

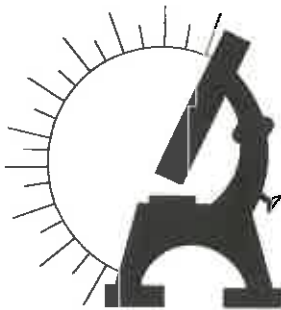
SET _____
September 18, 2018
GISD Bid # _____

Specifications for Asbestos Removal
at
Gadsden High School Old Boys Gym
6301 NM HWY 28
Anthony, New Mexico
SCAI Project Number 18EP-287

Prepared for:

Gadsden Independent School District #19
Attn.; Ralph Gallegos
P.O. Drawer 70
1325 W. Washington
Anthony, New Mexico 88021

Prepared by:



ENVIRONMENTAL SERVICES

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AA-1 : Asbestos Abatement at Gadsden High School - Old Boy's Gym.



END OF THIS SECTION

**ADVERTISEMENT FOR BID
FOR
GADSDEN INDEPENDENT SCHOOL DISTRICT #19
ASBESTOS ABATEMENT AT
GADSDEN HIGH SCHOOL - OLD BOY'S GYM
6301 NM HIGHWAY 28
ANTHONY, NEW MEXICO**

Notice is hereby given that sealed Bid (see Form in these specifications) will be accepted for asbestos abatement of the above location.

The proposal shall be in accordance with Plans and Specifications designed by:

SUN CITY ANALYTICAL, INC.
1409 Montana
EL PASO, TEXAS 79902
(915) 533-8840

The Bid will be accepted until 2:00 p.m. (MST) on Tuesday, October 9, 2018. Sealed Bid must be delivered to:

Gadsden Independent School District
Facility Maintenance
Attn. Ralph Gallegos,
Executive Director for Energy Management & Construction
1325 W. Washington,
Anthony, NM
Phone No: (575) 882-6921

where they will be publicly opened by Owner representative.

Successful Quoters shall complete project in accordance with dates set forth in Project Schedule included in this project manual. If Quoters fails to finish project in said dates, he is liable to **Gadsden Independent School District #16** or have deducted from funds owed, as liquidated damages the sum of five-hundred (\$500.00) dollars per day plus Consultant and/or Air monitoring costs per day for each calendar day of delay until the project is substantially completed.

There will be a pre-quote walk-thru of the project on **Thursday, September 27, 2018 at 10:00 a.m.(MST)**. Contractors should arrive no later than **10:00 a.m.** at **Gadsden High School - Old Boy's Gymnasium located at 6301 NM Highway 28, Anthony, New Mexico.**

Contractors shall include cost of any building demolition or building permits required by Federal, State or Local regulations when preparing proposal. The contractor is responsible to pay State of New Mexico Gross Receipt Taxes and/or State of New Mexico Income Taxes. Owner reserves the right to refuse any and all Bid for any reason that serves the best interest of the Owner or building Occupants. Owner reserves the right to waive any technicality or irregularity in a quote.

Contractors desiring Plans and Specifications may obtain **from SUN CITY ANALYTICAL, INC.**

END OF THIS SECTION

AIA DOCUMENTS

Instructions to Quoters, AIA Document A701 - 1997

Bid Bond, AIA Document A310 - 1970

Contract Form, AIA Document A101 - 2007

Performance Bond, AIA Document A312 - 1984

Payment Bond, AIA Document A312 - 1984

General Conditions, AIA Document A201 - 2007

END OF THIS SECTION

**SUPPLEMENTARY CONDITIONS TO AIA DOCUMENT A201-2007
CONDITIONS OF THE CONTRACT**

The "General Conditions of the Contract for Construction," AIA Document A201, 2007 Edition shall be used and these supplements are used to modify, change, and delete from or add to the said AIA Document. Wherever any Article of the AIA Document A201 is modified or deleted by the following supplementary conditions, the unaltered provisions of that said Article, Paragraph, Subparagraph or Clause shall remain in effect.

- 1.1.1. Contractor shall include as part of the contract documents the Notice to Quoters, Instructions to Quoters , Supplementary Instructions to Quoters, and Quote Form.
- 1.1.3.1. (Add) the "demolition", "removing" and stripping" of asbestos is required by this project manual and some handling of this material is needed to complete this Contract. Contractor shall comply with this project manual and all applicable federal, state and local laws governing asbestos abatement to reduce the hazard of asbestos.
- 2.2.1. This entire paragraph shall be deleted.
- 3.4.1. All protective equipment required for all employees and Owner's representative, the IH, and any authorized visitors shall be provided by the Contractor.
- 3.10.1. Contractor shall submit a proposed schedule of construction to the IH at the pre-construction meeting.
- 3.13.1 Contractor shall post competent person at the entrance to the regulated area at all times during working hours. After working hours and when the regulated area has been established the Contractor shall post security guard at the entrance to the regulated area. The primary duty of the person at the entrance to the regulated area is to prevent anyone from entering the regulated area without wearing proper protective equipment and otherwise complying with all applicable requirements in this Project Manual.
- 3.18.3 Contractor hereby agrees to indemnify and hold **Sun City Analytical, Inc and Gadsden Independent School District**, free and harmless from any obligations, costs, claims, judgments, attorneys' fees, and attachments arising from or growing out of this any damage to property or injury or death to persons (including any damage or injury caused to property or person of any party including any employee of Contractor and/or associated with companies and/or any third party) arising from or growing out of the performance of these services under this Contract, except when the same are caused by the willful misconduct or negligence of the Consultant.
- 4.1.1 Where ever "Architect" is used replace with the Industrial Hygienist as the Owners representative.
- 4.1.4. Consultant is an independent contractor and not an employee or partner of the Owner. Owner professes no expertise in the handling, removal, transportation or disposal of Asbestos and has employed the Industrial Hygienist as his representative of holding such expertise.
- 4.4.9. Any legal claims or suit brought for breach of contract for this project shall be in any court of competent jurisdiction in **Anthony at the State of New Mexico**.
- 7.1.4. When obvious discrepancies or omissions in the Quote Documents during the Walk-thru period occur, the Contractor shall notify Owner or Industrial Hygienist immediately. When failure to notify Owner and claim is made for additional costs for corrective work after contract award, Owner may circumvent competitive bidding for necessary corrective work. The Owner reserves the right to let out a separate contract for the additional work. Claims and time delays for extra work resulting from delayed notice of contract discrepancies or omissions shall not be considered by the Owner.

- 7.3.10 When the procedure in paragraph 7.3.6 is used, Owner will consider the contractors' or his subcontractors' Change Orders profit and overhead prior to giving approval. Amounts below are maximums Owner will not accept without complete justification.
- .1 The cost for only those items in paragraph 7.3.6 will be considered
 - .2 Contractor shall limit his overhead and profit to: ten percent (10%) for the first \$1,000. Six percent (6%) on the balance over \$1,000 for the total of all Change Orders.
 - .3 Subcontractor shall figure his costs, overhead and profit as described in .1 of this section. The contractor will be allowed for the total cost to add a maximum of six percent (6%) on the first \$1,000 and six percent (6%) on the balance over \$1,000 for the total of all subcontracted Change Orders.
 - .4 The minimum allowance for small Change Orders shall be fifty dollars (\$50.00).
 - .5 When deletions and additions are involved in any said Change Order the overhead and profit will be allowed only on net Addition.
- 8.3.4. No extend contract time will be awarded unless justifiable reasons or acts of God or the environment affect the project. Any extended time allowed for justifiable reasons shall not mean extra cost to Owner, but may be considered.
- 8.4 LIQUIDATED DAMAGES
- 8.4.1. Contractor shall be required to complete the project on or before the dates set forth in the completion date under Project Schedule of this project manual to avoid liquidated damages. Contractor is liable for and shall pay for or have deducted from funds owed liquidated damages the sum of five-hundred dollars (\$500.00) per day plus Consultant and/or air monitoring cost per day for each and every calendar day of delay until the work is substantially completed. Any waivers to liquidated damage amount shall be in writing from the Owner.
- 10.1.2 As the representative of the Owner, the IH shall perform air monitoring of all areas of work to insure compliance with this Project Manual and all applicable asbestos laws. This air monitoring does not relieve the contractor from monitoring required for compliance with the OSHA requirements. IH has the right to take action or direct Contractor to take whatever means deemed necessary to protect the environment, persons in the work area, and the general public when his air monitoring results indicate non compliance airborne concentrations of Asbestos fiber levels established by this Project Manual or applicable asbestos laws. IH shall retain at site daily air monitoring results for Contractor, Contractor employees, on regulatory agency to view at their discretion. In the event of any job-related injury, requirements of first aid or accident the IH shall be notified and Contractor shall take appropriate action.
- 10.1.3 When Contractor Crew consist of personnel whose predominant language is not English Contractor shall insure:
- .1 All training respiratory, supervisor, worker, etc., is conducted in predominant language. Contractor shall submit proof of all documents and proof that workers passed appropriate test.
 - .2 All instructions and safety procedures and emergency instructions shall be posted in both English and Spanish. Contractor shall have an interpreter fluent in English and dominant language for communications between IH and workers.
 - .3 All workers shall be under direct supervision of fluent interpreters especially in the regulated area.
- 10.1.4 The following airborne fiber levels have been established for IH to use as grounds for stoppage of abatement work or and/or ordering immediate clean up of all area
- .1 When air samples reveal 0.10 F/CC, IH may warn Contractor of high levels and may stop work if he continues to exceed 0.10 F/CC.
 - .2 When air samples reveal greater than 0.01 F/CC inside clean room or during load-out, IH shall stop work and insure proper clean-up procedures are used.

.3 Any time air samples reveal air levels of greater than 0.01 F/CC outside regulated area, work must stop until corrective action is taken.

11.1.3 Contractor shall see Supplementary Instructions to Quoters Article 7.3.

11.3 Owner does not intend to purchase property insurance as described in Article 11.3.1.2 and Contractor is hereby notified of such intent.

END OF THIS SECTION



BID FORM

GISD Bid # _____
PSFA Bid # _____

(Company Name)

Submits following proposal for asbestos removal at:

**Gadsden Independent School District
for
Gadsden Independent School District
c/o SUN CITY ANALYTICAL, INC.
1409 Montana
EL PASO, TEXAS 79902
(915) 533-8840**

Submittal of this form by the undersigned, hereafter referred to as Bidders, is a representation that the Bidders has visited the site, became familiar with conditions affecting the work. Successful Bidder agrees to furnish all labor, materials, equipment, and pay any expenses incurred (travel, per diem, taxes, etc.) to complete work in total compliance with Contract Documents such as but not limited to, Plans, Specifications, Invitation to Bidders, Instructions to Bidders, and any addendum's issued thereto.

The successful Bidder agrees to complete project with conditions set forth in contract documents, Plans and Specifications and time schedule set forth in the Project Schedule in this specification, furthermore successful Bidders understands that five hundred dollars (\$500.00) per day plus Industrial Hygienist and/or air monitoring costs will be the measure of liquidated damages assessed for each calendar day in excess thereof required to complete the work under this contract.

Bidders agrees to execute a Formal Contract on AIA Document A101-2007 (Standard Form of Agreement between Owner and Contractor) within five (5) working days. Bidder agrees to furnish within five (5) working days all required insurance policies covering public and property damage, asbestos occurrence liability, and workman's compensation in the amounts specified in the supplementary conditions of the project. Successful bidder shall furnish performance and payment bonds equal to 100% of the amounts of the Contract.

Bidders represents that he understands the exact scope of the project and that he is willing to perform any increase or decrease in the work in accordance with set provisions of these contract documents. Bidders further guarantees he has become familiar with local conditions, local laws and ordinances, local permits, and rules that may in any manner affect cost, progress or performance of this contract.

Owner reserves the right to disqualify any and all bids. **Bidder understands that to be considered a successful bidder, he must comply with section 01300 SUBMITTALS (1.01) with Bid Proposal of these specifications.**

- A. Submit at least 3 past projects documenting the following:
 - 1. Working experience on Asbestos Abatement using full containment procedures.
 - 2. Experience working on Department Stores or Malls.
 - 3. Experience working with OSHA, and EPA asbestos regulations.
- B. Submit Proof of personnel qualifications, training and experience:
 - 1. Submit State Contractor License to be able to do asbestos abatement work.
 - 2. Submit name of supervisor and alternate to be used on project. Submit his current medical, EPA approved supervisor training certificate. This will be used on EPA 10 day notification.

AA-1: Asbestos Abatement at Gadsden High School - Old Boy's Gymnasium.

_____ Dollars \$ _____

UNIT PRICES: Bidders must submit unit prices. These unit prices shall be used to calculate any additions or **deletions** to this contract.

ACM Plaster Wall Materials

\$ _____ per SF _____ Dollars per SF

ACM Thermo Insulation using Glove Bag Method

\$ _____ Each _____ Dollars per Each

ACM Plaster Ceiling Materials

\$ _____ per SF _____ Dollars per SF

Respectfully submitted:

(Firm Name)

By _____
(Authorized Signature) (Title)

Firm's Address: _____

Seal _____ Phone (____) _____

END OF THIS SECTION

PROJECT SCHEDULE
Gadsden High School - Old Boys Gym
 6301 NM Highway 28
 Anthony, New Mexico

ACTIVITY	DATE AND TIME	LOCATION
Pre-Quote walk-thru	Thursday, September 27, 2018 10:00 a.m.	Gadsden High School Old Boy's Gym 6301 NM Highway 28 Anthony, New Mexico
Bid Due	Tuesday, October 9, 2018 2:00 p.m.	Facility Maintenance Attn. Ralph Gallegos, Executive Director for Energy Management & Construction 1325 W. Washington, Anthony, NM Phone No: (575) 882-6921
Bid Open	Tuesday, October 9, 2018 2:00 p.m.	Facility Maintenance Attn. Ralph Gallegos, Executive Director for Energy Management & Construction 1325 W. Washington, Anthony, NM Phone No: (575) 882-6921
Contract Award	TBA	N/A
Pre-Construction	Tuesday, November 27, 2018 10:00 a.m.	Facility Maintenance Attn. Ralph Gallegos, Executive Director for Energy Management & Construction 1325 W. Washington, Anthony, NM Phone No: (575) 882-6921
Abatement - Starting Day	Monday, December 17, 2018 8:00 a.m.	Gadsden High School Old Boys Gym 6301 NM Highway 28 Anthony, New Mexico

