



**Purchasing and Distribution Services**  
**702 SE M291 Highway**  
**Lee's Summit, Missouri 64063**  
(816) 986-2213  
Email: Melissa.ross@lsr7.net

**INVITATION TO BID**

**DATE:** March 27, 2018  
**FOR:** Yearly Contract for Abatement Services  
**BID#:** 2018-22  
**DATE OF OPENING:** April 17, 2018  
**TIME OF OPENING:** 3:00 PM

**THE UNDERSIGNED HEREBY:**

1. Agrees to deliver the services specified herein in accordance with the terms, conditions specifications and prices set forth.
2. Certifies that he/she is an authorized agent of said company and has the authority to legally enter into a binding Service Agreement.

**BIDS MUST BE SIGNED IN INK**

_____ Name of Vendor	_____ Authorized Representative (Print)
_____ Street Address	_____ Authorized Signature
_____ City	_____ State, Zip Code
_____ Telephone	_____ Contact Email

**All questions, requests for information or clarification pertaining to this bid must be submitted in writing to the Public Purchase E-bidding Website.**

**ADVERTISEMENT FOR BIDS:  
Yearly Contract for Abatement Services**

The Lee's Summit R-VII School District is accepting Bids for Yearly Contract for Abatement Services. Specifications, terms, and conditions are specified in the Bid packet. The Bid and required specifications can be found on the Public Purchase website <https://www.publicpurchase.com/gems/register/vendor/register>. You must register with Public Purchase to be able to respond to this bid electronically. All questions and bids will only be accepted electronically through this website. Sealed Bids must be received in Public Purchase on or before 3:00 PM (C.S.T.) on April 17, 2018. **No Late Bids will be accepted.** Questions regarding registration, contact the Purchasing & Distribution Services Department (816-986-2190).

**SPECIAL INSTRUCTIONS**

1. Purpose of Bid: The Lee's Summit R-VII School District desires to solicit bids for a yearly contract for Abatement Services, per specifications attached as Exhibit A.
2. All bids shall be quoted per unit unless otherwise specified. All abatement services will be performed in accordance with industry standards and shall not void any manufacturer warranties.
3. Primary Location(s): **Lee's Summit R-VII School District Boundary**
4. Service Agreements shall be awarded in accordance with regulations adopted by the Lee's Summit R-VII Board of Education and adhere to all applicable purchasing policies. Service Agreements will be negotiated with the lowest responsible bidder who meets all of the qualifications for quality, price, terms of bid, service and is determined to be in the best interest of the District. The bid award will be at the sole discretion of the District. The District reserves the right to reject any and all bids in part or in whole, and to accept the bid that appears to be in the best interest of the District.
5. The terms of this bid shall remain in effect for one year from date of award with the possibility of 3 additional one-year renewal periods. All prices **MUST** remain firm during the first year time period. If after one year, successful bidder requires an increase, vendor must request the increase in writing within ninety (90) days of the anniversary date to the District's Purchasing Department. This contract shall commence on May 28, 2018 unless otherwise stipulated on a specific order issued by the District. The agreement shall remain in effect through May 27, 2018. The District reserves the right to renew and extend the executed agreement pertaining to all prices, terms and conditions and specifications upon mutual agreement between the District and vendor(s) for an additional one (1) year period, but not to exceed two (2) additional one (1) year periods, for a total of 3 years. Adjustments in cost at the beginning of each renewal period will be limited to the current Federal Consumer Price Index "CPI-U, All Items" (Urban Consumers) rate.

If the Vendor requests an increase in compensation for any renewal period, the Vendor shall notify the Purchasing Department no less than sixty (60) days prior to the end of the contract period and shall provide evidence to the satisfaction of the Purchasing Department of increased costs incurred by the Vendor for any element of the bid for which an increase is requested. **The request MUST contain a written notification from the manufacturer to the supplier or vendor of price increases.** It shall be understood that such price adjustments **shall not** exceed the amount passed onto the supplier or vendor by the manufacturer. It shall be further understood that the District reserves the right to reject any price adjustments submitted by the bidder and/or to terminate the contract with the bidder based on such price adjustments.

The Purchasing Department shall notify the Vendor in writing of the intent to exercise the renewal option. However, failure to notify the Vendor does not waive the District's right to exercise the renewal option.

6. The successful bidder and installation company, if subcontracted must have a valid business license, hold all applicable certifications and agree to maintain them throughout the project. The successful bidder and subcontractors must also maintain a liability insurance policy, not less than \$2 million dollars when working on District premise.
7. The successful bidder shall provide services as stated on each service request. All work shall be made in accordance with good commercial practice and shall be adhered to by the successful bidder(s); except in such cases where the service will be delayed due to acts of God, employee strikes, or other causes beyond the control of the bidder. In these cases, the successful bidder shall notify the District of the delays in advance of the service date so that a revised service date can be requested.

### **GENERAL INVITATION TO BID INSTRUCTIONS**

1. These General Terms, Conditions and Instructions apply to all proposals made to Lee's Summit R-VII School District (herein after referred to as "District") by each prospective vendor (herein after referred to as "Bidder") in response to District solicitations including, but not limited to, Invitations to Bids, Requests for Proposals and Requests for Quotes. As such, the words "Bid" and "Proposal" are used inter-changeably in reference to any and all offers submitted by prospective vendors.
2. **Public Purchase:** It is the responsibility of the bidder to ensure that the bid is uploaded to the District's e-Procurement site, Public Purchase, prior to the time indicated in the "Invitation to Bid". Only questions posted through the e-Procurement site will be answered and posted for all interested bidders to see. Telephone quotes will not be accepted when competitive sealed bids are solicited. In addition, only bids upload to the District's Public Purchase site, will be accepted. Late bids will not be allowed by the Public Purchase site.
3. Each Bidder shall furnish the information required; the unit price for each item bid must be shown; a total for each item bid must be entered; and in case of error in extension, the unit price shall prevail.
4. Specifications are provided to identify the product required. Bids on alternate products will not be considered. Brochures and/or specifications must be submitted where applicable. Failure to meet the equipment specifications as listed may be sufficient cause for rejection of the Bid(s). Materials and/or services are to be supplied as specified. The District shall be the sole judge in awarding the bid(s) in regard to quality, price, and performance.
5. The District reserves the right to reject any or all bids and to waive informalities and minor irregularities in bids received, and to accept any or all portions of a bid if deemed to be in the best interest of the District. The Invitation to Bid implies no obligation on the part of the District, and the District's silence does not imply any acceptance or rejection of any bid or quotation offer. The District reserves the right to select a bid with higher prices than the lowest of all prices received, if, in the opinion of the District, its interests will be best served by such bid.
6. Bidders are expected to examine the drawings, specifications, schedule of delivery and all instructions. Failure to do so will be at the bidder's risk.

7. Prices shall include all applicable discounts. If the successful bidder is offering a discount for quick payments, please state all payment terms in your bids.
8. The agreement will be awarded to that responsive and responsible bidder(s) whose bid will be most advantageous to the District, price, specifications and other factors considered. The District reserves the right to waive any technical or formal error or omissions and reject any or all bids, or to award an agreement for the items thereon, either in part or in whole, if it is deemed to be in the best interest of the District to do so. Criteria that may be considered by the District in the award of this bid includes, but is not limited to, the following:
  - A. Superior quality and adherence to specifications
  - B. Adequate maintenance and service
  - C. Delivery and/or completion time
  - D. Guarantees and warranties
9. Complete specifications of items in the bid must be enclosed with supplier's bid packet. The bidder shall be held strictly accountable for full compliance with the specifications. If specifications or descriptive papers are submitted with bids, the bidder's name must be clearly shown on each document and each sample being substituted.
10. The Invitation to Bid does not obligate the District to pay any costs incurred in the preparation or the submission of such bids, or to purchase or contract for materials or services, including costs of any required bonding.
11. Bidders who are not selected must submit objection documents, exhibits or other evidence within three (3) business days of opening if they wish to protest any portion of the Invitation to Bid.
12. The Bid price shall be exclusive of any state taxes, from which the District is exempt. The District's Federal Tax Identification Number is 44-6004933. The District's State of Missouri Tax Exemption Certificate number is 12585521.
13. Bidder understands and agrees that the District may increase or decrease quantities or modify conditions and specifications by mutual agreement with the selected supplier.
14. The District shall not be responsible for any goods delivered or services performed without an agreement and authorized by a representative of the Lee's Summit Facilities Department.
15. When a date is set for the delivery of merchandise or the performance of work, said merchandise must be delivered, and/or work must be performed, on or before said date, or the agreement for the delinquent merchandise and/or work may be canceled and awarded to another bidder. In such case, the District shall have the right to buy such merchandise and have such work performed at market price for immediate delivery, and all excess costs shall be paid by the bidder whose merchandise and/or work was delinquent.
16. Other governmental agencies may be extended the opportunity to purchase off any Bid with the agreement of the successful vendor and the participating agencies. Due to all the variables in this type of bid, the District will contact the successful bidder and make it aware of the interest by another agency (if any). The successful bidder and the interested agency will then be able to design the successful bid around their parameters, i.e., delivery locations, products, etc.

17. Provider (vendor) must have the ability to accept the Lee's Summit R-VII School District Visa purchasing card without passing on any additional fees to the District. Use of the District Visa Purchasing Card is the District's preferred method of payment and is used at the discretion of the District and not the provider (vendor). The vendor must provide bid prices for the items purchased with a Purchase Order and the bid prices for the items if the purchase is made using a District P-Card if these prices are different. These prices must be clearly labeled and the reason(s) notated as to the pricing difference. The decision how the purchase will be made and paid for will be made by the District.
18. The bid process is open and fair to everyone. Every attempt shall be made to ensure that the bidder receives an adequate and prompt response. However, in order to maintain a fair and equitable procurement process, all bidders will be advised via the issuance of an amendment to the Invitation to Bid, of any relevant or pertinent information related to the procurement. Therefore, bidders are advised that unless specified elsewhere in the Invitation to Bid, any questions received less than five (5) calendar days prior to the opening date may not be answered.

### **Purchase Orders and District Visa Purchasing Cards**

1. **OFFER/ACCEPTANCE:** If the Purchase Order or Visa Purchasing Card order or other payment method refers to Vendor's bid, then the Purchase Order or Visa Purchasing Card order is an ACCEPTANCE of Vendor's OFFER TO SELL, as stated in Vendor's bid. If no bid is referenced, the Purchase Order or Visa Purchasing Card order is an OFFER TO BUY, subject to Vendor's acceptance; which can be demonstrated by Vendor's performance of the order or by a formal acknowledgement. This section deals with items to purchase that may be provided by the successful bidder, but not listed on actual bid documents.
2. **CHANGES:** Any changes in prices to a Purchase Order or Visa P-Card order shall be verified in writing, signed by an authorized representative of Lee's Summit R-VII School District, and acknowledged by the Vendor. Each shipment received or service performed shall be deemed to be only upon the terms contained in the Purchase Order or Visa P-Card order, notwithstanding any terms that may be contained in any invoice or other act of vendor other than acknowledgement of a written change submitted and approved by the District.
3. **DELIVERY:** In its acceptance of any quotation offer, Lee's Summit R-VII School District is relying on the promised delivery date, installation, and/or service performance as material and basic to its acceptance. In the event of Vendor's failure to deliver as and when promised, Lee's Summit R-VII School District reserves the right to cancel its order, or any part thereof, and the Vendor agrees that Lee's Summit R-VII School District may return all or part of any shipment so made, and may charge the Vendor with any loss or expense sustained as a result of such failure to deliver as promised.
4. **NEW GOODS:** All equipment delivered against the Purchase Order or Visa P-Card order shall be newly manufactured and of the manufacturer's current model as specified in the Equipment Specifications List.
5. **QUALITY:** Lee's Summit R-VII School District shall be the sole judge in determining successful bidder(s) in regard to quality, price, and performance.
6. **INSPECTION:** Receipt of goods or services in response to the Purchase Order or Visa P-Card order can result in authorized payment on the part of Lee's Summit R-VII School District. However, it is understood that final acceptance is dependent upon completion of all applicable required inspection procedures. Should the goods or services fail to meet all of Lee's Summit R-VII School District inspection requirements, the District may exercise any or all of its rights allowed by law or in equity, including those provided in the Uniform

Commercial Code. The Vendor shall be responsible for inspection and replacement of all items damaged in shipment.

