheeting shall be removed from ceilings, walls, and floor. Plastic sheeting and seals on doors, windows, vents, and other openings shall remain in place.
- 3.2.3 Step 3. Lockdown:
 - 3.2.3.1 After successful completion of the Initial Clearance Procedure, all exposed surfaces in the work area (building surfaces, equipment components, and the remaining layer of protective plastic sheeting) shall receive lockdown encapsulant.
 - 3.2.3.2 When the encapsulant is dry, the layer of plastic sheeting shall be wet cleaned and/or HEPA vacuumed again prior to removal. Do

not remove critical seals from doors, windows, etc. or disconnect the negative pressure equipment.

- 3.2.3.3 All exposed surfaces shall be wet cleaned and/or HEPA vacuumed. Wait a minimum of 16 hours after cleaning to allow for settling of dust, then wet clean and/or HEPA vacuum again. Waiting time of 16 hours may be waived by the Engineer upon request from the Contractor.

3.2.4 Step 4. Final Re-occupancy Clearance:

- 3.2.4.1 A final inspection for re-occupancy will be performed by the Engineer on receipt of a written request for inspection from the Contractor. Evidence of dust, dirt, or debris identified during the inspection will necessitate further cleaning as heretofore specified.

- 3.2.4.2 PCM Clearance: When the work area passes the Engineer's re-occupancy inspection, and the work area is completely dry, the IH Technician shall test for re-occupancy using aggressive sampling techniques. Re-occupancy clearance air samples collected will be analyzed by PCM using NIOSH Method 7400. Re-occupancy will be approved by the Engineer if the specified fiber count in the work area is achieved, as reported by the Testing Laboratory. Failure to achieve this level will necessitate further cleaning as heretofore specified.

- 3.2.4.3 TEM Clearance: When the work area passes the Engineer's re-occupancy inspection, the IH Technician shall test for re-occupancy using aggressive sampling techniques. Re-occupancy clearance air samples will be analyzed by TEM. Re-occupancy will be approved by the Engineer if the specified fiber count in the work area is achieved, as reported by the Testing Laboratory. Failure to achieve this level will necessitate further cleaning as heretofore specified.

- 3.2.4.4 When the work area passes the re-occupancy test, disconnect AFDs and seal the intake to the machine airtight with 6-mil plastic sheeting and tape. Remove all controls and seals established.

3.3 Clearance Procedure - Glove Bag Removal Areas: Cleaning and clearance for work areas prepared as "glove bag removal areas" shall be conducted in accordance with the three-step procedure described below.

- | | |
|--------------------------------------|---|
| Step 1. Preliminary Cleanup | Visual Inspection |
| Step 2. Lockdown | ---- |
| Step 3. Final Re-occupancy Clearance | Visual Inspection and PCM and/or TEM clearance testing as specified for a work area. PCM fiber count shall be ≤ 0.01 f/cc for <u>EACH</u> sample, using NIOSH Method 7400. TEM |

fiber count shall be equivalent to <0.01 s/cc for EACH sample, using AHERA TEM analysis procedures.

3.3.1 Step 1. Preliminary Cleanup:

3.3.1.1 Remove any visible accumulation of asbestos material and debris. All sealed drums, plastic bags, and equipment used in the work area shall be removed from the work area.

3.3.1.2 The Engineer will perform a visual inspection on receipt of a written request for inspection from the Contractor. Evidence of asbestos contamination identified during the inspection will necessitate further cleaning as heretofore specified.

3.3.2 Step 2. Lockdown:

3.3.2.1 All surfaces from which ACM was removed, and the layer of protective plastic sheeting, shall receive lockdown encapsulant (for glove bag removal, this step should have already been completed with the glove bag still on the pipe).

3.3.2.2 When the encapsulant is dry, plastic sheets on the walls and floors shall be removed. Do not remove critical seals from doors, windows, etc. or disconnect the negative pressure equipment.

3.3.3 Step 3. Final Re-occupancy Clearance:

3.3.3.1 A final inspection for re-occupancy will be performed by the Engineer on receipt of a written request for inspection from the Contractor. Evidence of dust, dirt, or debris identified during the inspection will necessitate further cleaning as heretofore specified.

3.3.3.2 PCM and TEM Clearance: When the work area passes the Engineer's re-occupancy inspection, the IH Technician shall test for re-occupancy using aggressive sampling techniques. Re-occupancy clearance air samples will be analyzed by PCM and/or TEM, as applicable. Re-occupancy will be approved by the Engineer if the specified fiber count in the work area is achieved, as reported by the Testing Laboratory. Failure to achieve this level will necessitate further cleaning as heretofore specified.

3.3.3.3 When the work area passes the re-occupancy test, disconnect AFDs and seal the intake to the machine airtight with 6-mil plastic sheeting and tape. Remove all controls and seals established.

3.4 Clearance Procedure - Gross Removal Soil Floor Crawl Space: Cleaning of soil floor crawl space work areas and other contaminated areas shall be conducted in accordance with the three-step procedure described below.

Step 1. Preliminary Cleanup

Visual inspection, Polarized Light Microscopy (PLM) and TEM clearance testing as specified

for a work area. PLM analysis result shall be <1% asbestos for EACH sample, using EPA/600/R-93/116 Method.

Step 2. Lockdown

Step 3. Final Re-occupancy Clearance Visual Inspection, Polarized Light Microscopy (PLM) and TEM clearance testing as specified for a work area. PLM analysis result shall be <1% asbestos for EACH sample, using EPA/600/R-93/116 Method. TEM fiber count shall be equivalent to <0.01 s/cc for EACH sample, using AHERA TEM analysis procedures.

3.4.1 Step 1. Preliminary Cleanup:

3.4.1.1 Remove any visible accumulation of asbestos material and debris. Wet clean all surfaces and objects in the work area. Remove asbestos waste from the work area in impermeable containers.

3.4.1.2 The Engineer will perform a visual inspection on receipt of a written request for inspection from the Contractor. Evidence of asbestos contamination identified during the inspection will necessitate further cleaning as heretofore specified.

3.4.1.3 PLM Clearance: When the work area passes the Engineer's re-occupancy inspection, the IH Technician shall collect bulk samples of soil. Re-occupancy clearance bulk samples will be analyzed by PLM, as applicable. When work area passes PLM test, TEM clearance will proceed. Failure to achieve this level will necessitate further cleaning (removal of soil) as heretofore specified. Up to nine (9) soil samples will be collected and analyzed.

3.4.2 Step 2. Lockdown:

3.4.2.1 After successful completion of Step 1 Visual Inspection, all soil surfaces shall receive an application of soil encapsulant. All other work area surfaces and building components in the work area (including floor decking, floor framing, brick walls, piping, and plastic sheeting), shall receive lockdown encapsulant.

3.4.3 Step 3. Final Re-occupancy Clearance:

3.4.3.1 A final inspection for re-occupancy will be performed by the Engineer on receipt of a written request for inspection from the Contractor. Evidence of dust, dirt, or debris identified during the inspection will necessitate further cleaning as heretofore specified.

3.4.3.2 TEM Clearance: When the work area passes the Engineer's re-occupancy inspection, the IH Technician will test for re-

occupancy using non-aggressive sampling techniques. Re-occupancy clearance air samples collected will be analyzed by TEM. Re-occupancy will be approved by the Engineer if the specified fiber count in the work area is achieved, as reported by the Testing Laboratory. Failure to achieve this level will necessitate further cleaning as heretofore specified.

- 3.4.3.3 When the work area passes the re-occupancy test, disconnect AFDs and seal the intake to the machine airtight with 6-mil plastic sheeting and tape. Remove all controls and seals established.

3.5 Other Information: Extra time required to clean work areas in order to achieve clearance criteria shall not be considered grounds for an extension of time for contract completion.

END OF SECTION - 01714

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01715 - CLEAN-UP AND CLEARANCE TESTING OF WORK AREA – LBP ABATEMENT

PART 1 - GENERAL

1.1 Section Includes

1.1.1 Cleaning and clearance procedures for LBP abatement areas.

1.2 Final Clearance: Final re-occupancy clearance inspection and clearance testing shall be performed by the Engineer. Visual inspections will be performed to determine if the work appears complete. Wipe samples will be collected to determine analytically the completeness of the abatement. Inspection and sampling requirements are outlined in this section.

1.3 Submittals:

1.3.1 During-Work Submittal:

1.3.1.1 A formal written request shall be submitted at least 24 hours in advance of required milestone inspections or clearance sampling performed by the Engineer.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 Daily Cleanup Procedure:

3.1.1 End of Day Cleaning: Perform cleaning prior to the end of each work day. Remove all debris from work area. Lead abatement work shall cease before beginning end of day cleaning.

3.1.1.1 HEPA vacuum all affected work area surfaces. Wet cleaning shall be performed using a solution of five percent tri-sodium phosphate (TSP) or other equally effective cleaning agent.

3.1.1.2 Handle all debris and cleaning waste as lead contaminated. Containerize all wash down waters for characterization prior to disposal.

3.2 Clearance Procedure -: Final cleaning and clearance of LBP abatement work areas shall be conducted in accordance with the procedures described below:

3.2.2 Preliminary Cleanup:

3.2.2.1 After cleaning the work area as specified in this specifications the Contractor shall perform a complete visual inspection of the work area to ensure that it is free of visible contamination. Remove lead waste from the work area in impermeable containers.

- 3.2.2.2 The Engineer will perform a visual inspection upon receipt of a written request for inspection from the Contractor. If the Engineer finds visible accumulations of dust in the work area, the Contractor shall repeat the cleaning as heretofore specified.
- 3.2.3 Clearance Testing: After successful completion of the Engineer's visual inspection the Engineer will conduct dust sampling the following day as follows:
- 3.2.3.1 Wipe sampling for settled lead-contaminated dust will be conducted in accordance with the "single sample wipe procedure" in HUD publication Guidelines for the Evaluation and Control of Lead-Based Paint, Appendix 13. Samples will be collected from surfaces LBP abatement was performed (Refer to Specification Section 01411 AIR MONITORING, INSPECTION AND TESTING REQUIREMENTS FOR LBP ABATEMENT).
- 3.2.3.2 A minimum of one wipe sample will be collected for every 500 square feet of affected cleaned surface area. Sample locations shall be selected in a random manner. The samples will be collected from any surface from the work area including floor, wall, ceiling, fixtures, ductwork etc.
- 3.2.4 Interpretation of Sample Results: Interpret results by comparing them to the clearance standards outlined in Specification Section 01411 AIR MONITORING, INSPECTION AND TESTING REQUIREMENTS FOR LBP ABATEMENT. Re-occupancy will be approved by the Engineer if the specified level of lead concentration for surfaces is achieved. Failure to achieve this level will necessitate further cleaning as heretofore specified.
- 3.2.5 Re-Testing: Should laboratory results indicate that the wipe test clearance level is exceeded, the Contractor shall reclean the affected area, at no additional cost to the Owner, utilizing the methods specified above. Re-testing will then be performed to verify compliance with clearance criteria. The Contractor shall pay for all additional testing required to clear area.
- 3.2.6 Activity Following Clearance: When the work area passes the re-occupancy test, remove all controls and seals established. Keep the work area sealed when there will be lead dust decontamination will be done in the adjacent area.

3.3 Clearance Procedure - Soil Removal: Final cleaning and clearance of LBP abatement work areas shall be conducted in accordance with the procedures described below:

- 3.3.2 Contractor Inspection: After cleaning the Contractor shall perform a complete visual inspection of the work area to ensure that the work is complete and the work area is free of visible contamination.
- 3.3.3 Engineer's Inspection: The Engineer will perform a visual inspection upon receipt of a written request for inspection from the Contractor. If the

Engineer finds loose and flaking paint or visible accumulations of loose dust in the work area, the Contractor shall correct deficiencies noted.

3.3.7 Clearance Testing: After successful completion of the Engineer's visual inspection the Engineer will conduct dust sampling the following day as follows:

3.3.7.1 Soil sampling will be conducted in accordance with the "Soil sampling" in HUD publication Guidelines for the Evaluation and Control of Lead-Based Paint, Appendix 13.3. Samples will be collected from surfaces LBP abatement was performed (Refer to Specification Section 01411 AIR MONITORING, INSPECTION AND TESTING REQUIREMENTS FOR LBP ABATEMENT).

3.3.7.2 A minimum of one composite sample will be collected for every work area of affected cleaned surface area. Sample locations shall be selected in a random manner.

END OF SECTION - 01715

DIVISION 2 - SITE WORK

SECTION 02080 - REMOVAL OF ASBESTOS CONTAINING MATERIALS

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 General requirements for removal of asbestos-containing materials from work areas prepared in accordance with Specification Section 01526 WORK AREA ENCLOSURES.
- 1.1.2 General requirements for maintaining work area enclosures during asbestos abatement.

1.2 Related Work: The work area shall be subjected to the Engineer's Pre-Removal Inspection (see **Specification** Section 01526 WORK AREA ENCLOSURES) prior to removal of asbestos as specified under this Section.

1.3 Submittals:

- 1.3.1 Pre-Work Submittal:
 - 1.3.1.1 Manufacturer's literature on all proposed job related equipment and products to be used. The Contractor shall include Material Safety Data Sheets (MSDS) for encapsulants, surfactants, and other chemicals to be used on this project.

PART 2 - PRODUCTS

2.1 Products: Provide materials and equipment required to satisfactorily perform the intended work.

- 2.1.1 Surfactant: Surfactant (Wetting Agent) shall consist of resin materials in a water base, which have been tested to ensure materials are non-toxic and non-irritating to skin and eyes. Surfactant shall be installed according to the manufacturer's written instructions.
- 2.1.2 Encapsulants: Encapsulants used during this work shall be compatible with the finish materials to be installed on encapsulated surfaces after asbestos abatement work is completed. The encapsulant shall carry a Class "A" fire resistance rating and shall have an ASTM E-162 flame spread index of 15 or less. A tint shall be given by the Contractor to the encapsulant by means of the addition of non-toxic, nonflammable colorings before application. The encapsulant shall be installed according to the manufacturer's written instructions.
- 2.1.3 Disposal Bags: Plastic Disposal Bags shall be a minimum of six mils in thickness. Markings and labels shall be in accordance with Specification Section 02089 LOAD-OUT AND DISPOSAL OF ACM.
- 2.1.4 Other Materials and Equipment: Provide HEPA vacuums, sprayers, cutting tools, scrapers, brushes, cleaning materials, adhesive, and other equipment required to perform the Work complete. Materials and equipment shall be new

or used, uncontaminated by asbestos, in serviceable condition, and appropriate for intended use.

2.2 Equipment: Equipment furnished under this section shall conform to applicable federal and state regulations, local codes, and the requirements specified herein.

2.2.1 Spraying Equipment: Equipment used to apply amended water or removal encapsulant shall be of a low pressure type to prevent disturbance of the asbestos prior to physical controlled removal. Asbestos encapsulant shall be spray-applied by an airless method.

PART 3 - EXECUTION

3.1 Removal of Asbestos-Containing Material:

3.1.1 General: The Contractor shall be responsible for the proper removal of ACM from the work area using standard abatement industry removal techniques. Work will be observed by the IH Technician. Approval of the Contractor's abatement techniques is required by the IH Technician to allow for the continuance of work.

3.1.1.1 ACM shall be wetted with amended water or removal encapsulant prior to being disturbed. Keep ACM wet during removal and disposal of these materials. Material packed in disposal containers shall be in a wet condition.

3.2 Additional Requirements:

3.2.1 Daily Clean Up: Remove all loose ACM, demolition debris, and bulk dust from the work area at the end of each work shift. In no instance shall loose ACM, demolition debris or bulk dust remain in the work area after completion of a work shift.

3.2.2 Stop Work Order: Stop work immediately if the work area barrier is breached in any manner. Do not resume asbestos abatement inside the work area until authorized in writing by the Engineer.

3.2.3 Extension of Work Area: If the critical barrier is breached in any manner that could allow the passage of asbestos debris or airborne fibers, then add affected area to the work area, enclose it as required by this Section, and decontaminate it as described in Specification Section 01714 CLEAN-UP AND CLEARANCE TESTING OF THE WORK AREA.

3.2.4 Waste Packaging: Refer to Specification Section 02089 LOAD-OUT AND DISPOSAL OF ACM for packaging requirements for ACM waste and other related materials.

END OF SECTION - 02080

DIVISION 2 - SITE WORK

SECTION 02082 - REMOVAL OF PIPE INSULATION

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 General requirements for removal of asbestos-containing insulation from piping and equipment in a work area prepared as a gross removal area.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

- 3.1 Gross Removal of Pipe and Equipment Insulation:** The Contractor may use the "gross removal" procedure described below or other standard abatement industry removal technique suited to the type, shape and construction of ACM, its attachment, devices, and protective coverings.

- 3.1.1 Gross Removal Procedure:

- 3.1.1.1 Prepare the area as described in Paragraph "Gross Removal Area Preparations" Specification Section 01526 WORK AREA ENCLOSURES. Spray asbestos materials with a fine mist of amended water or removal encapsulant, saturating materials to substrate. Spray the asbestos material repeatedly during work process to maintain a wet condition and to minimize asbestos fiber dispersion.
 - 3.1.1.2 Remove the saturated asbestos material in small sections. Remove insulation materials carefully and do not permit them to fall to the floor. Pack the material in sealable plastic bags as it is removed. Material shall not be allowed to dry out. As it is removed, pack the material in sealable plastic bags. Asbestos-contaminated materials that are likely to puncture plastic disposal bags shall be placed in hard-wall shipping containers.
 - 3.1.1.3 Prior to any work in steam tunnel and crawlspace, evaluate the work area for other hazards such as confined space hazards, hot steam piping, accessibility, emergency exits etc.
 - 3.1.1.4 For crawl space / tunnel work area, remove all piping insulation, debris and contaminated soil. Initially remove all contaminated soil with any suspect ACM visible debris and up to two inches of soil. In some area additional up to four inches of soil removal will be required.
- 3.1.2 After completion of all stripping work, surfaces from which ACM have been removed shall be wet brushed and sponged or cleaned by some equivalent method to remove all visible residue. Do not use wire brushes for cleaning.

3.2 Additional Removal Requirements:

- 3.2.1 Removal of ACM at Walls and Slabs: Completely remove ACM from sleeves that penetrate walls and concrete slabs.
- 3.2.2 Exposed Pipe Insulation Edges: At the terminal end of asbestos removal on piping and equipment, encapsulate exposed edges of remaining asbestos insulation. Wet and cut the rough ends true and square with sharp tools and enclose the edges with a 1/4-inch-thick layer of insulating cement trowelled to a smooth, hard finish. When insulating cement is dry, lag the end with a layer of fiberglass cloth and thermal insulation adhesive overlapping the existing ends by four inches.

END OF SECTION - 02082

DIVISION 2 - SITE WORK

SECTION 02083 - GLOVE BAG REMOVAL

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 General requirements for removal of the following asbestos-containing materials:
 - 1.1.1.1 Asbestos-containing debris;
 - 1.1.1.2 Pipe insulation using the glove bag technique in a contained work area;
 - 1.1.1.3 Pipe insulation using the wrap and cut technique.

1.2 Limitations for Glove Bag Use:

- 1.2.1 Applicability: Certain conditions must be present to proceed with the use of glove bags for asbestos removal. If these conditions are not met the glove bag removal technique shall not be used for the work. The conditions are as follows:
 - 1.2.1.1 Lagging or covering on ACM scheduled for abatement must be in good condition with little or no insulation debris present.
 - 1.2.1.2 The pipe or equipment to which the glove bag will be attached must be accessible from all sides. The glove bag must enclose the entire section of pipe or equipment scheduled for abatement.

PART 2 - PRODUCTS

- 2.1 **Products:** Provide materials and equipment required to satisfactorily perform the intended work.
 - 2.1.1 **Glove Bags:** Glove bags shall be manufactured of clear polyethylene material, and be seamless at the bottom. Provide glove bags with a minimum thickness of six mils, clear-plastic tool pouch and side port(s), and gloves that are heat sealed to sleeves. Glove bags shall be provided in sizes best suited for the work.
 - 2.1.2 **Other Equipment:** Provide HEPA vacuums, sprayers, cutting tools, and other materials and equipment required to perform the Work.

PART 3 - EXECUTION

- 3.1 **Asbestos-Containing Debris:** The Contractor shall use methods and equipment which will keep the fiber count during removal operations to less than 0.01 fibers/cc of air when tested by NIOSH Method 7400.
 - 3.1.1 **Procedure:**

- 3.1.1.1 Prepare the area as described in Specification Section 01526 WORK AREA ENCLOSURES, Paragraph "Glove Bag Removal Area Preparations".
- 3.1.1.2 Remove loose ACM or debris from the work area. Spray debris with amended water or removal encapsulant. While still wet, place loose pieces in 6-mil plastic bags.

3.2 Glove Bag Removal: The Contractor shall use the procedure as described below when using the glove bag technique for the removal of ACM from piping. Use methods and equipment which will keep the fiber count during removal operations to less than 0.01 fibers/cc of air when tested by NIOSH Method 7400.

3.2.1 Glove Bag Procedure for Contained Work Areas:

- 3.2.1.1 Prepare the area as described in Specification Section 01526 WORK AREA ENCLOSURES, Paragraph "Glove Bag Removal Area Preparations".
- 3.2.1.2 Two persons shall perform glove bag removal operations.
- 3.2.1.3 Place the glove bag around the section of pipe to be worked on, secure glove bag, and reinforce it. Glove bags shall provide an airtight seal around the area from which the asbestos is to be removed. Check for leakage by introducing smoke into the bag and then gently squeezing the bag with hand pressure. If any leaks occur, the bag shall be resealed and retested until no leakage occurs. This seal shall be continually maintained until all asbestos has been removed from the equipment surface enclosed within the glove bag.
- 3.2.1.4 If the section of pipe is covered with an aluminum jacket, this is removed first. It is important to fold in the sharp edges of the jacket to prevent cutting the bag when it is placed in the bottom. With the insulation exposed, cut the insulation inside the glove bag at each end of the section to be removed. Slit insulation from end to end and remove insulation from pipe. Throughout this process spray water on the cutting area to keep dust to a minimum.
- 3.2.1.5 Introduce water spray into glove bag when all insulation is removed and carry out recommended washing down procedure (tools, pipe, and upper half of bag). Scrub and wipe down the exposed pipe inside the glove bag. Apply lockdown sealant to all exposed insulation and pipe.
- 3.2.1.6 Remove excess air from glove bag with HEPA vacuum and remove glove bag from pipe. Continuous stripping or sliding of the glove bag shall not be allowed. Use glove bag for only one application prior to disposal. Place glove bag in a plastic disposal bag and seal bag.

3.3 Wrap and Cut of Complete Pipe Sections: The following procedure may be used for removal of complete pipe sections. Note that all piping scheduled for demolition shall be purged prior to cutting. Use methods and equipment which will keep the fiber count during removal operations to less than 0.01 fibers/cc of air when tested by NIOSH Method 7400.