TBA = To Be Announced

END OF THIS SECTION

SECTION 01010 SUMMARY OF WORK

- 1.01 Statement of Work: The work consists of furnishing all plant, labor and materials (except as indicated otherwise in specifications) and performing all work in strict accordance with the plans and specs for Asbestos Removal at the **Old Boys Gymnasium** located in **Gadsden High School** in Anthony, New Mexico. Work shall include but not be limited to: preparation, asbestos removal and decontamination from areas shown, disposal, encapsulation, Full Containment Method, OSHA air monitoring and ambient air sampling. Where there is a conflict of applicable laws or this specification, Contractor shall immediately notify Owner or his representative the owners representation the industrial hygienist (IH).
- 1.02 Project Objectives:
- A. Remove asbestos containing materials from areas described in the Scope of Work, Drawings, Project Manual and any addendum.
 - B. Contractor shall ensure that no individual is exposed to asbestos or fiberglass fibers contamination in excess of levels shown in these specifications.
 - C. Contractor shall ensure that no asbestos contamination occurs outside any containment erected by Contractor.
 - D. Contractor shall ensure that all asbestos waste is disposed of in accordance to these specification and all applicable laws.
 - E. Contractor shall document all activities pertaining to this project in accordance with these specifications and all applicable laws.
 - F. Contractor shall ensure that all special precautions, as stated in these documents, have been taken to protect cooling and heating systems, existing electrical equipment, and communication, security, fire, computer systems.
 - G. Contractor shall ensure that the performance of this project does not interfere with the normal operations of all the tenants in the building.
- 1.03 Description of Work:
- A. Remove asbestos from areas shown at the pre-bid conference, in the drawings, and in the specifications and addenda. Bidder shall field verify types, location, quantities, and access to ACM and any other special or unusual circumstances during the recommended pre-bid conference.
 - B. The purpose of this project is to completely remove specified asbestos flooring materials, window and door caulking, plaster walls, chalkboards, and thermal insulation from designated areas within Anthony Elementary School in Anthony, New Mexico as shown on the drawings.
 1. Gadsden High School - Gym
 - a. Remove and dispose of approximately 28 ea. of ACM pipe fittings throughout building as shown on Drawing AA-1. General Contractor shall remove ceilings and walls to expose pipe so Abatement Contractor can access pipe fittings.
 - b. Remove and dispose of approximately 225 l.f. of the six inch ACM pipe insulation as shown on Drawing AA-1. General Contractor shall remove ceilings and walls to expose pipe so Abatement Contractor can access ACM pipe.
 - c. Remove and dispose of approximately 1,000 s.f. of ACM plaster walls and ceiling materials as shown in drawing AA-1.
 - d. Contractor is responsible for reviewing Architect Demo Drawings in order to perform a better and accurate work, to include notes, addendums, and bid documents.
 - C. **UNIT PRICES:** Additive/Deductive Unit Prices for Work described on the plans and in the specifications. Bidder shall submit unit prices. **These unit prices shall be used to calculate any additions or deletions to this contract. Bidder is informed that these prices shall be used to deduct or add any additional ACM material from the BASE BID PRICE, Alternate or additional work performed as a part of this contract. Any bidder failing to submit unit prices shall be regarded as non-responsive.**

END OF THIS SECTION

SECTION 01030 SPECIAL PROCEDURES OR CONDITIONS**1.01 Gadsden High School - Old Boy's Gymnasium**

- A. Before beginning abatement the Contractor shall do the following:
 - 1. Ensure that all high voltage is turned off and locked out for the immediate abatement area with appropriate safety tags.
 - 2. All electrical facilities shall be properly locked out and tagged out according to OSHA regulations and then covered with 6 mil polyethylene.
 - 3. Contractor shall not begin any work on any building without first obtaining notice to proceed from GISD.
 - 4. Minimum respirator protection for this project shall be a Power Air Purifying Respirator (PARR) with HEPA filters.

1.02 Alternate Procedures

- A. Any alternate abatement procedure other than those specified herein shall be submitted in writing to IH for approval. IH has final authority to approve or disapprove or discontinue any procedure used if it violates any provision of this specification or applicable asbestos regulations.
- B. Any alternate procedure shall provide equal to or greater protection than the procedure it is intended to replace.

1.03 Pre-abatement Inspection

- A. Contractor shall inspect the work area and shall document all items which are broken or inoperative, and those which shall be retained by Owner.

1.04 Schedule of abatement

- A. The Contractor shall maintain as a minimum one crew consisting of 4 fully accredited and licensed asbestos workers and 1 fully accredited and licensed asbestos supervisor on site at all times during the project.
- B. Contractor shall perform his work during normal working hours of the School District which is 8:00 am to 5:00 pm. Contractor shall ensure compliance with the completion date scheduled in the NESHAP 10 notification.
- C. Contractor shall be allowed 6 working days to complete the work.

1.05 Site Security

- A. Site security shall be provided after working hours during the abatement phase. The intent of this precaution is to guard against unauthorized entry into the regulated areas.
- B. Site security personnel shall ensure that air filtration equipment is operational at all times, shall restrict unauthorized entry into the regulated area and ensure that the containment is intact at all times. Site security personnel shall keep a daily log of all events and shall submit a copy of log to owners representative the industrial hygienist each morning.
- H. Site security personnel shall possess as a minimum a current asbestos worker certification.

1.06 Emergency Repairs

- A. The Contractor shall have immediately available qualified personnel to repair any pipe leaks or electrical failures that might occur during abatement.
- B. Contractor is required to provide an emergency telephone at the job site. All personnel shall have access to this emergency telephone when required.
- C. All emergency phone numbers (IH, Project Manager, Owner, ETC) shall be posted at the control center.

1.07 Medical Emergencies

- A. The Contractor shall provide at least one person on site qualified in First Aid and Cardiac Pulmonary Resuscitation (CPR).

1.08 Rental Equipment

- A. Contractor shall obtain written permission for any rental equipment (includes rental trucks or vehicles) to be used on the asbestos project. The rental company shall be notified of the intended use of equipment and shall submit notice to IH that the equipment may be used on this asbestos project. IH has the right to reject any rental equipment that does not confirm with said letter of understanding. Contractor assumes all liability for failure to disclose the use of rental equipment for an asbestos project.

1.09 Patented Products

- A. Contractor shall submit a license or equivalent, or written permission to use any patented product and/or procedure in connection with this project. In the event that no patented product and/or procedure is used, Contractor shall submit a notarized statement acknowledging that he is not using patented products or procedures on this project. Contractor assumes all liability for failure to disclose the use of a patented product and/or procedure.

1.10 Electrical Work

1. All electrical work shall be coordinated with school electrician.
2. All of the electrical work shall be performed by either a licensed journeyman electrician or a licensed apprentice electrician under direct supervision of a licensed journeyman electrician.
3. When any work must be done in contact with ACM, or in an enclosure or containment, the electrician shall meet the requirements of OSHA 1926.1101 which includes but is not limited to a medical exam and respiratory and protective equipment training. Contractor shall bear all costs.

1.11 Plumber

1. In the event that a plumber is required to perform any plumbing work during any phases of asbestos abatement, the plumber shall be licensed in accordance with current State of New Mexico plumbing regulations.
2. The plumber shall also be licensed in accordance with current State of New Mexico Health Department regulations to work in any asbestos containment areas.

1.12 Landscape

- A. The Contractor is to ensure that his personnel and equipment do not damage or litter the exterior of any building requiring Work under this Contract. Any damage to the environment shall result in monetary damages or replacement by the Contractor. If the possibility of any such damage exist, the Contractor shall submit to the IH a written explanation of the expected damages and the physical location where the damages are expected to occur. The Owner may, at his option, waive the Contractor's responsibility for protection of that portion of the landscape.
- B. The Contractor shall ensure daily that the exterior of the buildings are organized and free of objects, material, or waste generated by his work or personnel.
- C. All authorized construction waste containers will be dumped upon being filled to capacity. Overflow of waste will not be permitted.

1.13 Building Interior

- A. The Contractor shall be responsible for the replacement and/or repair of any damages to areas of the buildings which are not scheduled for removal or demolition in the plans and specifications. If the Contractor, after on site inspection of the work specified, expects any damages to unspecified areas, the Contractor shall submit along with the abatement plan an explanation of any expected damages. This abatement plan is subject to approval by the Owner and/or his Representative (IH).

1.14 Heat Stress

- A. Contractor shall be responsible for properly training his personnel under 1926.21 regarding Heat Stress.
- B. Contractor shall insure that the workers in containment are allowed frequent breaks outside the containment or at the discretion of the Industrial Hygienist or the employee.

1.15 RESERVED

1.16 Precedence Regarding Conflicts And/Or Questions

- A. Conflicts and questions arising during the bid phase and throughout any asbestos abatement activities shall be resolved on a basis of whether an asbestos or non-asbestos related activity is involved. Any asbestos related conflicts and questions will be governed by the appropriate project manual sections.
- 2. Otherwise, the owner's supplementary and/or up-front "boiler plate" documents and any other non-asbestos related sections of the project manual shall be applicable.
- 3. Conflicts and questions which the selected Contractor fails to bring to the attention of Owner and/or Consultant prior to being awarded the contract shall not be considered.

END OF THIS SECTION

SECTION 01043 PROJECT COORDINATION

1.01 Work Requirements:

- A. The Contractor shall schedule his work-hours to accomplish the abatement as specified in this project manual, 10 day notification, drawings, and any addenda. Contractor shall not exceed eight (8) hours per work shift. Contractor shall not perform any work on days other than those specified working days without the written permission of the Consultant from SCAI.
- B. Before starting work at any location the Contractor shall inform the Owner and his representative the IH or his authorized representative of the intent to start such work. Strict adherence with NESHAPS 10 day notice is required.
- C. Before beginning any work under the contract the Contractor shall insure that the supervisor noted on the EPA 10 notification is on site during this entire project.. If a different person is assigned during the performance period, written notification and all documentation required under these specifications shall be provided to the IH before the new person assumes responsibility as project supervisor..
- 4. Contractor is required to have all personnel working on this project to attend a tool box meeting at the job site prior to starting any work (this includes mobilization). This tool box meeting shall be verified by attendance by the Industrial Hygienist.
- E. Working Conditions:
 - 1. The Contractor shall visit the site to thoroughly familiarize himself with all the details of the work and the existing conditions, and to verify all dimensions in the field. The Contractor shall notify the IH, in writing, when a discrepancy is found in the contract drawings, specifications, and/or field conditions.
 - 2. The Contractor will not be compensated for any unauthorized work.
 - 3. The Contractor shall maintain the interior and exterior of the building clean of any/all debris that result from the performance of this project.
 - 4. The Contractor shall ensure safe working conditions and abide by all applicable OSHA safety regulations during the performance of the contract with the occupants in the building.

1.02 Qualification Requirements:

- A. All work performed under this SECTION shall be done by a Contractor specialized in removal of asbestos and shall meet, but not be limited to, the following:
 - 1. Three years experience using Occupational Safety and Health Administration (OSHA), and/or Environmental Protection Agency (EPA) recommended asbestos removal methods.
 - 2. Shall have performed satisfactorily, from start to completion, two asbestos removal projects using Full Containment Method of isolation using air filtration system in high rise buildings.
 - 3. Shall not have previous history, during the last five years of abatement projects started and completed by the Contractor, of any violations regarding compliance with asbestos removal procedures by any State, Local, or Federal Agency.
 - 4. Shall have, as a minimum, a supervisor and/or foreman having a working knowledge and three years experience in asbestos related projects. This shall include but not be limited to meeting requirements of 1.03 B. of this section.
 - 5. Shall have, as a minimum, a supervisor and/or foreman having a working knowledge and three years experience in asbestos related projects and two years experience in bio-aerosol and/or microbial abatement projects. This shall include but not be limited to meeting requirements of 1.03 B. of this section.
 - 6. As a minimum, current EPA/AHERA asbestos contractor supervisor accreditation.

1.03 Personnel Qualifications:

- A. All Contractor personnel involved with this project must be trained and have EPA approved certification showing they are fully qualified to do asbestos removal. Contractor shall ensure every worker is thoroughly familiar with the standard operating procedure of the Contractor for abatement work and with all Applicable Laws. All personnel shall have current OSHA (1926.1101) medical examinations and be trained in the use and care of respirators. Anyone without the proper qualifications listed herein shall not be allowed to work in the abatement area at any time.
- B. Supervisor Qualifications are as follows:
1. Meet requirements of OSHA competent person.
 2. Must have knowledge of methods and procedures of the removal, treatment, handling, and disposal of asbestos and asbestos containing materials and subsequent cleaning of affected environment.
 3. This person shall be knowledgeable of Federal, State and Local regulations pertaining to the handling of asbestos.
 4. This person shall remain on the job site and in immediate contact with those under his supervision during all phases of this project. The supervisor shall be inside the asbestos containment at least 25% or the the time supervising the actual asbestos abatement. Whenever the site supervisor leaves the job site, the IH has the requirement under EPA to stop work until the supervisor returns to site. Any and all extra cost arising from said event shall be the responsibility of the Contractor.
 5. Persons shall have current OSHA 1926.1101 medical, EPA, AHERA certification as a supervisor and fit testing certification.
 6. This person shall have proof that he has attended the required meeting mentioned in Section 01043 item 101.D.
 7. Must have knowledge of methods and procedures of the removal, treatment, handling, and disposal of bio-aerosols and/or microbiological matter.
 8. Knowledgeable in the use of biocides or any other agents used in bio-aerosol and/or microbial abatement work.
 9. This person shall remain on the job site and in immediate contact with those under his supervision during all phases of this project.
 - (a.) The supervisor shall be inside the containment areas(s) at least 25% or the time supervising the actual bio-aerosol and/or microbiological abatement work.
 - (b.) Whenever the site supervisor leaves the job site, the IH has the option to stop any abatement work, at the Contractors own expense, if the supervisor's leaving the job site causes safety and health problems, any eminent dangers, or project cost problems for the Owner.
- C. Worker Requirements:
1. Meet requirements of OSHA (1926.1101).
 2. Must have knowledge of methods and procedures of the removal, treatment, handling, and disposal of asbestos and asbestos containing materials and subsequent cleaning of affected environment.
 3. This person shall be knowledgeable of Federal, State and Local regulations pertaining to the handling of friable asbestos.
 4. Workers shall have current OSHA 1926.1101 medical & EPA, AHERA certified abatement worker and fit testing certification.
 5. This person shall have proof that he has attended the required meeting mentioned in Section 01043 item 101.D.
 6. Must have knowledge of methods and procedures of the removal, treatment, handling, and disposal of bio-aerosol and/or microbiological matter

1.04 Permits:

- A. Contractor shall obtain all necessary permits from the City Building Inspection Department, Police, Fire Department and any other Agency having Jurisdiction prior to commencement of work. Some permits required are, but not limited to:
1. Electrical Permits needed where new or reinstalled electrical devices are performed.
 2. Building Permit is needed where any structured component member of the building is disturbed. This includes removal of asbestos pipe insulation.
 3. State Health Department Permits and notices (If Applicable)
 4. Local permits such as fire, police etc.