7. **WARRANTIES:** All goods covered by the Purchase Order are conveyed by the Vendor to the Lee's Summit R-VII School District subject to the warranties and buyer's remedies described in the Uniform Commercial Code. This shall include but not limited to the warranty of title and against infringement, the implied warranty of merchantability, and the implied warranty of fitness for particular purpose.
8. **TERMINATION:** In the event of the Vendor's failure to deliver as and when specifically promised, the Lee's Summit R-VII School District reserves the right to cancel the Purchase Order or request credit to the Visa P-Card order, or any part thereof, without prejudice to its other rights, and vendor agrees that the District may return all or part of any shipment so made and may charge vendor any loss or expense sustained as a result of such failure to deliver as promised.
9. **DISCOUNT:** Any discount periods will start from the date of Lee's Summit R-VII School District receipt of an acceptable invoice or from the date of its receipt of acceptable merchandise at destination, whichever occurs later.
10. **TAXES:** Lee's Summit R-VII School District is exempt from Federal and State Taxes under the State of Missouri Tax Exemption Certificate #12585521.
11. **PRICES:** The Vendor agrees, if its bid is accepted by the Lee's Summit R-VII School District within the time specified, to furnish the goods and/or services in strict accordance with the specifications, and at the price set forth for each item. In case of error in extension, the unit price shall prevail. If the price is omitted on the Purchase Order, the Vendor's price shall be the lowest prevailing market price.
12. **PROMPT PAYMENT:** It is the Lee's Summit R-VII School District's policy to promptly pay vendors for goods and services it purchases. Payments are processed monthly and will be made on the basis of net 30 days after the equipment is received.
13. **ASSIGNMENT:** Except for assignment of antitrust claims, neither party to the agreement created by the Purchase Order may assign any portion of the agreement or Purchase Order without the prior written consent of the other party. Vendor, and Lee's Summit R-VII School District as purchaser, recognizes that in actual economic practice antitrust violations ultimately impact on the purchaser.
14. **O.S.H.A.:** All chemicals, equipment and materials proposed and/or used by vendor in satisfaction of the terms of the Purchase Order shall conform to the standards required by O.S.H.A.
15. **MATERIAL SAFETY DATA SHEETS (MSDS)** shall accompany each shipment, when applicable.
16. **INDEMNIFICATION:** In the event any goods sold or delivered under the Purchase Order are covered by any patent, copyright or trademark, or application therefore, vendor shall indemnify and hold harmless Lee's Summit R-VII School District from any and all loss, cost, expenses and legal fees on account of any claims, legal actions or judgments on account of manufacture, sale or use of such goods in violation, infringement or the like or rights under such patent, copyright, trademark or application.
17. **GOVERNING LAW AND VENUE:** All issues regarding the formation, performance and/or legal enforcement of this Purchase Order shall be governed by and construed in accordance with the laws of the State

of Missouri. Venue for the resolution of any disputes arising out of or relating to the Purchase Order or Visa P-Card order shall be in the Lee's Summit R-VII School District, Lee's Summit, Missouri.

**17. INSURANCE:**

The consultant shall be required to maintain and carry in force, for the duration of the contract, insurance coverage of the types and minimum liability as set forth below:

a. COMMERCIAL GENERAL LIABILITY

Limits:

Each Occurrence:	\$ 1,000,000
Personal & Advertising Injury:	\$ 1,000,000
Products/Completed Operations Aggregate:	\$ 1,000,000
General Aggregate:	\$ 2,000,000

Policy must include the following conditions:

Contractual Liability  
Products/Completed Operations  
Personal/Advertising Injury  
Independent Contractors  
Additional Insured: Lee's Summit R-7 School District

b. AUTOMOBILE LIABILITY

Policy shall protect the consultant against claims for bodily injury and/or property damage arising out of the ownership or use of any owned, hired and/or non-owned vehicle and must include protection for either:

1. All owned autos; hired autos; and non-owned autos

Limits of auto liability insurance shall be the same as required in the Commercial General Liability section **with the exception** of the District being named as additional insured.

c. WORKERS' COMPENSATION

This insurance shall protect the consultant against all claims under applicable State Workers' Compensation Laws. The consultant shall also be protected against claims for injury, disease or death of employees which, for any reason, may not fall within the provisions of a Workers' Compensation Law. The policy limits shall not be less than the following:

Workers' Compensation: Statutory

Employer's Liability:

Bodily Injury by Accident: \$ 100,000 Each Accident  
Bodily Injury by Disease: \$ 500,000 Policy Limit  
Bodily Injury by Disease: \$ 100,000 Each Employee

Before, entering into contract, the successful respondent shall furnish to the District, Purchasing Office a Certificate of Insurance verifying all of the foregoing coverage's and identifying the District as an "additional insured" on both the general liability and automobile policies. This inclusion shall not make the District a partner or joint venture with the contract consultant in its operations hereunder.

Prior to any material change or cancellation, the District will be given thirty (30) days advance notice by registered mail to the stated address of the certificate holder. Further, the District will be immediately notified of any reduction or possible reduction in aggregate limits of any such policy where such reduction, when added to any previous reductions, would exceed 10% of the aggregate.

In the event of an occurrence, it is further agreed that any insurance maintained by the District, shall apply in excess of and not contribute with insurance provided by policies named in this contract.

The certificate holder on the Certificate of Insurance shall be as follows:

Lee's Summit R-7 School District  
Purchasing and Distribution Services Department  
702 SE M-291 Highway  
Lee's Summit, MO 64063

The District does not need to be named as additional insured on any Auto Liability Insurance requirements.

**18. INVOICING AND PAYMENTS:**

- a. Invoices shall be prepared and submitted in duplicate to the Lee's Summit, R-7 School District, 301 NE Tudor Road, Lee's Summit, MO 64086, Attn: Business Services. Invoices shall contain the following information: contract number, item number, description of services, unit prices, and extended totals.
- b. Payment schedule is negotiable.



**Pricing Sheet:**

<b>DESCRIPTION</b>	<b>UNIT PRICE</b>
Unit Price for abatement of Floor Tile & Mastic <1,000 sf	\$
Unit Price for abatement of Floor Tile & Mastic >1,000 sf	\$
Unit Price for Abatement of Glue Dots <50 sf	\$
Unit Price for Abatement of Glue Dots >50 sf	\$
Unit Price for Mobilization & Protection Charge	\$

During the course of the contract, the using departments may need to order items or services not specifically listed. Please state any discounts for such purposes, from your listed prices \_\_\_\_\_%.

## REFERENCES AND EXPERIENCE

A Minimum of 5 years experience is required of the successful bidder in similar services, as described in the scope. Experience and references provided by bidders shall be verified and will be a significant factor in the evaluation of the bid.

How many years has your firm been in business? \_\_\_\_\_ years.

List references showing contracts held by your company, providing the same services for other school districts, government agencies and/or private companies.

Company Name & Address	Contact Name & Phone Number/Email	Dates of Service	Describe Services Provided

### PERSONNEL QUALIFICATIONS

Bidders are REQUIRED to provide the information below in FULL DETAIL.

Indicate the person who will be supervising project and years of experience in similar work.

Name: \_\_\_\_\_ Number of Years: \_\_\_\_\_

Type of Experience:  
\_\_\_\_\_

Complete the following for employees that would be working on this project. List any previous work directly relating to the scope of this project for other school districts and/or governmental agencies or private companies in the last five years. Attach a separate sheet of paper if needed.

EMPLOYEE NAME	QUALIFICATIONS	EXPERIENCE/TRAINING

## Verification Affidavit for Selected Respondent to Complete:



### Lee's Summit R-VII School District

301 NE Tudor Road  
Lee's Summit, Missouri 64086  
(816) 986-1000 • FAX (816) 986-1168

#### Business Services

As a condition for any service provided to the Lee's Summit R-VII School District, a business entity shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services.

Every such business entity shall complete the following affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the contract services. [RSMO 285.530 (2)]. The completed affidavit must be returned as part of the contract documentation or mailed to Lee's Summit R-VII School District, Attn: Accounts Payable, 301 NE Tudor Road, Lee's Summit, Missouri 64086.

This affidavit affirms that \_\_\_\_\_ (Company Name) is enrolled in, and is currently participating in, E-verify or any other equivalent electronic verification of work authorization operated by the United States Department of Homeland Security under the Immigration Reform and Control Act of 1986 (IRCA); and \_\_\_\_\_ (Company Name) does not knowingly employ any person who is unauthorized alien in conjunction with the contracted services.

\_\_\_\_\_  
Name (Please Print) of registered agent, legal representative or corporate officer

\_\_\_\_\_  
Title

\_\_\_\_\_  
Signature of registered agent, legal representative or corporate officer

Subscribed and sworn to before me this \_\_\_\_\_ of \_\_\_\_\_. I am commissioned as  
(DAY) (MONTH, YEAR)

a notary public within the County of \_\_\_\_\_, State of \_\_\_\_\_, and my commission  
(NAME OF COUNTY) (NAME OF STATE)

expires on \_\_\_\_\_.  
(DATE)

\_\_\_\_\_  
Signature of Notary

\_\_\_\_\_  
Date

**Failure to respond will cause payments due to you to be held until affidavit is received. Once the affidavit is received, payments will be released.**

## Exhibit A:

### SECTION 02051

#### TESTING

##### PART 1 GENERAL

##### 1.1 TESTING/AIR MONITORING

- 1.1.1 Throughout the entire abatement operations, air monitoring shall be conducted by Consultant which was to verify whether the Contractor is complying with EPA and OSHA regulations and any applicable state and local government regulations.
- 1.1.2 The Contractor shall be responsible for providing personal monitoring of his employees as per 29 CFR 1926.1101.
- 1.1.3 Monitoring Prior to Actual Removal: When feasible the Consultant will conduct area monitoring and establish the reference baseline ambient fiber concentrations one day prior to the masking and sealing operations for each removal site.
- 1.1.4 Monitoring During Asbestos Removal: Consultant will conduct quality control area monitoring during abatement operations. If monitoring outside the asbestos control area shows airborne concentrations exceed the prework baseline reference, or 0.01f/cc if baseline monitoring is not conducted, the Contractor shall stop all work, correct the condition(s) causing the elevated concentrations.
- 1.1.5 Monitoring After Final Cleanup: Consultant will provide clearance monitoring in accordance with 40 CFR Part 763 after final cleanup but before removal of the enclosure of the asbestos control area. The Contractor shall reimburse the Owner for any final air monitoring which does not meet the levels specified in AHERA. For removal of non--friable materials a minimum of five samples from inside the containment area are to be collected for each containment area.
- 1.1.6 Monitoring Results: PCM results will be available within 12 hours, and final TEM clearance will be available 36 hours after collection. Consultant will notify the Contractor and the Owner immediately of any exposures in excess of the acceptable limits.

END OF SECTION

*SECTION 02070*

**SELECTIVE DEMOLITION**

**PART 1 GENERAL**

- 1.1 Work included, but not necessarily limited to, the demolition of existing construction as agreed in Design and Planning Meeting and quantified in Project Cost Estimate.
- 1.2 Ensure safe passage of persons around areas of demolition. Conduct operations to prevent injury to adjacent buildings, structures, other facilities as well as people.
- 1.3 Provide interior and exterior shoring and/or bracing as required. During demolition proceedings, provide support to prevent movement, settlement or collapse of elements scheduled to remain.
- 1.4 Promptly repair any damages caused to adjacent elements not scheduled for demolition at no cost to the Owner.
- 1.5 Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to the Owner.

**PART 2 PRODUCTS**

- 2.1 Necessary equipment to properly execute demolition.