3.3.1 Procedure:

- 3.3.1.1 Prepare the area as described in Specification Section 01526 WORK AREA ENCLOSURES, Paragraph "Glove Bag Removal Area Preparations".
- 3.3.1.2 Using the glove bag removal technique described in Paragraph "Glove Bag Procedure for Contained Work Areas" of this Section, remove strips of insulation at intervals along the length of the pipe to be demolished. The width of the strip removed should be sufficient for the use of a torch or power cutting equipment to cut pipe while leaving remaining insulation undisturbed.
- 3.3.1.3 Spray aerosol adhesive on insulated pipe and wrap it airtight in one layer of 6-mil plastic sheet. Cut pipe at exposed strips. Remove pipe section from work area as asbestos waste.

3.4 Additional Removal Requirements:

- 3.4.1 Coordination of the Work: For application of glove bags to active or hot piping or equipment insure that the working temperature of the glove bag material is not exceeded. In no circumstance shall a glove bag be applied to a pipe with a temperature greater than 150 degrees Fahrenheit.
- 3.4.2 Emergency Procedures: The following refers to asbestos contamination which occurs accidentally in an area prepared in accordance with Paragraph "Glove Bag Removal Area Preparations" of Specification Section WORK AREA ENCLOSURES. Each project activity in the work area shall be immediately discontinued if asbestos contamination of the general work area occurs as a result of damage to or improper use of glove bags or damage to any other friable ACM located within the area. Project activities shall not be resumed until all surfaces in the area that are likely to have become contaminated with asbestos fibers have been thoroughly cleaned with a HEPA vacuum or by wet cleaning methods. The Contractor shall notify the Engineer immediately of all emergency shutdown actions. Asbestos removal work shall not resume until the Contractor receives written notice from the Engineer.

END OF SECTION - 02083

DIVISION 2 - SITE WORK

SECTION 02085 - REMOVAL OF ASBESTOS-CONTAINING FLOOR COVERING

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Requirements for removal of asbestos-containing floor tile and floor tile mastic from an area prepared as a floor tile removal work area.

1.2 Applicability:

- 1.2.1 Contained Work Area Under Negative Pressure: A contained work area under negative pressure is required for removal of vinyl and asphalt flooring materials.

1.3 Requirements For Removal of VAT Mastic:

- 1.3.1 **Chemical solvents are not permitted for removal of VAT mastic.**

PART 2 - PRODUCTS

- 2.1 **Products:** Provide materials and equipment required to satisfactorily perform the intended work.

- 2.1.1 Mechanical Floor Mastic Remover: Portable abrasive system for removal of asbestos floor tile mastic from concrete floors. Provide edging tools and accessories to allow access into corners and other areas that require special treatment.

PART 3 - EXECUTION

- 3.1 **Flooring Material:** The work area shall be prepared as described in Specification Section 01526 WORK AREA ENCLOSURES, Paragraph "Flooring Removal Area Preparations". Use methods and equipment that will keep the fiber count during removal operations to less than 0.1 fiber/cc of air when tested by NIOSH Method 7400.

- 3.1.1 Procedure: The following procedure shall be used for removal of asbestos-containing floor tile and/or mastic.

- 3.1.1.1 Mist floors covered with asbestos-containing tile with amended water. Wet the material sufficiently to reduce the release of fibers if the tiles are broken upon removal. Continually wet the material during the removal process to minimize fiber dispersion.

- 3.1.1.2 Completely remove floor tile and adhesive backing using appropriate tools and materials. As material is removed, wrap it in two layers of plastic and place it in labeled containers for transport.

- 3.1.1.3 Use mechanical stripping/etching equipment or physical methods for flooring mastic removal from concrete subfloors. Mastic solvent removers are not permitted for use.

- 3.1.1.4 No bulk mastic residue shall remain on the floor surface following removal and cleaning. It is not necessary to remove asphaltic stain from pores of concrete.
- 3.1.1.5 On completion of floor mastic removal the floor shall be smooth, free from ridges, and suitable to receive replacement flooring.

END OF SECTION - 02085

DIVISION 2 - SITE WORK

SECTION 02087 - REMOVAL OF LEAD DUST

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 General requirements for removal of lead-containing materials from work areas prepared in accordance with Specification Section 01527 WORK AREA ENCLOSURES - LBP ABATEMENT.
- 1.1.2 General requirements for maintaining work area enclosures during lead abatement.

1.2 Related Work: The work area shall be subjected to the Engineer's Pre-Removal Inspection (see Specification Section 01526 WORK AREA ENCLOSURES) prior to removal of lead as specified under this Section.

1.3 Submittals:

- 1.3.1 Pre-Work Submittal:
 - 1.3.1.1 Manufacturer's literature on all proposed job related equipment and products to be used. The Contractor shall include Material Safety Data Sheets (MSDS) for cleaning detergents, LBP removal stripping agents, and other chemicals to be used on this project.

PART 2 - PRODUCTS

2.1 Products: Provide materials and equipment required to satisfactorily perform the intended work.

- 2.1.1 Disposal Containers: Disposal drums and bulk containers shall be in accordance with Specification Section 02088 LOAD-OUT AND DISPOSAL OF LBP.
- 2.1.2 Other Materials and Equipment: Provide HEPA vacuums, sprayers, cutting tools, scrapers, brushes, cleaning materials, adhesive, and other equipment required to perform the Work complete. Materials and equipment shall be new or used, uncontaminated by lead, in serviceable condition, and appropriate for intended use.

PART 3 - EXECUTION

3.1 Removal of Lead contaminated dust:

- 3.1.1 General: The Contractor shall be responsible for the proper cleaning of removal of lead dust from the work area using standard abatement industry removal techniques. Work will be observed by the Engineer. Approval of the Contractor's abatement techniques is required by the Engineer to allow for the continuance of work.
- 3.1.2 All surfaces including fixtures are contaminated with lead dust.

- 3.1.3 Cleaning of settled lead-contaminated dust should be conducted in accordance with the “Chapter 14 – Cleaning” HUD publication Guidelines for the Evaluation and Control of Lead-Based Paint.
- 3.1.4 The contractor shall establish detail step by step cleaning procedures and should be followed by all workers. Included below are suggested cleaning procedures, the contractor shall develop his cleaning procedures in accordance with HUD guidelines.
- o Assign responsibilities to specific workers for cleaning and for maintaining cleaning equipment. A visibly clean surface may contain high and unacceptable levels of dust particles and require special cleaning procedures. Have sufficient cleaning equipment and supplies *before* beginning work.
 - o Because the HEPA vacuum will be used to vacuum surfaces other than floors, attachments and appropriate tool kits for use on different surfaces—such as brushes of various sizes, crevice tools, beater bar (agitator head) and angular tools. Select appropriate size of HEPA vacuums with appropriate attachments. Use of wet-dry HEPA vacuum may be required.
 - o Trisodium phosphate (TSP) or other detergent should be used in appropriate dilution in accordance with the manufacturer’s guidelines. To avoid recontaminating an area by cleaning it with dirty water, users should follow manufacturer-specified surface-area limits.
 - o If contamination is extensive, especially in the Basement – Phases 1 and 2 areas, conduct precleaning of the work area before fine cleaning.
 - o Clean all furniture, items which will be removed from work area, using similar cleaning method prior to removal from the work area. Cleaned items will be inspected and tested prior to storage in clean area of the building. Conduct ongoing cleaning during the job, including regular removal of large and small debris and dust.
 - o Remove all large debris from the work area after wrapping in plastic sheeting or disposal bags.
 - o Decontamination of all tools, equipment, and worker protection gear is required before it leaves containment areas.
 - o HEPA vacuum all surfaces in the room (ceilings, walls, trim, and floors). Start with the ceiling and work down, moving toward the entry door. Completely clean each room before moving on.
 - o Electrical equipment should be wiped and high-efficiency particulate air (HEPA) vacuumed, not wetted down, to minimize electrocution hazards.
 - o **The HEPA/Wet Wash/HEPA Cycle** - The usual cleaning cycle that follows lead hazard control activities is called the HEPA vacuum/wet wash/HEPA cycle and is applied to an entire affected area as follows:
 - First, the area is HEPA vacuumed. Use special attachments to clean the area which are difficult to clean such as the floor meets the baseboard and along all the cracks in the floor boards.
 - For final cleaning, wait at least 1 hour after active lead hazard control activity has ceased to let dust particles settle.

- Next, the area is washed down. Wash all surfaces with a lead-specific detergent, high-phosphate detergent, or other suitable cleaning agent to dislodge any ground-in contamination, then rinse. Change the cleaning solution after every room is cleaned.
- After drying, the area is again HEPA vacuumed. Starting at the far end, work towards the decontamination area. Begin with ceilings or the top of the walls and work down, cleaning the floors last. Clean every inch of the all surfaces.
- To meet clearance standards consistently, a HEPA vacuum, wet wash, and HEPA vacuum cycle is recommended. Other cleaning methods are acceptable, as long as clearance criteria are met and workers are not overexposed.
- After final cleaning, perform a visual examination to ensure that all surfaces requiring lead hazard control have been addressed and all visible dust and debris have been removed. Record findings and correct any incomplete work.
- Request visual examination by the owner's representative.
- After successful visual inspection, clearance testing will be performed the following day.
- If clearance is not achieved, repeat the final cleaning.
- Paint or otherwise seal treated surfaces and interior floors.

3.1.5 Stop Work Order: Stop work immediately if the work area barrier is breached in any manner. Do not resume lead abatement inside the work area until authorized in writing by the Engineer.

3.1.6 Extension of Work Area: If contamination is suspected to have escaped the work area the affected area shall be added to the work area. Enclose the contaminated area as required and decontaminate it as described in Specification Section 01714 CLEAN-UP AND CLEARANCE TESTING OF THE WORK AREA.

3.2 Removal of lead contaminated soil:

3.2.1 General: Removal of soil removal should be conducted in accordance with the "Chapter 12 – Abatement – Soil and exterior dust abatement" HUD publication Guidelines for the Evaluation and Control of Lead-Based Paint. Work shall be performed following approval by the CIH or IH technician of the work area preparations.

3.2.3 Work Area Preparation and Removal:

- 3.2.3.1 Establish a non-contained regulated area around the subject component. Restrict access into the work area and provide Warning Signs at the perimeter of the work area.
- 3.2.3.2 Provide a hand washing facility on site.
- 3.2.3.3 Remove up to 6 inches of soil from the designated area. Collect removed soil in container for TCLP testing to determine disposal criteria.

- 3.2.3.5 After removal and approved visual inspection by the Owner's representative, soil will be tested for lead content using XRF analyzer. When test results indicate less than 400 ppm lead in soil, replace the non-lead (less than 100 ppm lead in soil) soil.

3.3 Additional Requirements:

- 3.3.1 Wastewater Collection: Rinse water used during the abatement shall be collected, filtered, and pumped to a holding tank for temporary storage. Wastewater shall be characterized prior to disposal in accordance with local regulations. Refer to Specification Section 02088 DISPOSAL OF LBP WASTES.
- 3.3.2 Daily Clean Up: Remove all loose LBP, demolition debris, and bulk dust from the work area at the end of each work shift. In no instance shall loose LBP, demolition debris or bulk dust remain in the work area after completion of a work shift.
- 3.3.3 Waste Packaging: Refer to Specification Section 02088 LOAD-OUT AND DISPOSAL OF LBP for packaging requirements for LBP waste and other related materials.

END OF SECTION - 02087

DIVISION 2 - SITE WORK

SECTION 02088 - LOAD-OUT AND DISPOSAL OF LBP WASTES

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Requirements for packaging lead waste.
- 1.1.2 Procedures for lead waste load-out from the work area.
- 1.1.3 Waste characterization and requirements for proper disposal.

1.2 Submittals:

- 1.2.1 Pre-Work Submittal:
 - 1.2.1.1 Description of the plan for LBP waste disposal. The Plan shall include procedures for waste packaging, load-out, temporary storage, location of approved disposal site, and a detailed description of the methods to be employed to control pollution during load-out.
 - 1.2.1.2 Proof of Contractor's U.S. EPA Identification Number for storage, transportation, and disposal of hazardous waste (refer to 40 CFR 262.12).
- 1.2.2 Post-Project Information:
 - 1.2.2.1 Receipts from the disposal facility operator, that acknowledges the Contractor's delivery(s) of material. Each receipt shall provide date, quantity of material delivered, and signature of authorized representative of disposal facility.
 - 1.2.2.2 Copy of all hazardous waste manifests used for shipment of LBP wastes and other hazardous wastes generated during the abatement project.

1.3 Waste Characterization and Disposal:

- 1.3.1 Owner's Requirements: The Owner's IH Testing Laboratory is responsible for collection of waste characterization samples for analysis by the TCLP.
- 1.3.2 Contractor Requirements: The Contractor shall provide transportation and disposal for solid wastes and hazardous wastes. Manifests shall be generated by the Contractor.

PART 2 - PRODUCTS

- 2.1 Products:** Provide materials and equipment required to satisfactorily perform the intended work.

2.1.1 Shipping Containers: Impermeable Containers shall be suitable to receive and retain any LBP waste materials for disposal at an approved facility. The containers shall be marked and labeled in accordance with this Section. Containers shall be both airtight and watertight and conform to DOT Standard 49 CFR 178.224. Each container shall be constructed of fiber, hard plastic, or metal, with locking, airtight lids. For larger waste components provide DOT bulk shipping containers.

2.1.2 Markings and Labels: Containers shall be marked and labeled in accordance with 40 CFR 262.30, .31, .32. Markings, labels, and generator identification information (including the Co-generator's EPA I.D. number) shall be permanently affixed to all drums and shipping containers. In addition, the completed information listed below shall be affixed to each container of lead waste:

HAZARDOUS WASTE-Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.

Generator's Name and Address _____

Manifest Document Number _____

2.1.2.1 Danger label format and color shall conform to 29 CFR 1926.200. Danger labels shall display the following legend/information:

DANGER
POISON
LEAD DUST HAZARD

2.2 Equipment:

2.2.1 Pedestrian Barricades: Provide barricades with a danger sign designating area as a lead waste handling area.

2.2.2 Vehicles: Trucks or Vans used for the transportation of lead waste shall be enclosed and suitable for loading, temporary storage, transit, and unloading of lead-contaminated waste without exposure of persons or property. Vehicles shall be placarded in accordance with 49 CFR 172.

PART 3 - EXECUTION

3.1 LBP Waste Packaging And Load Out Procedures: Packaging of LBP shall conform to DOT 49 CFR 171,172, and 173, and the requirement as heretofore specified. Lead contaminated items shall be placed into hard wall shipping containers for handling. Specific requirements for waste packaging, decontamination of waste containers, and load out through decontamination enclosure systems are outlined below:

3.1.1 Segregation of LBP Wastes: Lead waste shall be placed into properly labeled water- and air-tight drums. Lead waste shall be segregated as to degree of contamination. Suggested groups for waste segregation includes:

- LBP chips, dust, scrapings, and other waste considered as the most heavily contaminated with LBP.
 - Materials considered as moderately contaminated LBP waste to include personal protective equipment and plastic sheeting. HEPA vacuum all protective clothing, plastic sheeting, and other moderately contaminated materials prior to placement into disposal drums.
- 3.1.4 Load-Out From Work Area: Move disposal drums, shipping containers and other packaged waste to the decontamination shower room, wet clean the outer surface, and move waste to a secure storage area outside the decontamination enclosure system for waste characterization testing. Time of accumulation shall be marked on each LBP waste container.
- 3.1.5 Decontamination Enclosure Maintenance: Thoroughly clean the decontamination enclosure system immediately upon completion of the waste load-out activities, and at the completion of each work shift.

3.2 Characterization Of LBP Wastes:

- 3.2.1 Solid Waste Characterization: The Owner's IH Testing Laboratory representative will perform waste characterization. Lead contaminated waste will be sampled and submitted for testing by the Contractor to determine if the waste is hazardous in accordance with 40 CFR 261.10 using the Toxicity Characteristic Leaching Procedure (TCLP) as defined in Appendix II to 40 CFR 261.
- 3.2.1.1 Representative samples from each waste stream will be collected (most contaminated, moderately contaminated, and least contaminated wastes). LBP wastes shall be classified as hazardous waste if leachable levels of the following elements area present:
- | | |
|---------------|-------------------------------|
| D005 Barium | 100 milligram per liter (ppm) |
| D006 Cadmium | 1.0 milligram per liter (ppm) |
| D007 Chromium | 5.0 milligram per liter (ppm) |
| D008 Lead | 5.0 milligram per liter (ppm) |
| D009 Mercury | 0.2 milligram per liter (ppm) |
- 3.2.1.2 In addition to the above parameters, chemical wastes shall also be classified as hazardous if the solid waste exhibits the characteristic of corrosivity (40 CFR 261.22), ignitability (40 CFR 261.21), or reactivity (40 CFR 261.23).
- 3.2.1.3 Based on the results of waste characterization testing the Contractor shall prepare a written notification, in accordance with 40 CFR 268.7(a)(1) and (2), to the appropriate treatment, storage, or disposal facility to which the waste will be shipped.

Notification as defined above shall be signed by the Contractor and shall accompany each shipment of waste.

- 3.2.2 Wastewater Characterization: Wash-down and rinse water used during lead abatement shall be retained in a storage tank. These wastewaters shall be tested for soluble lead using EPA Method 239.2. Wastewater found to exceed 0.015 ppm lead shall be transported to a treatment plant that will accept the water for treatment. Wastewater below these levels of lead can be released to the sanitary sewer.

3.3 Transportation And Disposal Of Lead-Contaminated Waste:

- 3.3.1 Storage of Containerized LBP: Remove sealed and labeled disposal containers of LBP from the work area and place in a lockable trailer, dumpster, or other container approved for storage or transport of lead waste. Lead-containing waste shall remain under the positive control of the Contractor and must never be left unattended in an area or on a vehicle where unauthorized persons could gain access.
 - 3.3.1.1 Provide a pedestrian barricade(s) and post with a visible Danger Sign(s) during activities involving movement of containerized lead waste from the work area, or loading or unloading of containerized lead waste from storage containers or transport vehicles. Provide signed barricades at the approach to the areas where LBP waste will be handled. Place signed barricade in a manner that will sufficiently block passage of pedestrians into a waste handling area.
 - 3.3.1.2 Trucks hauling lead waste shall be totally enclosed to prevent loss or damage to waste containers in route to approved disposal facility.

3.4 Transportation and Disposal of Hazardous Waste:

- 3.4.1 Manifest: A properly completed manifest (EPA form 8700-22) shall accompany hazardous waste transported to the treatment, storage, or disposal site. The Contractor shall use the Owner's EPA identification number FLD000608125, and also sign the manifest as a Cogenerator. Prior to shipment the Contractor shall provide one copy of the manifest to the FSU Department of Environmental Health & Safety personnel for signature. Following delivery of the waste, the Contractor shall provide one copy of the executed manifest form and waste receipt to the Owner as a submittal.
- 3.4.2 Transporter: The hazardous waste transporter shall be licensed and have the appropriate EPA ID number.
- 3.4.3 Placarding: Before transporting hazardous waste vehicles shall be placarded in accordance with DOT regulation 49 CFR 172.

- 3.4.4 Third Party Supervision: All shipments of hazardous waste must be supervised by the FSU Department of Environmental Health and Safety Hazardous Materials Manager. Provide the Department notification 24-hours in advance of any shipment of special or hazardous wastes.

END OF SECTION - 02088

DIVISION 2 - SITE WORK

SECTION 02089 - LOAD-OUT AND DISPOSAL OF ACM

PART 1 - GENERAL

1.1 Section Includes:

- 1.1.1 Requirements for packaging and decontamination of containerized asbestos waste.
- 1.1.2 Procedures for asbestos waste load-out from the work area.

1.2 Submittals:

- 1.2.1 Pre-Work Submittal:
 - 1.2.1.1 Description of the plan for ACM waste disposal. The Plan shall include procedures for waste load-out, location of approved disposal site, and a detailed description of the methods to be employed to control pollution during load-out.
- 1.2.2 Post-Project Information:
 - 1.2.2.1 Receipts from the landfill operator, that acknowledge the Contractor's delivery(s) of material. Each receipt shall provide date, quantity of material delivered, and signature of authorized representative of landfill.
 - 1.2.2.2 Certified, signed, and completed Waste Shipment Record.

PART 2 - PRODUCTS

2.1 Products: Provide materials and equipment required to satisfactorily perform the intended work.

- 2.1.1 Disposal Bags: Plastic Disposal Bags shall be a minimum of six mils in thickness. Markings and labels shall be in accordance with this Section.
- 2.1.2 Shipping Containers: Impermeable Containers shall be suitable to receive and retain any asbestos-containing or asbestos-contaminated materials until they are disposed of at an approved landfill. The containers shall be marked and labeled in accordance with this Section. Containers shall be both airtight and watertight and conform to DOT Standard 49 CFR 178.224. Each container shall be constructed of fiber, hard plastic, or metal, with locking, airtight lids.
- 2.1.3 Markings and Labels: Disposal bags and shipping containers shall bear danger labels, transportation packaging marking and labels, and generator identification information. Markings and labels shall be permanently affixed to all bags and shipping containers containing ACM, in accordance with OSHA Standard 29 CFR 1926.1101(k)(7), DOT Standard 49 CFR 172, and EPA Standard 40 CFR Part 61.150(a)(1)(v).

- 2.1.3.1 Danger label format and color shall conform to 29 CFR 1926.200. Danger labels shall display the following legend/information in accordance with OSHA 29 CFR 1926.1101(k)(7):

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG
DISEASE HAZARD

- 2.1.3.2 Generator identification information shall be affixed to each package. DOT label format and color shall conform to DOT Standard 49 CFR 172.304. Generator identification information labels shall display the following legend/information in accordance with EPA 40 CFR Part 61.150(a)(1)(v):

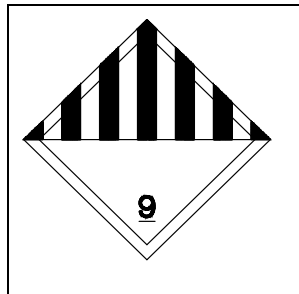
GENERATORS NAME _____
FACILITY ADDRESS _____

- 2.1.3.3 DOT Markings and Labels: Markings and Labels shall be permanently affixed to all bags and containers containing ACM, in accordance with DOT 49 CFR 172.304 and 172.407.

- a. Markings shall display the following text:

RQ, ASBESTOS, NA 2212

- b. Labels shall be diamond shape and shall be located near the Marking text. Labels will consist of a diamond a minimum of 100 millimeters (mm) on each side with each side having a solid line inner boarder 5.0 to 6.3 mm from the edge. The label shall be white with seven black vertical stripes on the top half. Black stripes and white spaces shall be equally spaced. The lower half of the label shall be white with the class number "9" underlined and centered at the bottom. Refer to DOT 40 CFR 172.446 for label format.