END OF THIS SECTION



SECTION 01091 DEFINITIONS AND STANDARDS

1.01 Applicable Publications:

- A. The regulations listed below form a part of this specification to the extent referenced. Regulations are referred to in the text by basic designation only.
- B. **RESERVED**
- C. OSHA Regulations:
 - 1. 29 CFR 1910.20 Access to Employee Exposure and Medical Records
 - 2. 29 CFR 1910.134 Respiratory Protection
 - 3. 29 CFR 1910.1001 OSHA - Asbestos Industry Standard.
 - 4. 29 CFR 1926.1101 Asbestos, Tremolite, Anthophyllite, and Actinolite Construction Standard.
 - 5. 29 CFR Parts 1910 and 1926 Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite; Final Rules; Amendment
 - 6. 29 CFR 1910.1200 Hazard Communications
- D. Environmental Protection Agency
 - 1. 40 CFR 61 Subparts A & M (Revised Subpart B) National Emission Standards for Hazardous Air Pollutants.
 - 2. 40 CFR Part 763, Subpart E Asbestos Containing Material in Schools; Find Rules and Notice.
 - 3. 40 CFR Part 763, Subpart G Asbestos Abatement Projects; Worker Protection; Final Rule.
 - 4. Environmental Protection Agency (EPA) Publication, Guidance for Controlling Friable Asbestos-Containing Materials in Buildings, June 1985.
- E. Department of Transportation (DOT) 49 CFR Part 173, Subpart J.
- F. American National Standards Institute, Inc., (ANSI), Standards:
 - 1. ANSI Z88.2-1980 American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems.

1.02 Definitions:

- A. **Abatement** - Means all activities associated with the control of Asbestos containing materials for Buildings during removal.
- B. **ACGIH** - American Conference of Governmental Industrial Hygienists 6500 Glenway Avenue Building D-5 Cincinnati, Ohio 45211
- C. **AIHA** - American Industrial Hygiene Association, 345 White Pond Dr. Akron, Ohio 44320
- D. **Aggressive Air Sampling** - Means using extreme efforts to simulate actual building conditions. Occupancy characteristics by causing air circulation patterns with equipment such as fans or leaf blowers.
- E. **Airlock** - A system for permitting ingress and egress with minimum air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways separated by a distance of at least 3 feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow through contamination.
- F. **Air Monitoring** - Means the process of collecting air samples on a fiber membrane cassette and then having them analyzed to determine the number of fibers present. Analytical results are expressed in terms of fibers per cubic centimeter of air.
- G. **Air Monitoring Professional** - A specially trained individual, who has successfully completed a NIOSH 582 Training Course, employed by the Owner, who is qualified by education and/or experience to obtain and test air samples in and around the work areas to determine airborne concentrations of asbestos fibers.
- H. **Amended Water** - Water to which surfactant has been added. Surfactant should be 50% polyoxyethylene ester and 50% polyethylene ether according to EPA recommendations.

- I. A.N.S.I. - American National Standards Institute, 1430 Broadway, New York, New York 10018.
- J. Asbestos - means a mineral that readily separates into long flexible fibers suitable for use as a noncombustible, nonconducting or chemically resistant material. Asbestiforms include chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.
- K. Asbestos Containing Material (ACM) - Material composed of asbestos of any type and in an amount greater than 1% by weight, either alone or mixed with other fibrous or non-fibrous materials.
- L. Asbestos Containing Waste Material - Asbestos containing material or asbestos contaminated objects requiring disposal.
- M. Asbestos Fibers - Means asbestos fibers longer than 5 micrometers.
- N. Asbestos Project Monitor - An individual designated as the Owner's representative and responsible for overseeing the asbestos abatement project.
- O. Asbestos Worker - Means employees that meet all the requirements outlined in OSHA Regulations 29 CFR 1926.1101.
- P. ASTM - American Society For Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.
- Q. Authorized Visitor - The Building Owner [and any designated representatives] and any representative of a regulatory or other agency having jurisdiction over the project.
- R. Bidder - Each prospective Contractor who bids on the work specified herein, and has been pre-qualified by Sun City Analytical.
- S. Building Owner - Shall be the **Gadsden Independent School District** or its representative.
- T. Bulk Sample - The collection of any building material section suspected of containing asbestos. A small portion of suspected material is removed from sample area and placed in a plastic bag or air tight container.
- U. CIH- An Industrial Hygienist who by virtue of their education and passing the American Board of Industrial Hygiene Core Examination in either the Comprehensive Practice or an Aspect Examination has been given the right to use CIH by AIHA.
- V. Clean Room - An uncontaminated area or room which is a part of the worker decontamination enclosure system with provisions for storage of worker's street clothes and clean protective equipment.
- W. Clean Air Sample - Means air sample collected immediately following the completion of corrected action. These samples are routinely collected to determine the effectiveness of the corrected action and establish the contractual requirements of acceptable fiber concentrations levels prior to breaking down of abatement control area.
- X. Containment - When used in this specifications means the same as regulated area, shrouding, bubble, temporary enclosure, or controlled area by using 2 layers of 4 mil plastic on walls and 2 layers of 6 mill on floors. The means of using plastic to establish work areas and using air filtration pressure to prevent fiber contamination of building and occupants. Unless otherwise stated in the specifications.
- Y. Contractor - Means the individual and/or business with which the owner contracts to perform the abatement.
- Z. Control Center - Means the area in close proximity of the entrance to the regulated area where the supervisor or outside man is stationed. This center should be where all documentation required by specifications are, along with emergency numbers and first-aid kits, are available.
- AA. CSP - A Safety Professional who by virtue of their education and passing the Board of Certified Safety Professionals Core Examination has been given the right to use CSP by BCSP.
- AB. Curtained Doorway - Means a device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms, typically constructed by placing two overlapping sheets of plastic over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one vertical side of the door and along the opposite vertical side of the doorway. Other effective designs are permissible.
- AC. Designated Decontamination Area - Means an area designated by the Industrial Hygienist

- (IH). The area is used for the purpose of decontaminating asbestos contaminated objects and shall be located adjacent to the work area and meet Industrial Hygienist (IH) approval.
- AD. Designated Clean Area - Means an area designated by Industrial Hygienist (IH). The area is within site of the work area free of any asbestos for the purpose of storing decontaminated objects.
- AE. Designated Holding Area - Means an enclosed area designated by Industrial Hygienist (IH). The enclosure is used for the storing of sealed containers of asbestos containing materials and asbestos contaminated waste.
- AF. Decontaminate - Means to remove all visible asbestos dust and/or mold contamination from the surface to be decontaminated by the means of damp cleaning and/or vacuuming with HEPA filtration equipment.
- AG. Encapsulant - A liquid material which can be applied to asbestos containing material and/or mold contamination which controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).
- AH. Enclosure - The construction of an air-tight, impermeable, permanent barrier around asbestos containing material and/or mold contamination to control the release of asbestos fibers into the air. This can be used interchangeably with containment, please see definition of containment.
- AI. EPA - U.S. Environmental Protection Agency 401 M Street S.W., Washington, D.C. 20460
- AJ. Equipment Decontamination Enclosure System - Means that a portion of a decontamination enclosure system designed for controlled transfer of materials and equipment into or out of the work area, typically consisting of a washroom and holding area.
- AK. Equipment Room - A contaminated area or room which is part of the worker decontamination enclosure system with provisions for storage of contaminated clothing and equipment.
- AL. Filtered Exhaust System - A portable exhaust system equipped with HEPA filtration and capable of maintaining a constant low velocity air flow through contaminated areas from adjacent uncontaminated areas and maintaining a lower pressure in the containment area as compared to the adjacent uncontaminated areas.
- AM. Fixed Object - A piece of equipment or furniture in the work area which cannot be removed from the work area.
- AN. Friable Asbestos - Asbestos containing material which can be crumbled to dust, when dry, under hand pressure.
- AO. HEPA Filter - Means High Efficiency Particulate Air Filter that is capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micro meters in diameter or larger.
- AP. HEPA Vacuum - Means a special type of vacuum cleaner used in the abatement project that must be equipped with a HEPA filter.
- AQ. Glovebag - Means a special purpose custom containment bag with protective gloves and arm sleeves, tool pouch and side port for the use of repairing or removing pipe insulation.
- AR. HVAC - Means heating, ventilation and air conditioning system.
- AS. Industrial Hygiene - "Is that science and art devoted to the recognition, evaluation, and control of those environmental factors or stresses, arising in or from the work place, which may cause sickness, impaired health and well-being, or significant discomfort and inefficiency among workers or among the citizens of the community."
- AT. Industrial Hygienists (IH) - An individual who by education or experience has gained competence in the field of industrial hygiene. In this manual the IH is the owners representative, the air monitoring professional, and/or the duly designated representative of the CIH.
- AU. Movable Object - A piece of equipment or furniture in the work area which can be removed from the work area.
- AV. Air Filtration System - A portable exhaust system equipped with HEPA filtration and capable of maintaining a constant low velocity air flow into contaminated areas from adjacent uncontaminated areas.
- AW. NESHAPS - The National Emission Standards for Hazardous Air Pollutants.
- AX. NIOSH - The National Institute for Occupational Safety and Health. CDC -NIOSH Building

- J N.E. Room 3007 Atlanta, GA 30333
- AY. OSHA - The Occupational Safety and Health Administration, 200 Constitution Avenue, Washington, D.C. 20210. For work in New Mexico the regional office the Environmental Improvement Division (505) 827-2452.
- AZ. Shower Room - A room between the clean room and the equipment room in the worker decontamination enclosure with hot and cold or warm running water controlled at the tap and suitably arranged for complete showering during decontamination.
- BA. Shrouding (Full) - Means the process of covering all the interior surfaces (floor, walls, doorways, windows, ceiling) of a room with polyethylene sheeting.
- BB. Semi-Shrouding - Means the process of covering a portion of the interior surfaces (floor, walls doorways, windows, ceiling, etc.) of a room with polyethylene sheeting.
- BC. Surfactant - A chemical wetting agent added to water to improve penetration.
- BD. Tunneling - Means the forming of connected enclosed corridors with plastic sheeting for passageways between shrouded and/or semi-shrouded enclosures.
- BE. Visible Emissions - Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.
- BF. Waste Transfer Airlock - A decontamination system utilized for transferring containerized waste from inside to outside of the work area.
- BG. Wet Cleaning - The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils which have been dampened with water and afterwards thoroughly decontaminated or disposed of as asbestos contaminated waste.
- BH. Work Area - Means the portion of the building (or structure) comprised of the room(s) and connecting passageway(s) (such as other rooms, hallway, corridors, etc.) required to gain access to the designated material(s) to be removed.
- BI. Work day - Means any day between the project start and the completion date, with the exception of weekends. Weekends may become work days if authorized by the Owner.

END OF THIS SECTION

SECTION 01300 SUBMITTALS

- 1.01 Submittals with Contractor's Proposal:
- A. Proof of Asbestos Abatement experience:
 - 1. Documentation of at least 3 years experience using OSHA, EPA, 763 AHERA regulations (letters of recommendation will be accepted).
 - 2. Name of contact person on at least one on going abatement project.
 - 3. Notarized statement that offerer's firm or company performing work for the past three (3) years has not received any notice of violation regarding compliance with any applicable asbestos law. If notice of violation has been received by the offerer, circumstances involved should be described in the notarized letter for consideration by the Owner and its Consultant.
 - B. Proof of personnel qualifications, training and experience:
 - 1. Submit New Mexico Contractor License .
- 1.02 **Submittals required 5 working days prior to the commencement of any abatement or remediation efforts. This submittal shall be sent to Sun City Analytical, Inc. at 1409 Montana in El Paso, Texas 79902.**
- A. Prior to starting project Contractor shall submit to the Industrial Hygienist the following data on all materials, fixtures or equipment intended for use on this project. All material, equipment, and fixtures shall be approved by the Industrial Hygienist. Each item not meeting standard shall be repaired or replaced by Contractor at no added expense to Owner. Each item on the list submitted by the Contractor shall be clearly identified as to proposed location with appropriate reference to drawings and/or specifications. Catalogs, drawing and similar literature shall be clearly marked to identify the items as noted on the lists submitted, and shall be cross-reference therewith. Approval of such items will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor shall be responsible for the dimensions and design of adequate connections, details and satisfactory construction of all work. Contractor shall submit complete narrative, pictorial or manufactures' specifications and technical data brochure(s) to describe:
 - B. All enclosures, shrouding complete with detailed layout of decon facilities, air filtration system units, emergency exit waste load out and control center.
 - C. Air filtration system machines shall show all calculations to show the adequate number of units to be used.
 - 1. HEPA filter set, along with primary and secondary filter.
 - 2. Time meter and filter pressure drop gauge.
 - 3. All accessories of air filtration system as: automatic shut-down if HEPA ruptures or air discharge is blocked, lockout to prevent usage without HEPA filter.
 - 4. Air Filtration System pressure recorder, water gauge or equivalent for use to verify pressure differential.
 - D. Work force to be used, supply number and **construction work schedule** for completion of project. Show back up personnel capabilities in the event Contractor falls behind schedule.
 - E. Truck or vehicle to be used to transport ACM waste to landfill. Show load capabilities and condition of vehicle.
 - F. Proof that EPA 10 Day Notice has been submitted. Also proof that local police and fire departments have been notified of project and conditions of project.
 - G. Proof that notice has been submitted for permission to dump waste at EPA approved Landfill.
 - H. Decontamination center to be used.
 - 1. Pre-fab or portable showers to be used have Hot and Cold water taps, and made of non-porous materials.
 - 2. Waste water filtration system to be used that have 20 micron primary filter and 5 micron secondary filter. Also submit data on replacement filters.
 - I. All respiratory protection equipment brochures describing:
 - 1. Air purifying respirator with HEPA filters and NIOSH approval number. (Only to be

- used during preparation on this project).
2. Powered Air Purifying respirators with full-facepiece, HEPA filters and NIOSH number
 3. Type C Supplied air complete with full face piece, pressure demand regulator, NIOSH approval number, back up egress system. Panel board complete with compressor failure alarm, high temperature alarm, carbon monoxide alarm, in line filtration to assure Grade D air, low pressure compressor, and proper CO alarm calibration procedure.
- J. Submit samples of the following:
1. Fire retardant polyethylene plastic sheeting.
 - (a.) Polyethylene plastic sheets shall be of 6 mil (0.152mm) thickness.
 - (b.) The polyethylene plastic material shall have a tear resistance of no less than M.D. 512 grams and T.D. of 2,068 grams.
 - (c.) The polyethylene plastic material shall have dart impact of no less than 297 rams as measured using ASTM methods D1709, D1922, and D882.
 2. Duct tape.
 3. Plastic bags.
 4. Glovebag
 5. Warning signs, labels and barrier tape.
 6. Disposable clothing.
- K. Submit brochures for other equipment and supplies:
1. Wetting agent (surfactant).
 2. Encapsulants.
 3. Plastic lined drum.
 4. Vacuum equipment with HEPA filter to be used.
 5. Air sampling apparatus.
 6. Ground fault interpreters.
 7. Communication system between regulated area and control area.
- L. Contractor shall submit the laboratory license and the individual license of all air monitors to used on this project. Laboratory to be used shall be capable of analyzing the air samples and have results to the field within in 2 hours daily.
- M. Submit company Standard Operating Procedures for asbestos abatement projects.
- N. Submit company Fire /Emergency Procedures and Spill Response Plan.
- O. **Submit company Respiratory Program which is worksite specific in accordance with OSHA 1910.134 (c) (1) (April 1998).**
- P. OSHA 29 CFR 1910.145 approved Bio hazard warning signs, labels, and barrier tape.
- Q. Protective clothing for dry removal of bio-aerosols and and/or microbiological matter
1. Disposable Tyvek or equivalent protective clothing shall offer, as a minimum, protection in the diameter range of 6.5µm to 100µm microbial.
 2. Contractor must submit a manufacturer's documentation as proof of the protective clothing minimum filtering ability of 6.5µm to 100µm microbial diameter range.
 3. The Contractor's failure to provide the manufacturer's documentation shall cause the Contractor to bare all but not limited to medical and legal expenses, and any regulatory fines attributed to contract worker exposure and/or any resulting medical costs related to the type of bio-aerosol and/or microbial being abated at the project site.
 4. Tyvek breathable or equivalent breathable protective clothing shall not be acceptable for bio-aerosol and/or microbial abatement work.
- E. Protective clothing when using biocides (liquids or otherwise) and/or wet removal methods
7. The Contractor shall submit manufacturer's written technical proof that the protective clothing protects contract personnel during the use of biocides (liquids or otherwise) and/or when bio-aerosols or any other microbiological matter is removed by a wet method.