**PART 3 EXECUTION**

- 3.1 Removal of all debris created by this project from the facility.
- 3.2 Removal of selected facility components as outlined in the Design and Planning Meeting.
- 3.3 Utilized trained asbestos abatement workers for removal if material is contaminated with asbestos-containing materials. Use asbestos abatement techniques specified in Section 02071.
- 3.4 Avoid increasing or creating asbestos contamination.
- 3.5 Demolition of asbestos-containing materials shall be performed by manual means.
- 3.7 Stairways and corridors shall be kept free of obstructions and debris.
- 3.9 Transport demolished materials removed from structure and dispose of legally off site.
- 3.10 Repair demolition performed in excess of that required. Return structures and surfaces not scheduled for demolition to original condition. Repair adjacent construction or surfaces soiled or damaged by demolition work.

END OF SECTION

SECTION 02071

**ASBESTOS ABATEMENT**

**PART 1 GENERAL**

**1.1 SCOPE**

This section covers the removal of asbestos-containing materials as identified in Section 01010 - Summary of Work. Compliance with all applicable Federal, State, and local regulations and the use of the best available technology, procedures, and methods for preparation, execution, cleanup, disposal, and safety are absolutely required. This compliance is the sole responsibility of the Contractor.

**1.2 DESCRIPTION**

Furnish all labor, materials, services, insurance, and equipment in accordance with the most stringent requirements of EPA and OSHA and all other applicable regulatory agencies, to complete the removal of asbestos-containing materials as described in Sections 01010.

**1.3 SUBMITTAL REQUIREMENTS**

Reference: Section 01300.

**1.4 TERMINOLOGY (Definitions)**

- 1.4.1 ABATEMENT: Procedure to minimize the hazards of exposure to asbestos-containing materials.
- 1.4.2 AIR MONITORING: The process of measuring the fiber content of specific volume of air in a stated period of time. When "aggressive" air sampling is required, blowers/fans are used to disperse settled fibers into the air during sampling.
- 1.4.3 AMENDED WATER: Water to which a surfactant has been added to reduce water surface tension and thereby provide a more rapid penetration.
- 1.4.4 ASBESTOS: The asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, 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.
- 1.4.5 ASBESTOS-CONTAINING MATERIAL (ACM): Any material containing more than 1% of asbestos of any type or mixture of types.
- 1.4.6 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.

- 1.4.7 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.
- 1.4.8 ASBESTOS DEBRIS: Pieces of ACM that can be identified by color, texture, or composition, or means dust, if the dust is determined by an accredited inspector to be ACM
- 1.4.9 AUTHORIZED VISITOR: The Owner, his authorized Representative, or regulatory officials with jurisdiction over the project.
- 1.4.10 BARRIER: Any surface that seals off the work area to inhibit the movement of fibers and prevent entry of unauthorized personnel.
- 1.4.11 COMPETENT PERSON: Contractor's employee who is capable of identifying existing asbestos hazards in the workplace and who has the authority to take prompt corrective measures to eliminate them, as in 29 CFR 1926.32(f). The duties of the competent person include at least the following: establishing the negative pressure enclosure, ensuring its integrity, and controlling entry to and exit from the enclosure, supervising any employee exposure monitoring required by the standards, ensuring that all employees working within such an enclosure wear the appropriate personal protective equipment, are trained in the use of appropriate methods of exposure control, and use the hygiene facilities and decontamination procedures specified in the standard, and ensuring that engineering controls in use are in proper operating condition and are functioning properly.
- 1.4.12 CONTAMINATED: A term commonly applied to the regulated side of abatement enclosures or a condition in which asbestos-containing material is found on other objects as debris, is not covered with jacketing, has been damaged or is otherwise no longer intact which may or has resulted in fiber release but not necessarily a visible release, hazardous condition or of a measurable quantity.
- 1.4.13 CURTAINED DOORWAY: Device to allow ingress and egress from one room to another while permitting minimal air movement between the rooms. Is typically constructed by placing three overlapping sheets of opaque 6-mil polyethylene over an existing or temporarily framed doorway. Secure each sheet along the top of the doorway and the vertical edge of one sheet along one vertical side of the doorway. Secure the vertical edge of the second sheet along the opposite vertical side of the doorway, and attach the third sheet along the same side of the doorway as the first sheet so that the second sheet is between the first and third sheets.
- 1.4.14 DECONTAMINATION ENCLOSURE SYSTEM: A series of connected rooms with curtained doorways between any two adjacent rooms, for the decontamination of workers and/or materials and equipment, constructed or moved onto site.
- 1.4.14.1 DECONTAMINATION AREA: An area adjacent to regulated area, for the decontamination of workers and/or materials and equipment, constructed or moved onto site (Sometimes referred to as a Dry Decon).
- 1.4.14.2 EQUIPMENT DECONTAMINATION ENCLOSURE SYSTEM: (Also referred to as a Load-out.) A room or portion of a regulated area at an exit where waste disposal



bags are covered with a second, clean waste disposal bag prior to hand off to uncontaminated workers outside the regulated area for transport to a landfill or in which equipment is washed down and decontaminated prior to transfer from the regulated area.

- 1.4.14.3 FULL STAGE DECONTAMINATION ENCLOSURE SYSTEM: A Decontamination enclosure system for workers to enter and exit the regulated area through, typically consisting of a curtained doorway, an equipment room, a curtained doorway, a shower, a curtained doorway, and a clean room (Also referred to as a Wet Decon).
- 1.4.15 ENCLOSURE: The construction of an airtight, impermeable barrier around asbestos-containing material to control the release of asbestos fibers into the air.
- 1.4.16 FIXED OBJECT: A unit of equipment or furniture in the regulated area that cannot be removed without dismantling.
- 1.4.17 GROSS ABATEMENT AREA: Wet removal of ACM is performed in a regulated area that is sealed and fully contained in polyethylene sheeting. Workers enter the regulated area through a decontamination enclosure system.
- 1.4.18 HEPA FILTER: A high efficiency particulate air (HEPA) filter capable of collecting and retaining 99.97% of monodispersed particles greater than or equal to 0.3 microns in diameter.
- 1.4.19 HEPA VACUUM EQUIPMENT: High efficiency particulate air filtered vacuuming equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be of 99.97% efficiency for retaining monodispersed particles greater than or equal to 0.3 microns in diameter.
- 1.4.20 NEGATIVE AIR PRESSURE EQUIPMENT: A local exhaust system, capable of maintaining a constant, low velocity airflow through the decontamination enclosure system and into the regulated area from adjacent uncontaminated areas and exhausting that air outside the building through HEPA filters.
- 1.4.21 NIOSH: National Institute for Occupational Safety and Health.
- 1.4.22 ENCAPSULATION: A liquid material which can be applied to surfaces from which asbestos containing materials have been removed to control the possible release of residual asbestos fibers, either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components (penetrating encapsulant).
- 1.4.23 REMOVAL: The taking out or stripping of substantially all ACBM from a damaged area, a functional space, or a homogeneous area in a building.
- 1.4.24 REPAIR: Returning damaged ACBM to an undamaged condition or to an intact state so as to prevent fiber release.
- 1.4.25 SURFACTANT: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

- 1.4.26 UNCONTAMINATED: Does not meet the definition of Contaminated, 1.4.12.
- 1.4.27 WET CLEANING/WIPING: The process of eliminating contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water, and by afterwards disposing of these cleaning tools as asbestos-contaminated waste.
- 1.4.28 WORK AREA: The area where asbestos related work or removal operations are performed which is defined and/or isolated to prevent the spread of asbestos dust, fibers, or debris, and entry by unauthorized personnel.

## 1.5 APPLICABLE DOCUMENTS AND REFERENCES

Reference: Section 01092.

## 1.6 EXISTING CONDITIONS

- 1.6.1 It shall be the Contractor's responsibility to replace or repair to the Owner's satisfaction, prior to closeout of the project, all damaged items caused by the Contractor and not proven otherwise. All items damaged prior to abatement shall be noted during Design and Planning Meeting.
- 1.6.2. Abatement contractor will be required to rewire/install lighting, thermostats and related wire that were removed during abatement.

## PART 2 EQUIPMENT AND MATERIALS

### 2.1 PERSONNEL PROTECTION REQUIREMENTS

- 2.1.1 Prior to commencement of work, the workers shall be instructed and shall be knowledgeable on the hazards of asbestos exposure, use and fitting of respirators, protective clothing, decontamination procedures, and all aspects of asbestos work procedures. Workers shall have medical examinations.
- 2.1.2 The Contractor is solely responsible for enforcing personnel protection requirements and that these specifications provide only a minimum acceptable standard for each phase of operation.
- 2.1.3 Provide workers with personally issued and marked respiratory equipment approved by NIOSH and accepted by OSHA.
- 2.1.4 Air supply for Type "C" shall be, at minimum, grade "D" in compliance with OSHA 1910.134. The Contractor shall provide sampling and testing of air in the presence of the Consultant when requested to do so.
- 2.1.5 Type "C" respirators shall be pressure demand with full facepiece with a minimum protection factor of 1,000. The air supply shall be a positive pressure, externally supplied, compressed air system, incorporating enough high-pressure automatic air storage within an ASME certified air "bank" to

provide each individual on line in the regulated area with sufficient air supply for decontamination in the event of a system failure.

2.1.5.1 For this project, approved air systems are:

"PAPS 3"  
American Bristol  
Harbor City, California 90710  
1-213-534-598

or approved equal

"Hazard Master"  
Control Resource Systems, Inc.  
670 Mariner Drive  
Michigan City, Indiana 46360  
1-219-872-5591

or approved equal

2.1.6 The compressed air system for removal workers shall incorporate a compressor failure alarm, high-temperature alarm, a continuous carbon-monoxide monitoring device, and in-line purifying sorbent beds and filters to deliver air free of water, oil, odors, vapors, and particulates. Contractor shall comply with all applicable codes and regulations that apply to the operation of such system.

2.1.7 Provide Respiratory Protection through determining the proper level of protection by dividing the expected or actual airborne fiber count in the Regulated Area by the "protection factors" given below. The level of respiratory protection which supplies an airborne fiber level inside the respirator, at the breathing zone of the wearer, at or below the permissible exposure limit (PEL), as defined below, is the minimum level of protection allowed.

2.1.8 PERMISSIBLE EXPOSURE LIMIT (PEL) / EXCURSION LIMIT:

2.1.8.1.1 8-Hour Time Weighted Average (TWA) of asbestos fibers to which any worker may be exposed shall not exceed 0.1 fibers/cubic centimeter.

2.1.8.1.2 30-Minute Time Weighted Average (TWA) of asbestos fibers to which any worker may be exposed shall not exceed 1.0 fibers/cubic centimeter.

2.1.8.1.3 Fibers: For purposes of this section, fibers are defined as all fibers regardless of composition as counted in the NIOSH 7400 procedure.

2.1.9 RESPIRATORY PROTECTION FACTOR:

Respirator Type	Protection Factor
Air purifying: Negative pressure respirator High efficiency filter Half facepiece	10
Air purifying: Negative pressure respirator High efficiency filter Full facepiece	50
Powered Air Purifying (PAPR): Positive pressure respirator High efficiency filter Half or Full facepiece	50
Type C supplied air: Positive pressure respirator Pressure demand Full facepiece	1,000
Type C supplied air: Positive pressure respirator Pressure demand Full facepiece Equipped with an auxiliary positive pressure Self-contained breathing apparatus (SCBA)	1,000
Self-contained breathing apparatus (SCBA): Positive Pressure respirator Pressure demand Full facepiece	10,000

2.1.8 AIR PURIFYING RESPIRATORS: Negative pressure - half or full face mask: Supply a sufficient quantity of respirator filters approved for asbestos, so that workers can change filters during the work day. Respirators shall be wet-rinsed, and filters discarded, each time a worker leaves the Work Area. New filters shall be installed each time a worker re-enters the Work Area. Store respirators and filters at the job site in the changing room and protect totally from exposure to asbestos prior to their use.