- 2.1.4 Reuse of Containers: If impermeable containers used to transport bagged asbestos waste to the landfill are to be reused, the empty containers shall display the following label:

RESIDUE:
LAST CONTAINED ASBESTOS RQ

2.2 Equipment:

- 2.2.1 Carts: Provide water tight wheeled carts with tight fitting lids suitable for movement of non-contaminated waste or bagged asbestos waste from the decontamination enclosure system to the waste storage container or transport vehicle.
- 2.2.2 Pedestrian Barricades: Provide barricades with Danger Sign designating area as an asbestos waste handling area. Barricades shall have an audible warning beeper.
- 2.2.3 Vehicles: Trucks or Vans used for the transportation of asbestos waste shall be enclosed and suitable for loading, temporary storage, transit, and unloading of asbestos-contaminated waste without exposure of persons or property.

PART 3 - EXECUTION

3.1 ACM Waste Packaging And Load Out Procedures: Packaging of ACM shall conform to OSHA Standard 29 CFR 1926.1101, DOT 49 CFR 171,172, and 173, EPA Standard 40 CFR Part 61, and the requirement as heretofore specified. ACM waste shall be placed in a wet condition into properly labeled disposal bags. Asbestos-contaminated materials that are likely to puncture plastic disposal bags (wire, plaster, pipe, etc.) shall be placed in hard wall shipping containers for handling and transport to the disposal site. Specific requirements for waste packaging, decontamination of waste containers, and waste load-out through decontamination enclosure systems is outlined below:

- 3.1.1 Waste Load-Out Through Equipment Decontamination Enclosure: The following waste packaging and decontamination procedures shall be used when removing ACM from the work area by load-out through the equipment decontamination enclosure system:
- 3.1.1.1 Place asbestos waste in disposal bags. Large items not able to fit into disposal bags shall be wrapped in one layer of 6-mil thick plastic sheeting. Clean outer covering of asbestos waste package by wet cleaning and/or HEPA vacuuming in a designated part of the work area. Move wrapped asbestos waste to the equipment washroom, wet clean each bag or object and place it inside a second disposal bag, or a second layer of 6-mil plastic sheeting, as the item's physical characteristics demand. Air volume shall

be minimized, and the bags or sheeting shall be sealed airtight with tape.

3.1.1.2 The clean containerized items shall be moved to the equipment decontamination enclosure holding area pending load-out to storage or disposal facilities.

3.1.1.3 Load-out of containers from the decontamination enclosure holding area shall be performed by workers who have entered the equipment decontamination enclosure system from the uncontaminated non-work area. Dress workers moving asbestos waste to storage or disposal facilities in clean overalls of a color different than from that of coveralls used in the work area. Ensure that workers do not enter from uncontaminated areas into the equipment washroom or the work area. Ensure that contaminated workers do not exit the work area through the equipment decontamination enclosure system.

3.1.1.4 Thoroughly clean the equipment decontamination enclosure system immediately upon completion of the waste load-out activities, and at the completion of each work shift.

3.1.2 Waste Load-Out Through Building: Bagged asbestos waste materials to be transported through a non-work building area shall be placed in either water tight wheeled carts or hard wall shipping containers for movement through the building. Carts used to move asbestos waste shall be thoroughly cleaned once each day. Shipping containers used for waste transport shall be emptied or disposed at the landfill, as appropriate.

3.2 Transportation And Disposal Of Asbestos-Contaminated Waste:

3.2.1 Storage of Containerized ACM: As the work progresses, remove sealed and labeled disposal bags/drums of ACM from the work area and place in a lockable trailer, dumpster, or other container approved for storage or transport of asbestos waste. Asbestos-containing waste shall remain under the positive control of the Contractor and must never be left unattended in an area or on a vehicle where unauthorized persons could gain access.

3.2.2 Sealed and labeled disposal bags/drums shall be used to transport asbestos-contaminated waste to the landfill. Procedures for hauling and disposal shall comply with 40 CFR Part 61, 49 CFR Part 171 and 172, and other applicable state, regional, and local government regulations. Procedures for removal from the work area and disposal of waste are outlined below:

3.2.2.1 A properly completed "Waste Shipment Record" form shall accompany asbestos waste transported to a disposal site. This form shall be signed by each party who has control over the asbestos waste, and a copy retained by each party as responsibility for the waste is transferred to the next party. An

example Waste Shipment Record form is included in the Appendix to this Section. Copies of all manifest forms and waste receipts shall be provided as a submittal.

- 3.2.2.2 Trucks hauling asbestos waste shall be totally enclosed to prevent loss or damage to waste containers in route to approved landfill. The interior of the vehicles shall be lined with two layers of 6-mil plastic.
- 3.2.2.3 Provide a pedestrian barricade(s) and post with a visible Danger Sign(s) during activities involving movement of containerized asbestos waste from the work area, or loading or unloading of containerized asbestos waste from storage containers or transport vehicles. Provide signed barricades at the approach to the areas where ACM waste will be handled. Place signed barricade in a manner that will sufficiently block passage of a pedestrian into a waste handling area. Barricade Danger Sign shall conform to the requirements of EPA Standard 40 CFR Part 61.149 (d)(1) (see Specification Section 01526 WORK AREA ENCLOSURES).
- 3.2.2.4 Only sealed plastic bags or drums are permitted to be deposited in landfill. Damaged, broken, or leaking plastic bags shall remain in the drum, and the drum shall be deposited in the landfill. Workers shall place asbestos waste in the landfill. Throwing or dumping of containers shall not be allowed. Workers unloading and handling the sealed bags/drums at the disposal site shall wear appropriate personnel protective equipment including respirators and protective clothing.
- 3.2.2.5 After the vehicle is unloaded at the landfill, the plastic sheeting that was taped to truck interior shall be carefully removed and placed in properly labeled bags for disposal with the rest of the waste.

END OF SECTION - 02089

SECTION 02089

APPENDIX

WASTE SHIPMENT RECORD FORM WITH INSTRUCTIONS

WASTE SHIPMENT RECORD FORM^a**~~RQ, ASBESTOS, CLASS 9, NA 2212, III~~**

1. Work site name and mailing address	Owner's Name	Owner's telephone no.
2. Operator's name and address		Operator's telephone no.
3. Waste disposal site (WDS) name, mailing address, and physical site location		WDS phone no.
4. Name and address of responsible agency		
5. Description of materials	6. Containers No. Type	7. Total quantity m ³ (yd ³)
8. Special handling instructions and additional information		
9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.		
Printed/typed name and title	Signature	Month Day Year
10. Transporter 1 (Acknowledgment of receipt of materials)		
Printed/typed name and title	Signature	Month Day Year
Address and telephone no.		
11. Transporter 2 (Acknowledgment of receipt of materials)		
Printed/typed name and title	Signature	Month Day Year
Address and telephone no.		
12. Discrepancy indication space		
13. Waste disposal site owner or operator: Certification of receipt of asbestos materials covered by this manifest except as noted in Item 12.		
Printed/typed name and title	Signature	Month Day Year

WASTE SHIPMENT RECORD FORM^a

INSTRUCTIONS

Waste Generator System (Items 1-9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.
2. If a demolition or renovation, enter the name and address of the company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.
3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.
4. Provide the name and address of the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program.
5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is
 - Friable asbestos material
 - Non-friable asbestos material
6. Enter the number of containers used to transport the asbestos materials listed in Item 5. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):
 - DM - Metal drums, barrels
 - DP - Plastic drums, barrels
 - BA - 6 mil plastic bags or wrapping
7. Enter the quantities of each type of asbestos material removed in units of cubic meters (cubic yards).

^aSource - EPA Standard 40CFR Part 61.

WASTE SHIPMENT RECORD FORM^a

INSTRUCTIONS (Continued)

8. Use this space to indicate special transportation, treatment, storage or disposal or Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.
9. The authorized agent of the waste generator must read and then sign and date this certification. The date is the date of receipt by transporter.

NOTE: The waste generator must retain a copy of this form.

Transporter Section (Items 10 & 11)

10. & 11. Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport. Enter date of receipt and signature.

NOTE: The transporter must retain a copy of this form.

Disposal Site Section (Items 12 & 13)

12. The authorized representative of the WDS must note in this space any discrepancy between waste described on this manifest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to non-asbestos material is considered a WDS.
13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in Item 12. The date is the date of signature and receipt of shipment.

NOTE: The WDS must retain a completed copy of this form. The WDS must also send a completed copy to the operator listed Item 2.

^aSource - EPA Standard 40CFR Part 61.

**ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA**

- **DRAWING NOTES (15 PAGES)**
- **ASBESTOS & LBP ABATEMENT DRAWINGS (4 PAGES)**
- **ASBESTOS SURVEY REPORT**



Drawing Notes
ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA

Page 1 of 15

8/25/2010

DRAWING INDEX

- AA-1 LBP Abatement - Basement Floor
- AA-2 LBP Abatement - First Floor
- AA-3 Asbestos Abatement - Basement Floor
- AA-4 Asbestos Abatement - First Floor

INTENT OF THE PROJECT

Florida Highway Patrol Building (FHP) contains friable and non-friable asbestos containing materials (ACM) and lead contaminated dust. The intent of this project is to remove and disposal (i) decontaminate the lead dust contaminated area, (ii) all ACM and asbestos-contaminated materials.

SCOPE OF WORK

The scope of work for this project is;

Option/Phases	Scope of work
Lead Abatement	• Lead dust decontamination in the designated areas Basement and First Floors. • Disposal of lead dust contaminated material including HVAC ducts in the basement floor.
Asbestos Abatement	• Abatement of all ACM and asbestos contaminated material from Basement and First Floors.

All work shall be performed in strict compliance with project specifications and drawings.

PHASES AND WORK AREAS:

Lead dust decontamination in the work area shall be completed prior to start of any other work. Lead decontamination work is divided in multiple phases and sequence. The work will be performed in multiple phases. Multiple mobilizations may be required.

During work other area of the building will remain unoccupied.



Drawing Notes
ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA

Page 2 of 15

8/25/2010

PROJECT SCHEDULE

Project schedule shall be determined by the FSU. All work shall be completed within 50 days of notice to proceed.

APPROXIMATE QUANTITIES

- The Contractor shall estimate quantity of lead dust decontamination.
- Approximate quantities of ACM are summarized for general purpose. Asbestos Survey Report is included for information. For location of ACM see Drawings in Asbestos Survey Report.
- Flooring material quantities are indicated as single layer. Many locations may contain multiple layers of flooring materials. No change order shall be considered based upon multiple layers of flooring material. In some locations floor tile may be present underneath the wall; the asbestos contractor is responsible for removal of this floor tile as ACM. In many areas the flooring material is located under carpet. Flooring materials include floor tile, adhesive mastic, sheet flooring, baseboard and baseboard mastic, carpet etc.
- In many areas removal of suspended ceilings or plaster ceiling will be required to access ACM. No change order shall be considered based upon removal of suspended ceiling systems to access ACM.
- In some locations, asbestos-containing piping insulation may be present in the pipe chases, the wall or in the ceiling. Asbestos contractor is responsible for accessing the piping insulation for verification and removal if discovered during the demolition. Approximate quantity does not include pipe insulation in the pipe chases.
- Approximate ACM quantity does not include quantity of asbestos contaminated material.
- Approximate ACM quantity does not include non-ACM piping. For both floors remove all piping insulation.



Drawing Notes
ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA

Page 3 of 15

8/25/2010

ACM QUANTITY

Type of Material	Basement Floor	First Floor
• TSI	• 1500 lf piping • 150 sf tank	• 1250 lf piping
• Flooring material with mastic	• 1500 sf	• 5000 sf
• Ceiling tile	•	• 120 sf
• Duct mastic	• 200 sf	• 150 sf
• Transite	• 1100 sf	
• Gasket	• 50 sf	

Flooring Material - vinyl asbestos tile and adhesive mastic, sheet flooring, baseboard mastic, carpet.

TSI - thermal system insulation, includes pipe runs and fittings.

Transite - asbestos cement boards/panels.

¹Duct mastic - on fiberglass insulation as well as on duct.

GENERAL NOTES

1. This drawing set was compiled from record drawings and site visits for the purpose of indicating general location of the work to be performed. All dimensions, material locations, and quantities indicated on the drawings and in drawing notes are approximate.
2. When removal locations, dimensions, quantities, or procedures are in question, consult contract documents, architectural plans, mechanical plans, Owner's on site representative, for direction.
3. The work for this project may be divided into multiple phases.
4. Fall protection shall be required for work during this project. The contractor shall review and comply with "OSHA" fall protection requirements as outlined in 29 CFR 1926 subpart m, and 1926.500 through 1926.503.
5. Coordinate temporary utility hookups through the FSU.



Drawing Notes
ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA

Page 4 of 15

8/25/2010

6. Coordinate connection of temporary power and cutoff of service with the CM. Verify that all power in the work area has been disconnected. In instances where wiring inside conduit crossing a work area cannot be de-energized, identify and label energized conduit as specified in section 01503, 3.1.2
7. Exhaust Air Filtration Device (AFD) to outside through window(s) or other openings.
8. In some instances removal of cabinets, bookshelves, baseboard molding, thresholds, etc. are required to access flooring material. The contractor shall salvage or dispose of these items as directed by the FSU.
9. In some instances removal of carpeting is required to access flooring material. Removal of carpeting to access flooring material is considered part of the work. No change order shall be considered based solely upon removal of carpeting.
10. All plastic sheeting and lumber installed within the building shall be fire retardant in accordance with specifications. All references in to plastic sheeting and lumber in specifications and drawing notes shall be interpreted to mean fire rated.

WORK AREA NOTES -ASBESTOS ABATEMENT

FLOORING MATERIAL

- All asbestos abatement shall be performed as gross removal work area as OSHA Class I removal activity.
- Completely isolate the work area prior to beginning work area preparation.
- Install critical seals using one layer of 6-mil plastic sheeting and prepare area below ceiling for flooring material removal. Plasticization of ceiling will not be required, plasticize the wall, 6 feet from the floor, using one layer of 6-mil plastic sheeting.
- Construct decontamination enclosure system.
- Initiate operation of AFD units.
- Remove any fixed or loose objects to access all flooring material to be removed.
- After pre-removal inspection by the Owner's representative, proceed with removal of ACM. **Use of approved mastic remover solvent will be permitted;** use mechanical/chemical method to remove all adhesive mastic.



Drawing Notes
ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA

Page 5 of 15

8/25/2010

THERMAL SYSTEM INSULATION (PIPING AND DUCT INSULATION)

- Removal of ceiling tile and other ceiling will be required to access ACM. All contaminated material shall be treated as RACM.
- The work areas with piping insulation, duct insulation with asbestos containing tape and white mastic.
- Install critical seals using one layer of 6-mil plastic sheeting.
- Selective demolition of walls and ceiling may be required to access all piping insulation to be removed.
- Completely isolate the work area prior to beginning work area preparation. For some work area construction of temporary partition will be required to isolate the work area. Plasticization of walls and ceiling will be required using one layer of 6-mil plastic sheeting.
- Prepare the work area for Gross removal work area.
- Construct decontamination enclosure system.

TRANSITE PANEL

- The work areas with Transite panels without any other ACM in the work area.
- This Install critical seals using one layer of 6-mil plastic sheeting.
- Completely isolate the work area and establish regulated area prior to beginning work area preparation. Plasticization of walls and ceiling will not be required. Enclosed work area will be required.
- Construct decontamination enclosure system.
- Initiate operation of AFD units.
- After pre-removal inspection by the Owner's representative, proceed with removal of ACM.

WORK AREA CLEARANCE

Each work area will be cleared for re-occupancy with PCM and TEM air samples using aggressive sampling method.



Drawing Notes
ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA

Page 6 of 15

8/25/2010

WORK AREA NOTES -LEAD ABATEMENT

- The intent of removal of lead dust from the designated areas to decontaminate lead dust from all surfaces to HUD/EPA lead dust clearance of 40 ug/square foot.
- The Contractor shall visit the site to determine the approximate quantity of the work.
- Removal shall be performed in accordance with the specifications.
- Remove and dispose all ducts as lead contaminated material.
- The work is divided into multiple work areas.

1. Basement - Phase 1 (Firing Range)

- This area is heavily contaminated with lead dust.
- Install decontamination unit first then install AFD.
- Tracking lead dust from the work area to outside is a big problem. The contractor shall all precautions to prevent tracking lead dust from work area to outside.
- There are large waste debris on the floor such as boxes, papers etc. which should be placed in plastic bags prior to disposal.
- There are certain items inside the work area which cannot be cleaned effectively. These items include shooting booth partitions, return grill etc. These items should be precleaned with HEPA vacuum and then wrap in one layer of plastic before disposal. When there is question about which item can be demolished, consult the Owner or the Owner's representative.
- Asbestos containing transite wall panels and piping insulation should be removed and disposed of as ACM.
- HVAC and exhaust duct work inside the area will be demolished, and should be precleaned with HEPA vacuum and then wrap in one layer of plastic before disposal.
- Demolition of baffles at far end of the firing range should be demolished to access back side of the firing range. Demolished items should be precleaned with HEPA vacuum and then wrap in one layer of plastic before disposal.
- Proceed with dust cleaning in accordance with the specifications. Clean each and every surface within the work area.
- After successful clearance testing, seal the floor, wall, ceiling and other surfaces with appropriate sealant.

2. Basement - Phase 2

- This area is heavily contaminated with lead dust.



Drawing Notes
ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA

Page 7 of 15

8/25/2010

- Install decontamination unit first then install AFD.
- There are certain items inside the work area which cannot be cleaned effectively. These items should be precleaned with HEPA vacuum and then wrap in one layer of plastic before disposal. When there is question about which item can be demolished, consult the Owner or the Owner's representative.
- Decontaminate interior of the AHU compartment for lead dust.
- Asbestos containing stored traniste panels; floor tile and gasket/rope material should be removed and disposed of as ACM.
- There are tools and other stored items in the Room B6, the Contractor shall clean these items and store, if it is required by the Owner for use.
- Removal of ACM from the mechanical area should begin after successful clearance for lead decontamination.
- Remove and dispose ceiling tile in Room B5-A to access above ceiling space for cleaning.
- Proceed with dust cleaning in accordance with the specifications. Clean each and every surface within the work area.

3. Basement - Phase 3

- This area is heavily contaminated with lead dust.
- Install decontamination unit first then install AFD.
- There are certain items inside the work area which cannot be cleaned effectively. These items should be precleaned with HEPA vacuum and then wrap in one layer of plastic before disposal. When there is question about which item can be demolished, consult the Owner or the Owner's representative.
- Removal of ACM from the mechanical area (Option 2) should begin after successful clearance for lead decontamination.
- Proceed with dust cleaning in accordance with the specifications. Clean each and every surface within the work area.

4. Basement - Phase 4

- This area is heavily contaminated with lead dust.
- Install decontamination unit first then install AFD.
- There are certain items inside the work area which cannot be cleaned effectively. These items should be precleaned with HEPA vacuum and then wrap in one layer of plastic before disposal. Remove carpet from Rooms B12, A, B as part of cleaning.



Drawing Notes
ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA

Page 8 of 15

8/25/2010

When there is question about which item can be demolished, consult the Owner or the Owner's representative.

- Proceed with dust cleaning in accordance with the specifications. Clean each and every surface within the work area.
- Removal of ACM from the mechanical area (Option 2) should begin after successful clearance for lead decontamination.

5. Stairs

- Cleaning both stairwells should be considered as separate work areas to prevent tracking of lead dust. Each stairwell from bottom to top floor should be included in work area. This will also include window in the stairwell.
- Cleaning of floor and walls up to five feet from the floor level; and all horizontal surfaces should be cleaned.
- Install decontamination unit first then install AFD.
- Proceed with cleaning Proceed with dust cleaning in accordance with the specifications.

6. First Floor

- This area is divided into multiple work area.
- Install decontamination unit first then install AFD.
- There are certain items inside the work area which cannot be cleaned effectively. These items should be precleaned with HEPA vacuum and then wrap in one layer of plastic before disposal. Remove carpet from Rooms 160, 107 as part of cleaning. When there is question about which item can be demolished, consult the Owner or the Owner's representative.
- Cleaning of floor and walls up to five feet from the floor level; and all horizontal surfaces should be cleaned. For Mechanical Room 105, all surfaces should be cleaned.
- Removal of ACM from the area should begin after successful clearance for lead decontamination.
- Proceed with cleaning Proceed with dust cleaning in accordance with the specifications.



Drawing Notes
ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA

Page 9 of 15

8/25/2010

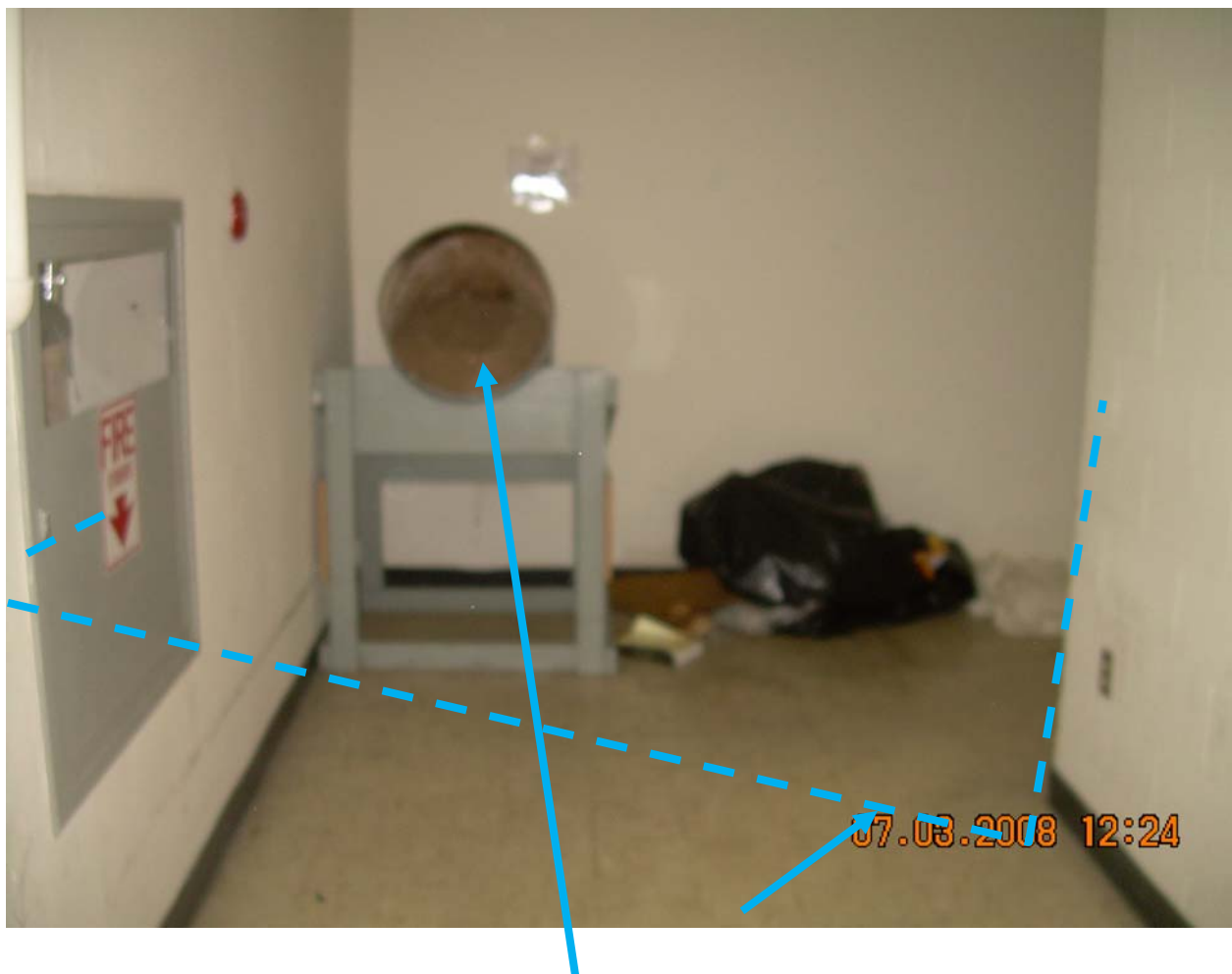


Photo 1 – Contaminated soil in drum in Basement Phase 3 work area, should be treated as lead contaminated waste.