8. Breathable protective clothing shall not be acceptable during the use of biocides (liquids or otherwise) and/or when bio-aerosols or any other microbiological matter is removed by a wet method.
 9. Absorbent samples shall be submitted which represent the type(s) of absorbents that the Contractor shall use during bio-aerosol and/or microbiological matter removal to capture run off or drips of biocides or bleach solutions.
- F. Submit brochures for other equipment and supplies:
1. Biocides which are EPA registered, FDA or USDA approved/licensed and are labeled for the intended use as per project specifications, drawings, or CIH requirements.
 2. Biocide Material Safety Data Sheet (MSDS)
 3. Absorbent products and appropriate MSDS.
 4. Plastic lined drum.
 5. Vacuum equipment with HEPA filter to be used.
 6. Air sampling apparatus.
 7. Ground fault interpreters.
 8. Communication system between regulated area and control area.
 9. Respiratory filters
- G. Submit company Standard Operating Procedures for bio-aerosol and/or microbial abatement projects
- H. Submit company Fire /Emergency Procedures and Spill Response Plan.
- I. Submit company Respiratory Program that complies with OSHA 1910.134 (c) (1) (April 1998).
- J. Submit appropriate de-humidifying equipment manufacturer technical specifications.
1. Technical materials shall indicate that the equipment is capable of dehumidifying and operating in the area(s) shown in the project drawings for the environmental conditions that will be encountered during the duration of the project.
 2. Only factory built and certified by appropriate industry associations dehumidifier(s) shall be acceptable. Industry certifications shall include but not limited to UL, NEMA, FMRC, and NEC.
 3. "Home made" dehumidifiers will not be acceptable.
- K. Submit a plan indicating the placement of negative air machines and de-humidifiers (if applicable). The plan shall include but not limited to the following:
- L. Statements regarding the methods to balance the outside air entering the containment area(s) via the de-humidifiers and existing through the negative air machines.
- M. Emergency plans indicating what methods shall be used to balance the outside air flow into the containment area(s) in the event that the de-humidifiers stop operating or the negative air machines stop operating.
- 1.03 Additional Medical Submittals: Required 5 working days prior to the Pre-Construction Meeting. This submittal shall be sent to Sun City Analytical, Inc. at 1409 Montana in El Paso, Texas 79902-5617.
- A. Proof of personnel medical qualifications concerning bio-aerosols and/or other microbiological matter associated with this project:
1. The Contractor shall be responsible for the project supervisor and the worker's current medical status as it relates to work to be performed under this project.
 - (a.) A licensed medical doctor's statement affirming that the project site supervisor and/or workers do not exhibit, prior to this project, the following but not limited to medical problems which can be aggravated or otherwise can cause an eminent medical life and/or death situation to contract personnel due to the type of bio-aerosol and/or microbiological contaminant exposure that shall be encountered in this abatement project:
 - (1.) Asthma
 - (2.) Hypersensitivity pneumonitis

- (3.) Allergic rhinitis
 - (4.) Dermatitis
 - (5.) Sinusitis
 - (6.) Conjunctivitis
 - (7.) Other severe allergies
 - (8.) Immune suppression
 - (9.) Chronic inflammatory lung diseases
 - (10.) Any other pulmonary problems and/or diseases
 - (11.) Asbestosis
 - (12.) Mesothelioma
 - (13.) Other conditions that can be exacerbated by bio-aerosols and/or microbiological matter encountered in this project.
- (b.) If the project supervisor(s) and/or worker(s) exhibit any medical problems as described in paragraph C., 3. of this proposal, the Contractor shall submit a letter from a licensed medical doctor that affirms that said person(s) are able to perform the work as required in this project contract.
 - (c.) Contractor failure to submit medical statement(s) by a licensed medical doctor for contract workers and supervisor(s) shall disqualify said workers and/or supervisor(s) from any work at the project site.
 - (d.) At the discretion of the Owner, the Contractor may be terminated without any form of compensation resulting from but not limited to the lack of any medical statement(s) by a licensed medical doctor, as described in C., 3. of this proposal, regarding the contract workers and/or supervisor(s).
 - (e.) Contractor use of medically unacceptable personnel, as per A.1. of this section, during the duration of this project shall be at the Contractor's own expense including but not limited to any legal, medical, labor, or any other related costs.

1.04 Submittals required Daily during Abatement:

- A. Daily, during the project the following items shall be maintained by the Contractor and may be verified by the IH.
- B. Air monitoring results from previous day of sampling. The results shall be hard copy from the approved lab. All air sample results shall be posted prior to the start of the next working day.
- C. Daily narrative log of work progress, to include delays, potential change orders, stoppage of work and results of visitors' inspections.
- D. Documentation of inspection of all areas and equipment. Contractor shall note corrections or planned actions for correction.
- E. Notification of any accident or emergency requiring a doctor's treatment or evacuation of any employee.
- F. Documentation of all personnel entering and leaving regulated area.
- G. Within 24 hours submit the documentation of any ACM waste that has been taken to landfill.
- H. Updated construction schedule and abatement plan.
- I. Documentation of filter changes on respirators, HEPA vacuums, filtered Air Filtration System, and other engineering controls.
- J. When Grade D air is required Contractor shall provide compliance with OSHA 1910.134 and document that CO monitor is calibrated on daily basis.

1.05 Submittals Required at Conclusion of Project

- A. Submit within five (5) days of final ACM dumping the waste manifest documenting landfill used and total amount of ACM that was buried.
- B. All air sample results from testing lab that were not previously submitted.
- C. A complete log book of all documentation acquired during the project. Contractor shall ensure that minutes of final walk-thru with IH, and Owner are incorporated into final project documents along with corrective action taken by Contractor.
- D. Complete written reports on proper OSHA forms of any accident, emergency or other safety and/or health incident.

E. Summary of corrective actions taken of punch list, if any, drawn up by Owner and IH.

1.06 Disapproved Submittals:

1. Once the Contractor receives a notice and/or letter of submittal(s) rejection from the IH, the Contractor shall have 5 calendar days to resubmit any corrected and/or updated submittals for approval by the IH.
2. Failure on part of the Contractor to respond within the 5 calendar days shall be interpreted as non responsive and the Owner reserves the right to terminate any further contract negotiations and/or cancel any other implied and/or approved written agreements. The Owner shall mail by postal, express deliver, or hand carry the notice and/or letter of termination to the Contractor. It shall be the Contractors responsibility to note the date and time that the termination takes effect. The Owner reserves the right to contact the next qualified lowest bidder, cancel the project and/or re-advertise at a future date. The Contractor shall not have any reimbursement recourse for costs incurred up to and including the last day and hour as identified in the Owner's termination notice and/or letter.

END OF THIS SECTION

SECTION 01410 TESTING LABORATORY SERVICES

1.01 Personnel Air Monitoring and Sampling:

- A. General Requirements: Air monitoring and sampling shall be in accordance with standards and methods required by all applicable regulations.
- B. The Contractor shall obtain the services of an Industrial Hygienist or Professional Air Monitor specialized with the OSHA medical, and his EPA approved air monitoring technician and supervisor training certificates.
- C. The Contractor shall retain a list of qualifications and experience of the individuals who shall be responsible for air monitoring and sampling.
- D. Throughout the removal and subsequent cleaning operations, AMBIENT (AREA) MONITORING will be conducted by the Owner's representative to ensure compliance with all regulations and is conducting the work in a manner which minimizes airborne asbestos levels as well as minimizes the contamination of other areas of the building. Analytical results will be available at the Control Center.
- E. For each set of air samples submitted to the laboratory by the Contractor for analysis, the Contractor shall submit blank cassettes for analysis (minimum of 10%). Each blank cassette shall be submitted as a part of the Contractor's quality control program.
- F. The Industrial Hygienist (IH) may request to QC sample taken by the Contractor. The Industrial Hygienist (IH) will randomly ask for wedge of cassette filter or read a percentage of the Contractor's samples.
- G. Air monitoring results shall include as a minimum for each sample the following: sample ID, laboratory ID, date sample taken, flow (liters/minutes), time (minutes), blank count (fibers/field), fibers/cc, detection limit (fibers/cc), location, employee's name, type of activity and the name of the analyst and the date the sampled was analyzed.
- H. All personnel samples for asbestos shall be in accordance with 29 CFR 1926.1101 and as specified in this manual. The Contractors shall sample employees who are anticipated to have the greatest risk of exposure as determined by the industrial hygienist. At least 25% of the work crew or a minimum of two employees, whichever is greater, during a work shift shall be sampled.

1.02 Third-party Air Monitoring:

- A. General Requirements: Third party area monitoring and project clearance for airborne concentrations of asbestos fibers during an abatement project shall be performed by a project monitor under contract to the building owner to collect samples by and for the owner of the facility being abated.
- B. Project monitors observe abatement activities performed by contractors and generally serve as a building owner's representative to ensure that abatement work is completed according to specification and in compliance with all relevant statutes and regulations.
- C. Project monitors perform the vital role of air monitoring for purpose of determining final clearance.
- D. Project monitor is required to comply with ASHARA, have EPA 5-day supervisor course, NIOSH 582 or 3-day Air Monitoring course, the OSHA medical, TDH license.
- E. Schedule of Air Samples:
 - 1. Baseline: The owner's representative will secure the following air samples to establish a baseline before start of work.
The samples will be taken in accordance with the following schedule:

LOCATION	SAMPLES	VOLUME	RATE
At the discretion of the Industrial Hygienist	3	1,250 liters	< 10 LPM

Baseline shall be an ambient air quality level expressed in fibers per cubic centimeter (f/cc). The baseline results shall be used for reference in establishing clearance criteria. The baseline or a level of <0.005 F/cc which ever is the least shall be the established clearance criteria.

2. Daily: From start of work through the end of the project, the owner's representative shall take the following samples on a daily basis. The samples should be taken in accordance with the following schedule:

LOCATION	VOLUME	RATE
Inside containment	Quantification by air monitoring professional (AMP)	< 10 LPM
Outside containment but inside the building	Quantification by the AMP	< 10 LPM
At negative air unit discharge	Quantification by the AMP	< 10 LPM
Immediately outside the entrance to the decontamination facility	Quantification by the AMP	< 10 LPM
Outside the bag out facility (during bag out activities)	Quantification by the AMP	< 10 LPM

3. Additional samples may be taken at the owner's representative's discretion. If airborne fiber counts exceed allowed limits, additional samples may be taken as necessary to monitor fiber levels.

1.03 Methods of Analysis:

1. Asbestos Analysis

- a. Air samples shall be analyzed by Phase Contrast Microscopy method using the NIOSH 7400 method.
- b. Air samples shall be analyzed by an analytical laboratory who possess the following:
 - i. Lab shall use the NIOSH 7400 method for analysis according to 29 CFR 1926.1101, Appendices A or B which describes the OSHA ORM method and which utilizes the acetone/triacetin sample preparation or equal.
 - ii. Lab to used shall be independent of the Contractor and shall be approved by the Industrial Hygienist.
 - iii. Lab shall have technicians who have their NIOSH 582 Class. Certificate must be submitted to Industrial Hygienist (IH) upon request.
 - iv. Lab shall be a successful participant in the Proficiency Analytical Testing Program (PAT) for the last 4 rounds and have National Institute of Standards and Technology (NIST) certification.
 - v. Lab shall be capable of delivering results within 24 hours of sampling to the client so the can be posted on the job site.
 - vi. Lab shall have current License and/or accreditation.

1.07 Clearance Samples

- A. Transmission Electron Microscopy - is required on this contract for certain abatement of friable asbestos.
 1. All TEM analysis shall follow 40 CFR 763 AHERA regulations sampling and analysis protocols.
- B. On this project Phase Contrast Microscopy with NIOSH 7400 method in accordance with SECTION 01714 WORK AREA CLEARANCE, shall be the method used for clearance

testing. Clearance samples shall be done in the normal work shift of the contract and shall be noted in the contractors construction schedule and abatement plan. The clearance level has been established as $<.005$ f/cc or baseline data which ever is lower.

END OF THIS SECTION



SECTION 01500 TEMPORARY FACILITIES AND CONTROLS

1.01 Temporary Buildings

- A. Contractor shall provide first aid facilities at control center and in waste disposal vehicle.

1.02 Telephone Service

- A. ***The Owner will not furnish telephone service, Contractor shall designate a telephone for emergencies. Contractor nor his employees shall not use any telephones located on any of the buildings on this project.***

1.03 Water for Construction

- A. The contractor shall furnish water used during construction so long as the required amounts are within the capacity of the existing building systems. Contractor shall provide piping, valves, and any other appurtenances required to properly convey the water to the location where it is needed.
- B. No water connection from any potable public water supply system shall be made inside the containment area or from any other area where there could be a potential for contamination of the public water source unless connected with an internal air gap or a mechanical back-flow prevention device. No water hoses or pipes shall be brought into the containment area or from any other area where there could be a potential for contamination of the public water source can occur unless hoses or pipes are connected to the previously described devices in this section, 1.03.
- C. All internal air gap or mechanical back-flow prevention devices shall conform to American Water Works Association (AWWA) C150, and C151.