2.1.9 POWERED AIR PURIFYING - half or full face mask: Supply a sufficient quantity of high efficiency

respirator filters approved for asbestos so that workers can change filters at any time that flow through the face piece decreases to the level at which the manufacturer recommends filter replacement. Require that regardless of flow, filter cartridges be replaced after 40 hours of use. HEPA elements in filter cartridges shall be protected from wetting during showering. Exterior housing of respirator, including blower unit, filter cartridges, hoses, battery pack, face mask, belt, and cords, shall be washed each time a worker leaves the Work Area. Caution should be used to avoid shorting battery pack during washing. Provide an extra battery pack for each respirator so that one can be charging while one is in use.

- 2.1.10 Should any condition, for any reason, be encountered where the exposure level, after application of the appropriate protection factor of the respiratory equipment in use, exceeds 0.1 f/cc, then the Contractor must substitute respiratory equipment with protection factors which reduce worker exposure levels below 0.1 f/cc. Should any such condition come to the Consultant or Owner's attention, the right is reserved to require the use of respiratory equipment with higher protection factors for any or all phases of the work.
- 2.1.11 Provide authorized visitors (1.4.9) with respirators containing fresh cartridges that meet or exceed the protection requirements for the regulated area, whenever they are required to enter the regulated area, to a maximum of 4 per day. All persons shall be medically qualified to wear a respirator and fit tested for the specific respirator being worn.
- 2.1.12 For Type "C" gross abatement operations:
  - 2.1.13.1 One open airline shall be maintained at all times. Removal of a worker to provide this line will not be acceptable.
  - 2.1.13.2 Air Systems Monitor: Continuously monitor the air system operation including compressor operation, filter system operation, back-up air capacity and all warning and monitoring devices at all times that system is in operation. Assign no other duties to this individual, which will take him away from monitoring the air system.
- 2.1.14 A respirator shall be worn by anyone in a regulated area at all times, regardless of activity, during a period that starts with any operation which could cause airborne fibers until the area has been cleared for re-occupancy in accordance with Section 02051.
- 2.1.15 Respiratory equipment shall be cleaned, repaired, and sanitized after each use.
- 2.1.16 Provide workers with sufficient sets of disposable protective full-body clothing. Such clothing shall consist of full-body coveralls, footwear, and headgear as manufactured by Kimberly Clark "Kleenguard", one-piece coveralls or equal.  
  
Provide eye protection and hard hats as required by applicable safety regulations. Reusable type protective clothing and footwear intended for reuse shall be left in the Equipment Room until the end of the asbestos abatement work at which time such items shall be disposed of as contaminated waste.
- 2.1.17 Provide authorized visitors with suitable protective clothing, headgear, footwear, and gloves as described above whenever they are required to enter the regulated area.

## 2.2 MATERIALS

- 2.2.1 Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name.
- 2.2.1.1 Store all materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination.
- 2.2.1.2 Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes contaminated with asbestos shall be disposed of in accordance with applicable regulations.
- 2.2.2 POLYETHYLENE SHEETING: (Also called Plastic) A minimum of 6-mil shall be used for critical barriers, floors, covering fixed objects, and wrapping irregularly shaped waste. A minimum of 4-mil shall be used for walls, in sizes to minimize the frequency of joints.
- 2.2.3 TAPE: Capable of sealing joints of adjacent sheets of polyethylene and for attachment of polyethylene sheets to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.
- 2.2.4 ADHESIVES: Capable of sealing joints of adjacent sheets of polyethylene and for attachment of polyethylene sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.
- 2.2.4.1 For this project 3M76, 77, Poly Prep spray adhesive or equal.
- 2.2.5 CAULKS: As approved.
- 2.2.6 SURFACTANT: Shall consist of 50% polyoxyethylene ether and 50% of polyoxyethylene ester, or equivalent, and shall be mixed with water to provide a concentration of one ounce of surfactant to 5 gallons of water. Use "Aqua-Gro" by Aquatrols Corp. of America, Pennsauken, New Jersey, or approved equal. The Contractor shall be responsible for verifying that this surfactant is compatible with the materials to be removed and their substrates. If found to be incompatible, the Contractor shall supply suitable wetting agents at no extra cost to the Owner.
- 2.2.7 IMPERMEABLE CONTAINERS: Suitable to receive and retain any asbestos-containing or contaminated materials until disposal at an approved site. The containers shall be labeled in accordance with OSHA Regulation 29 CFR 1926.1101 and NESHAP's. Containers must be both air and watertight and must be resistant to damage and rupture. The containers shall be a pair of 6-mil polyethylene bags unless approved otherwise by Consultant. Oversized or irregularly shaped waste material shall be wrapped in two layers of 6-mil polyethylene sheeting, taped and labeled so as to be resistant to damage, rupture, and be air and watertight.
- 2.2.8 WARNING LABELS AND SIGNS: As required by OSHA regulation 29 CFR 1926.1101 and NESHAP Title 40 Part 61.
- 2.2.9 GLOVE BAGS: Safe-T-Strip as manufactured by Asbe-guard Equipment, Inc., 130 Esna Park Drive, Markham, Ontario, Canada, L3R 1E3, Profo-Bag as manufactured by Asbestos Control Technology, Inc., P.O. Box 183, 38 North Pine Avenue, Maple Shade, New Jersey, 08052, or approved equal.

- 2.2.10 MASTIC REMOVAL SOLVENT: Solvent capable of removing mastic using hand pressure accompanied by hand tools. Solvent must not meet EPA's characteristics of hazardous waste, and must be of low odor.
- 2.2.11 ENCAPSULANT: American Coating, Cable 22P, penetrating encapsulant, Better Working Environments, Inc., removal encapsulant, BWE 5000 and Cable Coating, B, bridging, encapsulant, as applicable, or approved equal.
- 2.2.12 OTHER MATERIALS: Provide all other materials, such as, but not limited to lumber, plywood, nails, and hardware, which may be required to properly prepare and complete the project.

### **2.3 TOOLS AND EQUIPMENT**

- 2.3.1 Provide suitable tools for asbestos removal.
- 2.3.1.1 Water Sprayer: Airless or a low-pressure sprayer for amended water application as appropriate.
- 2.3.1.2 Air-Purifying Equipment: Shall comply with ANSI Z9.2-79. No air movement system or air equipment should discharge asbestos fibers outside the abatement area. Thus, the negative air equipment shall be equipped with a three filter bank with the last being the HEPA filter
- 2.3.1.3 Paint/Encapsulant Sprayer: Airless.
- 2.3.1.4 Scaffolding: As required to accomplish the specified work and meet all applicable safety regulations.
- 2.3.1.5 Vacuums: Use HEPA type such as Nilfisk GA 73, or other vacuums certified for asbestos abatements.
- 2.3.1.6 Backflow check valves: Are to be used when attaching to Owner's faucets.
- 2.3.1.7 Other tools and equipment as necessary.

## **PART 3 EXECUTION OF ABATEMENT**

### **3.1 POSTING OF THE PROJECT**

Post signs to comply with OSHA regulation 29 CFR 1926.1101 and with all other Federal, State, and Local requirements.

### **3.2 WORK AREA PREPARATION**

- 3.2.1 The Contractor, in coordination with the Owner, shall shut down electric power to proposed regulated areas.

- 3.2.2 The Contractor, in coordination with the Owner, shall shut down or isolate heating, cooling, and ventilating air systems to proposed regulated areas.
- 3.2.3 Remove all removable items and equipment from proposed regulated areas prior to the beginning of work by the contractor.
- 3.2.4 Pre-clean proposed regulated areas and fixed objects within, first using HEPA vacuum equipment and then wet cleaning methods as appropriate. Do not use methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters. Do not use HEPA vacuum equipment on wet surfaces unless units are specially constructed for wet/dry use. Completely enclose fixed objects with minimum 6-mil plastic sheeting sealed with tape.

### **3.3 WORK AREAS**

- 3.3.1 FULL ENCLOSURE: for gross abatement of friable asbestos-containing materials and major glovebag operations.
  - 3.3.1.1 Seal off all openings, including but not limited to windows, corridors, doorways, skylights, ducts, grilles, diffusers, floor drains and any other penetrations of the regulated areas, with two layers of 6-mil plastic sheeting sealed with tape. Open passageways and corridors with direct access to occupied areas shall be sealed with double barriers as described in paragraph 3.5 of this section. These barriers shall remain in place until tear down.
  - 3.3.1.2 If floor is carpeted, one layer of cardboard is required over all carpeted areas. The Contractor shall assume responsibility for all damage to the carpet that occurs during the construction period.
  - 3.3.1.3 Cover floor using a minimum of two layers of 6-mil plastic sheeting (except for floor covering removal) so that plastic extends at least 12 inches up on walls, then cover walls with a layer of 4-mil thick plastic sheeting to the floor level, thus overlapping the floor material by a minimum of 12 inches. Seal plastic sheeting completely with tape at all edges and with adhesive and tape at all joints. The barrier shall contain a minimum of one clear viewing area that is 18 inches or more in height and width and installed in a manner that will allow direct visual observation of the regulated area from a location outside of the enclosure for regulatory officials.
  - 3.3.1.4 Build full stage decontamination enclosure system and where feasible a separate equipment decontamination enclosure system (defined in 3.4 of this section) at entrance to and exit from the regulated areas.
- 3.3.2 FULL ENCLOSURE: for gross abatement of non-friable asbestos-containing materials not considered to be small-scale short duration abatement and/or non-friable floor covering and mastic removal, and transite panel removal over 100 square feet.
  - 3.3.2.1 Seal off all openings, including but not limited to windows, corridors, doorways,



skylights, ducts, grilles, diffusers, and any other penetrations of the regulated areas, with 6-mil plastic sheeting sealed with tape. Open doorways and corridors with direct access to occupied areas shall be sealed with double barriers as described in paragraph 3.5 of this section. These barriers shall remain in place until tear down.

- 3.3.2.2 Build full stage decontamination enclosure systems or set up a decontamination area at entrances to and exits from the regulated areas as defined in 3.4 of this section.
- 3.3.3 **MINI CONTAINMENT:** for the gross abatement of small quantities of friable asbestos-containing materials and glovebag operations over 3 linear/square feet.
  - 3.3.3.1 Use a minimum of two layers of 6-mil plastic sheeting to construct wall and ceiling surfaces. Cover floors with two layers of 6-mil plastic sheeting (except for floor covering removal), completely seal all edges and joints with adhesive and tape. These barriers shall remain in place until tear down.
  - 3.3.3.2 Curtain doorway to and from mini containment.
  - 3.3.3.3 Set up a decontamination area per 3.4.5 of this section at entrance to and from the mini containment.
- 3.3.4 Throughout removal, all barriers shall be constantly inspected, and if not found in proper condition, repaired immediately.
- 3.3.5 Set up and start ventilation systems as defined by 3.10.
- 3.3.6 Maintain and mark emergency exits from the regulated areas, or establish alternate exits satisfactory to the local fire Marshall.
- 3.3.7 Outside areas, glovebags of 3 square/linear feet or less, and non-friable small-scale short duration abatement areas shall be cordoned off with tape and appropriate warning signs posted. A decontamination area (defined in 3.4 of this section) shall be set up at the entrance to and from the regulated area. Protect floors, walls, and surrounding area as necessary, within the regulated area with 6-mil polyethylene sheeting, tape and/or adhesives. As a minimum, extend polyethylene one foot horizontally in all directions for each vertical foot from floor to material height.
- 3.3.8 Non-friable flooring and mastic removals or transite removals of less than or equal to 100 square feet: Seal off all openings, including but not limited to corridors, doorways, skylights, ducts, grilles, diffusers, and any other penetrations of the regulated areas, with 6-mil plastic sheeting sealed with tape. The entrance to the regulated area shall have a curtained doorway. A decontamination area shall be set up at the entrance to the area.

### **3.4 DECONTAMINATION ENCLOSURE SYSTEMS**

- 3.4.1 **GENERAL:** For gross abatement of friable asbestos-containing material, the Contractor shall use portable decontamination enclosure systems acceptable to EPA and OSHA, connected to the regulated area with framed-in or accordion tunnels, if necessary, and line the tunnels with plastic, sealed with tape at all joints in the plastic, or shall construct decontamination enclosure systems on-site.