Drawing Notes
ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA

Page 10 of 15

8/25/2010



Photo 2 – Return grill – In Firing range, clean, remove wrap and dispose



Drawing Notes
ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA

Page 11 of 15

8/25/2010



Photo 3 – Shooting Booths – Firing range, clean, remove, wrap and dispose



Drawing Notes
ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA

Page 12 of 15

8/25/2010



Photo 4 – Firing range – Baffles to be demolished to access back of this wall



Drawing Notes
ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
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Page 13 of 15

8/25/2010



Photo 5 – Basement Room B6, all stored material, furniture etc. – clean, wrap and dispose



Drawing Notes
ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA

Page 14 of 15

8/25/2010



Photo 6 – Basement Room B6, all stored material, furniture etc. – clean, wrap and dispose



Drawing Notes
ASBESTOS AND LEAD ABATEMENT
FLORIDA HIGHWAY PATROL BUILDING
THE FLORIDA STATE UNIVERSITY
2908 RIDGEWAY ST., TALLAHASSEE, FLORIDA

Page 15 of 15

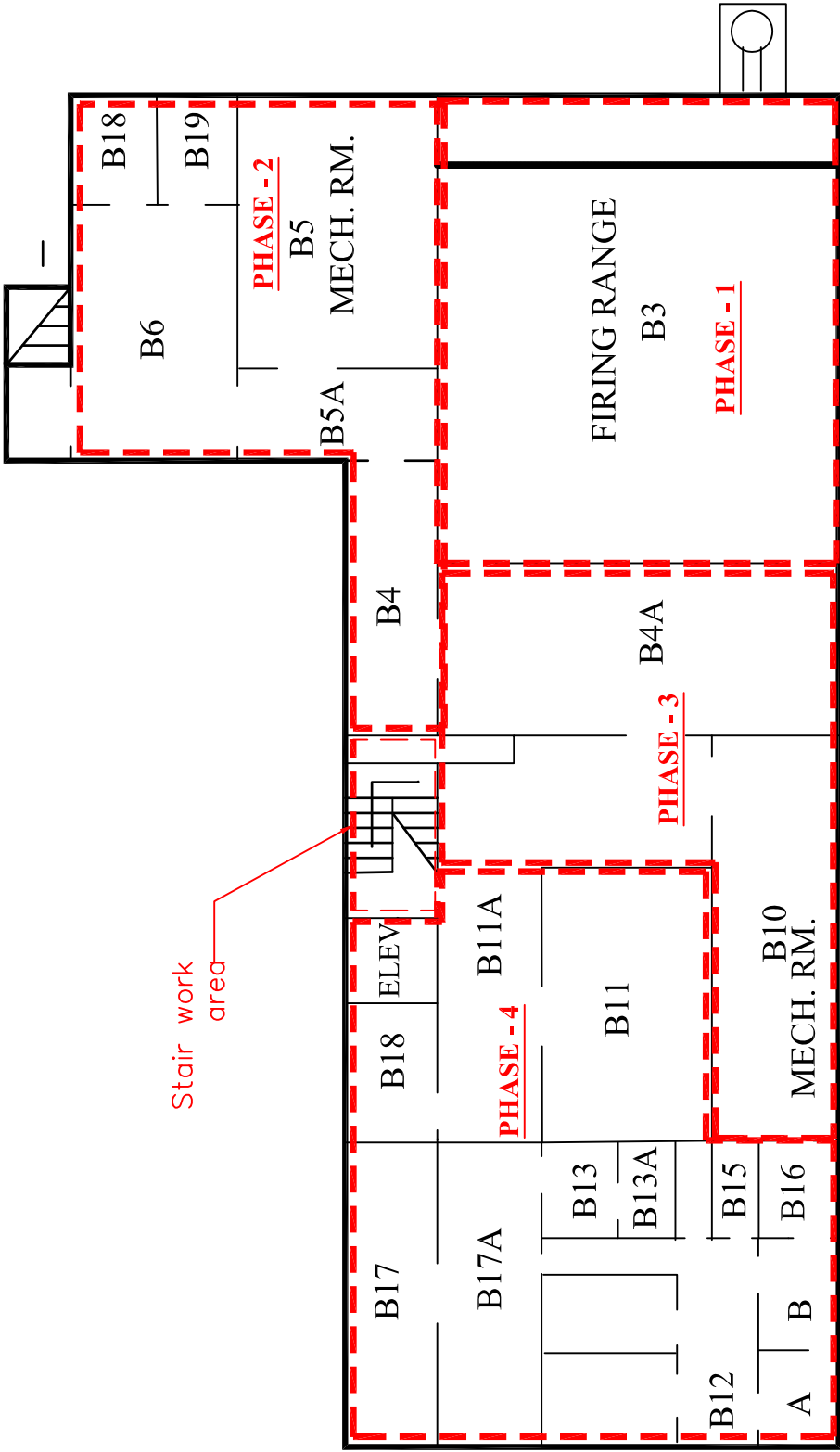
8/25/2010



Loose transite panels and ACM floor tile

Photo 7 – Basement Room B6

LEGEND	
	Phase Boundary



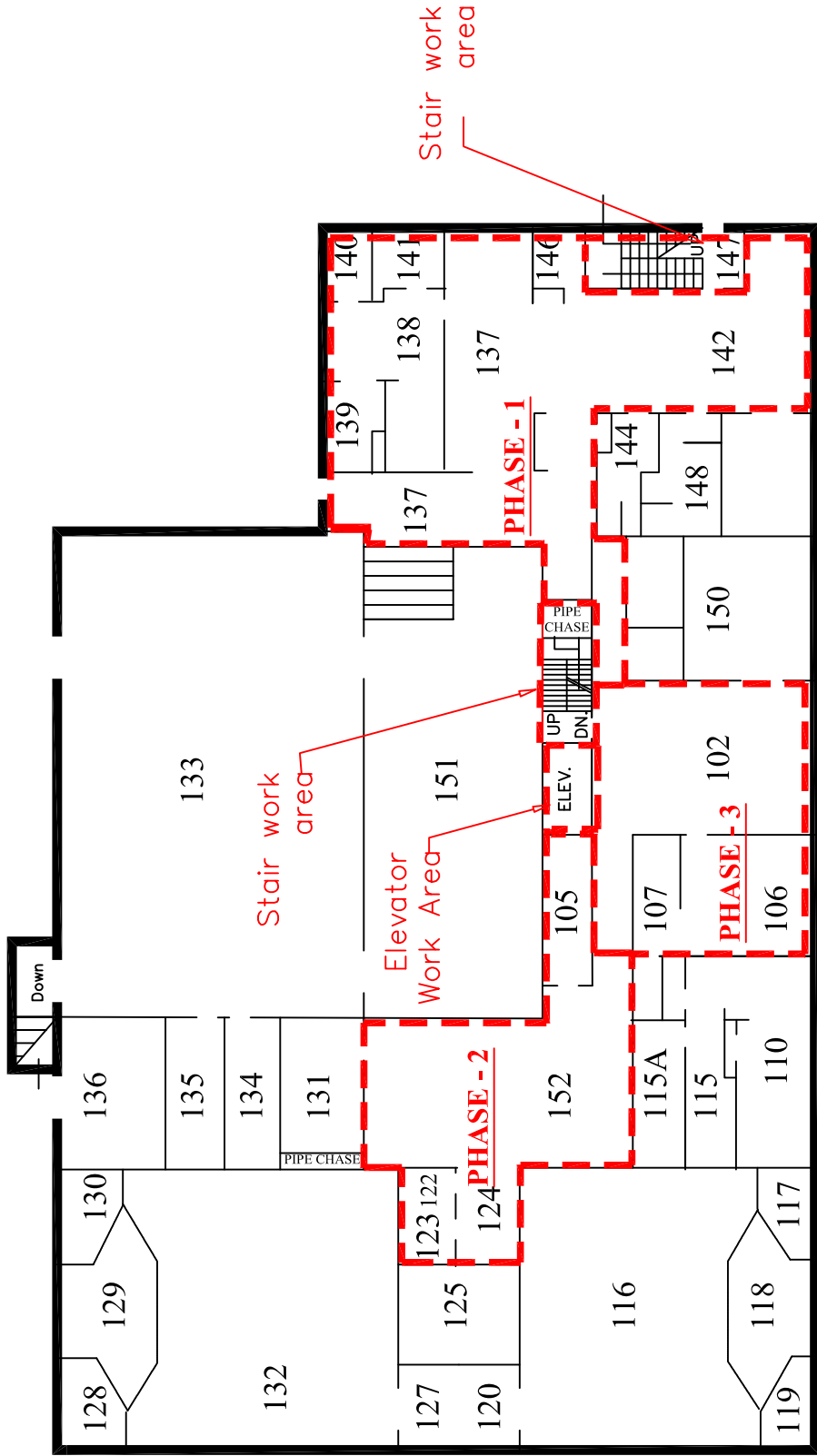
F.H.P. ACADEMY

BASEMENT FLOOR

 Mihir Envirovionics Inc. Environmental Health & Safety Consultants 1535 KILLEARN CENTER BLVD. SUITE C-5 TALLAHASSEE, FL 32308 PHONE: (850) 422-1255 FAX: (850) 422-1866 www.mihirenvionics.com	PROJECT Asbestos and Lead Abatement F.H.P. Academy 2908 Ridgeway St. Tallahassee, Florida 32310	CLIENT Florida State University Tallahassee, Florida 32303		SCALE : NOT TO SCALE
		DRAWING NO.	1	
	DRAWING TITLE : LEAD ABATEMENT - BASEMENT		PROJECT NO.	004.150.00
			DRAWN BY	S.Thakkar
			APPROVED BY	A.Thakkar
			DATE	08-25-10

LEGEND

--- Phase Boundary



F.H.P. ACADEMY

FIRST FLOOR

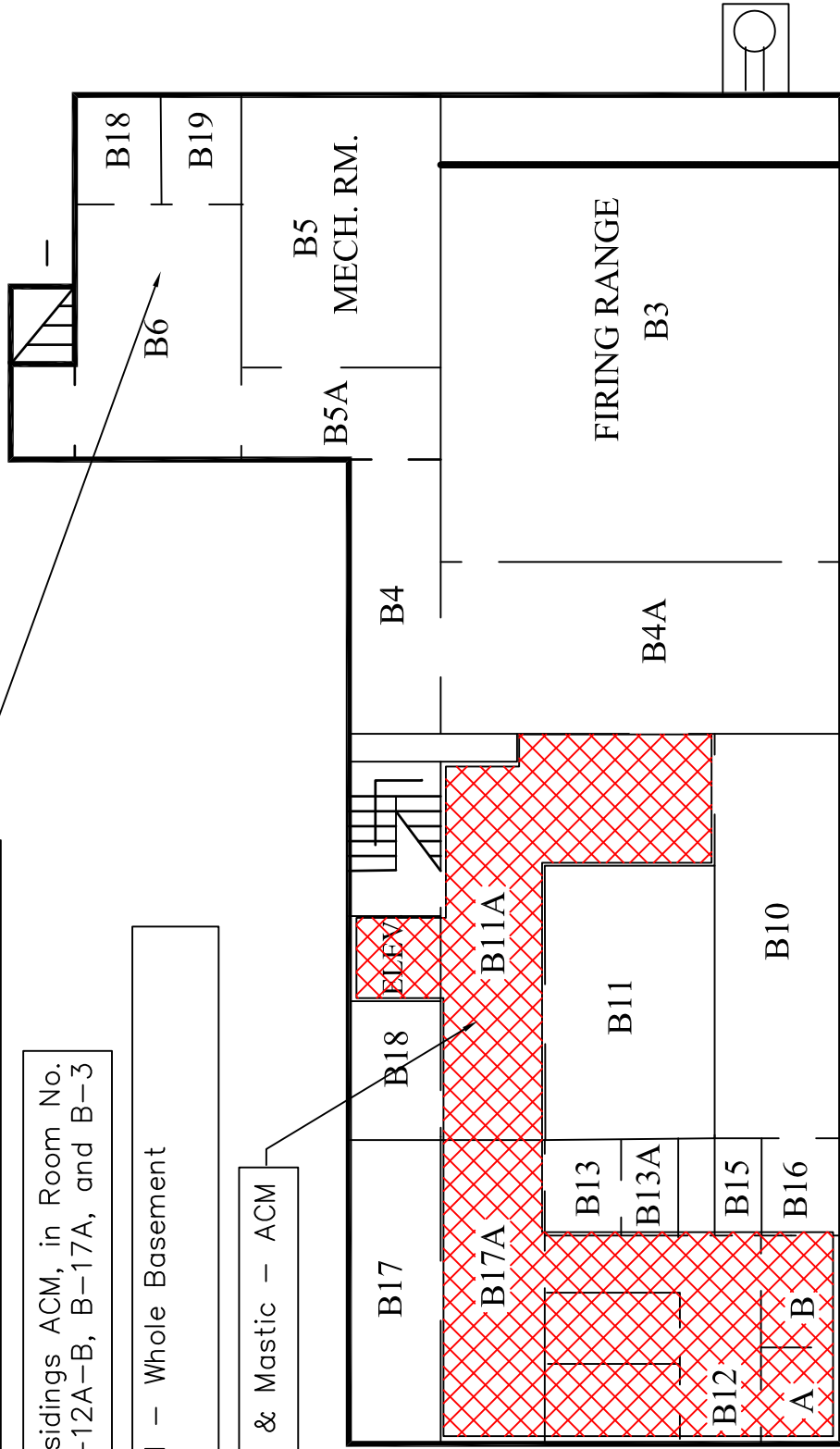
 Mihir Environics Inc. Environmental Health & Safety Consultants 1535 KILLEARN CENTER BLVD. SUITE C-5 TALLAHASSEE, FL 32308 PHONE: (850) 422-1255 FAX: (850) 422-1866 www.mihirenvironics.com	PROJECT Asbestos and Lead Abatement F.H.P. Academy 2908 Ridgeway St. Tallahassee, Florida 32310	CLIENT Florida State University Tallahassee, Florida 32303	SCALE : NOT TO SCALE
			DRAWING NO. 2
			PROJECT NO. 004.150.00
	DRAWING TITLE : LEAD ABATEMENT - FIRST FLOOR	DRAWN BY S.Thakkar	
		APPROVED BY A.Thakkar	
		DATE 08-25-10	

Floor tile, Transite sidings and Gasket – ACM –
Loose material stored in Room No. B-6

Transite sidings ACM, in Room No.
B-12, B-12A-B, B-17A, and B-3

T.S.I ACM – Whole Basement

Floor tile & Mastic – ACM



Asbestos abatement in the basement can be
performed as one or multiple work areas.
Submit work area layout for approval.

F.H.P. ACADEMY
BUILDING NO. 14

BASEMENT FLOOR

nei **Mihir Envirovics Inc.**
Environmental Health & Safety Consultants
1535 KILLEARN CENTER BLVD. SUITE C-5
TALLAHASSEE, FL 32308
PHONE: (850) 422-1255 FAX: (850) 422-1866
www.mihirenvirovics.com

PROJECT

Asbestos and Lead Abatement
F.H.P. Academy
2908 Ridgeway St.
Tallahassee, Florida 32310

CLIENT

Florida State University
Tallahassee, Florida 32303

SCALE : NOT TO SCALE

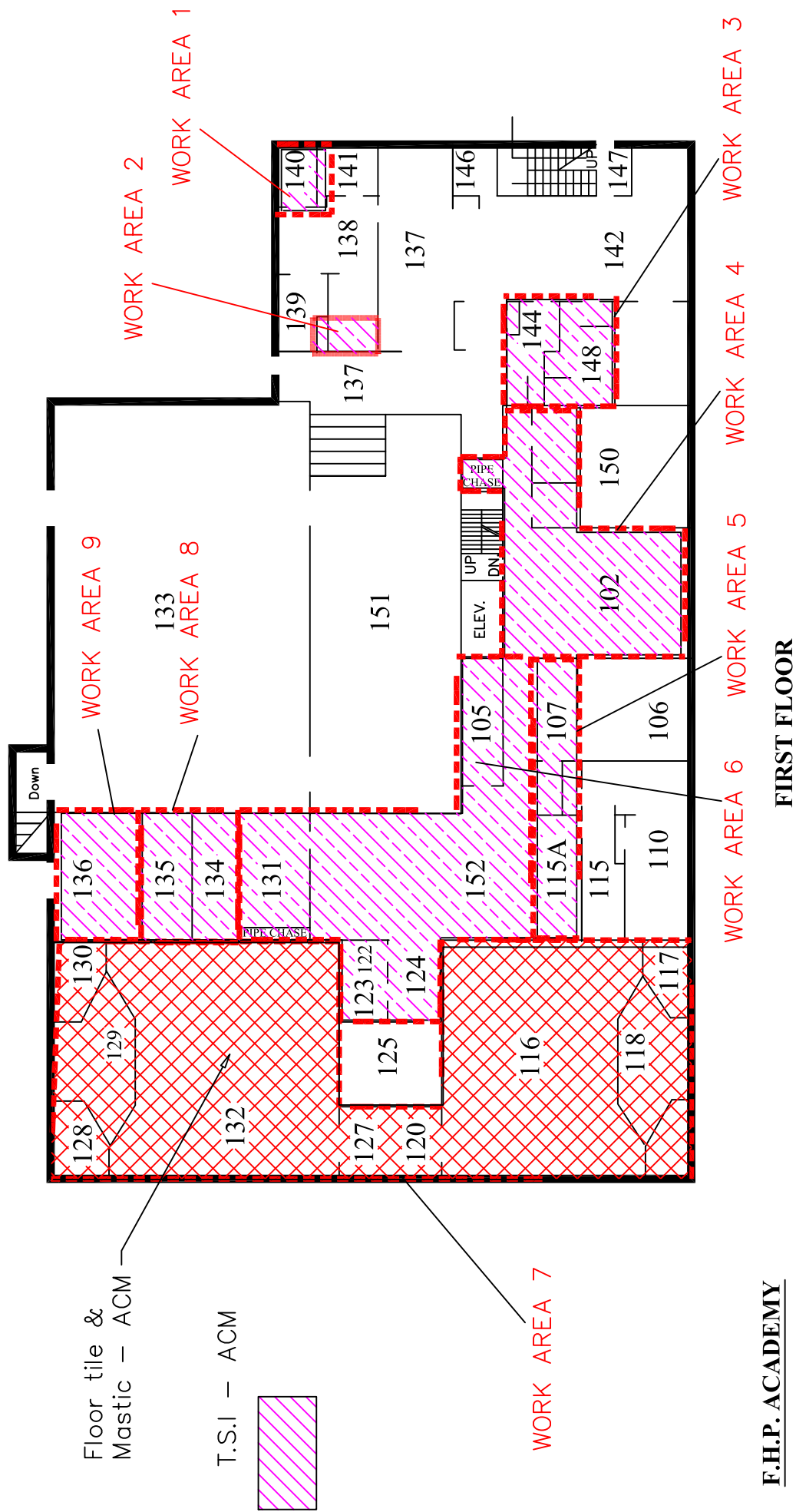
DRAWING NO. 3

PROJECT NO. 004.150.00

DRAWN BY S.Thakkar

APPROVED BY A.Thakkar

DATE 08-25-10



PROJECT Asbestos and Lead Abatement CLIENT Florida State University Tallahassee, Florida 32303 DRAWING TITLE : ASBESTOS ABATEMENT - FIRST FLOOR	SCALE : NOT TO SCALE DRAWING NO. 4 PROJECT NO. 004.150.00 DRAWN BY S.Thakkar APPROVED BY A.Thakkar DATE 08-25-10	PROJECT Asbestos and Lead Abatement CLIENT Florida State University Tallahassee, Florida 32303 DRAWING TITLE : ASBESTOS ABATEMENT - FIRST FLOOR	PROJECT Asbestos and Lead Abatement CLIENT Florida State University Tallahassee, Florida 32303 DRAWING TITLE : ASBESTOS ABATEMENT - FIRST FLOOR	PROJECT Asbestos and Lead Abatement CLIENT Florida State University Tallahassee, Florida 32303 DRAWING TITLE : ASBESTOS ABATEMENT - FIRST FLOOR
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ASBESTOS SURVEY REPORT

**FHP Academy
2908 Ridgeway St.
Tallahassee Fl. 32310**



**Prepared For
Project Manager, Facilities Design
Florida State University
125 Mandenhall Building - A
Tallahassee Fl. 323063-4150**

Report Date: 04-Aug-08

MEI Project No: 004.054.00



Mihir Environics Inc.
1535 KILLEARN CENTER BLVD. SUITE C-5
TALLAHASSEE, FL 32309
(850) 422-1255



ASBESTOS SURVEY REPORT

FHP Academy

TABLE OF CONTENTS

ASBESTOS SURVEY REPORT

Introduction

Report Organization

Executive Summary

Table 1 HA Summary by Building Number and ACM / NON-ACM / NSM

Material Assessment

Recommendations

Asbestos Survey Report

ACM HA Summary

ACM Quantity Summary

NON-ACM HA Summary

NON-ACM Quantity Summary

Bulk Sample Summary

Sample Location Drawings

ACM Location Drawings

Bulk Sample Analysis Result Report

**Asbestos Survey Report****FHP Academy****ACM****Building No.: Not Assigned****Location: 2908 Ridgeway St.
Tallahassee FL 32310**

ACM - Asbestos Containing Material

lf - linear feet

NAD -No Asbestos Detected

NON-ACM - Non Asbestos Containing Material

sf -square feet

CH - Chrysotile, AM - Amosite

HA - Homogenous Area

ea - each

Surveyor:**SurveyDate:**

15-Jun-08

Asbestos Consultant:

Ajay Thakkar, CIH

FL Lic. No. IA 00000056

INTRODUCTION

Mihir Environics, Inc. (MEI) was retained by the Client to conduct an update of Asbestos survey of the building referenced above. The objectives of the survey were to identify and analyze materials suspected of containing asbestos, to determine the extent of ACM in the building, to provide recommendations for managing the ACM.