1.04 Electricity for Construction

- A. The Contractor shall provide electrical energy from existing panels as required to operate power tools and equipment and to provide temporary light so long as the required amounts are within the capacity of the existing building systems. ***Contractor shall verify quantity and quality of the electrical service.*** Contractor shall provide temporary wiring and outlets as required and temporary lighting if necessary.
1. If the existing electrical power supply is insufficient for the contracted work, the Contractor shall provide a temporary independent source of electrical power with appropriate appurtenances which meet current local, state, federal, and National Electrical codes.
 2. If portable electrical generators are used, the Contractor shall insure that the noise level emissions at the work site does not exceed any applicable city noise codes. During the use of the portable electrical generators, the Contractor shall be responsible for the generator(s) not becoming a hazard at the work and/or abatement site. Any resulting damage and/or injury costs from the use of said generators shall be at the expense of the Contractor.
 3. If noise codes do not exist, the Contractor, as per manufacturers recommendations, shall use portable electrical generators which have noise level emissions (dbA) that are acceptable for the areas outside the work site.

1.05 Employee Conduct

- A. Contractor shall be responsible for ensuring that all employees of Contractor comply with all Applicable Laws and perform work in a safe manner. Any employees entering the work area under the influence of alcohol or drugs shall be immediately removed by the Contractor from the job site.
- B. The Contractor shall instruct all his employees to refrain from talking with anyone about this

project. Any interviews or discussions about the asbestos project shall be done only by written consent from the owner.

- C. **At the pre-construction meeting and/or prior to the commencement of the project, the Contractor, facilities operator, owner's representative (SCAI) shall agree on the project boundaries.**
- D. **The Contractor shall ensure that all his employees are properly informed of this assigned project boundary. Any Contractor employee caught outside the project boundary without authorization shall be removed from the project immediately.**

1.06 Advertising

- A. At no time will any kind of advertisement be displayed, published, or reported to news media without the expressed written consent of the Owner and IH.

1.07 Barricades

- A. Contractor shall provide sufficient barricades, walkways to protect personnel from injury or exposure to asbestos. All work areas shall be barricaded with proper signs.

1.08 Security

- A. Security shall be provided by Contractor at Contractor's expense. See Section 01030.

1.09 Toilets

- A. ***Contractor may use this restroom facilities in the building however, contractor shall insure that it is clean on a daily basis. Violation of this items shall restrict the use of these facilities and the contractor shall provide chemical toilets.***

END OF THIS SECTION

SECTION 01513 AIR FILTRATION SYSTEM

- 1.01 Air filtration system
- A. Air Filtration must be established in the work area by means of a local exhaust system. The equipment shall exhaust through a three-(or more) stage HEPA filtration system to outside of the building. The equipment shall be in operation for 24 hours per day until final air clearance.
 - B. The system shall have the following characteristics:
 1. Filtration equipment in compliance with ANSI Z9.2, Local Exhaust Ventilation.
 2. Capable of maintaining a minimum pressure differential of minus 0.02 inches of water (4.98 Pa) gauge in the work area relative to adjacent areas.
 3. Air filtration system pressure system units shall be employed in sufficient quantity to provide four (4) air changes per hour in the work place. Use the formula to determine total air flow requirement.
 Total CFM = Volume of work area/ 15 min
 (Total M³/min = Volume of work area/ 15 min)
 Number of units = Total CFM/ 80% capacity of unit
 (Number of units = [Total M³/min] / [80% capacity of unit])
 4. The hose used to duct the exhaust shall be either new temporary plastic tubing or new wire reinforced ducts
 5. The air filtration unit shall have a warning sound or horn if any restriction is found in the intake or exhaust.
 - C. Provide a chart recording measuring device or equivalent for use to verify the pressure differential. This data shall be submitted to the IH at the end of the work shift.
 - D. Contractor shall install on the containment one fully operational (including filters) backup ventilation machine.
 - E. Units shall be placed to provide maximum air flow and prevent short circuiting air flow.
 - F. Pre-filter shall be changed as needed as conditions warrant or when directed by the I.H.
 - G. The HEPA filter will be checked by Industrial Hygienist (IH) for integrity and usage, and shall be changed by Contractor if damaged or overloaded.
 - H. **Any electrical work performed by the Contractor in association with this section will be done by a licensed electrician. Any electrical work performed in the regulated area shall be done by a licensed electrician who has met the requirements of OSHA 1926.1101, AHERA 40 CFR 763 (24 hour worker Course), OSHA medical exam, respirator fit test and any license required by any Local, State or Federal Asbestos Law. All electrical work will conform to current National Electrical Codes (NEC) requirements.**
 - I. All fan unit(s) will be factory made and certified by current industry standards related to air movement equipment and air filters.
- 2.01 Fan Unit Instrumentation
 The Contractor shall provide but not limited to the following:
- A. Manometer: Factory installed manometer to measure the pressure drop across filters and indicate when filters have become loaded and need to be changed
 - B. Static Pressure Table: A table indicating the usable air-handling capacity for various static pressure readings on the manometer affixed near the gauge for reference, or the manometer reading indicating at what point the filters should be changed, noting Cubic Feet per Minute (Cubic Meter per Minute) air delivery at that point
 - C. Time Meter: Factory installed or equivalent elapsed time meter to show the total accumulated hours of operation
 - D. Pressure Chart Recorder: Provide factory installed chart recording measuring device or equivalent for use to verify the pressure differential. This data shall be submitted to the IH at the end of the work shift.
- 3.01 Fan Unit Safety and Warning Devices: All fan unit safety and warning devices will be factory installed.

All fan unit safety and warning devices will meet current National Electric Codes (NEC) , National Electrical Manufacturers Association (NEMA) requirements, and any other pertinent safety industry standards and government regulations related to fan unit air movement equipment as required in this section. The Contractor will need prior approval for the factory installed safety and warning devices from the IH before installing and operating any fan unit(s) in the containment area.

- A. Lockout(s): Electrical and/or mechanical lockout(s) to prevent fan from operating without a HEPA filter.
- B. Automatic Shutdown: An automatic shutdown system to stop fan in the event of a rupture in the HEPA filter or blocked air discharge.
- C. Warning Lights: The color of the warning lights will be of the type which meet current acceptable industry standards and government regulations.
 - 1. Normal operation—**GREEN LIGHT or equal**
 - 2. Too high a pressure drop across the air filters due to but not limited to a filter overloading—**YELLOW LIGHT or equal**
 - 3. Too low of a pressure drop due to but not limited to a rupture in HEPA filter, obstructed discharge, etc.—**RED LIGHT or equal**
- D. Audible Alarm:
 - 1. If fan unit(s) shut down due to any operation of previously described of safety systems, an audible alarm will be activated to alert the Contractor and/or site security.
 - 2. The audible alarm will generate a sound level, dbA scale, which currently meets local, state, and federal government safety regulations. If local, state, and federal regulations to not exist, the sound level will be as the manufacture recommends for the working conditions at the project site. The warning device such as bell or horn if should sound if:
 - a. any restriction is found in the intake or exhaust, or
 - b. any rupture occurs in the HEPA filter, or
 - c. any loss of electrical power occurs.
- E. Smoke and Heat Detector(s):
 - 1. At least one, smoke and heat detector shall be placed near the fan inlet to alert security, the Contractor and any workers in the containment area that a fire heat and/or smoke danger is in progress.
 - 2. Site security and/or containment worker supervisor shall have a readily accessible "kill switch" to de-energize the electrical power to all negative air fan units.
 - 3. The smoke and heat detector(s) shall be approved by but not limited to Underwriters Laboratory (UL), National Electrical Codes (NEC), or Federal Mutal (FM).
 - 4. The factory installed smoke and heat detector(s) shall be an integral ancillary component of the fan unit(s) used by the asbestos abatement Contractor.
 - 5. In the case of fan unit(s) that do not have factory installed smoke and heat detectors, the Contractor shall need to follow the manufacturer's recommends to the use and location of their product(s).
 - a. The recommendations shall also adhere to current industry, local, state, and federal regulations.
 - b. The Contractor will obtain prior approval from the IH before locating and installing the smoke and heat detectors.
 - 6. The smoke and heat detector(s) shall be "hard wired" and/or battery powered as per manufacturer requirements. If the smoke and heat detector(s) are "hard wired" by the Contractor, the wiring will be perform by a licensed electrician and all electrical work will conform to current NEC codes.
- F. Fan Unit Electrical Components:

1. The fan unit's electrical components shall be approved by but not limited to the National Electrical Manufacturers Association (NEMA) and Underwriter's Laboratories (UL) requirements.
2. Each fan unit shall be equipped with factory installed overload protection sized for the respective electrical components. The fan electric motor shall be equipped with factory installed manual reset thermal overload protection. Automatic reset thermal overload shall not be permitted unless current local, state, or federal regulations allow the use of this type of reset under specific work site conditions.
3. Fan unit components including but not limited to the electric motor, fan, fan housing, and cabinet shall be grounded in accordance with current National Electrical Codes (NEC) and National Electrical Manufacturers Association (NEMA) standards.

4.01 Auxiliary Generator(s):

If the availability of electrical power is insufficient and/or unreliable at any of the building project sites, the asbestos abatement Contractor shall provide auxiliary generator(s) to operate, as a minimum, the negative air fan unit(s) and any other ancillary equipment related to asbestos abatement activities. The Contractor may use other alternate sources of electrical power with prior approval from the Project Manager and/or IH.

- A. Auxiliary Generator(s): Provide generator(s) with the capacity to power all the required HEPA filtered fan unit(s) and any other ancillary equipment related to asbestos abatement activities. The generator(s) shall be of the self-starting type or manually start type depending on the project site conditions. The starting method shall be reviewed and approved by the Project Manager prior to operating any generator(s).
- B. Power Outages: In buildings where power outages are possible, the Contractor shall connect auxiliary generator output power to the building's existing power panel(s) or provide other electrical power routes that conform to current industry standards and/or current NEC requirements.
 1. State-of-the-art solid state automatic power switching shall be provided to start the operation of auxiliary generator(s). State-of-the-art solid state automatic switch-over components shall provided the transfer of electrical power generated from the auxiliary generator(s), at a switch-over rate as recommended by the generator manufacturer, to the HEPA filtered fan unit(s) and/or any other ancillary equipment being used in abatement activities.
 2. There shall be no electrical conflicts between the switch-over and "kill switch" electrical circuits of auxiliary generator(s).
- C. Location of Auxiliary Generator(s):
 1. Provide auxiliary generator(s) outside of the building in a location protected from the weather and/or as recommended by the manufacturer.
 2. The asbestos abatement Contractor will ensure that the location of the auxiliary generator(s) will not create a fire and/or safety hazard to the workers and any structures in the vicinity or in the structure where asbestos abatement activities are occurring. Any fire damage or injury costs related to the use and location of the auxiliary generator(s) will be at the Contractors own expense.

END OF SECTION

SECTION 01527 WORK AREA PROTECTION

NOTE: All polyethylene sheeting used on this project shall follow requirements of SECTION 01632 Products and Substitutions Item 1.01 B.

- 1.01 Preparation of Work Areas for Full Containment Procedures
- A. Post warning signs meeting the specifications of OSHA 29 CFR 1926.1101 at any location and approaches to a location where airborne concentrations of asbestos may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from the work area to permit an employee to read the sign and take the necessary protective measures to avoid exposure. Additional signs may need to be posted following construction of workplace enclosure barriers. Contractor shall post warning signs in both English and Spanish.
 - B. Shut down and lock out electric power to all work areas. Provide temporary power and lighting. Ensure safe installation (including ground faulting) to temporary power sources and equipment by compliance with all applicable electrical code requirements and OSHA requirements for temporary electrical systems.
 - C. Shut down and lock out all heating, cooling and air conditioning system (HVAC) components that are in, supply, or pass through the work area. (Note: Interiors of existing duct work may require decontamination. This may be done during the pre-cleaning phase of operations before the duct work is sealed off or during the final cleaning phase prior to re-engagement of the system. Appropriate equipment and control measures shall be utilized to prevent contamination of building spaces during this operation. Adequate cleaning of duct work may sometimes be accomplished by drawing high volumes of air through the system using the HEPA filtered air filtration units.) Investigate the work area and agree on pre-abatement condition with IH. Seal all intake and exhaust vents in the work area with tape and 6-mil polyethylene. Also seal any seams in system components that pass through the work area. Remove all HVAC system filters and place in labeled 6-mil polyethylene bags for staging and eventual disposal as asbestos contaminated waste.
 - D. The Contractor shall provide sanitary facilities for abatement personnel outside of the enclosed work area maintain them in a clean and sanitary condition throughout the project.
 - E. The Owner will provide water for construction purposes. Contractor shall connect to existing Owner system.
 - F. Pre-clean all movable objects within the work area using a HEPA filtered vacuum and/or wet cleaning methods as appropriate. After cleaning, these objects shall be removed from the work area and carefully stored in an uncontaminated location. **(Carpeting found in certain rooms can be disposed of as construction debris)**. This shall be done with strict coordination with owners representative the IH. The IH has authority to require disposal of any carpet as ACM waste if it is found to be contaminated with ACM.
 - G. Pre-clean all fixed objects in the work area using HEPA filtered vacuums and/or wet cleaning techniques as appropriate. Careful attention must be paid to machinery behind grills or gratings where access may be difficult but contamination significant. Also pay particular attention to wall, floor and ceiling penetrations behind fixed items. After pre-cleaning, enclose fixed objects in 6 mil polyethylene sheeting and seal securely in place with tape. Objects (e.g. permanent fixtures, shelves, electronic equipment, laboratory tables, sprinklers, alarm systems, closed circuit TV equipment and computer cables) which must remain in the work area and that require special ventilation or enclosure requirements should be designated here along with specified means of protection. (Contact the manufacturer for special protection requirements). Control panels, gauges etc. in the work area may require Owner access during abatement. These shall be designated and enclosures constructed with access flaps sealed with waterproof tape.
 - H. Pre-clean all surfaces in the work area using HEPA filtered vacuums and/or wet cleaning methods as appropriate. Do not use any methods that would raise dust such as dry sweeping or vacuuming with equipment not equipped with HEPA filters. Do not disturb asbestos containing materials during the pre-cleaning phase.

- I. Seal off all windows, doorways elevator openings, corridor entrances, drains, ducts, grills, grates, diffusers, skylights and any other openings between the work area and uncontaminated areas outside of the work area (including the outside of the building, tunnels and crawl spaces) with 6 mil polyethylene sheeting and tape.
- J. Cover floors in the work area with polyethylene sheeting.
- K. Floor shall be covered with two layers of 6 mil (minimum) sheeting. Carpeting, hardwood flooring and tile floors may be damaged by leaks of water, ladder feet, scaffold wheels etc. Additional layers of protection such as plywood, canvas drop cloths or extra plastic sheeting may be required by the Owner and may be specified in the pre-bid walk thru.) Additional layers of sheeting may be utilized as drop cloths to aid in cleanup of bulk materials.
- L. Plastic shall be sized to minimize seams. If the floor area necessitates seams, those on successive layers of sheeting shall be staggered to reduce the potential for water to penetrate to the flooring material. A distance of at least 6 feet between seams is sufficient. Do not locate any seams at wall/floor joints.
- M. Floor sheeting shall extend at least 12" up the sidewalls of the work area.
- N. Sheeting shall be installed in a fashion so as to prevent slippage between successive layers of material. (Vinyl sheeting may be used for improved traction on floors.)
- O. Cover walls in the work area with polyethylene sheeting. Walls with mortar joints (i.e. tile) are considered porous. In addition, openings through these walls to uncontaminated areas of the building must be sealed.
- P. Walls shall be covered with two layers of 4 mil polyethylene sheeting.
- Q. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least 6 feet.
- R. Wall sheeting shall overlap floor sheeting by at least 12 inches beyond the wall/floor joint to provide a better seal against water damage and for air filtration pressure.
- S. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This will require additional support/attachment when air filtration systems are utilized.
- 20. Install ventilation system, decontamination unit in accordance with Sections 01513 AIR FILTRATION SYSTEM and 01563 DECONTAMINATION UNITS, respectfully.