3.4.2 ACCESS: In all cases, access between contaminated rooms or areas shall be through a curtained doorway. In all cases, access between any two rooms within the decontamination enclosure systems shall be through a curtained doorway.

3.4.3 FULL STAGE DECONTAMINATION ENCLOSURE SYSTEM: Provide a decontamination enclosure system contiguous to the regulated area consisting of three totally enclosed chambers as follows:

3.4.3.1 Curtained Doorway

3.4.3.2 Equipment Room: An area or room in the decontamination enclosure system with provisions for storage of asbestos contaminated clothing and equipment. This room is considered contaminated until abatement is complete and testing results indicate an acceptable fiber concentration for re-occupancy (Section 02051). (Also known as a Dirty Room.)

3.4.3.3 Curtained Doorway

3.4.3.4 Shower Room: An area or room with two curtained doorways, one to the equipment room and one to the clean room. The shower room shall contain at least one shower with hot and cold or warm water with individual shut-off valves and backflow check valves inside the showers. Careful attention shall be paid to the shower enclosure to insure against leakage of any kind. Ensure a supply of soap at all times in the shower room. Drainage from showers shall be disposed of as contaminated water or filtered as specified below.

3.4.3.4.1 Waste water containing asbestos, including drainage from decontamination showers, shall be either disposed of as contaminated waste or filtered in accordance with the following prior to introduction into the sanitary sewer system.

A. Filter water using three in-line filters. The first cartridge shall contain 100-micron pre-filters, the second cartridge shall contain 25-micron filters and the final cartridge shall contain 5-micron filters.

B. Spare filters shall be maintained at the site at all times.

C. When the pre-filters become clogged, replace with spares, dispose of accumulated debris as contaminated waste, and wash out the pre-filters in the shower, allowing the drainage from the cleaning operation to go through the filtration system.

D. When the final filters become clogged, remove the filters, replace with new and dispose of the clogged filters as contaminated waste.

- E. Provide a holding tank for contaminated wastewater as required to prevent backup of water into shower when the amount of water generated exceeds the flow rate of the filters.
- 3.4.3.4.2 Soap and shampoo shall be in the showers at all times.
- 3.4.3.4.3 Ensure that the drainage filtering systems are kept clean and operable at all times.
- 3.4.3.5 Curtained Doorway
- 3.4.3.6 Clean Room: An uncontaminated area or room with one curtained doorway in to the shower and one entrance or exit to non-contaminated areas of the building. The clean room shall have sufficient space for storage of the workers' street clothes, towels, and other non-contaminated items.
  - 3.4.3.6.1 Fresh towels shall be available at all times.
  - 3.4.3.6.2 Provide storage for wet and dry towels.
- 3.4.3.7 If full stage enclosure system is outside building, cover in 1/2" plywood and have securable door.
- 3.4.3.8 At the beginning of each work shift and throughout removal, all seals and curtained doorways shall be inspected, and if not found in proper condition, repaired immediately.
- 3.4.3.9 At the end of each decontamination period, the shower and clean room shall be cleaned and dried.
- 3.4.3.10 At the end of each work shift: Thoroughly disinfected; the filter bag (if applicable) shall be returned to the equipment room and shall be thoroughly HEPA vacuumed and wet cleaned.
- 3.4.4. EQUIPMENT DECONTAMINATION ENCLOSURE SYSTEM: A room or portion of a regulated area at an exit where waste disposal bags are covered with a second, clean waste disposal bag prior to hand off to uncontaminated workers outside the regulated area for transport to a landfill or in which equipment is washed down and decontaminated prior to transfer from the regulated area.
  - 3.4.4.1 Contractor may elect to construct equipment decontamination enclosure system on side of equipment room of full stage decontamination enclosure system.
  - 3.4.4.2 If equipment decontamination enclosure system is outside building, cover in 1/2" plywood and have securable door.
- 3.4.5 DECONTAMINATION AREA: Small-scale short duration projects, glovebag removals, and non-friable abatements do not require a full stage decontamination enclosure system.

- 3.4.5.1 Establish a decontamination area that is adjacent to or within the regulated area for decontamination of employees and equipment. Use of portable decontamination enclosure systems acceptable to EPA and OSHA may be used. At a minimum the decontamination location shall consist of an area covered by an impermeable drop cloth on the floor or horizontal-working surface of sufficient size to accommodate cleaning of equipment and removing personal protective equipment without spreading contamination.
- 3.4.5.2 A HEPA equipped vacuum shall be used to clean debris from protective clothing.
- 3.4.5.3 Sufficient water shall be available for workers to clean with.
- 3.4.5.4 Entry to and exit from the regulated area shall be through the decontamination area.
- 3.4.5.5 At the end of each work shift: Thoroughly disinfected, HEPA vacuumed, and wet cleaned. All debris and rubbish shall be removed, bagged, and disposed of as asbestos-containing materials.

### **3.5 SEPARATION OF WORK AREAS FROM NONWORK AREAS**

- 3.5.1 The work areas are to be separated from occupied areas by temporary barriers. The barriers are to meet regulation requirements for the asbestos containing materials being abated. Small-scale short duration projects and minor glovebag operations require a minimum of barrier tape separating the work area from the occupied area.
- 3.5.2 FULL ENCLOSURE: for gross abatement of friable asbestos-containing materials and major glovebag operations.
  - 3.5.2.1 Provide one temporary barrier across corridors and passageways not to be used for abatement access shall be constructed with wood or metal studs, 16" o.c., faced with 3/8" plywood sheathing on the regulated side only. The barrier shall contain a clear viewing area that is 18 inches or more in height and width and installed in a manner that will allow direct visual observation of the regulated area from a location outside of the enclosure for regulatory officials. Edges of the barrier at floors, walls, and ceilings shall be sealed airtight. Cover both sides of the barrier with 2 layers of 6-mil polyethylene sheeting.
  - 3.5.2.2 Provide a second temporary barrier a minimum of six feet from first as separation of work area, adjacent to occupied shall be constructed with wood or metal studs, 16" o.c., faced with 3/8" plywood sheathing on the occupied side only and covered with two layers of polyethylene. Edges of the barrier at floors, walls, and ceilings shall be sealed airtight. Cover work area side of the barrier with 2 layers of 6-mil polyethylene sheeting. Provide a curtained doorway inside the barrier and a lockable door on the occupied side of the barrier for access for air monitoring purposes.
- 3.5.3 FULL ENCLOSURE: for gross abatement of non-friable asbestos-containing materials not considered to be small-scale short duration abatement.

- 3.5.3.1 Temporary barriers shall seal off all openings, including but not limited to windows, corridors, doorways, skylights, ducts, grilles, diffusers, and any other penetrations of the work areas, with 6-mil plastic sheeting sealed with tape. Open doorways and corridors with direct access to occupied areas shall be sealed with two layers of 6-mil plastic sheeting sealed with tape. These barriers shall remain in place until tear down.
- 3.5.4 **MINI CONTAINMENT:** for the gross abatement of small quantities of friable asbestos-containing materials and glovebag operations over 3 linear/square feet.
  - 3.5.4.1 Temporary barriers shall be a minimum of two layers of 6-mil plastic sheeting constructed to create walls, ceiling, and floor (except for floor covering removal), completely sealed with adhesive and tape at all edges and joints. These barriers shall remain in place until tear down.
- 3.5.5 During outside work, close or cover with six-mil plastic sheeting all exterior openings, to the interior of the building, within 50 feet of work area on exterior of building.
- 3.5.6 During outside friable removal involving openings to interior of building: build temporary barriers constructed of two layers of 6-mil plastic sheeting sealed with tape a minimum of three feet from opening. Temporary barriers shall seal off all openings, including but not limited to windows, corridors, doorways, skylights, ducts, grilles, diffusers, and any other penetrations of the work areas, with 6-mil plastic sheeting sealed with tape. Protect floors, walls, and surrounding area within the regulated area with 6-mil polyethylene sheeting, tape and/or adhesives. As a minimum, extend polyethylene floor covering one foot horizontally in all directions for each vertical foot from floor to material height.
- 3.5.7 During outside non-friable removal involving openings to interior of building: Post proper warning signs and restrict access to authorized personnel only during the removal process. Protect floors, walls, and surrounding area as necessary, within the regulated area with 6-mil polyethylene sheeting, tape and/or adhesives. As a minimum, extend polyethylene floor covering one foot horizontally in all directions for each vertical foot from floor to material height.
- 3.5.8 At the beginning of each work shift and throughout removal, all barriers shall be inspected, and if not found in proper condition, repaired immediately.

### **3.6 WORKER PROTECTION - IN CLEAN AND EQUIPMENT ROOMS**

- 3.6.1 All workers and authorized personnel, in order to enter the regulated area, shall:
  - 3.6.1.1 Full enclosure with a full stage decontamination enclosure system:
    - 3.6.1.1.1 Remove all clothing, unless it is to remain in the equipment room for eventual disposal.
    - 3.6.1.1.2 When in Type "C" equipment, once wearing appropriate protective clothing, proceed to the shower. Reach into the clean room and obtain and air line from the hose rack. Plug in and check the equipment

before proceeding into regulated area.

- 3.6.1.2 Don appropriate protective clothing (coveralls, gloves, boots, etc.) before entering regulated area.
- 3.6.1.3 Don the appropriate respiratory protection, following all training procedures and manufacturer's instructions. Hood shall be worn over respirator straps.
- 3.6.2 All workers and authorized personnel, in order to exit the regulated area, shall:
  - 3.6.2.1 Full enclosure with a full stage decontamination enclosure system:
    - 3.6.2.1.1 Remove gross (visible) contamination from themselves and their equipment.
    - 3.6.2.1.2 Enter the equipment room and, keeping respirator in place, remove all protective clothing, including gloves and boots. Place contaminated clothing in the bag(s) provided. Store gloves and/or boots in their respective areas.
    - 3.6.2.1.3 Respirator still in place, move into the shower room and rinse off thoroughly. If wearing dual cartridge respirators, make sure the cartridges are completely soaked before removing the respirator and disposing of cartridges in the container provided.  
  
If wearing Type "C" respirators rinse off approximately 3' - 4' on airline hose upper body and the respirator. Without exiting Shower, return the airline to the hose rack inside the clean room.
    - 3.6.2.1.4 Complete showering, thoroughly soaping, and shampooing.
    - 3.6.2.1.5 Proceed to the clean room, dry off, dress, and return respirator to the storage area.
    - 3.6.2.1.6 No smoking, eating, or drinking shall be allowed inside decontamination enclosure systems.
  - 3.6.2.2 Decontamination Area:
    - 3.6.2.2.1 Remove gross (visible) contamination from themselves and their equipment. Personal protective equipment must be cleaned with a HEPA vacuum before being removed.
    - 3.6.2.2.2 All equipment and surfaces of containers filled with ACM must be cleaned using HEPA vacuum and wet methods prior to removing them from the regulated area.

### **3.7 COMMUNICATIONS**

3.7.1 In large noisy or multiple work areas where shouting is not effective, provide an electronic communications system suitable for inside or outside, and inter-room communications, in order to monitor all activities within the regulated area, to readily transfer messages from one location to another.

### **3.8 FIRE EXITS**

3.8.1 Designate and maintain emergency and fire exits from the regulated area in accordance with local codes and regulation. All exits shall be clearly marked with fluorescent tape or red enamel and shall be clearly visible from any part of the regulated area.

### **3.9 SECURITY**

3.9.1 Assist Owner in maintaining the security for building. Contractor is responsible for the security of the work area.

### **3.10 VENTILATION SYSTEMS**

3.10.1 FULL ENCLOSURE: for gross abatement of friable and non-friable asbestos-containing materials and major glovebag operations.

3.10.1.1 Comply with paragraph J.2 of the EPA document, Guidance of Controlling Friable Asbestos-Containing Materials in Buildings, June 1985.

3.10.1.2 Have one spare unit of negative air pressure equipment available at all times. Spare units of negative air pressure equipment shall be of the same size and capacity as the largest operating equipment.