This report was produced from the data collected by MEI personnel. The survey report for the building follows the executive Summary.

Previous asbestos survey, dated March 1989, was conducted by Weston-ATC, Inc. Survey information was incorporated in this report.

REPORT ORGANIZATION

This report is divided into the Executive Summary and Asbestos Survey information for the building.

The Executive Summary : The Executive Summary provides general summary of buildings with ACM and without ACM.

The Asbestos Survey Information : The asbestos survey details of the building are included. The information for building survey information includes the following:

* Building information including building number and name, photograph (if available), Survey date and personnel information, pertinent comment. It also indicates ACM status of

**Asbestos Survey Report****FHP Academy****ACM****Building No.: Not Assigned****Location: 2908 Ridgeway St.
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HA - Homogenous Area

ea - each

the building such as ACM, NON-ACM and NSM (No Suspect Material)

* When suspect ACM were not identified, a statement " Suspect asbestos-containing materials were not identified in the building."

* ACM HA Summary - list ACM homogenous area (HA) number and description; friability, Comments and recommendations and picture when available. When ACM are not identified in the building ACM Summary will not be there.

* ACM Quantity Summary - A table summarizing ACM approximate quantity and condition by homogenous area number and Room number. When ACM are not identified in the building ACM Quantity Summary will not be there.

* NON-ACM HA List - list NON-ACM homogenous area number, description and picture when available.

* NON-ACM Quantity Summary - A table summarizing NON-ACM approximate quantity by homogenous area number and Room number.

* Bulk Sample Summary - A table summarizing bulk sample results with Sample Number, HA number and description, location and result.

* Sample Location Drawing - A drawing indicating floor plan, room designation, sample number location. The drawing also outlines area with ACM by HA.

* Bulk sample laboratory analysis reports.

EXECUTIVE SUMMARY

This Executive Summary is provided as courtesy to facilitate review. The user is cautioned to review the entire report prior to making environmental decisions, and to refrain from

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ea - each

separately transmitting this text of the report without supporting appendices of the report.

The above referenced facility survey fieldwork was coordinated with Mr. Louis Plansoen.

Prior to the actual physical building inspection, MEI reviews available pertinent building documentation for information that might indicate (i) usage or location of suspect ACM in the construction of the building, or during subsequent renovation. Also building supervisory personnel were interviewed regarding any knowledge of ACM in the building, previous renovations, and general building information. There were no documents pertaining to this building, available.

The building was physically inspected to determine the presence or absence of suspect ACM assess all suspect ACM, quantify all suspect ACM and collect necessary bulk samples.

All suspect ACM were categorized by homogenous area and functional spaces. All pertinent information including homogenous area number and description; bulk sample number and location; material assessment including condition, were recorded in the field per homogenous area.

Additional representative bulk samples of all materials suspected to contain asbestos were collected. After collection, the bulk samples were shipped to laboratory located in Richmond, Virginia for analysis. Bulk samples were analyzed by Polarized Light Microscopy/Dispersion Staining (PLM/DS) in accordance with EPA-600/R-93/116. Each layer in the sample was analyzed when present. Analysis results were reported by layer and as a composite sample for each sample. Analysis was stopped when any one (1) sample in a homogenous area was determined to contain asbestos, as defined by the EPA. The analyses were performed by the SCHNEIDER laboratory located at 2512 W Cary Street Richmond, Virginia 23220-5117. The laboratory is accredited by NVLAP (No. 101150-0).

Table 1 summarizes ACM status summary.

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ea - each

Based on the survey findings ACM were not identified in the building.

Table 1**HA Summary by Building Number and ACM Status**

Building No.	Building Name	HA No.	HA Description	ACM Status
Not Assigned	FHP Academy			
		1	Pipe Fitting <4" HWS-R	ACM
		2	Pipe Fitting <4" HHWS-R	ACM
		5	Pipe Fitting 4"-8" HW	ACM
		6	Pipe Fitting 4"-8" HHW	ACM
		11	Pipe Fitting >14" flue	ACM
		13	Pipe Run <4" HW	ACM
		14	Pipe Run <4" HHW	ACM
		17	Pipe Run 4"-8" HW	ACM
		18	Pipe Run 4"-8" HHW	ACM
		19	Pipe Run 4"-8" CHW (See HA 114 & 115)	ACM
		23	Pipe Run >14" Grey Flue	ACM
		30	Floor tile 9x9 White with Green & Black Streaks	ACM
		31	Floor tile 9x9 White with Green Streaks	ACM
		32	Floor tile 9x9 White with Brown Streaks	ACM
		33	Floor tile 9x9 Green	ACM



Asbestos Survey Report

FHP Academy

ACM

Building No.: Not Assigned

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Tallahassee FL 32310

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HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

34	Floor tile 12x12 Tan With Brown Streaks (2 Layers)	ACM
35	Floor tile 12x12 White	ACM
36	Floor tile 12x12 White with Green	ACM
37	Floor tile 9x9 Green	ACM
38	Floor tile 12x12 White with Green	ACM
53	Boioler / Tank	ACM
62	Ceiling Board (See HA 101)	NON-ACM
65	Ceiling tile (See HA 104 and 108)	NON-ACM
77	Transite Corrugated Panels Cooling tower	ACM
80	Transite Panel Board with holes	ACM
81	Transite Panel Board	ACM
90	Roll Roofing (new)	NON-ACM
91	Roofing material	ACM
93	Rope Gasket	NON-ACM
94	Fitting Gasket	ACM
95	Johns Manville sheet packing Green	ACM
96	Black Pipe Wrap (see HA 102)	ACM
98	Rope Gasket	ACM
99	Roll Roofing	NON-ACM
100	Mastic	ACM
101	Ceiling Tile (Drywall)	NON-ACM
102	Tar wrap	NON-ACM
103	Ceiling Tile (Spline)	NON-ACM
104	Ceiling tile 2x2	NON-ACM

**Asbestos Survey Report****FHP Academy****ACM****Building No.: Not Assigned****Location: 2908 Ridgeway St.
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sf -square feet

ea - each

NAD -No Asbestos Detected

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105	Ceiling tile 2x2 (old)	ACM
106	Plaster	NON-ACM
107	Floor tile 12x12 Gray	NON-ACM
108	Ceiling tile 2x4	NON-ACM
109	Dry wall	NON-ACM
110	Duct Mastic Black	ACM
111	Vibration Dampner	ACM
112	Loose transite panel	ACM
113	Box of VAT	ACM
114	CHW Pipe run	ACM
115	CHW Pipe fittings	ACM

MATERIAL ASSESSMENT

Material assessment of all suspect ACM homogenous area was performed during field inspection. Material assessment of each homogenous area was recorded by the surveyor on asbestos survey forms. Each homogenous area was assessed for its (i) Material condition (No damage, localized or distributed damage %), (ii) Type of damage (deterioration, water damage or physical damage), (iii) Potential for air erosion (high, moderate or low), (iv) Potential for vibration (high, moderate or low), (v) Potential for contact (high, moderate or low), (vi) Accessibility (yes or no), and (vii) Friability of material (friable or non-friable, friable means a condition wherein the material, when dry, can be crumbled by hand pressure). Based on this assessment and sample analysis results present condition of the material was classified in one of these categories; poor, fair, good or non-ACM; and potential for future damage was classified in one of these categories; high, moderate or low .

Present Condition

ACM was classified in "Good" (Undamaged) condition when it showed no visible damage or deterioration, or very limited damage or deterioration.

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Asbestos-containing surfacing or miscellaneous material was classified in "Poor" (Significantly damaged) condition if 10% or more of the overall surface was damaged (if the damage was evenly distributed) or if the damage was localized in an area representing 25% or more of the total material less than 25% (if the damage was localized).

Asbestos-containing thermal system insulation material was classified in "Fair" condition if jackets are generally missing or the insulation was crushed, gouged, or punctured for 10% or more of the tank, vessel, pipe run/risers (if the damage was evenly distributed) or more than 25% (if the damage was localized).

RECOMMENDATION

Based on the survey findings ACM were identified in the building.

Prior to potential disturbance of ACM, ACM should be abated.

Implement O&M Program for all ACM.

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sf -square feet

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HA - Homogenous Area

ea - each

ACM HA Summary

Based on the site inspection and sample analysis results, following suspect material were determined as Asbestos-containing Material. (ACM). Drawing indicating location of ACM and sample locations are included with this. Laboratory sample analysis report are included with this.

1 Pipe Fitting <4" HWS-R ☐ RACM2 Pipe Fitting <4" HHWS-R ☒ RACM5 Pipe Fitting 4"-8" HW ☒ RACM6 Pipe Fitting 4"-8" HHW ☒ RACM



Asbestos Survey Report

FHP Academy

ACM

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HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

11	Pipe Fitting >14" flue	☒	RACM	
13	Pipe Run <4" HW	☒	RACM	
14	Pipe Run <4" HHW	☒	RACM	
17	Pipe Run 4"-8" HW	☒	RACM	
18	Pipe Run 4"-8" HHW	☒	RACM	



Asbestos Survey Report

FHP Academy

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HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

19	Pipe Run 4"-8" CHW (See HA 114 & 115)	☒	RACM	
23	Pipe Run >14" Grey Flue	☒	RACM	
30	Floor tile 9x9 White with Green & Black Streaks	☐	Category I Nonfriable	
31	Floor tile 9x9 White with Green Streaks	☐	Category I Nonfriable	
32	Floor tile 9x9 White with Brown Streaks	☐	Category I Nonfriable	



Asbestos Survey Report

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lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

33	Floor tile 9x9 Green	☐	Category I Nonfriable	
34	Floor tile 12x12 Tan With Brown Streaks (2 Layers)	☐	Category I Nonfriable	
35	Floor tile 12x12 White	☐	Category I Nonfriable	
36	Floor tile 12x12 White with Green	☐	Category I Nonfriable	
37	Floor tile 9x9 Green	☐	Category I Nonfriable	



Asbestos Survey Report

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HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

38	Floor tile 12x12 White with Green	☐	Category I Nonfriable	
53	Boioler / Tank	☐	RACM	
77	Transite Corrugated Panels Cooling tower	☐	Category I Nonfriable	
80	Transite Panel Board with holes	☐	Category I Nonfriable	
81	Transite Panel Board	☐	Category I Nonfriable	



Asbestos Survey Report

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lf - linear feet

sf -square feet

ea - each

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91	Roofing material	☐	Assumed ACM	
94	Fitting Gasket	☐	Category I Nonfriable	
95	Johns Manville sheet packing Green	☐	Category I Nonfriable	
96	Black Pipe Wrap (see HA 102)	☐		
98	Rope Gasket	☐	RACM	



Asbestos Survey Report

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sf -square feet

ea - each

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100	Mastic	☐	Category I Nonfriable	Floor tile mastic assumed ACM.	
114	CHW Pipe run	☐	Category I Nonfriable		
115	CHW Pipe fittings	☐	Category I Nonfriable		
112	Loose transite panel	☐	Category I Nonfriable		
113	Box of VAT	☐	Category I Nonfriable		

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ea - each

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CH - Chrysotile, AM - Amosite

111	Vibration Dampner	☐	Assumed ACM	
105	Ceiling tile 2x2 (old)	☐		
110	Duct Mastic Black	☐	Category I Nonfriable	

ACM Quantity Summary

Based on the site inspection and sample analysis results, location of ACM are summarized by area (room). Drawing indicating location of ACM and sample locations are included with this.

1	Pipe Fitting <4" HWS-R	B-5	11	ea	Good
1	Pipe Fitting <4" HWS-R	124	2	ea	Good
1	Pipe Fitting <4" HWS-R	123	2	ea	Good
1	Pipe Fitting <4" HWS-R	122	2	ea	Good
1	Pipe Fitting <4" HWS-R	B-6	21	ea	Good



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sf -square feet

ea - each

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1	Pipe Fitting <4" HWS-R	B-5A	4	ea	Good
1	Pipe Fitting <4" HWS-R	150	2	ea	Good
1	Pipe Fitting <4" HWS-R	105	11	ea	Good
1	Pipe Fitting <4" HWS-R	152	4	ea	Good
1	Pipe Fitting <4" HWS-R	115A	2	ea	Good
2	Pipe Fitting <4" HHWS-R	B-5	14	ae	Good
2	Pipe Fitting <4" HHWS-R	B-4	2	ea	Good
2	Pipe Fitting <4" HHWS-R	B-12A&B	2	ea	Good
2	Pipe Fitting <4" HHWS-R	B-3	2	ea	Good
2	Pipe Fitting <4" HHWS-R	B-6	6	ea	Good
2	Pipe Fitting <4" HHWS-R	102	2	ea	Good
2	Pipe Fitting <4" HHWS-R	B-17A	2	ea	Good
5	Pipe Fitting 4"-8" HW	230	11	ea	Good
5	Pipe Fitting 4"-8" HW	136	10	ea	Good
5	Pipe Fitting 4"-8" HW	327	13	ea	Good
5	Pipe Fitting 4"-8" HW	140	12	ea	Good
5	Pipe Fitting 4"-8" HW	150	4	ea	Good
5	Pipe Fitting 4"-8" HW	B-10	16	ea	Good
5	Pipe Fitting 4"-8" HW	B-4	4	ea	Good
5	Pipe Fitting 4"-8" HW	B-5A	2	ea	Good



Asbestos Survey Report

FHP Academy

ACM

Building No.: Not Assigned

Location: 2908 Ridgeway St.
Tallahassee FL 32310

ACM - Asbestos Containing Material

NON-ACM - Non Asbestos Containing Material

HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

5	Pipe Fitting 4"-8" HW	B-5	5	ea	Good
5	Pipe Fitting 4"-8" HW	B-6	2	ea	Good
6	Pipe Fitting 4"-8" HHW	B-5	32	ea	Good
6	Pipe Fitting 4"-8" HHW	B-4A	2	ea	Good
6	Pipe Fitting 4"-8" HHW	B-4	4	ea	Good
11	Pipe Fitting >14" flue	B-5	3	ea	Good
13	Pipe Run <4" HW	B-6	50	lf	Good
13	Pipe Run <4" HW	152	200	lf	Good
13	Pipe Run <4" HW	131	20	lf	Good
13	Pipe Run <4" HW	105	50	lf	Good
13	Pipe Run <4" HW	B-13	10	lf	Good
13	Pipe Run <4" HW	B-11	10	lf	Good
13	Pipe Run <4" HW	115A	30	lf	Good
13	Pipe Run <4" HW	Pipe Chase	20	lf	Good
13	Pipe Run <4" HW	B-5A	30	lf	Good
13	Pipe Run <4" HW	B-5	60		Good
13	Pipe Run <4" HW	124	20	lf	Good
13	Pipe Run <4" HW	123	10	lf	Good
13	Pipe Run <4" HW	122	20	lf	Good
13	Pipe Run <4" HW	B-4	10	lf	Good



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lf - linear feet

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ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

14	Pipe Run <4" HHW	Pipe Chase	20	lf	Good
14	Pipe Run <4" HHW	102	40	lf	Good
14	Pipe Run <4" HHW	B-5	40		Good
14	Pipe Run <4" HHW	B-6	50	lf	Good
14	Pipe Run <4" HHW	B-17A	20	lf	Good
14	Pipe Run <4" HHW	B-11A	40	lf	Good
14	Pipe Run <4" HHW	B-3	15	lf	Good
14	Pipe Run <4" HHW	B-12, A&B	15	lf	Good
14	Pipe Run <4" HHW	B-4A	15	lf	Good
14	Pipe Run <4" HHW	B-4	20	lf	Good
17	Pipe Run 4"-8" HW	134	40	lf	Good
17	Pipe Run 4"-8" HW	152	100	lf	Good
17	Pipe Run 4"-8" HW	135	80	lf	Good
17	Pipe Run 4"-8" HW	136	60	lf	Good
17	Pipe Run 4"-8" HW	230	40	lf	Good
17	Pipe Run 4"-8" HW	150	20	lf	Good
17	Pipe Run 4"-8" HW	140	60	lf	Good
17	Pipe Run 4"-8" HW	B-5	30		Good
17	Pipe Run 4"-8" HW	B-6	30	lf	Good



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lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

17	Pipe Run 4"-8" HW	B-10	30	lf	Good
17	Pipe Run 4"-8" HW	B-5A	40	lf	Good
17	Pipe Run 4"-8" HW	B-11	40	lf	Good
17	Pipe Run 4"-8" HW	B-4	40	lf	Good
17	Pipe Run 4"-8" HW	327	40	lf	Good
17	Pipe Run 4"-8" HW	131	40	lf	Good
18	Pipe Run 4"-8" HHW	B-5	180		Good
18	Pipe Run 4"-8" HHW	Pipe Chase	30	lf	Good
18	Pipe Run 4"-8" HHW	B-5A	30	lf	Good
18	Pipe Run 4"-8" HHW	B-4	40	lf	Good
19	Pipe Run 4"-8" CHW (See HA 114 & 115)	152		lf	Good
19	Pipe Run 4"-8" CHW (See HA 114 & 115)	131		lf	Good
19	Pipe Run 4"-8" CHW (See HA 114 & 115)	135		lf	Good
19	Pipe Run 4"-8" CHW (See HA 114 & 115)	134		lf	Good
19	Pipe Run 4"-8" CHW (See HA 114 & 115)	105	30	lf	Good
19	Pipe Run 4"-8" CHW (See HA 114 & 115)	B-4A		lf	Good

**Asbestos Survey Report****FHP Academy****ACM****Building No.: Not Assigned****Location: 2908 Ridgeway St.
Tallahassee FL 32310**

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HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

19	Pipe Run 4"-8" CHW (See HA 114 & 115)	230		lf	Good
19	Pipe Run 4"-8" CHW (See HA 114 & 115)	B-4		lf	Good
19	Pipe Run 4"-8" CHW (See HA 114 & 115)	Pipe Chase		lf	Good
19	Pipe Run 4"-8" CHW (See HA 114 & 115)	B-10	30	lf	Good
19	Pipe Run 4"-8" CHW (See HA 114 & 115)	B-5A		lf	Good
19	Pipe Run 4"-8" CHW (See HA 114 & 115)	B-5			Good
19	Pipe Run 4"-8" CHW (See HA 114 & 115)	136		lf	Good
19	Pipe Run 4"-8" CHW (See HA 114 & 115)	327	70	lf	Good
23	Pipe Run >14" Grey Flue	B-5	20	lf	Good
30	Floor tile 9x9 White with Green & Black Streaks	B-6	20	sf	Good
31	Floor tile 9x9 White with Green Streaks	B-17A	250		Good
31	Floor tile 9x9 White with Green Streaks	219	400	sf	Good
31	Floor tile 9x9 White with Green Streaks	127	100	sf	Good
31	Floor tile 9x9 White with Green Streaks	120	100	sf	Good

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HA - Homogenous Area

lf - linear feet

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ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

31	Floor tile 9x9 White with Green Streaks	119	100	sf	Good
31	Floor tile 9x9 White with Green Streaks	117	100	sf	Good
31	Floor tile 9x9 White with Green Streaks	B-12, A & B	600	sf	Good
31	Floor tile 9x9 White with Green Streaks	116	2000	sf	Good
32	Floor tile 9x9 White with Brown Streaks	B-11A	400		Good
32	Floor tile 9x9 White with Brown Streaks	306	200	sf	Good
32	Floor tile 9x9 White with Brown Streaks	303	200	sf	Good
32	Floor tile 9x9 White with Brown Streaks	202	200	sf	Good
32	Floor tile 9x9 White with Brown Streaks	224	200	sf	Good
32	Floor tile 9x9 White with Brown Streaks	203	200	sf	Good
32	Floor tile 9x9 White with Brown Streaks	228	200	sf	Good
33	Floor tile 9x9 Green	118	150		Good
34	Floor tile 12x12 Tan With Brown Streaks (2 Layers)	129	200	sf	Good
35	Floor tile 12x12 White	132	1800	sf	Good



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lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

35	Floor tile 12x12 White	130	50	sf	Good
35	Floor tile 12x12 White	128	50	sf	Good
36	Floor tile 12x12 White with Green	207	250	sf	Good
36	Floor tile 12x12 White with Green	314 to 326	3300	sf	Good
36	Floor tile 12x12 White with Green	214 to 218	1250	sf	Good
36	Floor tile 12x12 White with Green	208 to 212	1000		Good
36	Floor tile 12x12 White with Green	307 to 312	1250	sf	Good
37	Floor tile 9x9 Green	Elevator	100		Good
38	Floor tile 12x12 White with Green	223	200	sf	Good
38	Floor tile 12x12 White with Green	220	200		Good
38	Floor tile 12x12 White with Green	221	200	sf	Good
53	Boioler / Tank	B-5	120		Good
77	Transite Corrugated Panels Cooling tower	Parking lot	200	sf	Good
80	Transite Panel Board with holes	B-3	200	sf	Good
80	Transite Panel Board with holes	B-17A	200	sf	Good



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sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

80	Transite Panel Board with holes	B-12 A & B	300	sf	Good
81	Transite Panel Board	B-3	100	sf	Good
91	Roofing material	Roof	8000	sf	Good
94	Fitting Gasket	B-6	20	lf	Good
95	Johns Manville sheet packing Green	B-6	20	sf	Good
96	Black Pipe Wrap (see HA 102)	B-6	20	sf	Good
96	Black Pipe Wrap (see HA 102)	B-19	10	sf	Good
98	Rope Gasket	B-6 (in Box)	10	sf	Good
100	Mastic	129	100	sf	Good
100	Mastic	132	1800	sf	Good
100	Mastic	128	50	sf	Good
100	Mastic	130	50	sf	Good
114	CHW Pipe run	152	50	lf	Good
114	CHW Pipe run	227	16	lf	Good
114	CHW Pipe run	327	20	lf	Good
114	CHW Pipe run	B-05	40	lf	Good
114	CHW Pipe run	B-04	30	lf	Good
114	CHW Pipe run	B-11A	20	lf	Good
114	CHW Pipe run	B-11	20	lf	Good

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Tallahassee FL 32310**

ACM - Asbestos Containing Material

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HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

114	CHW Pipe run	B-10	30	lf	Good
114	CHW Pipe run	136	30	lf	Good
114	CHW Pipe run	131	30	lf	Good
114	CHW Pipe run	134	20	lf	Good
114	CHW Pipe run	B-12	16	lf	Good
114	CHW Pipe run	105	40	lf	Good
114	CHW Pipe run	228	20	lf	Good
114	CHW Pipe run	230	30	lf	Good
114	CHW Pipe run	225	16	lf	Good
114	CHW Pipe run	115A	20	lf	Good
114	CHW Pipe run	107	15	lf	Good
115	CHW Pipe fittings	105	8	ea	Good
115	CHW Pipe fittings	131	2	ea	Good
115	CHW Pipe fittings	B-05	8	ea	Good
115	CHW Pipe fittings	B-04	4	ea	Good
115	CHW Pipe fittings	B-11A	2	2	Good
115	CHW Pipe fittings	B-11	2	ea	Good
115	CHW Pipe fittings	B-10	4	ea	Good
115	CHW Pipe fittings	B-12	4	ea	Good
115	CHW Pipe fittings	115A	2	ea	Good

**Asbestos Survey Report****FHP Academy****ACM****Building No.: Not Assigned****Location: 2908 Ridgeway St.
Tallahassee FL 32310**

ACM - Asbestos Containing Material

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HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

115	CHW Pipe fittings	107	2	ea	Good
115	CHW Pipe fittings	327	8	ea	Good
115	CHW Pipe fittings	134	2	ea	Good
115	CHW Pipe fittings	136	4	ea	Good
115	CHW Pipe fittings	230	8	ea	Good
115	CHW Pipe fittings	228	2	ea	Good
115	CHW Pipe fittings	227	2	ea	Good
115	CHW Pipe fittings	225	2	ea	Good
115	CHW Pipe fittings	152	4	ea	Good
112	Loose transite panel	B-6	50	sf	Good
113	Box of VAT	B-6	50	sf	Good
111	Vibration Dampner	230	2	ea	Good
111	Vibration Dampner	105	1	ea	Good
111	Vibration Dampner	136	1	ea	Good
111	Vibration Dampner	327	1	ea	Good
111	Vibration Dampner	B-05	2	ea	Good
105	Ceiling tile 2x2 (old)	134	100	sf	Good
110	Duct Mastic Black	B-05	60	sf	Good
110	Duct Mastic Black	B-10	50	sf	Good
110	Duct Mastic Black	327	50	sf	Good



Asbestos Survey Report

FHP Academy

ACM

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Tallahassee Fl. 32310**

ACM - Asbestos Containing Material

lf - linear feet

NAD -No Asbestos Detected

NON-ACM - Non Asbestos Containing Material

sf -square feet

CH - Chrysotile, AM - Amosite

HA - Homogenous Area

ea - each

110	Duct Mastic Black	136	30	sf	Good
110	Duct Mastic Black	105	40	sf	Good
110	Duct Mastic Black	230	50	sf	Good



Asbestos Survey Report

FHP Academy

ACM

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Tallahassee FL 32310**

ACM - Asbestos Containing Material

lf - linear feet

NAD -No Asbestos Detected

NON-ACM - Non Asbestos Containing Material

sf -square feet

CH - Chrysotile, AM - Amosite

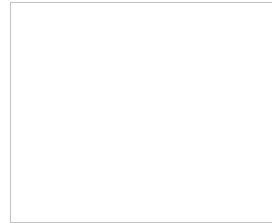
HA - Homogenous Area

ea - each

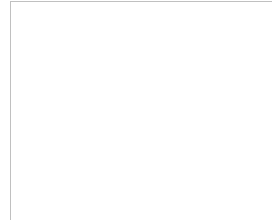
Non-ACM HA Summary

Based on the site inspection and sample analysis results, following suspect material were determined as Non Asbestos-containing Material. (NON-ACM).