- 1.02 Preparation of Work Areas for ACM Material Removal (This prep method shall only be used when manual methods (no mechanical equipment) are used for abatement.)
- A. Post warning signs meeting the specifications of OSHA 29 CFR 1926.1101 at any location and approaches to a location where airborne concentrations of asbestos may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from the work area to permit an employee to read the sign and take the necessary protective measures to avoid exposure. Additional signs may need to be posted following construction of workplace enclosure barriers. Contractor shall post warning signs in both English and Spanish.
 - B. Shut down and lock out electric power to all work areas. Provide temporary power and lighting. Ensure safe installation (including ground faulting) to temporary power sources and equipment by compliance with all applicable electrical code requirements and OSHA requirements for temporary electrical systems.
 - C. Shut down and lock out all heating, cooling and air conditioning system (HVAC) components that are in, supply, or pass through the work area. (Note: Interiors of existing duct work may require decontamination. This may be done during the pre-cleaning phase of operations before the duct work is sealed off or during the final cleaning phase prior to re-engagement of the system. Appropriate equipment and control measures shall be utilized to prevent contamination of building spaces during this operation. Adequate cleaning of duct work may sometimes be accomplished by drawing high volumes of air through the system using the HEPA filtered air filtration units.) Investigate the work area and agree on pre-abatement condition with IH. Seal all intake and exhaust vents in the work area with tape and 6 mil (0.152mm) polyethylene. Also seal any seams in system components that pass through the work area. Remove all HVAC system filters and place in labeled 6 mil (0.152mm) polyethylene bags for staging and eventual disposal as asbestos contaminated waste.

- D. RESERVED.
 - E. RESERVED
 - F. Pre-clean all movable objects within the work area using a HEPA filtered vacuum and/or wet cleaning methods as appropriate. After cleaning, these objects shall be removed from the work area and carefully stored in an uncontaminated location. This shall be done with strict coordination with IH.
 - G. Pre-clean all fixed objects in the work area using HEPA filtered vacuums and/or wet cleaning techniques as appropriate. Careful attention must be paid to machinery behind grills or gratings where access may be difficult but contamination significant. Also pay particular attention to wall, floor and ceiling penetrations behind fixed items. After pre-cleaning, enclose fixed objects in 6 mil (0.152mm) polyethylene sheeting and seal securely in place with tape. Objects (e.g. permanent fixtures, shelves, electronic equipment, laboratory tables, sprinklers, alarm systems, closed circuit TV equipment and computer cables) which must remain in the work area and that require special ventilation or enclosure requirements should be designated here along with specified means of protection. Control panels, gauges etc. in the work area may require Owner access during abatement. These shall be designated and enclosures constructed with access flaps sealed with waterproof tape.
 - H. Pre-clean all surfaces in the work area using HEPA filtered vacuums and/or wet cleaning methods as appropriate. Do not use any methods that would raise dust such as dry sweeping or vacuuming with equipment not equipped with HEPA filters. Do not disturb asbestos containing materials during the pre-cleaning phase.
 - I. Seal off all windows, doorways elevator openings, corridor entrances, drains, ducts, grills, grates, diffusers, skylights and any other openings between the work area and uncontaminated areas outside of the work area (including the outside of the building, tunnels and crawl spaces) with 6 mil (0.152mm) polyethylene sheeting and tape.
 - J. Contractor shall install a splash guard made of **a layer of 6 mil (0.152mm) polyethylene sheeting**. This splash guard shall be from ceiling to floor. Walls with mortar joints (i.e. tile) are considered porous. In addition, openings through these walls to uncontaminated areas of the building must be sealed. **Take precautions to prevent leakage through the floor cracks and openings.**
 - K. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least 6 ft. (1.83m).
 - L. Wall sheeting shall overlap floor sheeting by at least 12" (30.48cm) beyond the wall/floor base joint. This is to provide a better seal against water damage and for air filtration pressure.
 - M. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This will require additional support/attachment when air filtration systems are utilized.
14. Install ventilation system, decontamination unit in accordance with Sections 01513 AIR FILTRATION SYSTEM and 01563 DECONTAMINATION UNITS, respectfully.

1.03 Fire Protection

- A. General Requirements:
 1. The Contractor shall employ his supervisor or a designated safety control officer to provide training to the workers of the proper use of fire extinguishers, implementation of Fire Safety Program and proper evacuation of the containment area.
 2. Training shall meet the minimum requirements of OSHA 1926.150(a)(5).
 3. All fire protection equipment shall be in place before any preparation or removal of asbestos will be allowed. Such equipment shall be clearly identified with an appropriate sign.
 4. All combustible rubbish, including bagged asbestos, shall be removed from the containment on a daily basis. Absolutely no bulk debris shall be allowed to remain in the containment over night.
 5. During demolition or alterations, existing sprinkler installations shall be retained in service as long as reasonable.

6. Contractor shall provide a safe means of egress from fire and like emergencies.
- B. Work Area:
1. Polyethylene plastic that is used on this project shall be limited to certified fire retardant brands. MSDSs shall be maintained on the site for the inspection of the building owner to prove the presence of polyethylene plastic.
 - (a.) Polyethylene plastic sheets shall be of 6 mil (0.152mm) thickness.
 - (b.) The polyethylene plastic material shall have a tear resistance of no less than M.D. 512 grams and T.D. of 2,068 grams.
 - (c.) The polyethylene plastic material shall have dart impact of no less than 297 rams as measured using ATSM methods D1709, D1922, and D882.
 2. Smoke/heat detectors shall be adequately spaced about the containment/work area. A minimum of one per 1000 square feet of floor space is required. One shall be placed 15 feet from the decontamination station.
 3. Contractor shall provide a 4A/60BC chemical extinguishers for every 1000 square feet, or fraction thereof in the containment area. All Workers shall be within a maximum of 100 feet travel distance of a fire extinguisher.
 4. All air filtration units shall be able to be switched off from a single switch located at the control center. In the event that a fire starts or a smoke/heat detector is activated, the air filtration units shall be immediately switched off. The machines shall remain in the off mode until such time as it has been verified that a fire does not truly exist.
 5. Contractor shall provide a minimum of two 4A/60BC chemical extinguishers for every 1000 ft²(93m²) or fraction thereof in the containment area (SCAI policy). All Workers shall be within a maximum of 100 feet(30.5m) travel distance of a fire extinguisher.
- C. Cleanroom/Decontamination Unit:
1. A smoke/heat detector shall be located in the cleanroom area. Also, a 4A/60BC chemical extinguishers shall be located at either end of the decontamination unit.
- D. Viewing Inspection Window
1. Where feasible, a minimum of one clear 1/8 inch thick acrylic sheet measuring approximately 18" x 24" may be installed by the Contractor as a viewing inspection window at eye level on a wall in each containment enclosure.
 2. All such windows shall be sealed leak-tight with industrial grade duct tape.

END OF THIS SECTION

SECTION 01528 ENTRY INTO CONTROLLED AREAS**1.01 Entry and Exit of Work Area**

- A. **General Requirements:** Unless otherwise indicated (such as contract drawing, emergency evaluation, and these specifications) entry and exiting of the work area shall be through the "Worker and Equipment Enclosure" or an "Airlock".
- B. **Entry and Exit through "Worker and Equipment Enclosure":**
- C. **Entering the Work Area:** Each worker and/or authorized visitor shall enter the clean room, remove street cloths, put on a clean approved respirator and protective clothing (and disposable footwear if used). From this point, workers and visitors shall not eat, drink, smoke, chew gum or tobacco while in the work area. Respirator shall be tested for proper fit and operation. Then proceed through shower room to the equipment room. At the discretion of the IH smoke testing of respirator shall be performed on all personnel donning respirators.
- D. In the Equipment Room any tools, equipment, etc. needed shall be picked up here. Non-Disposable footwear (if used) shall be put on then proceed to work area.
- E. **Exiting the Work Area:** Prior to entering the equipment room, worker and/or authorized visitor shall brush off any gross contamination. Use the buddy system, by having a second visually check clothing for contamination.
- F. In the equipment room, any tools, equipment, etc. shall be stored, all clothing except respirator shall be removed. Undergarments requiring laundering shall be stored and handled as required by OSHA Regulations, 29 CFR 1926.1101, disposable type clothing shall be placed in a disposable container(plastic bag). Non-disposable footwear (if used) shall be removed and stored. Still wearing respirator, proceed naked to showers.
- G. Still wearing respirator, while showering wash and soak filters; remove respirator and continue to wash respirator with soap and water. Then proceed to wash body and hair with soap and shampoo. Then drying off and proceed to clean room.
- H. In the clean room, worker and/or visitor dresses in street clothes or clean coveralls. Coveralls worn outside (outside the clean room of the enclosure) shall be of a different color or marked and easily identified from those worn in the work area.
- I. Before re-entering the work area from the clean room, each worker and/or authorized visitor shall put on a clean respirator and dress in clean protective clothing follow the above procedures.
- J. In the airlock (vestibule), remove protective clothing (still wearing respirator) and place into a disposable bag. The exterior of the respirator shall then be wiped with a damp rag (or disposable towel) which is placed in the disposable bag, bag shall then be sealed and left in the vestibule with respirator on, proceeds out of the airlock.
- K. Once outside the airlock, respirator shall be removed, respirator cartridges removed and disposed of as asbestos contaminated waste. Respirator shall then be washed, new cartridges installed and placed in a storage container.

END OF THIS SECTION

Section 01560 RESPIRATORY PROTECTION

1.01 Respiratory Protection

- A. Respiratory protection shall be provided to workers in conjunction with a Respiratory Protection Program which shall meet the requirements of 29 CFR 1910.134. **This program shall be posted at the work site and shall meet the new April 1998 version of OSHA 1910.134 which requires the program to be work site specific.** Respirators shall be personally issued, fitted and marked. All workers shall be familiar with the contents of the respiratory program.
- B. Contractor shall provide documentary evidence that all personnel required to wear respiratory protection have been trained in accordance with 29 CFR 1910.134., 1910.1001 and 1926.1101.
- C. Provide workers with clean and properly maintained respiratory equipment approved by NIOSH/MSHA positive pressure respirators, whenever the fiber exposure level in the work area exceeds 0.1 fiber/cc. If personal and area fiber levels are below 0.1 fibers/cc, air purifying respirators equipped with HEPA filters may be employed. When employed, the Contractor shall provide a sufficient quantity of filters during the work day. The respirator filters shall be stored at the job site in the change room and shall be totally protected from exposure to asbestos prior to their use.
 - 1. Irrespective of fiber concentrations either above or below 0.1 fibers/cc, respirators called for in the specifications shall be used.
- D. Air purifying respirators (half-mask or full face piece only) with high efficiency particulate (HEPA) filters shall be used during all pre-abatement activities, and when removing waste outside the containment to disposal storage, and when loading and unloading the covered waste disposal storage facility.
- E. Powered air purifying respirators (PAPR)(full-face piece only with HEPA filter) shall be used during all asbestos removal of friable material as a minimum. The Contractor shall provide sufficient number of batteries for each PAPR to ensure each is operational.
- O. Whenever floor tile mastic is going to be removed the contractor shall provide dual HEPA/Organic Chemical filter cartridges.
- G. It is the Contractor's responsibility to provide adequate respiratory protection for any foreseeable contingency.
- H. When Type C respirators are employed, the air supply system shall provide grade "D" or better breathing air in accordance with OSHA 29 CFR 1910.34 and ANSI Z862.1 Commodity Specification for Air.
- I. The air shall be tested by the Contractor to verify that certain criteria established by the Compressed Gas Association, Inc., has been met or exceeded. The Contractor must provide a written copy of the analytical test results prior to using system. The Contractor shall be responsible for all fees associated with these tests. All tests will be performed at the job site and in the presence of the Owners representative.
- J. For bottled air filled with compressed air, or manufactured air Contractor shall follow the same test as above. For bottled air the Contractor must provide a certificate from the supplier stating the air is grade "D" or better.
- K. It is the Contractor's responsibility to provide adequate respiratory protection for any foreseeable contingency.
- L. Anytime the compressor or the Grade D Panel is moved, the Contractor shall perform a new Grade D air Test as stated in G and H. above.
- M. The Carbon Monoxide (CO) calibration of the panel shall be done and recorded in the log book daily

END OF THIS SECTION

Section 01562 PERSONNEL PROTECTION**1.01 Personnel Protection:**

- A. **General Requirements:** The Contractor shall provide all personnel training, equipment, materials, services and liability insurance required to perform the work in accordance with applicable Federal, State and Local regulations and this specification.
- B. **Prior to commencement of work (certification required):**
 - 1. Workers shall be instructed, and shall be knowledgeable of the Asbestos Removal Procedures to be used in this project. In addition to the instruction, an on-site training in the use of equipment and facilities unique to the job site shall be performed, to include emergency procedures, such as equipment to power failures, fire, evacuation, etc.