3.10.1.3 Suspend electrical cords off the floor and out of workers' way to protect the cords from damage from traffic, sharp objects, and pinching. Do not fasten cords with staples, and do not hang cords from nails or suspend with wire.

3.10.1.4 Provide sufficient units of negative air pressure equipment in each regulated area to complete at least one air change every 15 minutes in all locations of the regulated areas. Units of negative air pressure equipment are assumed to draw 80% of their rated capacity. If it can be proven to the Consultant that the equipment draws over 80% of their rated capacity, the number of negative air pressure equipment units may be altered.

3.10.1.5 Locate units of negative air pressure equipment so that make-up air enters the regulated area primarily through the decontamination enclosure system and transverses the regulated area as much as possible. Use Section J.3 of the referenced standard as a guide.

3.10.1.6 Provide additional make-up air openings as shall be necessary to effectively move air

through the regulated area and to avoid creating too high a pressure differential that would damage or cause "blown-in" of temporary barriers and plastic coverings. Provide inlets by making openings in the plastic sheeting near the ceiling and as far as possible from the negative air pressure equipment. Provide self-closing polyethylene flaps over the openings to prevent backflow of air from the enclosure to the outside.

- 3.10.1.7 Provide only enough auxiliary make-up air openings to maintain visible signs of adequate negative pressure, such as the plastic sheeting on barriers moving in towards the regulated area. A pressure differential in excess of 0.02 inches of water shall be maintained.
- 3.10.1.8 Vent all units of negative air pressure equipment to the outside of the building. Provide flexible or rigid duct as necessary to provide exterior venting and proper location of negative air pressure equipment. Ducts shall be completely sealed, in good repair, and protected from possible damage within the regulated area.
- 3.10.1.9 After the regulated area has been prepared, the decontamination enclosure systems set up, and the negative air pressure equipment installed start the equipment (one at a time if more than one is provided). Visually check the direction of air movement through the openings in the barriers, and verify movement of air in all locations of the regulated areas by use of ventilation smoke tubes. Adjust the location of the negative air pressure equipment, or provide additional negative air pressure equipment for the regulated area if the test indicates inadequate or improper air movement.
- 3.10.1.10 After removal has begun, maintain operation of negative air pressure equipment continuously to maintain a constant negative pressure until approved by Consultant. Do not turn equipment off at the end of the work shift or when removal operations temporarily stop.
- 3.10.2 When approved by Consultant, remove and dispose of pre-filters and shut off the negative air pressure equipment. If the negative air pressure equipment is to be used in another regulated area, leave the final filter in place and seal all intake openings to the equipment to prevent contamination due to asbestos fibers collected on the final filter. If the negative air pressure equipment is not to be used in other regulated areas, remove the final filter and dispose of as contaminated waste. If dismantling of negative air pressure equipment result in visible dust on surfaces HEPA vacuum and wet wipe area.
- 3.10.3 Change filters in negative air pressure equipment in accordance with manufacturer's recommendations and Paragraph J.3.2.2.1 of the EPA document, Guidance of Controlling Friable Asbestos-Containing Materials in Buildings, June 1985, or when there is obvious loss of negative pressure.
- 3.10.4 MINI CONTAINMENT
  - 3.10.4.1 A HEPA vacuum may be used in place of negative air pressure equipment provided visible signs of adequate negative pressure are produced.
- 3.10.5 GLOVEBAG
  - 3.10.5.1 A HEPA vacuum shall be used to create negative pressure.



- 3.10.6 Abatement of non-friable flooring and mastic less than or equal to 100 square feet does not require use of negative air pressure equipment.

### **3.11 PREWORK INSPECTIONS**

- 3.11.1 Upon completion of all regulated area preparation and immediately before work is to begin, notify Consultant that the regulated area is ready for inspection.
- 3.11.2 The Contractor shall not begin abatement work until the Consultant has inspected the area and any deficiencies have been corrected.

### **3.12 GROSS REMOVAL**

- 3.12.1 FULL ENCLOSURE: for gross abatement of friable asbestos-containing materials. Related Sections: 02071 - 3.3 (Work Areas), 3.4 (Decontamination Enclosure Systems), 3.5 (Separation of Work Areas), 3.6 (Worker Protection), 3.7 (Communication), 3.8 (Fire Exits), 3.9 (Security), 3.10 (Ventilation Systems), 3.11 (Pre-work Inspection), and 3.19 (Post-Removal Encapsulation of Affected Areas).

3.12.1.1 Any housing grills, vents, or penetrations concealing asbestos-containing materials shall be lowered and/or removed and protected to provide access to the materials. Replacement or reattachment of these shall be in a manner such that function and appearance is equal to or exceeds the original condition.

3.12.1.2 All fixtures, grills, clocks, intercom systems, and any other metal objects shall be protected from amended water. Surfactant will cause oxidation. Painted surfaces shall also be protected. Gauges or other items susceptible to rust shall be cleaned with an acceptable substitute such as isopropyl alcohol.

3.12.1.3 Spray asbestos-containing material with amended water, using spray equipment capable of providing a "mist" application to reduce the release of fibers. Saturate the material sufficiently to wet it to the substrate without causing excessive dripping. The use of high RPM power equipment, pressure washers, or hydro-blasters shall not be acceptable without permission from Consultant. Remove the saturated asbestos material in small sections from all areas. Material drop shall not exceed fifteen feet (15'). For heights up to fifty feet (50'), provide inclined chutes to intercept drop. For heights exceeding fifty feet (50') provide enclosed, dust proof chutes. Material shall not be allowed to dry before placing in sealable polyethylene bags of 6-mil minimum thickness. All asbestos-containing material shall be removed thoroughly and totally. Nylon fiber brushes shall be used to clean asbestos fibers from rough surfaces. Any contaminated material capable of puncturing the polyethylene shall be packaged separately.

- 3.12.2 FULL ENCLOSURE: for gross abatement of non-friable asbestos-containing materials not considered to be small-scale short duration. Related Sections: 02071 - 3.3 (Work Areas), 3.4 (Decontamination Enclosure Systems), 3.5 (Separation of Work Areas), 3.6 (Worker Protection), 3.7 (Communication), 3.8 (Fire Exits), 3.9 (Security), 3.10 (Ventilation Systems), and 3.11 (Pre-work Inspection).

- 3.12.3 MINI CONTAINMENT: for gross abatement of friable asbestos-containing materials considered to be

small-scale short duration. Related Sections: 02071 - 3.3 (Work Areas), 3.4 (Decontamination Enclosure Systems), 3.5 (Separation of Work Areas), 3.6 (Worker Protection), 3.7 (Communication), 3.8 (Fire Exits), 3.9 (Security), 3.10 (Ventilation Systems), and 3.11 (Pre-work Inspection).

- 3.12.4 Maintain regulated areas free of accumulated asbestos-containing materials at all times. Keep waste materials wet until enclosed in impermeable containers.
- 3.12.5 If impermeable containers are 6-mil bags then the bags shall be wet cleaned or HEPA vacuumed. Single bagged material shall be placed in a clean bag or into a lined drum. Ensure that all double-bagged items yield a minimum covering of 12-mil before removal from the regulated area. At no time shall a removal worker pass through the Equipment Decontamination Enclosure System into the uncontaminated area.
- 3.12.6 Once the removal has been completed, notify Consultant that the area is ready for visual inspection. The Consultant will inspect area for cleanliness. If area is not considered to be clean, the Contractor will re-clean area. Upon approval by Consultant, encapsulate area as described in 3.19. Consultant will then re-inspect area to ensure proper encapsulation procedures were followed. Consultant will initiate aggressive final air sampling. Consultant will provide final air sampling results to the Contractor and the Owner.
- 3.12.7 If testing results indicate fiber concentrations not acceptable by AHERA, the regulated area shall remain sealed until acceptable standards are met.

### **3.13 GLOVE BAGS**

All glove bag work specified under this section shall be performed in compliance with OSHA regulation 29 CFR 1926.1101.

- 3.13.1 Related Sections: 02071 - 3.3 (Work Areas), 3.4 (Decontamination Enclosure Systems), 3.5 (Separation of Work Areas), 3.6 (Worker Protection), 3.7 (Communication), 3.8 (Fire Exits), 3.9 (Security), 3.10 (Ventilation Systems), 3.11 (Pre-work Inspection), and 3.19 (Post-Removal Encapsulation of Affected Areas).
- 3.13.2 Minor glovebag operations of under 25 linear feet or 10 square feet but over 3 linear/square feet: Contractor shall build a mini containment (3.3 and 3.5 of this section) and post proper warning signs
- 3.13.3 Protect floors, walls, and surrounding area, within the regulated area with 6-mil polyethylene sheeting. As a minimum, extend polyethylene sheeting floor covering one foot horizontally in all directions for each vertical foot from floor to material height.
- 3.13.4 FULL ENCLOSURE: For major glovebag removals see 3.3.1.
- 3.13.5 If fiber concentrations found on the personal samples during glove bag removal exceed 0.01 f/cc and methods to reduce the excess prove futile, remove the material under Gross Removal, 3.12, conditions.
- 3.13.6 Using glovebags in strict accordance with the manufacturer's instructions, workers in full protective body clothing and respirators in accordance with Section 2.1 of this specification may begin removal of pipe insulation or other friable asbestos-containing material as per the following, or

manufacturer's instructions. In case of conflict, the more stringent provisions shall apply.

- 3.13.6.1 Cut the sides of the glovebag to fit the size of pipe you will be working on and insert the tools you will need into the attached tool pocket.
  - 3.13.6.2 Attach the glovebag to the working area by folding the open edges together and sealing with staples and tape. Any additional support that may be necessary to support the weight of the debris shall be provided.
  - 3.13.6.3 Seal edges of the glovebag around the working area with tape or adjustable straps to form a tight seal. Slice open the side port to allow entry of the wetting tube and HEPA vacuum hose. Insert the nozzle from the portable sprayer, seal around it with tape, and thoroughly wet the area to be removed.
  - 3.13.6.4 Insert arms into the armholes and gloves and proceed to remove asbestos from the elbow, valve fitting or pipe. At locations where the insulation rests directly on pipe hangers or supports, the Contractor shall re-support the pipe by shimming with wood blocks or other suitable materials. Continue wetting the material as required. Thoroughly wet the remaining pipe and insulation material from the pipe or fitting. Cut back fiberglass six inches from asbestos to eliminate asbestos contamination. When the job has been completed, remove the spray nozzle, insert the HEPA vacuum nozzle, and turn on the HEPA vacuum to remove air from the bag.
  - 3.13.6.5 With the air removed from the glovebag, squeeze the bag tightly as close to the top as possible and twist seal and tape to keep the asbestos material safely at the bottom of bag. Turn off the HEPA vacuum, remove the hose from the side port, and seal the side port with tape.
  - 3.13.6.6 Cut and remove the glovebag from the working area and place it into another plastic bag. Move bags to holding area of disposal storage unit.
  - 3.13.6.7 Mist surfaces of protective polyethylene and carefully fold inward. Proceed to HEPA vacuum the regulated area for any residual materials and seal the exposed edges and piping with the proper encapsulant sealants such as American Coating B.
- 3.13.7 Once the removal has been completed, notify Consultant that the area is ready for visual inspection. The Consultant will inspect area for cleanliness. If area is not considered to be clean, the Contractor will re-clean area. Upon approval by Consultant, encapsulate area as described in 3.19. Consultant will then re-inspect area to ensure proper encapsulation procedures were followed. If approved, remove glove bag. Consultant will initiate aggressive final air sampling. Consultant will provide final air sampling results to the Contractor and the Owner.

- 3.13.8 If testing results indicate fiber concentrations not acceptable by AHERA, the regulated area shall remain sealed until acceptable standards are met.
- 3.13.9 All cleaning shall be accomplished using wet methods and/or HEPA vacuuming equipment.
- 3.13.10 Reestablish objects moved to temporary locations in the course of the work, in their proper positions.