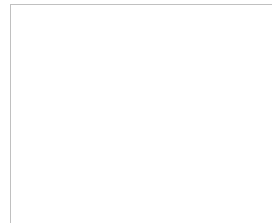
62 Ceiling Board (See HA 101)



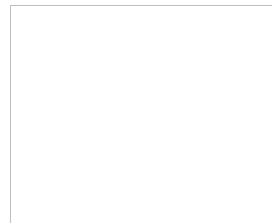
65 Ceiling tile (See HA 104 and 108)



90 Roll Roofing (new)



93 Rope Gasket





Asbestos Survey Report

FHP Academy

ACM

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NON-ACM - Non Asbestos Containing Material

HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

99	Roll Roofing	
101	Ceiling Tile (Drywall)	
102	Tar wrap	
103	Ceiling Tile (Spline)	



Asbestos Survey Report

FHP Academy

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Tallahassee FL 32310**

ACM - Asbestos Containing Material

NON-ACM - Non Asbestos Containing Material

HA - Homogenous Area

lf - linear feet

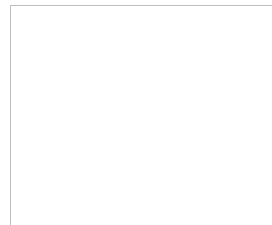
sf -square feet

ea - each

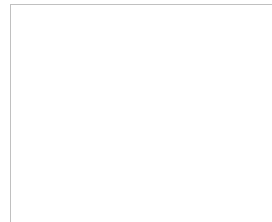
NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

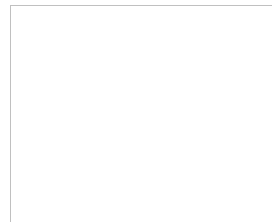
104 Ceiling tile 2x2



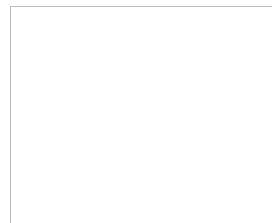
106 Plaster



107 Floor tile 12x12 Gray



108 Ceiling tile 2x4



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NON-ACM - Non Asbestos Containing Material

sf -square feet

CH - Chrysotile, AM - Amosite

HA - Homogenous Area

ea - each

109 Dry wall

NON-ACM Quantity Summary

Based on the site inspection and sample analysis results, location of NON-ACM are summarized by area (room).

62	Ceiling Board (See HA 101)	B-5A	250	sf
65	Ceiling tile (See HA 104 and 108)	110		sf
65	Ceiling tile (See HA 104 and 108)	B-17A		
65	Ceiling tile (See HA 104 and 108)	129		sf
65	Ceiling tile (See HA 104 and 108)	206 to 212		sf
65	Ceiling tile (See HA 104 and 108)	207		sf
65	Ceiling tile (See HA 104 and 108)	132		sf
65	Ceiling tile (See HA 104 and 108)	127		sf
65	Ceiling tile (See HA 104 and 108)	120		sf
65	Ceiling tile (See HA 104 and 108)	119		sf
65	Ceiling tile (See HA 104 and 108)	117		sf
65	Ceiling tile (See HA 104 and 108)	115		sf



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HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

65	Ceiling tile (See HA 104 and 108)	107	sf
65	Ceiling tile (See HA 104 and 108)	106	sf
65	Ceiling tile (See HA 104 and 108)	151	sf
65	Ceiling tile (See HA 104 and 108)	150	sf
65	Ceiling tile (See HA 104 and 108)	149	sf
65	Ceiling tile (See HA 104 and 108)	146	sf
65	Ceiling tile (See HA 104 and 108)	142	sf
65	Ceiling tile (See HA 104 and 108)	137	sf
65	Ceiling tile (See HA 104 and 108)	B-11A	sf
65	Ceiling tile (See HA 104 and 108)	118	sf
65	Ceiling tile (See HA 104 and 108)	214 to 218	sf
65	Ceiling tile (See HA 104 and 108)	B12 A & B	sf
65	Ceiling tile (See HA 104 and 108)	307 to 312	sf
65	Ceiling tile (See HA 104 and 108)	116	sf
65	Ceiling tile (See HA 104 and 108)	130	sf
65	Ceiling tile (See HA 104 and 108)	219 400	sf
65	Ceiling tile (See HA 104 and 108)	314 to 326	sf
65	Ceiling tile (See HA 104 and 108)	302 to 306	sf

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HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

65	Ceiling tile (See HA 104 and 108)	203		sf
65	Ceiling tile (See HA 104 and 108)	202		sf
65	Ceiling tile (See HA 104 and 108)	226		sf
65	Ceiling tile (See HA 104 and 108)	224		sf
65	Ceiling tile (See HA 104 and 108)	223		sf
65	Ceiling tile (See HA 104 and 108)	221		sf
65	Ceiling tile (See HA 104 and 108)	220		sf
65	Ceiling tile (See HA 104 and 108)	128		sf
90	Roll Roofing (new)	Roof	100	sf
93	Rope Gasket	B-6)Storage Bins)	100	lf
99	Roll Roofing	Roof	10	sf
101	Ceiling Tile (Drywall)	B-5A	360	sf
102	Tar wrap	B-18	8	lf
102	Tar wrap	B-19	8	lf
103	Ceiling Tile (Spline)	322	200	sf
103	Ceiling Tile (Spline)	319	200	sf
103	Ceiling Tile (Spline)	B-11A	800	sf
103	Ceiling Tile (Spline)	214 to228	3000	sf
103	Ceiling Tile (Spline)	207 to 212	1250	sf

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lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

103	Ceiling Tile (Spline)	325	200	sf
103	Ceiling Tile (Spline)	324	200	sf
103	Ceiling Tile (Spline)	323	200	sf
103	Ceiling Tile (Spline)	311	200	sf
103	Ceiling Tile (Spline)	321	200	sf
103	Ceiling Tile (Spline)	315	200	sf
103	Ceiling Tile (Spline)	314	200	sf
103	Ceiling Tile (Spline)	312	50	sf
103	Ceiling Tile (Spline)	316	200	sf
103	Ceiling Tile (Spline)	317	200	sf
103	Ceiling Tile (Spline)	310	200	sf
103	Ceiling Tile (Spline)	309	200	sf
103	Ceiling Tile (Spline)	308	200	sf
103	Ceiling Tile (Spline)	307	200	sf
103	Ceiling Tile (Spline)	318	200	sf
103	Ceiling Tile (Spline)	320	200	sf
104	Ceiling tile 2x2	129	200	sf
104	Ceiling tile 2x2	142		sf
104	Ceiling tile 2x2	124		sf
104	Ceiling tile 2x2	110		sf
104	Ceiling tile 2x2	107		sf



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lf - linear feet

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ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

104	Ceiling tile 2x2	106		sf
104	Ceiling tile 2x2	146		sf
104	Ceiling tile 2x2	149		sf
104	Ceiling tile 2x2	122		sf
104	Ceiling tile 2x2	118	200	sf
104	Ceiling tile 2x2	123		sf
104	Ceiling tile 2x2	303	200	sf
104	Ceiling tile 2x2	306	700	sf
104	Ceiling tile 2x2	202	200	sf
104	Ceiling tile 2x2	203	700	sf
104	Ceiling tile 2x2	102	500	sf
104	Ceiling tile 2x2	132	1800	sf
104	Ceiling tile 2x2	117	100	sf
104	Ceiling tile 2x2	137		sf
104	Ceiling tile 2x2	119	100	sf
104	Ceiling tile 2x2	120	100	sf
104	Ceiling tile 2x2	127	100	sf
104	Ceiling tile 2x2	128	100	sf
104	Ceiling tile 2x2	125		sf
104	Ceiling tile 2x2	130	100	sf
104	Ceiling tile 2x2	116	1800	sf



Asbestos Survey Report

FHP Academy

ACM

Building No.: Not Assigned

Location: 2908 Ridgeway St.
Tallahassee FL 32310

ACM - Asbestos Containing Material

NON-ACM - Non Asbestos Containing Material

HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

104	Ceiling tile 2x2	115		sf
106	Plaster	316	600	sf
106	Plaster	301	200	sf
106	Plaster	201 to 228	7000	sf
106	Plaster	318	600	sf
106	Plaster	306	2000	sf
106	Plaster	307	600	sf
106	Plaster	308	600	sf
106	Plaster	309	600	sf
106	Plaster	310	600	sf
106	Plaster	311	600	sf
106	Plaster	312	200	sf
106	Plaster	313	200	sf
106	Plaster	116	2500	sf
106	Plaster	315	600	sf
106	Plaster	303	400	sf
106	Plaster	317	600	sf
106	Plaster	305	900	sf
106	Plaster	303-A	50	sf
106	Plaster	327	600	sf



Asbestos Survey Report

FHP Academy

ACM

Building No.: Not Assigned

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Tallahassee FL 32310

ACM - Asbestos Containing Material

NON-ACM - Non Asbestos Containing Material

HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

106	Plaster	326	600	sf
106	Plaster	325	600	sf
106	Plaster	324	600	sf
106	Plaster	323	600	sf
106	Plaster	322	600	sf
106	Plaster	321	600	sf
106	Plaster	320	600	sf
106	Plaster	319	600	sf
106	Plaster	314	600	sf
106	Plaster	131	500	sf
106	Plaster	117	200	sf
106	Plaster	118	200	sf
106	Plaster	127	100	sf
106	Plaster	120	100	sf
106	Plaster	119	200	sf
107	Floor tile 12x12 Gray	104	50	sf
107	Floor tile 12x12 Gray	301	50	sf
107	Floor tile 12x12 Gray	140	50	sf
107	Floor tile 12x12 Gray	313	50	sf
107	Floor tile 12x12 Gray	213	50	sf
107	Floor tile 12x12 Gray	201	50	sf



Asbestos Survey Report

FHP Academy

ACM

Building No.: Not Assigned

**Location: 2908 Ridgeway St.
Tallahassee Fl. 32310**

ACM - Asbestos Containing Material

lf - linear feet

NAD -No Asbestos Detected

NON-ACM - Non Asbestos Containing Material

sf -square feet

CH - Chrysotile, AM - Amosite

HA - Homogenous Area

ea - each

108	Ceiling tile 2x4	326	200	sf
109	Dry wall	150	300	sf

**Asbestos Survey Report****FHP Academy****ACM****Building No.: Not Assigned****Location: 2908 Ridgeway St.
Tallahassee FL 32310**

ACM - Asbestos Containing Material

NON-ACM - Non Asbestos Containing Material

HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

Bulk Sample Summary

Results of the bulk samples are summarized as follow. The sample locations are included with this. Laboratory sample analysis report are included with this.

0	111	Vibration Dampner		Assumed ACM
1	101	Ceiling Tile (Drywall)	B-5A	NAD
2	101	Ceiling Tile (Drywall)	B-5A	NAD
3	101	Ceiling Tile (Drywall)	B-5A	NAD
4	102	Tar wrap	B-19	NAD
5	102	Tar wrap	B-18	NAD
6	103	Ceiling Tile (Spline)	325	NAD
7	103	Ceiling Tile (Spline)	217	NAD
8	103	Ceiling Tile (Spline)	215	NAD
9	104	Ceiling tile 2x2	306	NAD
10	104	Ceiling tile 2x2	224	NAD
11	104	Ceiling tile 2x2	202	NAD
12	105	Ceiling tile 2x2 (old)	134	3% AM



Asbestos Survey Report

FHP Academy

ACM

Building No.: Not Assigned

Location: 2908 Ridgeway St.
Tallahassee FL 32310

ACM - Asbestos Containing Material

NON-ACM - Non Asbestos Containing Material

HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

13	105	Ceiling tile 2x2 (old)	134	3% AM
14	105	Ceiling tile 2x2 (old)	134	3% AM
15	106	Plaster	303	NAD
16	106	Plaster	202	NAD
17	106	Plaster	124	NAD
18	106	Plaster	142	NAD
19	106	Plaster	110	NAD
20	107	Floor tile 12x12 Gray	301	NAD
21	107	Floor tile 12x12 Gray	201	NAD
22	107	Floor tile 12x12 Gray	104	NAD
23	108	Ceiling tile 2x4	326	NAD
24	108	Ceiling tile 2x4	326	NAD
25	108	Ceiling tile 2x4	326	NAD
26	109	Dry wall	150	NAD
27	109	Dry wall	150	NAD
28	109	Dry wall	150	NAD

**Asbestos Survey Report****FHP Academy****ACM****Building No.: Not Assigned****Location: 2908 Ridgeway St.
Tallahassee FL 32310**

ACM - Asbestos Containing Material

NON-ACM - Non Asbestos Containing Material

HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

29	110	Duct Mastic Black	B-5	8% CH
30	110	Duct Mastic Black	B-10	8% CH
31	110	Duct Mastic Black	105	8% CH
32	114	CHW Pipe run	105	5 % CH in Black Bituminus Material
33	114	CHW Pipe run	230	5 % CH in Black Bituminus Material
34	114	CHW Pipe run	327	5 % CH in Black Bituminus Material
35	115	CHW Pipe fittings	105	5 % CH in Black Bituminus Material
36	115	CHW Pipe fittings	230	5 % CH in Black Bituminus Material
37	115	CHW Pipe fittings	327	5 % CH in Black Bituminus Material
38	35	Floor tile 12x12 White	132	2% CH in Floor tile, 5% CH in Mastic
39	35	Floor tile 12x12 White	130	2% CH in Floor tile, 5% CH in Mastic
40	35	Floor tile 12x12 White	128	2% CH in Floor tile, 5% CH in Mastic

**Asbestos Survey Report****FHP Academy****ACM****Building No.: Not Assigned****Location: 2908 Ridgeway St.
Tallahassee FL 32310**

ACM - Asbestos Containing Material

lf - linear feet

NAD -No Asbestos Detected

NON-ACM - Non Asbestos Containing Material

sf -square feet

CH - Chrysotile, AM - Amosite

HA - Homogenous Area

ea - each

41	34	Floor tile 12x12 Tan With Brown Streaks (2 Layers)	129	5 % CH in Mastic
777	77	Transite Corrugated Panels Cooling tower	Cooling tower	40% CH
791	99	Roll Roofing	Roof	NAD
792	90	Roll Roofing (new)	Roof	NAD
793	80	Transite Panel Board with holes	B-3	45% CH
794	81	Transite Panel Board	B-3	40% CH
795	62	Ceiling Board (See HA 101)	B-5A	NAD
805	65	Ceiling tile (See HA 104 and 108)	B11-A	NAD
806	32	Floor tile 9x9 White with Brown Streaks	B11-A	5% CH
807	13	Pipe Run <4" HW	B-5	5% CH, 15% AM
808	13	Pipe Run <4" HW	B-5	5% CH, 15% AM
809	13	Pipe Run <4" HW	B-5	3% CH, 17% AM
810	1	Pipe Fitting <4" HWS-R	B-5	5% CH
811	1	Pipe Fitting <4" HWS-R	B-5	2% CH & 3% AM
812	14	Pipe Run <4" HHW	B-5	3% CH & 17% AM

**Asbestos Survey Report****FHP Academy****ACM****Building No.: Not Assigned****Location: 2908 Ridgeway St.
Tallahassee FL 32310**

ACM - Asbestos Containing Material

NON-ACM - Non Asbestos Containing Material

HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

813	14	Pipe Run <4" HHW	B-5	3% CH & 17% AM
814	14	Pipe Run <4" HHW	B-5	3% CH & 17% AM
815	2	Pipe Fitting <4" HHWS-R	B-5	2% CH & 5% AM
816	2	Pipe Fitting <4" HHWS-R	B-5	2% CH & 10% AM
817	17	Pipe Run 4"-8" HW	B-5	5% CH & 20% AM
818	17	Pipe Run 4"-8" HW	B-5	5% CH & 20% AM
819	17	Pipe Run 4"-8" HW	B-5	5% CH & 20% AM
820	5	Pipe Fitting 4"-8" HW	B-5	7% AM
821	18	Pipe Run 4"-8" HHW	B-5	NAD
822	18	Pipe Run 4"-8" HHW	B-5	5% CH & 20% AM
823	18	Pipe Run 4"-8" HHW	B-5	2% CH & 10% AM
824	6	Pipe Fitting 4"-8" HHW	B-5	3% CH & 10% AM
825	6	Pipe Fitting 4"-8" HHW	B-5	3% CH & 20% AM
826	6	Pipe Fitting 4"-8" HHW	B-5	3% CH & 10% AM
827	23	Pipe Run >14" Grey Flue	B-5	15% CH & 15% AM
828	23	Pipe Run >14" Grey Flue	B-5	15% CH & 15% AM

**Asbestos Survey Report****FHP Academy****ACM****Building No.: Not Assigned****Location: 2908 Ridgeway St.
Tallahassee FL 32310**

ACM - Asbestos Containing Material

NON-ACM - Non Asbestos Containing Material

HA - Homogenous Area

lf - linear feet

sf -square feet

ea - each

NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

829	23	Pipe Run >14" Grey Flue	B-5	15% CH & 20% AM
830	11	Pipe Fitting >14" flue	B-5	15% CH & 20% AM
831	93	Rope Gasket	B-06	NAD
832	19	Pipe Run 4"-8" CHW (See HA 114 & 115)	B-5	NAD
833	19	Pipe Run 4"-8" CHW (See HA 114 & 115)	B-5	NAD
834	94	Fitting Gasket	B-06	50% CH
835	19	Pipe Run 4"-8" CHW (See HA 114 & 115)	B-5	NAD
836	30	Floor tile 9x9 White with Green & Black Streaks	B-6	10% CH
837	95	Johns Manville sheet packing Green	B-06	65% CH
838	53	Boioler / Tank	B-5	15% CH & 20% AM
839	53	Boioler / Tank	B-5	5% CH & 30% AM
840	53	Boioler / Tank	B-5	3% CH & 25% AM
841	31	Floor tile 9x9 White with Green Streaks	B-17A	10%CH
842	33	Floor tile 9x9 Green	118	7% CH
843	96	Black Pipe Wrap (see HA 102)	B-19	1% CH