1.02 Worker Protection

- A. Provide workers with sufficient sets of protective full-body clothing. Such clothing shall consist of full-body coveralls and respirator. Provide eye protection and hard hats as required by applicable safety regulations. Non-disposable type protective clothing and footwear shall be left in the contaminated equipment room until the end of the abatement work, at which time such items shall be disposed of as asbestos waste, or shall be thoroughly cleaned of all asbestos containing waste. Disposable type clothing, and footwear may be used and shall be disposed of as asbestos waste. Bare feet will not be permitted.
- B. Provide authorized visitors, IH, owners representative or visitors with suitable protective clothing, respirator, headgear, eye protection and footwear, as described in paragraph A. above, whenever they are required to enter the work area.
- C. Each worker shall, upon entering the job site: Remove street clothes in the clean change room, put on a respirator and clean protective clothing before entering the equipment room or work area, the exception shall be that workers intending to reuse contaminated protective shall enter equipment room wearing respirators.
- D. Each time the worker leaves the work area: the worker shall remove gross contamination from clothing before leaving the work area; proceed to the equipment room and remove all clothing except respirators; Still wearing the respirator, proceed to the shower; clean the outside of the respirator with soap and water while showering; remove the respirator; thoroughly shampoo and wash themselves, remove filters (where required) and place them in the container provided for the purpose; and wash and rinse the inside of respirator.
 - 1. Contractor is responsible for providing soap, shampoo, clean and dry towels daily to employees and visitors.
- E. After showering, each worker shall proceed directly to the clean change room and dress in clean clothes at the end of each day's work, or before eating, smoking or drinking. Before re-entering the work area from the clean change room, each worker and authorized visitor shall put on a clean respirator with filters (where required) and shall dress in clean protective clothing, the exception shall be that workers intending to reuse contaminated protective clothing stored in the equipment room shall enter the equipment room wearing respirators.
- F. Asbestos contaminated footwear shall be stored in the equipment room when not in use in the work area. Upon completion of abatement, dispose of footwear as asbestos contaminated waste or clean thoroughly inside and out using soap and water before removing from work area or from equipment and access area. Store asbestos contaminated protective clothing in the equipment room for reuse or place in receptacles for disposal with other asbestos contaminated materials.
- G. Workers shall not eat, drink, apply cosmetics, smoke or chew gum or tobacco, or utilize sanitary toilet facilities at the work site except in established locations outside the work and containment areas, and enclosures.
- H. Workers shall be fully protected with respirators and protective clothing immediately prior to the first disturbances of asbestos-containing or asbestos contaminated waste materials and

until final clean-up is completed. This includes removal of fixtures, ceilings, or anything else which may disturb the ACM.

- I. Provide and post, in the Equipment Room and Clean Room, the decontamination and work procedures to be followed by workers.

END OF THIS SECTION

SECTION 01563 DECONTAMINATION UNITS

1.01 Enclosures:

- A. **General Requirements:** Several types of enclosures are used, one for worker and equipment entry and exit of the work area, a second as a holding area for waste storage and load-out area, and a third as a separation between the work area and the non-work area. Enclosure types required for this project shall be governed by special instructions on this specification.
- B. Enclosures can be portable pre-fabricated units or site fabricated units. Contractor shall submit for approval the type of enclosures to be used for this project. The submittal shall be submitted in conjunction with Section REMOVALS (GENERAL) of this specification and included, but not be limited to the following:
 - 1. Floor Plan layout with dimensions showing all components.
 - 2. Material list with sizes and thickness.
 - 3. Plumbing layout showing shower(s), piping, drains, filtration systems(s) and water heater (if used).
 - 4. Electrical (if used) a layout showing lighting and/or outlets.
 - 5. Photographs may be submitted in conjunction with the above items.
- C. The minimum width of any way of exit access shall in no case be less than 28 inches. Where a single way of exit access leads to an exit, its capacity in terms of width shall be at least equal to the required capacity of the exit to which it leads. Where more than one way of exit access leads to an exit, each shall have a width adequate for the number of persons if must accommodate.
- D. **Worker and Equipment Enclosure:** Shall consist of 3 (three) compartments (clean room, shower room and equipment room) separated by airlocks. The envelope of the enclosure shall be leak free.
- E. **Clean Room:** This room shall be provided with a locker or container for each worker's street clothing, respirators, respirator cartridges, clean work clothing, towels, and personnel supplies. Joint use of this space for other functions, such as office, storage of equipment, materials or tools, shall be prohibited.
- F. **Shower Room:** This room shall have adequate number of showers, soap, shampoo & containers (plastic bags) for respirator cartridges. Shower(s) shall be piped with hot & cold or warm water. Room is to be free of leaks. Under no circumstance shall the shower room be used for cleaning equipment.
- G. **Equipment Room:** This room shall be used for storage of equipment such as ladders, vacuums, scraping tools, non-disposable footwear, hardhats, goggles and any additional contaminated work items. This room shall be provided with receptacles, such as plastic bags or approved containers, for the use of disposable coveralls (if used) and contaminated waste before exiting to the shower. The room may also be provided with a wash area for equipment.
- H. This area shall be cleaned daily (several times a day is recommended) to prevent asbestos debris from being tracked into the shower area.
- I. **Airlocks:** Airlock curtain (door) shall be formed by two (2) overlapping sheets of plastic (6 mil, minimum) the full height and width of the passageway, each sheet being attached at the ceiling and one side. Each sheet is to be attached on opposite sides of the passageway. The sets of curtains (overlapping sheets) are required, one at each end of a space forming a vestibule, dead space. The space (vestibule) shall be two (2) feet in length by the width of passageway for enclosures and four (4) to six (6) feet in length by width of passageway for other location requiring airlocks.
- J. **Filtration System:** The shower drain and equipment room drain (if any) shall be connected to a filtration system before being discharged to the sanitary sewer. Filters shall be arranged in parallel banks with 100 micron pre-filters feeding 1 micron final filters. Replaced filters shall be treated as contaminated waste and disposed of properly.
- K. **Holding Area (Waste Storage and Load-Out):** Shall consist of at least 1 (one) compartment with an air lock between the compartment and the intended disposal vehicle. The envelope of the compartment and air-lock shall be leak free. Passage between compartment and work

- area shall have two sheets of plastic overlapping each other.
- L. Separation(s) shall be constructed as follows:
1. Framing of suitable materials such as 2 x 4 wood or metal studs shall be erected between floor with a bottom plate and ceiling with a top plate for distance. Support as required.
 2. Cover both sides with double layer of plastic sheeting (6 mil) with joints staggered and sealed with tape.
 3. Seal all edges of separation at floor, walls, and ceiling with caulking to be airtight.
- M. Maintenance of enclosure systems shall be by the Contractor.

END OF THIS SECTION

SECTION 01632 PRODUCTS AND SUBSTITUTIONS**1.01 Materials:**

- A. **General Requirements:** Materials shall conform to the following:
1. All material shall be delivered to the job site in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name.
 2. Store all materials subject to damage off the ground, away from wet or damp surfaces, under cover sufficient to prevent damage or contamination.
 3. Damaged or deteriorating materials shall not be used and shall be removed from the premises and properly disposed of.
 4. All material not in original containers will be reviewed by IH.
- B. Polyethylene plastic that is used on this project shall be limited to certified fire retardant brands. MSDSs shall be maintained on the site for the inspection of the building owner to prove the presence of this type of poly. Plastic (polyethylene) sheets shall be six mil thickness with a tear resistance of no less than M.D. 512 grams, T.D. of 2,068 grams, and a dart impact of no less than 297 rams as measured using ATSM methods D1709, D1922, and D882. Submit a sample of each thickness intended to be used.
- C. **Tape:** Capable of sealing joints of adjacent sheets of plastic sheets and for attachment of plastic sheet to finished or unfinished surfaces or dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water. Submit a sample of each type to be used.
- D. **Surfactant (Wetting Agent):** Shall consist of 50 percent polyoxyethylene ether and 50 percent of polyoxyethylene polyglycol ether, or equivalent, and shall be mixed with water to provide a concentration of one ounce surfactant to five gallons of water.
- E. **Impermeable Containers** shall be suitable to receive and retain any asbestos-containing or contaminated materials until disposed of. Containers must be both airtight and watertight. The containers shall be labeled in accordance with OSHA Regulations 29 CFR 1926.1101. The container shall be of six mil plastic bag (submit sample), or plastic lined drum (submit brochure), etc. Submittal required for each type intended to be used in this delivery order.
- F. The **Glovebag** shall consist of a 6-12 mil bag equipped with long-sleeve gloves, a tool pouch, and side port opening used for water and vacuum application. The glovebag with a zipper arrangement is preferable but not mandatory.
- G. **Warning Labels:** Container shall have the following notation in accordance with Applicable Laws 29 CFR 1926.1101.

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

- H. **Encapsulant:** A sealant specifically designed to be used after the removal of asbestos to capture any fibers which may be left on surfaces in accordance with requirements of the U.S. Environmental Protection Agency (EPA).
- I. **Warning Signs:** Signs shall have the following notation in accordance with Applied Laws:

**DANGER
ASBESTOS
CANCER AND LUNG DISEASE
HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA**

- J. **Other Materials** - provide all other materials as specified in drawings; also, other materials

such as lumber, nails, and hardware, which may be required to construct and dismantle the decontamination area and the barriers that isolate the work area.

1.02 Equipment:

- A. Local exhaust ventilation systems shall be designed, constructed, installed, and maintained in accordance with the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI 29.2-79. See Section 01513.
 - 1. Air Filtration Equipment : Shall be portable and equipped with a high efficiency particulate absolute (HEPA) Filtration systems in compliance with ANSI 29.2-79.
- B. Vacuum equipment: Shall be portable and equipped with High Efficiency Particulate Absolute (HEPA) filters.
- C. Respirator Equipment:
 - 1. Respirators shall be selected from among those approved by the Bureau of Mines, Department of the Interior, or the National Institute for Occupational Safety and Health Department, of Health, Education and Welfare, under the provisions of 30 CFR Part II and shall be used in accordance with Applied Laws 29 CFR 1910.1001.

END OF THIS SECTION



SECTION 01701 PROJECT CLOSEOUT**1.01 Re-establishment of the Work Area and Systems:**

- A. Re-establishment of the work area shall only occur following the completion of clean-up procedures and after IH has declared area clean.
- B. Contractor, Owner and IH shall visually inspect the site for any damage or discrepancies. Owner or IH shall generate a punch list for Contractor to repair.
- C. Any damage or discrepancies shall be repaired by Contractor at his expense and reasonable fees may be retained by Owner till such time as discrepancies are repaired.
- D. Re-secure mounted objects removed from their former position during preparation activities.
- E. Remove contaminated HVAC system filters and dispose of as asbestos contaminated waste. Install new filters in HVAC systems.
- F. Final payment will be dependent on Owner receiving executed waste disposal certificates, all Contractor documents and Release of Material and Labor liens (AIA G706).

END OF THIS SECTION



SECTION 01712 CLEANING AND DECONTAMINATION PROCEDURES

1.01 Clean-up Procedures:

1. Asbestos

NOTE: The clean up procedures can be started by the Contractor whenever his supervisor and the Industrial Hygienist inspect and approve the asbestos abatement areas. The encapsulation shall not be done until the contractor is given approval by the Industrial Hygienist on site.

- A. Remove and containerize all visible accumulations of asbestos containing material and asbestos contaminated debris. Do not use metal shovels to pick up or move accumulated waste. Special care shall be taken to minimize damage to floor sheeting. All equipment not required on the project shall be decontaminated and removed from the area. All ACM disposal bags shall be removed from the containment prior to receiving approval for encapsulation or lockdown.
- B. Wet clean all surfaces in the work area using rags, mops and sponges as appropriate. (Note: Some HEPA vacuums may not be wet-dry vacuums. To pick up excess water and gross wet debris, a wet-dry shop vacuum may be used. This will be contaminated and require cleaning prior to removal from the work area).
- C. Visually inspect all areas where asbestos removal has taken place. Any dust, debris or residue in the containment area shall be considered to be contaminated and shall be treated as asbestos. The area inspection shall be accomplished using good Industrial Hygiene practices and ASTM E-1368-90, AHERA 40 CFR 763 and all applicable asbestos regulations concerning clearance and testing.
- D. The Contractor shall provide the Industrial Hygienist with all proper lighting, ladders, or scaffolding and any necessary tools to perform the clearance inspection.
- E. The Industrial Hygienist (IH) shall ensure that a thorough job of removal and clean up has been conducted. The IH has the right to terminate his inspection and re-direct further cleanup of the whole area if upon discovery of incomplete removal or discovery of debris.
- F. Upon **written approval** by the Industrial Hygienist in the Contractors logbook, encapsulation or lockdown shall be done on all surfaces including all poly. If the inspection fails, Contractor shall re-clean using all the above mentioned steps.
- G. When encapsulation or lockdown has been applied the Contractor shall wait for a drying period of not less than six (6) hours or at the discretion of the on-site Industrial Hygienist.
- H. When encapsulation has dried, the Contractor shall remove outer layer of one layer of poly and properly dispose of it. Contractor shall request that the IH perform another visual inspection.
- I. Following the satisfactory removal of all poly, another inspection shall be performed by the on-site Industrial Hygienist (IH). If any debris is found, the IH shall instruct the Contractor to re-clean the entire area. If the area is clean the IH shall begin with his first step of pre-clearance testing. (See section 01714) Clearance Testing).
- L. Upon achieving the clearance criteria for final clearance the Contractor can begin to remove all critical barriers, air filtration machines and begin his demobilization process.

END OF THIS SECTION

SECTION 01714 WORK AREA CLEARANCE**1.01 Clearance/Final Air Monitoring:**

- A. Following the completion of clean-up operations, the Contractor shall notify the Building Owner's representative that work areas are ready for clearance air monitoring.
- B. The Owner shall then arrange for an Industrial Hygienist to sample the air in the work area for airborne fiber concentrations.
- C. The air sampling shall otherwise be conducted using sampling pumps calibrated at a flow rate of at not more than 10 liters per minute using collection media and procedures in accordance with NIOSH Analytical Method 7400. Air volumes shall be sufficient to provide reliable results down to a concentration of .005 fibers per cubic centimeter of air (f/cc) or lower. (Volume requirements for electron microscope methods should be in accordance to 40 CFR 763 AHERA the analytical laboratory).
- D. The number of samples that are required and the specific locations where they shall be taken should be established by the Industrial Hygienist.
- E. Aggressive sampling shall be performed with use of 1 horse power leaf blower or portable fans circulating air in the work area to simulate actual use conditions. The number of fans necessary for circulating air shall be determined by the IH. Air filtration ventilation units shall not be utilized for this purpose but must remain on at all times until clearance has been achieved.
- F. All samples at all locations shall indicate concentrations of airborne fibers less then <0.005 f/cc for release of the work area.
- G. The final clearance shall be a two step process, a pre-final and a final-final set of air samples.
 - 1. Pre-final samples shall be taken when the IH on site declares area is ready for final testing. The process for this testing shall be with one layer of poly containment, decon-station, and air filtration system still in place. When samples are analyzed and all samples are found to be <0.01 f/cc (using NISOH 7400 PCM method) then contractor shall proceed to step 2 (final-final testing).
 - 2. Containment poly shall be removed, but decon-station, air filtration system, and critical barriers shall remain in place and air tight. IH shall take TEM air samples in the area and when TEM air samples are analyzed and found to be less than 70 S/mm², IH may declare area clean and response action complete.
- H. When Contractor fails to achieve clean air in any of the above said clearance sampling methods, Contractor shall reclean area till samples achieve standards set forth above. Any and all cost arising from this extra cleaning shall be the responsibility of the Contractor.