### **3.14 FLOOR COVERING REMOVAL**

- 3.14.1 Related Sections: 02071 – 3.3 (Work Areas), 3.4 (Decontamination Enclosure Systems), 3.5 (Separation of Work Areas), 3.6 (Worker Protection), 3.7 (Communication), 3.8 (Fire Exits), 3.9 (Security), 3.10 (Ventilation Systems), 3.11 (Pre-work Inspection), and 3.19 (Post-Removal Encapsulation of Affected Areas).
- 3.14.2 Friable abatement or non-friable abatement over 100 square feet refer to subparagraph 3.3.2 for enclosure requirements.
- 3.14.3 For removal of non-friable abatement of less than or equal to 100 square feet refer to subparagraph 3.3.8 for enclosure requirements.
- 3.14.4 For removal of non-friable material considered to be small-scale short duration abatement, post the proper warning signs and restrict access to authorized personnel only during the removal process.
- 3.14.5 During removal of mastic, protect walls and wall coverings by securing 4-mil polyethylene sheeting to the wall. The sheeting should begin at the base of the wall and extend a minimum of four feet up. Contractor is responsible for damage to walls.
- 3.14.6 If the flooring is friable or will be rendered friable during removal provide a full stage decontamination enclosure system and where feasible a separate equipment decontamination enclosure system (3.4.3 and 3.4.4) at the entrance to and exit from the regulated area. Non-friable flooring and mastic over 100 square feet shall have a full stage decontamination enclosure system as described in 3.4.3. Non-friable flooring and mastic less than or equal to 100 square feet shall have a decontamination area as described in 3.4.5.
- 3.14.7 Establish ventilation system as stated in 3.10 of this section.
- 3.14.8 Wet the floor covering with amended water. Do not allow the water to penetrate to the floors below.
- 3.14.9 Using hand tools and pressure remove the floor covering, its components and any associated mastic(s). During the course of removal the Contractor may be required to remove the baseboard, wood base, or base shoe to access the floor covering. The Contractor will be required to replace or repair the baseboard, wood base, or base shoe to original condition if it is removed or damaged during the floor covering removal.
- 3.14.10 In the event that floor tile has been attached to a wood floor with asbestos-containing mastic, the Contractor will be either required to remove the wood floor or cover the mastic with wood underlayment. The decision to remove the wood floor or to cover it will be made at the Design and

Planning Meeting.

- 3.14.11 When the Contractor is required to place a wood underlayment onto the floor prior to tile installation he is to use 1/4" Luan. The underlayment is to be fastened to the substrate using glue and staples, nails or screws.
- 3.14.12 In areas in which the Contractor is required to replace the wood sub-floor or repair wood floor he is to use 3/4" fir or yellow pine plywood, underlayment grade. In large areas that require minimal cutting of the underlayment, the underlayment is to be tongue and groove. The plywood is to be fastened to the substrate using glue and staples, nails or screws.
- 3.14.13 Once the removal has been completed, notify Consultant that the area is ready for visual inspection. The Consultant will inspect area for cleanliness. If area is not considered to be clean, the Contractor will re-clean area. Consultant will initiate aggressive final air sampling. Consultant will provide final air sampling results to the Contractor and the Owner.
- 3.14.14 If testing results indicate fiber concentrations not acceptable by AHERA, the regulated area shall remain sealed until acceptable standards are met.

**3.15 REPAIR OF DAMAGED ASBESTOS-CONTAINING MATERIALS**

- 3.15.1 Related Sections: 02071 - 3.3 (Work Areas), 3.5 (Separation of Work Areas), 3.6 (Worker Protection), 3.7 (Communication), 3.8 (Fire Exits), 3.9 (Security), and 3.11 (Pre-work Inspection).
- 3.15.2 Pre-clean and remove all objects near the damaged asbestos-containing materials and store in area designated by the Owner.
- 3.15.3 Post the proper warning signs and restrict access to unauthorized personnel during the repair process.
- 3.15.4 Debris present on or around item to be removed shall be wetted and collected prior to any additional work.
- 3.15.5 Return areas of damaged materials to an undamaged and intact state using lag clothe, mastic or an appropriate material approved by Consultant.
- 3.15.6 Use methods to prevent the asbestos-containing materials from being further damaged during the repair.
- 3.15.7 Repair damaged metal jacketing with 0.016" aluminum jacketing material. Fasten jacketing material to existing metal jacket using sheet metal screws. Seal edges of repair material with silicone caulk or bridging encapsulant to form an airtight barrier.
- 3.15.8 Once the repair has been completed, notify Consultant that the area is ready for visual inspection. The Consultant will inspect area for cleanliness. If area is not considered to be clean, the Contractor will re-clean area.

**3.16 REMOVING WHOLE ITEMS**

- 3.16.1 Related Sections: 02071 - 3.3 (Work Areas), 3.5 (Separation of Work Areas), 3.6 (Worker Protection),

3.7 (Communication), 3.8 (Fire Exits), 3.9 (Security), and 3.11 (Pre-work Inspection).

3.16.2 For intact removal of items requiring no disturbance of asbestos, such as fire doors, light fixtures, sinks, etc., post the proper warning signs and restrict access to authorized personnel only during the removal process.

3.16.2.1 Debris present on or around item to be removed shall be wetted and collected prior to any additional work.

3.16.2.2 Vacuums equipped with HEPA filter, disposable dust bag, (no brush) shall be used to clean vertical and horizontal surfaces, as required.

3.16.2.3 Item shall be detached from the building (if required) so as not to damage the building.

3.16.2.4 During removal, if a mechanical saw is used, a HEPA vacuum will follow the cutting action to capture all generated debris.

3.16.2.5 Material shall not be dropped. ACM shall be removed whole without disturbing asbestos. All asbestos-containing material shall be removed thoroughly and totally.

3.16.3 Once the removal has been completed, notify Consultant that the area is ready for visual inspection. The Consultant will inspect area for cleanliness. If area is not clean, the Contractor will reclean the area.

### **3.17 OUTSIDE SURFACE REMOVAL**

3.17.1 Related Sections: 02071 - 3.3 (Work Areas), 3.5 (Separation of Work Areas), 3.6 (Worker Protection), 3.7 (Communication), 3.8 (Fire Exits), 3.9 (Security), and 3.11 (Pre-work Inspection).

3.17.2 If outside removal involves opening to interior spaces then a barrier must be constructed to separate the regulated area from occupied areas. See subparagraphs 3.5.5, 3.5.6, and 3.5.7.

### **3.18 DISPOSAL OF ASBESTOS-CONTAINING MATERIAL AND ASBESTOS CONTAMINATED WASTE (SOLID AND/OR LIQUID)**

3.18.1 Vehicles used for transporting asbestos-containing materials to disposal sites shall have a completely enclosed, lockable storage compartment unless drums are used. All storage compartments left on-site shall be totally enclosed and locked. Storage compartments shall be plasticized and sealed with a minimum of one (1) layer of 6-mil polyethylene on the sides and top and two (2) layers of 6-mil polyethylene on the floor. The compartments shall be thoroughly wet cleaned and/or HEPA vacuumed following the disposal of each load of material at the dumpsite. At the conclusion of the project (or before transport vehicles are used for other purposes), the polyethylene shall be properly removed and disposed of as contaminated waste. After this is accomplished, compartments shall once again be wet cleaned and/or HEPA vacuumed in order to eliminate all debris prior to reuse of the vehicles. Ensure rented vehicles are clean prior to being returned to the rental company. All plastic sheeting, tape, cleaning material, including mops and sponges, clothing, filters, and all other contaminated disposable materials shall be packaged, labeled, and disposed of as asbestos-containing waste.

3.18.2 Dispose of materials at an authorized disposal site in accordance with the requirements of federal, state, and local disposal authorities.

3.18.3 Workers unloading waste material at the disposal site shall be dressed in full-body protective clothing and dual cartridge respirators.

### **3.19 POST-REMOVAL ENCAPSULATION OF AFFECTED AREAS**

3.19.1 The regulated area shall have passed a visual inspection prior to post-removal encapsulation.

3.19.2 An EPA approved encapsulant shall be applied, using airless spraying equipment, to all areas of the project (except to flooring removal areas) where asbestos-containing materials have been removed. Encapsulants shall be colored for ready visibility. Application shall be in a manner sufficient to cover removal areas without creating puddles.

3.19.3 The encapsulant shall be compatible with the existing materials and the installation of replacement materials.

### **3.20 TEST FOR FINAL CLEARANCES**

3.20.1 After all surfaces are wet wiped upon completion of asbestos removal and all areas within the regulated area are visually clean and encapsulated, negative air filtration will continue. If sampling yields air concentrations that are allowed by AHERA or this specification the removal shall be considered complete.

END OF SECTION

## **SECTION 01500**

### **CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS**

#### **PART 1 GENERAL**

##### **1.1 SECTION INCLUDES:**

- A. Temporary Utilities: Electricity, lighting, and ventilation.
- B. Temporary Controls: Barriers, enclosures, protection of the Work.
- C. Construction Facilities: Parking, progress cleaning, and project signage.

##### **1.2 TEMPORARY ELECTRICITY**

- A. Owner's permanent convenience receptacles may be utilized during construction. Power consumption shall not disrupt Owner's need for continuous service. Any disruption of service shall be made only upon 48-hour prior notice to the Owner and all such disruptions shall be held to a minimum.
- B. Exercise measures to conserve energy.

### **1.3 TEMPORARY LIGHTING**

- A. Owner's permanent building lighting may be utilized during construction. Provide and maintain lighting for construction operations to achieve a minimum lighting level of 2 watt/sq. ft. Provide for temporary lighting for installation of Owner-furnished equipment.
- B. Provide and maintain 0.25 watt/sq. ft. H.I.D. lighting to interior work areas after dark for security purposes.
- C. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
- D. Maintain lighting and provide routine repairs.

### **1.4 TEMPORARY VENTILATION**

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Provide HEPA filtered ventilation equipment as required to maintain air as specified in Section 02071.

### **1.5 BARRIERS**

- A. Provide barriers and signage to prevent unauthorized entry to construction areas to allow for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.



- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Provide protection of plant life designated to remain. Replace damaged plant life.
- D. Protect stored materials, site and structures from damage.
- E. Construction and type of barriers, and schedule for installation and removal, shall be submitted to Consultant for approval prior to the start of construction.

## **1.6 INTERIOR ENCLOSURES**

- A. Provide and maintain temporary contamination barriers using partitions and ceilings as required to separate work areas from Owner occupied areas as specified in Section 02071.

## **1.7 PROTECTION OF INSTALLED WORK**

- A. Protect installed Work and provide special protection where specified in individual specification Sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials. Use plank runways for wheeling over finished floors.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic across landscaped areas.

## **1.8 SECURITY**

- A. Coordinate with Owner's security program. Maintain all existing security systems during the contract period. Repair or replace all systems, wiring and equipment damaged by construction activities.

## **1.9 PARKING**

- A. Arrange for temporary parking areas to accommodate construction personnel. Owner assumes no responsibility for temporary parking. Parking of vehicles on lawn or playground areas is prohibited.
- B. When on-site space is not adequate, provide additional off-site parking.

## **1.10 PROGRESS CLEANING**

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly fashion.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote

spaces, prior to enclosing the space.

- C. HEPA vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust as specified in Section 02071.
- D. Remove waste materials, debris, and rubbish from site and dispose off-site as specified in Section 02071.
- E. Paved driveways on Owner's property and public streets and thoroughfares shall be kept clean, by cleaning daily or more often if necessary, of earth and debris spillage from vehicles involved in the construction operations.

### **1.11 SIGNS**

- A. No signs are allowed except those required by law/ordinances, for safety, traffic control and protection of persons and property. Signs shall meet the requirements of all applicable ordinances, rules and regulations as specified in Section 01092.

## **PART 2 PRODUCTS**

Not Used

## **PART 3 EXECUTION**

Not Used

END OF SECTION

## **SECTION 01090 DEFINITIONS AND STANDARDS**

### **PART I GENERAL**

#### **1.1 DEFINITIONS**

- 1.1.1 GENERAL EXPLANATION: A substantial amount of the specification language constitutes definitions for terms found in other contract documents including the drawings. Certain terms used in contract documents are defined in this article. Definitions and explanations of this section are not necessarily either complete or exclusive, but are general for the work to the extent they are not stated more explicitly in another element of contract document.
- 1.1.2 GENERAL REQUIREMENTS: The provisions or requirements of this section apply to entire work of Contract, and where so indicated, to other elements which are included in the Project.