Asbestos Survey Report

FHP Academy

ACM

Building No.: Not Assigned

**Location: 2908 Ridgeway St.
Tallahassee FL 32310**

ACM - Asbestos Containing Material

NON-ACM - Non Asbestos Containing Material

HA - Homogenous Area

lf - linear feet

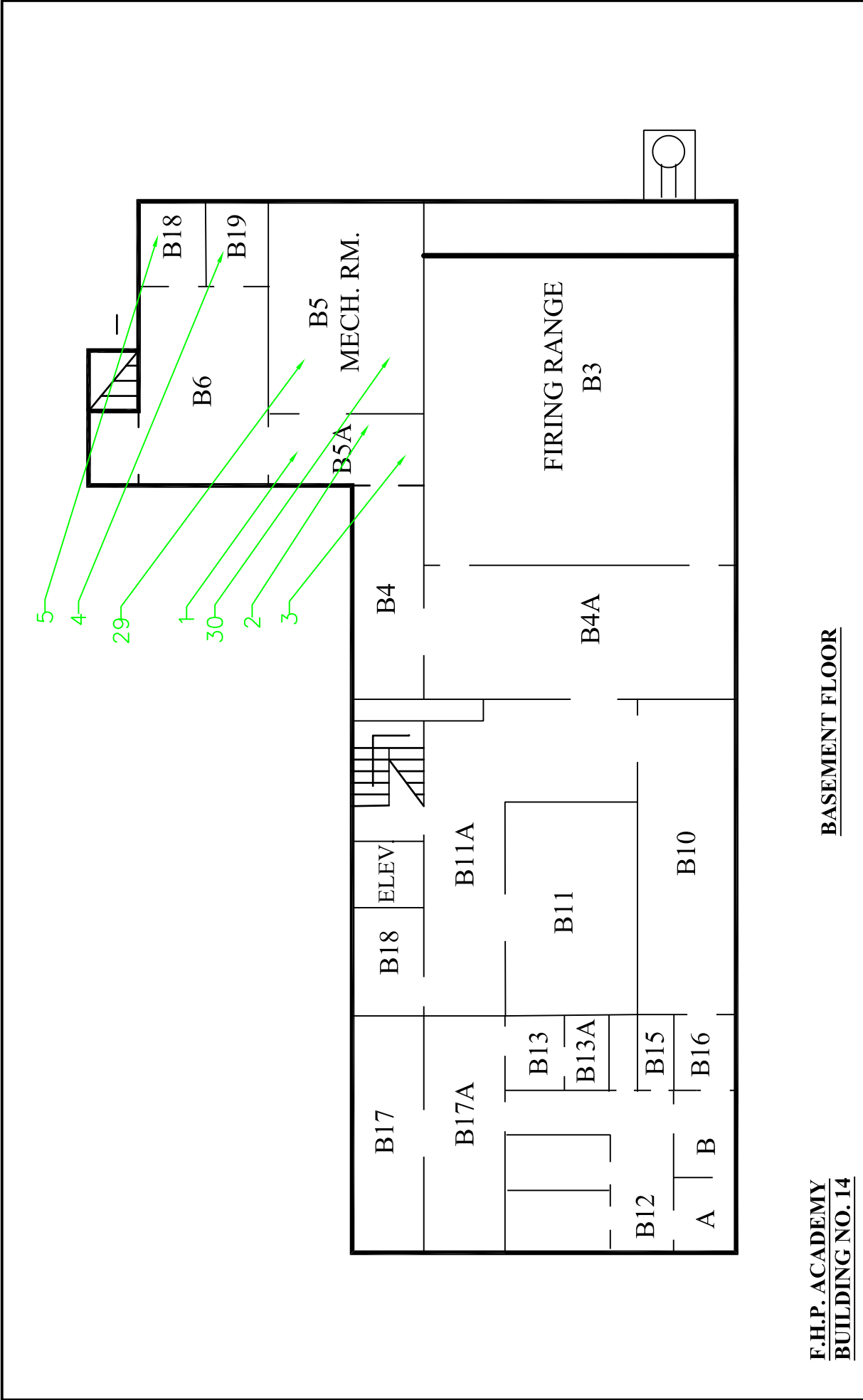
sf -square feet

ea - each

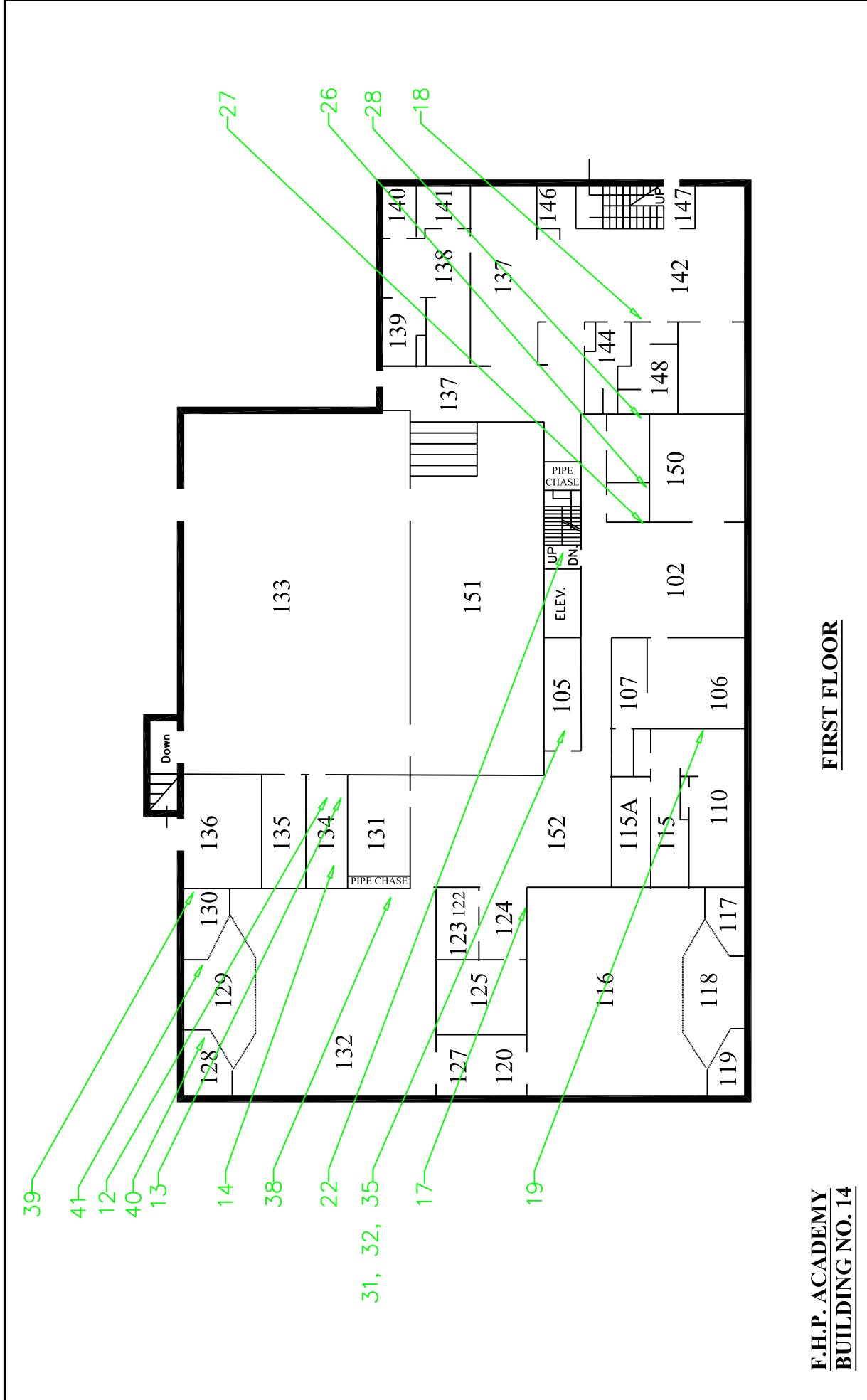
NAD -No Asbestos Detected

CH - Chrysotile, AM - Amosite

844	34	Floor tile 12x12 Tan With Brown Streaks (2 Layers)	129	NAD
845	35	Floor tile 12x12 White	132	NAD
846	98	Rope Gasket	B-06	60% CH
847	36	Floor tile 12x12 White with Green	207	15% CH
848	38	Floor tile 12x12 White with Green	223	15% CH
853	37	Floor tile 9x9 Green	Elevator	20% Tremolite



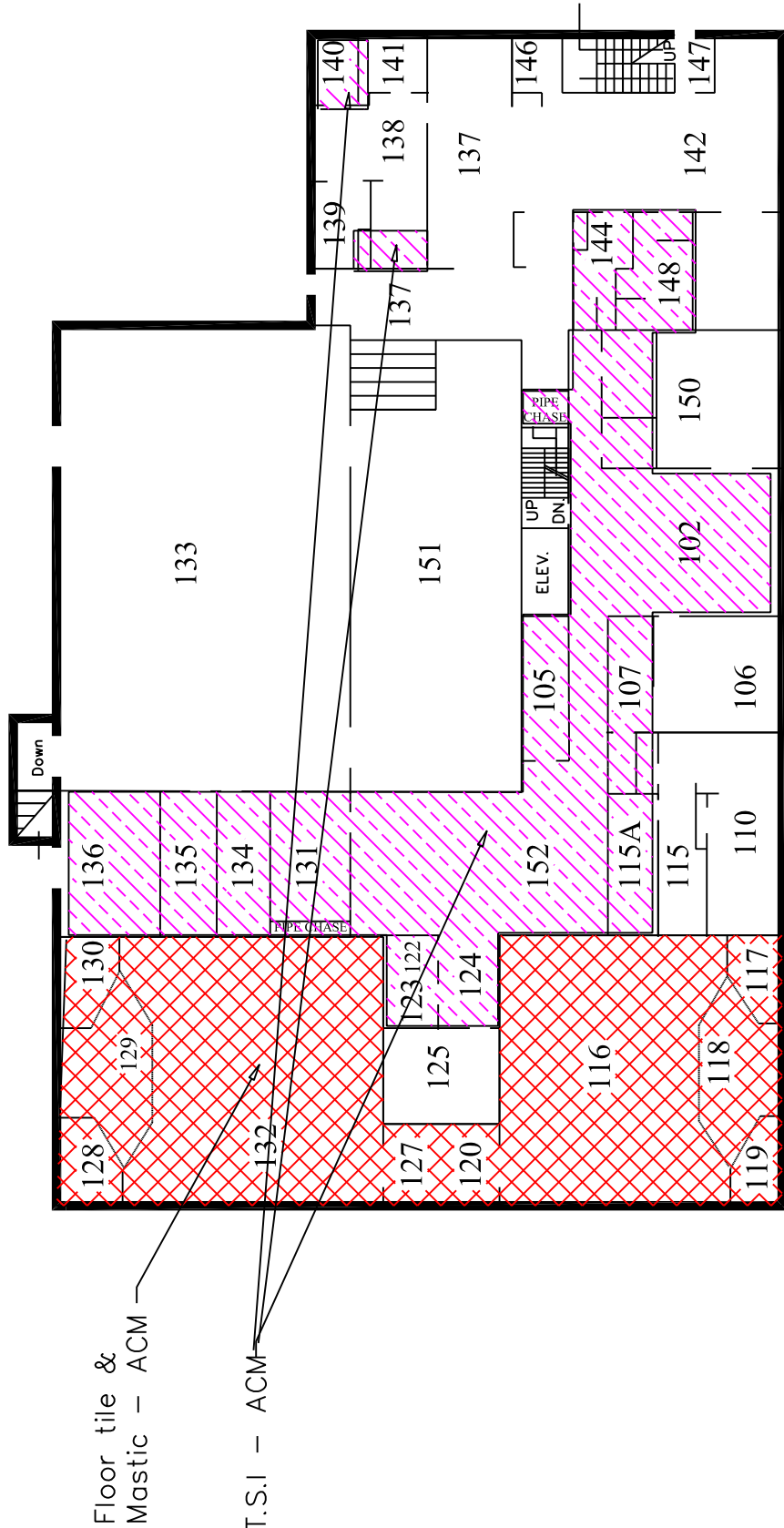
Mihir Environmental Health & Safety Consultants 1535 KILLEARN CENTER BLVD. SUITE C-5 TALLAHASSEE, FL 32308 PHONE: (850) 422-1255 FAX: (850) 422-1866 www.mihirenvironics.com Mihir E nvironics Inc. Environmental Health & Safety Consultants 1535 KILLEARN CENTER BLVD. SUITE C-5 TALLAHASSEE, FL 32308 PHONE: (850) 422-1255 FAX: (850) 422-1866 www.mihirenvironics.com		PROJECT Asbestos Survey Update F.H.P. Academy 2908 Ridgeway St. Tallahassee, Florida 32310	CLIENT Florida State University Tallahassee, Florida 32303	SCALE : NOT TO SCALE
		DRAWING NO. 1		
		PROJECT NO. 004.054.00		
		DRAWN BY S. Thakkar		
DRAWING TITLE : ASBESTOS SAMPLE LOCATION		APPROVED BY A. Thakkar		
		DATE 05/30/08		



F.H.P. ACADEMY
BUILDING NO. 14

FIRST FLOOR

 Mihir Environmental Inc. Environmental Health & Safety Consultants 1535 KILLEARN CENTER BLVD. SUITE C-5 TALLAHASSEE, FL 32308 PHONE: (850) 422-1255 FAX: (850) 422-1866 www.mihirenvironmental.com	PROJECT Asbestos Survey Update F.H.P. Academy 2908 Ridgeway St. Tallahassee, Florida 32310 DRAWING TITLE : ASBESTOS SAMPLE LOCATION	CLIENT Florida State University Tallahassee, Florida 32303	SCALE : NOT TO SCALE
			DRAWING NO. 3
			PROJECT NO. 004.054.00
			DRAWN BY S. Thakkar APPROVED BY A. Thakkar DATE 05/30/08



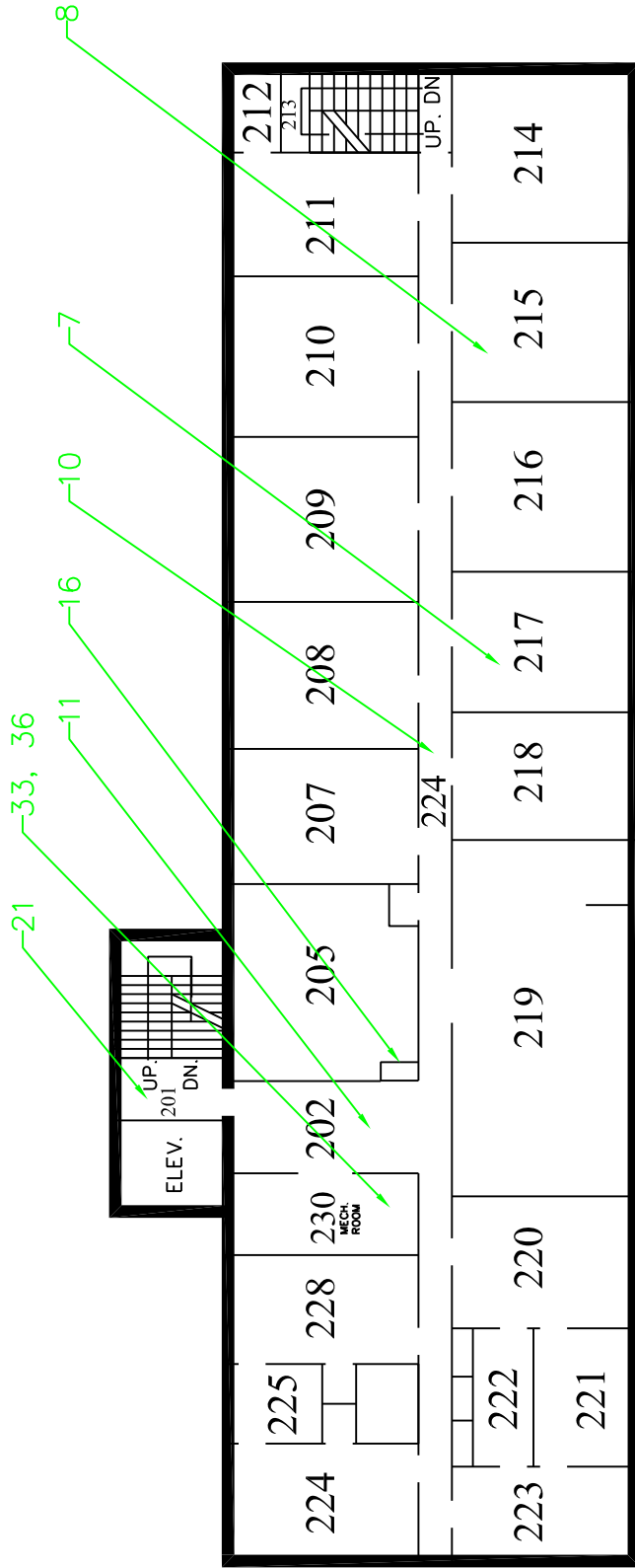
FIRST FLOOR

**F.H.P. ACADEMY
BUILDING NO. 14**

 Mihir E nvirionics Inc. Environmental Health & Safety Consultants 1535 KILLEARN CENTER BLVD. SUITE C-5 TALLAHASSEE, FL 32308 PHONE: (850) 422-1255 FAX: (850) 422-1866 www.mihirenvirionics.com		PROJECT Asbestos Survey Update F.H.P. Academy 2908 Ridgeway St. Tallahassee, Florida 32310	CLIENT Florida State University Tallahassee, Florida 32303	SCALE : NOT TO SCALE	
		DRAWING NO.	4		
		PROJECT NO.	004.054.00		
		DRAWN BY	S. Thakkar		
DRAWING TITLE : ASBESTOS SAMPLE LOCATION		APPROVED BY	A. Thakkar		
		DATE	05/30/08		



Mihir Environmental Health & Safety Consultants
 1535 KILLEARN CENTER BLVD. SUITE C-5
 TALLAHASSEE, FL 32308
 PHONE: (850) 422-1255 FAX: (850) 422-1866
www.mihirenvironmental.com



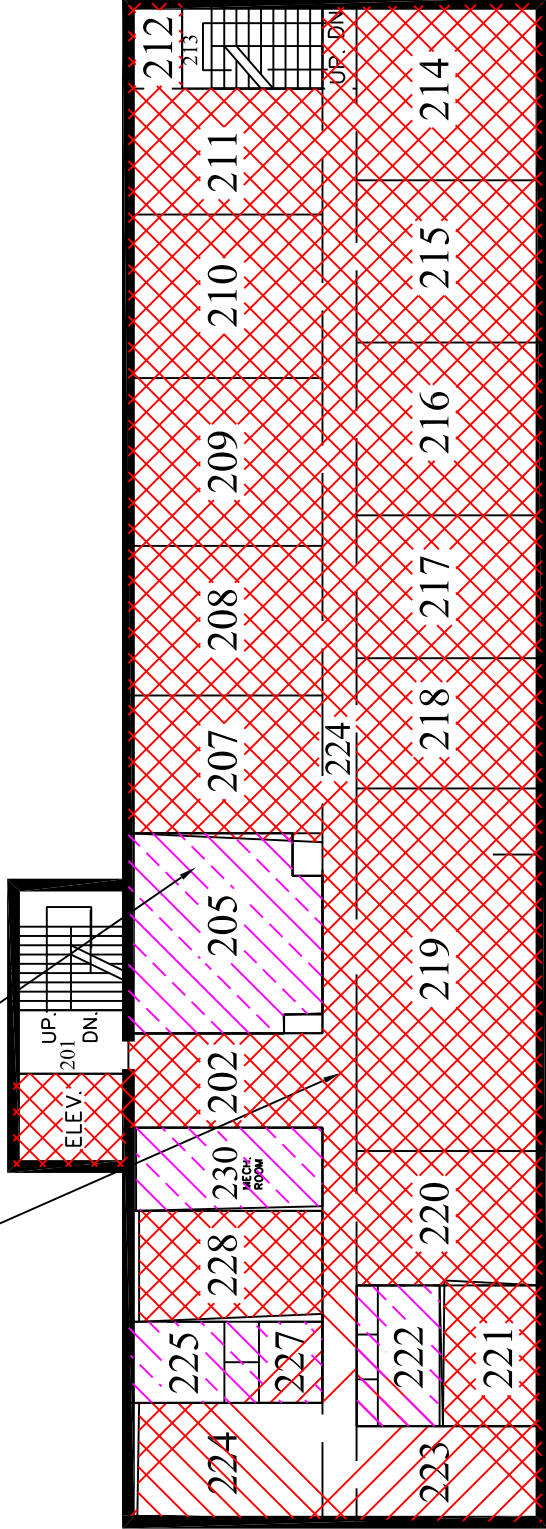
F.H.P. ACADEMY
BUILDING NO. 14

SECOND FLOOR

 Mihir E nvironics nc. Environmental Health & Safety Consultants 1535 KILLEARN CENTER BLVD. SUITE C-5 TALLAHASSEE, FL 32308 PHONE: (850) 422-1255 FAX: (850) 422-1866 www.mihirenvironics.com	PROJECT Asbestos Survey Update F.H.P. Academy 2908 Ridgeway St. Tallahassee, Florida 32310	CLIENT Florida State University Tallahassee, Florida 32303	SCALE : NOT TO SCALE	
			DRAWING NO.	5
			PROJECT NO.	004.054.00
			DRAWN BY	S.Thakkar
			APPROVED BY	A.Thakkar
			DATE	05/30/08
	DRAWING TITLE : LEAD WIPE SAMPLE LOCATION			

T.S.I – ACM , in Room
205, 230, 225, 227 & 222

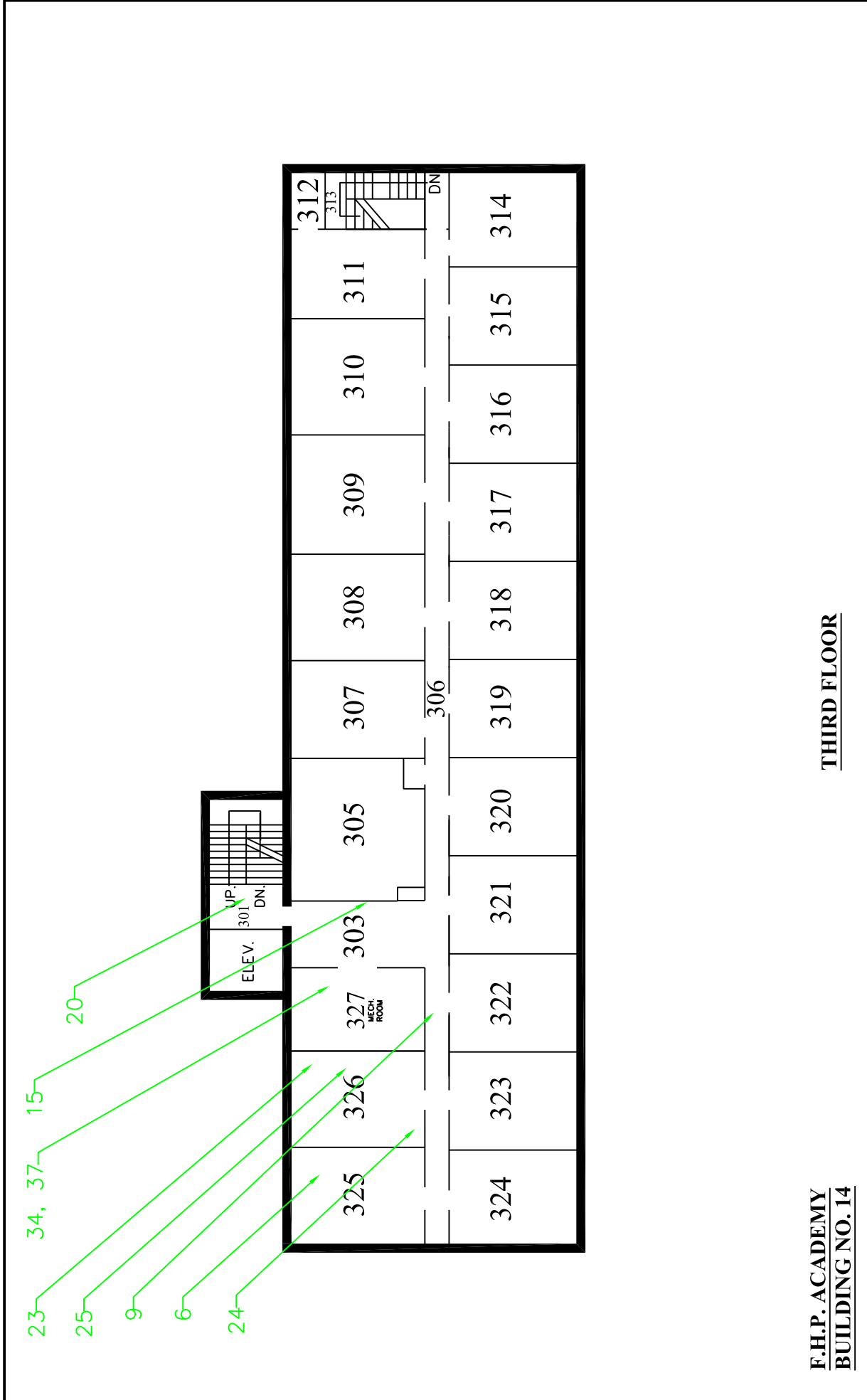
Floor tile & Mastic is ACM



**F.H.P. ACADEMY
BUILDING NO. 14**

SECOND FLOOR

 Mihir Environmental Health & Safety Consultants 1535 KILLEARN CENTER BLVD, SUITE C-5 TALLAHASSEE, FL 32308 PHONE: (850) 422-1255 FAX: (850) 422-1866 www.mihirenvironmental.com	PROJECT Asbestos Survey Update F.H.P. Academy 2908 Ridgeway St. Tallahassee, Florida 32310 DRAWING TITLE : ACM LOCATION	CLIENT Florida State University Tallahassee, Florida 32303		SCALE : NOT TO SCALE	
		DRAWING NO. 6		PROJECT NO. 004.054.00	
		DRAWN BY S. Thakkar		APPROVED BY A. Thakkar	
		DATE 05/30/08			