END OF THIS SECTION

SECTION 01716 DISPOSAL PROCEDURES**1.01 Disposal Procedures**

- A. On a daily basis or at the discretion of the IH, Contractor shall remove ACM waste from containment. Contractor shall not allow excess debris to accumulate on the floor of the containment, IH has the right to stop work and direct clean-up.
- B. Contractor shall dispose of ACM at an EPA authorized site in accordance with regulations requirements of NESHAPS and applicable State and Local asbestos laws.
- C. Contractor shall obtain permission to dump at an approved EPA landfill and submit to IH the approval form or letter from landfill.
- D. Contractor shall fill out Waste Manifest and must be signed by Owner or IH prior to departure from the project site. Under no circumstances shall the contractor store any asbestos material from this project at his shop or any other project. Contractor shall depart from the project site directly to the landfill.
- E. All dump receipts, trip tickets, and manifests must be submitted within 48 hours of dumping, unless Contractor has made other written agreement with IH.
- F. Transportation of ACM waste shall be done by a EPA **registered** hauler or equivalent. Truck drivers shall be knowledgeable of responding to ACM spill. Hauler must be approved by IH.
- G. All double bagged ACM shall be placed inside sealed drums, covered carts or approved safety containers prior to being removed from building. Approved safety containers shall be:
 - 1. **DOT** approved steel drums.
 - 2. Cardboard type drums with sealable tops. No boxes shall be used.
 - 3. Waste trash cans both plastic and steel may be used, provided they have a sealable cover.
- H. Approved containers shall be moved by use of buddy system, hand trucks, or carts.
- I. Truck cargo or container used to transport ACM waste shall be lined with one layer of six mil poly to prevent contamination and spillage.
- J. Truck cargo or container shall have appropriate warning labels and shall be locked to prevent entry by unauthorized personnel.
- K. Personnel loading asbestos containing waste shall be protected by disposable clothing including head, body and foot protection and at a minimum, half-facepiece, air-purifying, dual cartridge respirators equipped with high efficiency filters.
- L. Loading of any vehicle shall be closely monitored to avoid overloading vehicle capacity. Contractor shall ensure proper load bearing distribution of ACM waste.
- M. Contractor shall have a spill plan in effect for spills that may occur in transportation or unloading. Any bag found to be broken at landfill shall be rebagged and area of contamination shall be cleaned up immediately.
- N. Waste containers shall be placed on the ground at the disposal site. Contractor shall ensure that bags are not pushed or thrown out of the transport vehicle.
- O. Personnel off-loading containers at the disposal site shall wear protective equipment consisting of disposable head, body and foot protection and, at a minimum, half-facepiece, air-purifying, dual cartridge respirators equipped with high efficiency filters.
- P. Upon completion of un-loading vehicle the poly used to protect the vehicle shall be discarded with the waste. Any spillage discovered shall be clean up and area decontaminated.

END OF THIS SECTION

SECTION 02081 GENERAL REMOVAL PROCEDURES

1.01 Removal Procedures

NOTE: No asbestos removal shall be done without written authorization from the Industrial Hygienist (IH) on site. Contractor shall perform all asbestos abatement of friable asbestos material using only PAPR respirator or IAW the OSHA 1926.1101. Under no circumstances shall any respirator be less than a PAPR respirator for any friable asbestos removal. At anytime the air counts violates respirator protection value, as determined by the onsite IH, the contractor shall upgrade to the respirator the IH so designates.

- A. See Section 01560 and Section 01563 for minimum personnel protection. IH shall authorize commencement of removal procedures. Clean and isolate the work area in accordance with Section 01527.
- B. Spray all asbestos containing material with amended water solution, removal encapsulant, or chemical remover using spray equipment capable of delivering a low pressure mist to reduce the release of asbestos fibers. Adequately wet the ACM to the substrate. Spray the ACM continuously during the removal practices to maintain adequate wet conditions and minimize fiber release and dispersion. Follow all manufacturers recommended procedures if a manufactured product is used for removal processes.
- C. Saturated asbestos containing material shall be removed in manageable sections. As ACM is removed, material will be placed in a suitable container (6 mil polyethylene bags or drum). Material shall not be allowed to dry out prior to containerizing. Surrounding areas shall be periodically sprayed and maintained in a wet condition until visible material is cleaned up.
- D. All material removed shall not be thrown or dropped to the floor. Removal of intact and manageable sections is highly recommended as it will reduce fiber dispersion. All ACM containerized shall be carefully lowered to the ground floor by asbestos personnel; where it is not feasible conditions may require mechanical means to lower containers. Mechanical may include but is not limited to inclined chutes, scaffolding, and pulleys, etc.
- E. Containers (6-mil polyethylene bags or drums) shall be sealed when full. All ACM containerized shall be double lined. Bags shall not be overfilled as wet material is heavier than dry material. All containerized material shall be sealed with suitable duct tape, do not use wire or cord as it may break the container. All containerized material shall be decontaminated on the exterior surfaces before leaving the work area.
- F. Large components removed intact may be wrapped in 2 layers of 6-mil polyethylene sheeting secured with tape for transport to the landfill.
- G. Asbestos containing waste with sharp-edged components (e.g. nails, screws, metal lath, tin sheeting) will tear the polyethylene bags and sheeting and shall be placed into drums for disposal.
- H. After completion of all stripping work, surfaces from which asbestos containing materials have been removed shall be wet brushed and sponged or cleaned by some equivalent method to remove all visible residue.
- I. Clean-up shall proceed in accordance with Section 01712.
- J. After the work area has been rendered free of visible residues, and IH inspection and approval, a thin coat of a satisfactory encapsulating agent shall be applied to all surfaces in the work area including structural members, building components and plastic sheeting on walls, floors and covering non-removable items, to seal in non-visible residue. (Note: 1) High temperature components such as boilers and pipes may not permit the application of some encapsulants. 2) If insulation or acoustical materials are to be reapplied to the abated area, be certain that the encapsulant selected will permit good adhesion to the substrate. A small area should be tested before application).
- K. Special circumstances (e.g. live electrical equipment, high amosite content of material, materials previously coated with an encapsulant or paint) may prohibit the adequate use of wet methods to reduce fiber concentrations. For these situations, a dry removal may be required. The Contractor will have to acquire special permits, different from those mentioned herein from the NESHAP enforcement agency.

END OF THIS SECTION

SECTION 02087 ACM PLASTER MATERIAL**1.01 Procedures**

- A. Lock out all electrical power where actual asbestos removal will occur. Demarcate the regulated area as required by 1926.1101 OSHA.
- B. Asbestos removal shall be performed by use of partial containment method. See Section 02081 General Removal Procedures.
- C. Respiratory protection will be half face as described in Section 01560.
- D. Contractor is prohibited from using the following:
 - 1. High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.
 - 2. Compressed air used to remove asbestos.
 - 3. Dry sweeping, shoveling or dry clean-up of dust and debris.
 - 4. Employee rotation as a means of reducing employee exposure to asbestos.

1.02 Stripping of Plaster Walls

- A. Strip all plaster from the work areas as shown on the plans and as herein specified:
- B. Spray the ACM with amended water, using low pressure spray equipment capable of providing a "mist" application to reduce the release of fibers. Saturate the material sufficiently to wet it to the substrate. This application should be used prior to and during abatement repeatedly. Allow time for amended water or removal encapsulant to saturate materials to substrate. Do not over saturate to cause excessive dripping.
- 3. Scrape materials from substrate. Remove materials in manageable quantities and control the decent to staging of floor below. Whenever the material has to be dropped more than 20 feet use drop chutes to contain material through decent. The chute shall be continuously misted during the work process.
- D. Material shall be handled carefully. **The use of high pressure washers or hydro-blasters is strictly forbidden.**
- E. The ACM will be scraped and cleaned using appropriate tools and methods. **WIRE BRUSHES ARE STRICTLY FORBIDDEN.** Remove all residue remaining on scratch coat after scraping.
- F. After stripping is completed, all surfaces of the ceiling structure shall be nylon brushed, wet sponged, and/or cleaned by an equivalent method to remove all visible ACM material. Cleaning and decontamination of all areas shall be done using approved methods. All overspray shall be removed and cleaned using approved methods.
- G. Proceed with Section 01712 Cleaning and Decontamination, Section 01714 Work Area Clearance, Section 01701 Project Closeout, Section 01716 Disposal Procedures.

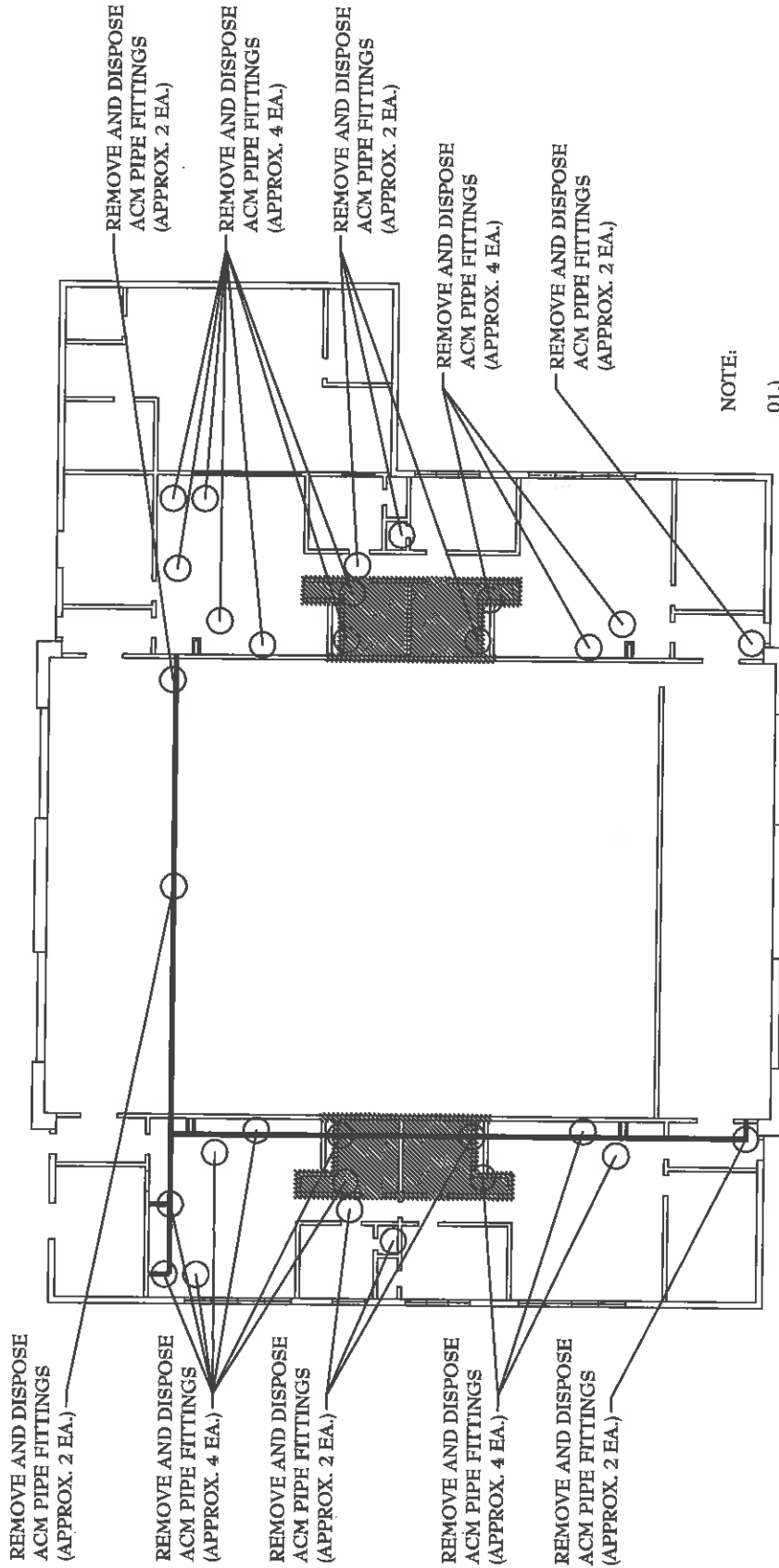
END OF THIS SECTION

SECTION 02082 GLOVE-BAG METHOD OF ABATEMENT

- 1.01 Procedures
- A. Lock out and tag out all electrical power where actual asbestos removal will occur.
 - B. Asbestos removal shall be performed by full containment. If glove bag method is used, then single layer secondary containment shall be erected. See Section 02081 General Removal Procedures.
- 1.02 Glove-bag Procedures
- A. The glove-bag shall consist of a 6-12 mil(0.152-0.305mm) bag fitted with long sleeve gloves, a tool pouch and an opening for water spray nozzle. **The glove-bag shall be seamless at the bottom.**
 1. Materials necessary but not limited to, shall be:
 - a. glove-bag
 - b. sprayer
 - c. HEPA vacuum
 - d. utility knife
 - e. nylon scrub brush
 - f. encapsulant
 - g. wire cutters
 - B. A team of two persons shall perform the glove-bag method.
 - C. Before work begins, all necessary Sections of this specification shall be followed. See Section 01527 Work Area Protection, Section 01560 Respiratory Protection, Section 01562 Personnel Protection and Section 01563 Decontamination Units.
 - D. Mix the surfactant with water in the sprayer. Bring into the work area all materials that will be used.
 - E. Check the pipe where asbestos removal will be done, if it is damaged, wrap the entire length of pipe in poly and candy-stripe with duct tape. If pipe is abandoned, remove in manageable sections. If pipe is not abandoned, proceed with installing the glove-bag. Install all glove-bags before any removal begins. Seal all exposed ends with duct tape or bridging encapsulant.
 - F. Place a sheet of poly underneath the pipe wide enough to cover the area where debris might fall to floor. Usually 2 feet(0.61m) extending on either side of pipe.
 - G. Each glove-bag shall be installed so that it completely covers the circumference of pipe or other structure where the work is to be done.
 - H. Glove-bags shall be smoke-tested for leaks and any leaks sealed prior to use.
 - I. Glove-bags may be used only once and may not be moved. Glove-bags shall not be used on surfaces whose temperature exceeds 150°.
 - J. Prior to disposal, glove-bags shall be collapsed by removing air within them using a HEPA vacuum.
 - K. Proceed with Section 01712 Cleaning and Decontamination, Section 01714 Work Area Clearance, Section 01701 Project Closeout, Section 01716 Disposal Procedures.

END OF SECTION

ACM ABATEMENT



NOTE:

01.)

GENERAL CONTRACTOR SHALL REMOVE ALL NON ACM CEILING AND WALL MATERIALS ACCORDING TO ABATEMENT DRAWINGS.

GADDEN HIGH SCHOOL
OLD BOYS GYM
FLOOR PLAN
NOT TO SCALE



AA 1

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PROJECT NUMBER:
18-EP-287

CLIENT:
GISD

WORK DESCRIPTION:
ASBESTOS ABATEMENT

ACAD TITLE:
GHS - OLD BOYS GYM.DWG

DATE:
08/30/2018

INSPECTOR:
LA/DR

DRAWN BY:
JR

LEGEND

- REMOVE AND DISPOSE ACM PIPE INSULATION 6 INCHES IN DIAMETER (APPROX. 225 L.F.)
- ⊙ REMOVE AND DISPOSE ACM PLASTER MATERIALS AT CEILING AND WALLS. (APPROX. 1,000 S.F.)