- 1.1.3 **INDICATED**: The term "indicated" is a cross-reference to graphic representations, notes, or schedules on drawings, to other paragraphs or schedules in the specifications, and to similar means of recording requirements in contract documents. Where terms such as "shown", "noted", "scheduled", and "specified" are used in lieu of "indicated", it is for purpose of helping the reader locate cross-reference, and no limitation of location is intended except as specifically noted.
- 1.1.4 **DIRECTED, REQUESTED, ETC.**: Where not otherwise explained, terms such as "directed", "requested", "authorized", "selected", "approved", "required", "accepted", and "permitted" mean "directed by the Project Administrator or the Owners Representative", "requested by the Project Administrator or the Owners Representative", and similar phrases. However, no such implied meaning will be interpreted to extend the Project Administrator's or the Owner's Representative responsibility into Contractor's responsibility for construction supervision.
- 1.1.5 **CONSULTANT**: The term "Owners Representative" is defined as the entity engaged by the Lee's Summit R-7 School District of Lee's Summit, Missouri to serve as Project Administrator and Site Representative for this project. The Owners Representative is OCCU-TEC Inc., 4151 N. Mulberry, Suite 275, Kansas City, Missouri 64116.
- 1.1.6 **FURNISH**: Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.
- 1.1.7 **INSTALL**: Except as otherwise defined in greater detail, term "install" is used to describe operations at Project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations, as applicable in each instance.
- 1.1.8 **PROVIDE**: Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.
- 1.1.9 **INSTALLER**: The term "installer" is defined as the entity (person or firm) engaged by Contractor, or its subcontractor or sub-subcontractor for performance of a particular unit of work at Project site, including installation, erection, application, and similar required operations. It is a general requirement that such entities (installer) be expert in operations they are engaged to perform.

## **1.2 INDUSTRY STANDARDS**

- 1.2.1 **GENERAL APPLICABILITY OF STANDARDS**: Except to the extent that more explicit or more stringent documents, applicable standards of the construction industry have the same force and effect (and are made a part of contract documents by reference) as if copied directly into contract documents, or as if published copies were bound herewith.
- 1.2.2 **REFERENCED STANDARDS**: (Referenced directly in contract documents or by governing regulations) have precedence over non-referenced standards which are recognized in industry for applicability to work.
- 1.2.3 **NON-REFERENCED STANDARDS**: Hereby defined to have no particular applicability to the work, except as general requirements of whether the work complies with standards recognized in the construction industry.

- 1.2.4 PUBLICATION DATES: Except as otherwise indicated, where compliance with an industry standard is required, comply with standard in effect as of date of contract documents.
- 1.2.5 COPIES OF STANDARDS: The contract documents require that each entity performing work be experienced in that part of the work being performed. Each entity is also required to be familiar with recognized industry standards applicable to that part of the work. Copies of applicable standards are not bound with the contract documents.
- 1.2.6 ABBREVIATIONS AND NAMES: The following acronyms, or abbreviations as referenced in contract documents, are defined to mean the associated names. Both names and addresses are subject to change, and are believed to be, but are not assured to be, accurate and up-to-date as of date of contract documents.

AIA	American Institute of Architects 1735 New York Avenue N.W. Washington, DC 20006 (202) 626-7474
AHERA	Asbestos Hazard Emergency Response Act of 1986
ANSI	American National Standards Institute 11 West 42nd Street New York, NY 10036 (212) 642-4900
ASHRAE	American Society of Heating, Refrigerating & Air Conditioning Architect/Engineers 1791 Tullie Circle NE Atlanta, GA 30329 (404) 636-8400
ASTM	American Society of Testing Materials 100 Barr Harbor Drive West Conshohocken, PA 19428-2959 (610) 832-9585
CFR	Code of Federal Regulations Available from Government Printing Office Washington, DC 20402 (usually first published in Federal Register)
EPA	Environmental Protection Agency 401 M Street SW Washington, DC 20460 (202) 382-3949
NEC	National Electrical Code (by NFPA)
NESHAPS	National Emission Standards for Hazardous Air Pollutants

NFPA	National Fire Protection Association 1 Batterymarch Park P.O. Box 9101 Quincy, MA 02269-9101 (617) 770-3000
OSHA	Occupational Safety & Health Administration (U.S. Dept. of Labor) Government Printing Office Washington, DC 20402
UL	Underwriters Laboratories 333 Pfingsten Road Northbrook, IL 60062 (312) 272-8800

- 1.2.7 TRADE UNION JURISDICTIONS: It is a procedural requirement that the Contractor maintain and require prime subcontractors to maintain complete, current information on jurisdictional matters, regulations, action, and pending action, as applicable to the work. Discuss new developments, appropriate project meetings at the earliest feasible dates, and record information of relevance along with the action agreed upon. The manner in which contract documents have been organized and subdivided is not intended to be an indication of jurisdiction or trade union agreements. Assign and subcontract the work, and employ tradesmen and laborers, in a manner which will not unduly risk jurisdictional disputes of a kind which could result in conflicts, delays, claims, and losses in the performance of the work.

END OF SECTION

## SECTION 01092

### CODES AND REGULATIONS

#### PART I GENERAL

#### 1.1 CODES AND REGULATIONS

- 1.1.1 GENERAL APPLICATION OF CODES, REGULATIONS, AND STANDARDS: Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable codes, regulations, and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith.

1.1.2 FEDERAL REGULATIONS: Those which govern asbestos abatement work of hauling and disposal of asbestos waste materials include but are not limited to the following:

U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA), including Administration, (OSHA), but not limited to:

Asbestos

Title 29, Part 1910, Section 1001 of the Code of Federal Regulations

Respiratory Protection

Title 29, Part 1910, Section 134 of the Code of Federal Regulations

Construction Asbestos Standard

Title 29, Part 1926, Section 1101 of the Code of Federal Regulations

Access to Employee Exposure & Medical Records

Title 29, Part 1910, Section 1020 of the Code of Federal Regulations

Hazard Communication

Title 29, Part 1910, Section 1200 of the Code of Federal Regulations

Specifications for Accident Prevention Signs and Tags

Title 29, Part 1910, Section 145 of the Code of Federal Regulations

The Control of Hazardous Energy (Lockout/Tagout)

Title 29, Part 1910, Section 147 of the Code of Federal Regulations

Permit-Required Confined Space

Title 29, Part 1910, Section 146 of the Code of Federal Regulations

U.S. Environmental Protection Agency (EPA) including but not limited to:

Worker Protection Rule

40 CFR Part 763, Subpart G  
CPTS 62044, FLR 2843-9  
Federal Register, Vol. 50, No. 134,  
7/12/85  
P28530-2854

General Provisions

Title 40, Part 61, Subpart A of the Code of Federal Regulations

National Emission Standard for Asbestos

Title 40, Part 61, Subpart M  
(Revised Subpart B)  
of the Code of Federal Regulations

Asbestos Hazard Emergency Response Act (AHERA) Regulations 40 CFR 763 Subpart E

U.S. Department of Transportation (DOT) including but not limited to:

Hazardous Substances: Final Rule

Regulation 49 CFR, Parts 171 and 172

1.1.3 STATE AND LOCAL REGULATIONS: Abide by all state and local regulations which govern asbestos abatement work or hauling and disposal of asbestos waste materials, including but not limited to the following regulations:

- A. Revised Statutes of Missouri, Chapter 643, Missouri Air Conservation Law
- B. Revised Statutes of Missouri, Section 701.100-112, Asbestos Removal
- C. Code of State Regulations, Title 10, Division 10-6.020 and 10-6.080
- D. Missouri Law HR 1394
- E. Kansas City Air Quality – Chapter 8 – Air Quality

1.1.4 STANDARDS: Those which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

American National Standards Institute (ANSI):

Fundamentals Governing the Design and Operation of Local Exhaust Systems,  
ANSI Z9.2-1960  
Practices for Respiratory Protection, ANSI Z88.2-1992.

**1.2 EPA GUIDANCE DOCUMENTS**

1.2.1 EPA GUIDANCE DOCUMENTS: Those that discuss asbestos abatement work or hauling and disposal of asbestos waste below only for the Contractor's information. These documents do not describe the work and are not a part of the work of this contract.

Guidance for Controlling Asbestos-Containing Materials in Buildings (Purple Book), EPA 560/5-85-024.

Asbestos: Waste Management Guidance, EPA 530-SW-85-007.

### 1.3 NOTICES

- 1.3.1 U.S. ENVIRONMENTAL PROTECTION AGENCY: Send written notification as required by USEPA National Emission Standards for Hazardous Air Pollutants (NESHAPS) Asbestos Regulations (40 CFR 61, Subpart M) to the regional Asbestos NESHAPS Contact at least 10 days prior to beginning any work on asbestos-containing materials. Send notification to the following address:

REGION 7

USEPA Asbestos NESHAPS Contact  
Air & Waste Management Division  
901 North 5th Street  
Kansas City, KS 66101  
(913) 551-7020

### 1.4 STATE AND LOCAL AGENCIES

- 1.4.1 Send written notification as required by the Missouri Department of Natural Resources at least 20 days prior to beginning any work on asbestos-containing materials. Send written notification to the following address:

Department of Natural Resources  
Division of Environmental Quality  
Air Pollution Control Program  
P.O. Box 176  
Jefferson City, Missouri 65102

- 1.4.2 Send written notification as required by local requirements to the following address.

City of Kansas City, Missouri  
Air Quality Section  
2400 Troost, Suite 3000  
Kansas City, Missouri 64108  
(816) 513-6314

### 1.5 PERMITS

- 1.5.1 PERMITS: Obtain all building and special permits required for the asbestos abatement work.

### 1.6 LICENSE

- 1.6.1 LICENSE: Maintain current licenses as required by applicable state or local jurisdictions for the removal, transporting, disposal, or other regulated activity relative to the work of this contract.



1.6.2 POSTING AND FILING OF REGULATIONS: Maintain two (2) copies of applicable federal, state, and local regulations above. Post one copy of each at the job site.

## 1.7 SIGN REQUIREMENTS

1.7.1 As required by OSHA regulation 29 CFR 1926.1101, warning signs shall bear the following information:

DANGER  
ASBESTOS  
CANCER AND LUNG DISEASE HAZARD  
AUTHORIZED PERSONNEL ONLY

In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

1.7.2 As required by OSHA regulations 29 CFR 1910.1200 (f) warning labels shall contain the following:

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

1.7.3 As required by the U.S. Department of Transportation, warning labels shall contain the following:

RQ HAZARDOUS  
SUBSTANCE  
SOLID, NOS,  
ORM-E NA 9188  
(ASBESTOS)

1.7.4 As required by NESHAPS, asbestos disposal bags, barrels and other containers shall be labeled with the name of the waste generator and the location at which the waste was generated.

1.7.5 As required by NESHAPS, mark vehicles used to transport asbestos-containing waste material during loading and unloading of the waste so that signs are visible. The sign shall contain the following:

DANGER  
ASBESTOS DUST HAZARD  
CANCER AND LUNG DISEASE HAZARD  
AUTHORIZED PERSONNEL ONLY

**1.8 ADMINISTRATIVE AND SUPERVISORY PERSONNEL**

- 1.8.1 PROJECT SUPERINTENDENT: The Contractor shall designate a full-time Project Superintendent who meets the requirements of a "competent person" as defined by OSHA 1926.1101(b). This person shall have completed an EPA-approved contractor/supervisor certification course and have a minimum of one year on-the-job training. Prior to commencing work, the Contractor shall submit the name of the Project Superintendent to the Owner's Representative (Ref: Section 01300 - Submittals). The Project Superintendent shall remain until the Project is complete and cannot be removed without the written consent of the Owner's Representative. The Contractor must meet the qualifications of the Project Superintendent as stated above and in the absence of the Project Superintendent, perform all required duties.

END OF SECTION