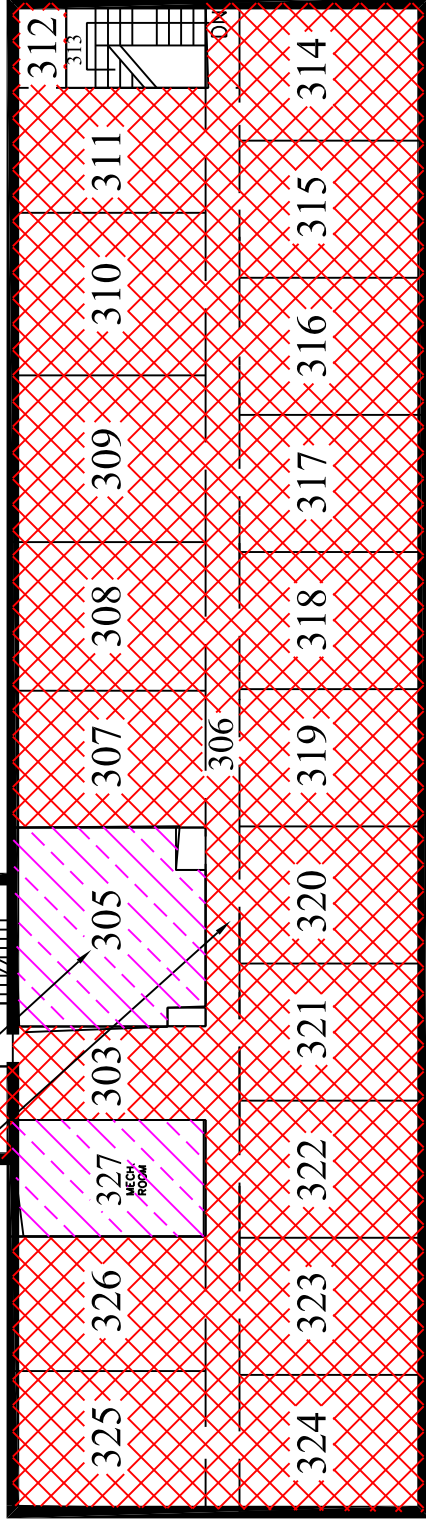
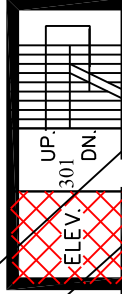
**F.H.P. ACADEMY
BUILDING NO.14**

THIRD FLOOR

 Mihir Enviro-nics Inc. Environmental Health & Safety Consultants 1535 KILLEARN CENTER BLVD. SUITE C-5 TALLAHASSEE, FL 32308 PHONE: (850) 422-1255 FAX: (850) 422-1866 www.mihirenvironics.com	PROJECT Asbestos Survey Update F.H.P. Academy 2908 Ridgeway St. Tallahassee, Florida 32310 DRAWING TITLE : ASBESTOS SAMPLE LOCATION	CLIENT Florida State University Tallahassee, Florida 32303	SCALE : NOT TO SCALE
			DRAWING NO. 7
			PROJECT NO. 004.054.00
			DRAWN BY S. Thakkar APPROVED BY A. Thakkar DATE 05/30/08

T.S.I – ACM , in
Room 305 & 227

Floor tile & Mastic is ACM



F.H.P. ACADEMY
BUILDING NO. 14

THIRD FLOOR



Mihir Environmental
Environmental Health & Safety Consultants
1535 KILLEARN CENTER BLVD. SUITE C-5
TALLAHASSEE, FL 32308
PHONE: (850) 422-1255 FAX: (850) 422-1866
www.mihirenvironmental.com

PROJECT Asbestos Survey Update
F.H.P. Academy
2908 Ridgeway St.
Tallahassee, Florida 32310

DRAWING TITLE : ACM LOCATION

CLIENT Florida State University Tallahassee, Florida 32303		SCALE : NOT TO SCALE	
		DRAWING NO.	8
		PROJECT NO.	004.054.00
		DRAWN BY	S.Thakkar
		APPROVED BY	A.Thakkar
		DATE	05/30/08

SCHNEIDER LABORATORIES

INCORPORATED

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • (FAX) 804-359-1475

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AIHA/ELLAP 100527, NVLAP 101150-0, NYELAP/NELAC 11413, CAELAP 2078, NC 593, SC 93003

LABORATORY ANALYSIS REPORT

Asbestos Identification by EPA Method¹ 600/M4/82/020

ACCOUNT #: 2536-08-1835
CLIENT: Mihir Environics, Inc.
ADDRESS: 1535 Killearn Center Blvd. Ste C-5
Tallahassee, FL 32309
PROJECT NAME: F.H.P. Asb Update
JOB LOCATION: Tallahassee FL
PROJECT NO.: 004.054.000
PO NO.:

DATE COLLECTED: 6/23/2008
DATE RECEIVED: 6/24/2008
DATE ANALYZED: 7/1/2008
DATE REPORTED: 7/1/2008

SampleType: BULK

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	PLM Analysis Results	
			Asbestos Fibers	Other Materials
1	29789092	Basement B-5A		
Layer 1:	Drywall White, Powdery		None Detected	5% CELLULOSE FIBER 95% NON FIBROUS MATERIAL
Layer 2:	Joint Compound White, Granular		None Detected	100% NON FIBROUS MATERIAL
Layer 3:	Drywall/Joint Cmpd White, Powdery/Granular		None Detected	3% CELLULOSE FIBER 97% NON FIBROUS MATERIAL
2	29789093	Basement B-5A		
Layer 1:	Drywall White, Powdery		None Detected	5% CELLULOSE FIBER 95% NON FIBROUS MATERIAL
Layer 2:	Joint Compound White, Granular		None Detected	100% NON FIBROUS MATERIAL

Total Number of Pages in Report: 6

Results relate only to samples as received by the laboratory.

Visit www.slabinc.com for current certifications.

Samples analyzed by the EPA Test Method are subject to the limitations of light microscopy including matrix interference. Gravimetric reduction and correlative analyses are recommended for all non-friable, organically bound materials. This method has a reporting limit of 1% or greater. Visual estimation contains an inherent range of uncertainty. This report must not be reproduced except in full with the approval of the lab, and must not be used to claim NVLAP or other gov't agency endorsement. ¹All testing is performed in strict accordance with Schneider Laboratories, Inc. standard operating procedures.

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	PLM Analysis Results	
			Asbestos Fibers	Other Materials
Layer 3:	Drywall/Joint Cmpd White, Powdery/Granular		None Detected	3% CELLULOSE FIBER 97% NON FIBROUS MATERIAL
3	29789094	Basement B-5A		
Layer 1:	Drywall White, Powdery		None Detected	5% CELLULOSE FIBER 95% NON FIBROUS MATERIAL
Layer 2:	Joint Compound White, Granular		None Detected	100% NON FIBROUS MATERIAL
Layer 3:	Drywall/Joint Cmpd White, Powdery/Granular		None Detected	3% CELLULOSE FIBER 97% NON FIBROUS MATERIAL
4	29789095	Basement B-19		
Layer 1:	Wrap Black, Bituminous		None Detected	7% CELLULOSE FIBER 93% NON FIBROUS MATERIAL
5	29789096	Basement B-18		
Layer 1:	Wrap Black, Bituminous		None Detected	7% CELLULOSE FIBER 93% NON FIBROUS MATERIAL
6	29789097	Third Floor		
Layer 1:	Ceiling Tile White, Fibrous		None Detected	90% MINERAL/GLASS WOOL 10% NON FIBROUS MATERIAL
7	29789098	Second Floor		
Layer 1:	Ceiling Tile White, Fibrous		None Detected	90% MINERAL/GLASS WOOL 10% NON FIBROUS MATERIAL
8	29789099	Second Floor		
Layer 1:	Ceiling Tile White, Fibrous		None Detected	90% MINERAL/GLASS WOOL 10% NON FIBROUS MATERIAL

Total Number of Pages in Report: 6

Results relate only to samples as received by the laboratory.

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Samples analyzed by the EPA Test Method are subject to the limitations of light microscopy including matrix interference. Gravimetric reduction and correlative analyses are recommended for all non-friable, organically bound materials. This method has a reporting limit of 1% or greater. Visual estimation contains an inherent range of uncertainty. This report must not be reproduced except in full with the approval of the lab, and must not be used to claim NVLAP or other gov't agency endorsement. ¹All testing is performed in strict accordance with Schneider Laboratories, Inc. standard operating procedures.

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	PLM Analysis Results	
			Asbestos Fibers	Other Materials
9	29789100	Hallway Third Floor		
Layer 1:	Ceiling Tile White, Fibrous		None Detected	40% CELLULOSE FIBER 40% MINERAL/GLASS WOOL 20% NON FIBROUS MATERIAL
10	29789101	Second Floor		
Layer 1:	Ceiling Tile White, Fibrous		None Detected	40% CELLULOSE FIBER 40% MINERAL/GLASS WOOL 20% NON FIBROUS MATERIAL
11	29789102	Lobby		
Layer 1:	Ceiling Tile White, Fibrous		None Detected	40% CELLULOSE FIBER 40% MINERAL/GLASS WOOL 20% NON FIBROUS MATERIAL
12	29789103	First Floor		
Layer 1:	Ceiling Tile White, Fibrous		3% AMOSITE	85% MINERAL/GLASS WOOL 12% NON FIBROUS MATERIAL
13	29789104	First Floor		
Layer 1:	Ceiling Tile White, Fibrous		3% AMOSITE	85% MINERAL/GLASS WOOL 12% NON FIBROUS MATERIAL
14	29789105	First Floor		
Layer 1:	Ceiling Tile White, Fibrous		3% AMOSITE	85% MINERAL/GLASS WOOL 12% NON FIBROUS MATERIAL
15	29789106	Hallway Third Floor		
Layer 1:	Plaster Beige, Granular		None Detected	100% NON FIBROUS MATERIAL
Layer 2:	Skim Coat White, Granular		None Detected	100% NON FIBROUS MATERIAL
Layer 3:	Drywall White, Powdery		None Detected	5% CELLULOSE FIBER 95% NON FIBROUS MATERIAL

Total Number of Pages in Report: 6

Results relate only to samples as received by the laboratory.

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Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	PLM Analysis Results	
			Asbestos Fibers	Other Materials
16	29789107	Phone Booth		
Layer 1:	Plaster Beige, Granular		None Detected	100% NON FIBROUS MATERIAL
Layer 2:	Skim Coat White, Granular		None Detected	100% NON FIBROUS MATERIAL
Layer 3:	Drywall White, Powdery		None Detected	5% CELLULOSE FIBER 95% NON FIBROUS MATERIAL
17	29789108	First Floor		
Layer 1:	Plaster Beige, Granular		None Detected	100% NON FIBROUS MATERIAL
Layer 2:	Skim Coat White, Granular		None Detected	100% NON FIBROUS MATERIAL
Layer 3:	Drywall White, Powdery		None Detected	5% CELLULOSE FIBER 95% NON FIBROUS MATERIAL
18	29789109	First Floor		
Layer 1:	Plaster Beige, Granular		None Detected	100% NON FIBROUS MATERIAL
Layer 2:	Skim Coat White, Granular		None Detected	100% NON FIBROUS MATERIAL
Layer 3:	Drywall White, Powdery		None Detected	3% CELLULOSE FIBER 97% NON FIBROUS MATERIAL
19	29789110	First Floor Office		
Layer 1:	Plaster Beige, Granular No Drywall Found.		None Detected	100% NON FIBROUS MATERIAL

Total Number of Pages in Report: 6

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Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	PLM Analysis Results	
			Asbestos Fibers	Other Materials
Layer 2:	Skim Coat		None Detected	100% NON FIBROUS MATERIAL
	White, Granular			
20	29789111	Stair Third Floor		
Layer 1:	Floor Tile		None Detected	100% NON FIBROUS MATERIAL
	Black, Organically Bound			
Layer 2:	Mastic		None Detected	3% CELLULOSE FIBER
	Tan, Soft			97% NON FIBROUS MATERIAL
21	29789112	Stair Second Floor		
Layer 1:	Floor Tile		None Detected	100% NON FIBROUS MATERIAL
	Black, Organically Bound			
Layer 2:	Mastic		None Detected	4% CELLULOSE FIBER
	Tan, Soft			96% NON FIBROUS MATERIAL
22	29789113	Stair First Floor		
Layer 1:	Floor Tile		None Detected	100% NON FIBROUS MATERIAL
	Black, Organically Bound			
Layer 2:	Mastic		None Detected	5% CELLULOSE FIBER
	Tan, Soft			95% NON FIBROUS MATERIAL
23	29789114	Third Floor		
Layer 1:	Ceiling Tile		None Detected	40% CELLULOSE FIBER
	White, Fibrous			40% MINERAL/GLASS WOOL
				20% NON FIBROUS MATERIAL
24	29789115	Third Floor		
Layer 1:	Ceiling Tile		None Detected	40% CELLULOSE FIBER
	White, Fibrous			40% MINERAL/GLASS WOOL
				20% NON FIBROUS MATERIAL

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Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	PLM Analysis Results	
			Asbestos Fibers	Other Materials
25	29789116	Third Floor		
Layer 1:	Ceiling Tile White, Fibrous		None Detected	40% CELLULOSE FIBER 40% MINERAL/GLASS WOOL 20% NON FIBROUS MATERIAL
26	29789117	First Floor		
Layer 1:	Drywall White, Powdery		None Detected	5% CELLULOSE FIBER 95% NON FIBROUS MATERIAL
Layer 2:	Joint Compound White, Granular		None Detected	100% NON FIBROUS MATERIAL
Layer 3:	Drywall/Joint Cmpd White, Powdery/Granular		None Detected	3% CELLULOSE FIBER 97% NON FIBROUS MATERIAL
27	29789118	First Floor		
Layer 1:	Drywall White, Powdery		None Detected	4% CELLULOSE FIBER 2% MINERAL/GLASS WOOL 94% NON FIBROUS MATERIAL
Layer 2:	Joint Compound White, Granular		None Detected	100% NON FIBROUS MATERIAL
Layer 3:	Drywall/Joint Cmpd White, Powdery/Granular		None Detected	3% CELLULOSE FIBER 97% NON FIBROUS MATERIAL
28	29789119	First Floor		
Layer 1:	Drywall White, Powdery		None Detected	5% CELLULOSE FIBER 95% NON FIBROUS MATERIAL
Layer 2:	Joint Compound White, Granular		None Detected	100% NON FIBROUS MATERIAL
Layer 3:	Drywall/Joint Cmpd White, Powdery/Granular		None Detected	3% CELLULOSE FIBER 97% NON FIBROUS MATERIAL

Analyst: HALA A. OSMAN

Total Number of Pages in Report: 6

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Reviewed By: Nathaniel Vaughan, Asbestos Manager

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LABORATORY ANALYSIS REPORT

Asbestos Identification by EPA Method¹ 600/M4/82/020

Using SLI A6

ACCOUNT #: 2536-08-1844
CLIENT: Mihir Environics, Inc.
ADDRESS: 1535 Killearn Center Blvd. Ste C-5
Tallahassee, FL 32309

DATE COLLECTED: 7/8/2008
DATE RECEIVED: 7/9/2008
DATE ANALYZED: 7/10/2008
DATE REPORTED: 7/11/2008

PROJECT NAME: F.H.P. Asb Update

JOB LOCATION: 2908 Ridgeway St.

PROJECT NO.: 004.056.00

PO NO.:

SampleType: BULK

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	PLM Analysis Results	
			Asbestos Fibers	Other Materials
29	29807237	Basement Mech Room		
Layer 1:	Duct Mastic Black, Bituminous		8% CHRYSOTILE	10% MINERAL/GLASS WOOL 82% NON FIBROUS MATERIAL
30	29807238	Basement Mech Room		
Layer 1:	Duct Mastic Black, Bituminous		8% CHRYSOTILE	10% MINERAL/GLASS WOOL 82% NON FIBROUS MATERIAL
31	29807239	F.F. Mech Room		
Layer 1:	Duct Mastic Black, Bituminous		8% CHRYSOTILE	10% MINERAL/GLASS WOOL 82% NON FIBROUS MATERIAL

Fatima ELTAYAR

Analyst: **FATIMA ELTAYAR**

Susan L. Childress

Reviewed By: **Susan L. Childress, Analyst**

Total Number of Pages in Report: 1

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LABORATORY ANALYSIS REPORT

Asbestos Identification by EPA Method¹ 600/M4/82/020

Using SLI A6

ACCOUNT #: 2536-08-1858
CLIENT: Mihir Environics, Inc.
ADDRESS: 1535 Killearn Center Blvd. Ste C-5
Tallahassee, FL 32309

DATE COLLECTED: 7/31/2008
DATE RECEIVED: 8/1/2008
DATE ANALYZED: 8/1/2008
DATE REPORTED: 8/1/2008

PROJECT NAME: FSU
JOB LOCATION: FHP
PROJECT NO.: 004.0540.000
PO NO.:

SampleType: BULK

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	PLM Analysis Results	
			Asbestos Fibers	Other Materials
32	29835689	Location 105		
Layer 1:	Pipe Material Black, Brittle		None Detected	100% NON FIBROUS MATERIAL
Layer 2:	Cover White, Fibrous		None Detected	60% MINERAL/GLASS WOOL 40% NON FIBROUS MATERIAL
Layer 3:	Bituminous Material Black, Bituminous		5% CHRYSOTILE	95% NON FIBROUS MATERIAL
33	29835690	Location 230		
Layer 1:	Pipe Material Black, Brittle		None Detected	100% NON FIBROUS MATERIAL
Layer 2:	Cover White, Fibrous		None Detected	60% MINERAL/GLASS WOOL 40% NON FIBROUS MATERIAL
Layer 3:	Bituminous Material Black, Bituminous		5% CHRYSOTILE	95% NON FIBROUS MATERIAL
34	29835691	Location 327		
Layer 1:	Pipe Material Black, Brittle		None Detected	100% NON FIBROUS MATERIAL

Total Number of Pages in Report: 3

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Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	PLM Analysis Results	
			Asbestos Fibers	Other Materials
Layer 2:	Cover White, Fibrous		None Detected	60% MINERAL/GLASS WOOL 40% NON FIBROUS MATERIAL
Layer 3:	Bituminous Material Black, Bituminous		5% CHRYSOTILE	95% NON FIBROUS MATERIAL
35	29835692	Location 105		
Layer 1:	Pipe Material Black, Brittle		None Detected	100% NON FIBROUS MATERIAL
Layer 2:	Cover White, Fibrous		None Detected	60% MINERAL/GLASS WOOL 40% NON FIBROUS MATERIAL
Layer 3:	Bituminous Material Black, Bituminous		5% CHRYSOTILE	95% NON FIBROUS MATERIAL
36	29835693	Location 230		
Layer 1:	Pipe Material Black, Brittle		None Detected	100% NON FIBROUS MATERIAL
Layer 2:	Cover White, Fibrous		None Detected	60% MINERAL/GLASS WOOL 40% NON FIBROUS MATERIAL
Layer 3:	Bituminous Material Black, Bituminous		5% CHRYSOTILE	95% NON FIBROUS MATERIAL
37	29835694	Location 327		
Layer 1:	Pipe Material Black, Brittle		None Detected	100% NON FIBROUS MATERIAL
Layer 2:	Cover White, Fibrous		None Detected	60% MINERAL/GLASS WOOL 40% NON FIBROUS MATERIAL
Layer 3:	Bituminous Material Black, Bituminous		5% CHRYSOTILE	95% NON FIBROUS MATERIAL
38	29835695	Location 132		
Layer 1:	Floor Tile White, Organically Bound		2% CHRYSOTILE	98% NON FIBROUS MATERIAL

Total Number of Pages in Report: 3

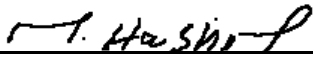
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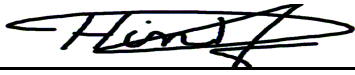
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Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	PLM Analysis Results	
			Asbestos Fibers	Other Materials
Layer 2:	Mastics		5% CHRYSOTILE	95% NON FIBROUS MATERIAL
	Black/Brown, Bituminous/Soft			
	Unable to separate individual layers.			
39	29835696	Location 130		
Layer 1:	Floor Tile		2% CHRYSOTILE	98% NON FIBROUS MATERIAL
	White, Organically Bound			
Layer 2:	Mastics		5% CHRYSOTILE	95% NON FIBROUS MATERIAL
	Black/Brown, Bituminous/Soft			
	Unable to separate individual layers.			
40	29835697	Location 128		
Layer 1:	Mastic		None Detected	2% CELLULOSE FIBER
	Brown, Soft			98% NON FIBROUS MATERIAL
Layer 2:	Floor Tile		2% CHRYSOTILE	98% NON FIBROUS MATERIAL
	Beige, Organically Bound			
Layer 3:	Mastic		5% CHRYSOTILE	95% NON FIBROUS MATERIAL
	Black, Bituminous			
41	29835698	Location 129		
Layer 1:	Mastic		None Detected	2% CELLULOSE FIBER
	Brown, Soft			98% NON FIBROUS MATERIAL
Layer 2:	Floor Tile		None Detected	100% NON FIBROUS MATERIAL
	Green, Organically Bound			
Layer 3:	Mastic		5% CHRYSOTILE	95% NON FIBROUS MATERIAL
	Black, Bituminous			
Layer 4:	Floor Tile		None Detected	100% NON FIBROUS MATERIAL
	Beige, Organically Bound			
Layer 5:	Mastic		None Detected	2% CELLULOSE FIBER
	Brown, Soft			98% NON FIBROUS MATERIAL

Analyst:


MOHAMMED B. HASHIM

Reviewed By:


Hind Eldanaf, Analyst Supervisor
Total Number of Pages in Report: 3

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