



Environmental Management Consulting, Inc.

PROJECT MANUAL

ASBESTOS ABATEMENT AND LEAD REMOVAL

**FORMER OE GRAY SCHOOL
110 W ADAMS AVE
PLATTEVILLE, WI**

**DATE: JUNE 11, 2024
EMC PROJECT NUMBER: 240867-01**

PREPARED FOR:

**CITY OF PLATTEVILLE
ATTN: SHANNON BUTSON
75 N. BONSON STREET
P.O. BOX 780
PLATTEVILLE, WI 53818**

**ENVIRONMENTAL MANAGEMENT CONSULTING, INC.
W7748 COUNTY HIGHWAY V
LAKE MILLS, WI 53551-9643**

A handwritten signature in black ink, reading "John T. Bushman", is written over a horizontal line. The signature is cursive and appears to be written with a pen.

**MR. JOHN T. BUSHMAN,
EPA Accreditation Number: APD-01283**

Securing Safer Futures...

W 7748 Cty Hwy V, Lake Mills, WI 53551 ◆ 920.648.6343 Fax: 920.648-4370 ◆ www.emc-wi.com

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Environmental Management Consulting, Inc.

1.0 INVITATION TO BID

SEALED BIDS FOR:

PROJECT #: 240867-01
ASBESTOS ABATEMENT & LEAD REMOVAL – FORMER OE GRAY SCHOOL

Shall be received by the City of Platteville until 2:00 PM, July 16, 2024. Project Manual and Bid Documents for said project may be obtained after Wednesday, June 26, 2024 from Environmental Management Consulting, Inc. office, located at W7748 County Highway V, Lake Mills, Wisconsin 53551-9643, (920) 648-6343. Bids will be opened at the EMC office at 2:00 PM on Tuesday, July 16, 2024. Award of contract will be made upon review.

Pre-Bid Meeting:

A mandatory pre-bid meeting and walk through for invited bidders will be held on Tuesday, July 9, 2024 at 10:00 AM at Former OE Gray School, which is located at 110 W. Adams Ave., Platteville, WI. Meet at the main entrance.

All bids shall be prepared in accordance with the instructions to bidders found in the project manual. The Owner reserves the right to reject any or all bids.

Project Manager:

Environmental Management Consulting, Inc.
Mr. Thomas J. Bushman
W7748 County Highway V
Lake Mills, WI 53551-9643

Date of Issuance: June 11, 2024

Securing Safer Futures...

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2.0 INSTRUCTIONS TO BIDDERS

2.1 General Instructions

Before submitting a bid, the bidder shall examine all of the bidding contract documents listed in the Table of Contents of this Project Manual. The successful bidder will be required to complete all work which is shown on the drawings, mentioned in the project manual or reasonably implied as necessary to complete the work for this project.

The bidder shall visit the site and examine the site to become familiar with the work area, means of approach to the site, conditions of the actual job site, and facilities for delivery, storing, of materials and load out of waste materials.

All bidders shall have an established and diligently maintained safety program.

2.2 Qualification Requirements of Bidder/Contractor

- a. Contractor must maintain throughout the duration of the contract, insurance in accordance with requirements outlined in Section 3.11 "Insurance" of this project manual.
- b. Contractor must provide proof of successful completion of a minimum of five (5) projects of similar or greater size, complexity and type.
- c. As applicable, Contractor must be a certified asbestos/lead abatement company/firm registered with the State of Wisconsin Department of Health Services (DHS).
- d. As applicable, all abatement work must be completed under the direct supervision of a certified supervisor/renovator certified by DHS. All other employees conducting asbestos abatement activities on the project must be trained/certified as required by DHS.
- e. Contractor will be required to obtain a 100% Performance and Payment bond for the total contract amount. No checks or letters of credit will be accepted. The date of the bond shall be the same, or later, than the contract date to properly guarantee performance of the contract.

2.3 Interpretation

No verbal explanation or instructions will be given in regard to the meaning of the drawings or specifications/project manual during the bid period. If bidder is given any verbal clarification during the bidding period, this communication is not enforceable unless specifically clarified in an addenda. Neither the Project Designer nor the Owner will be responsible for verbal instructions.

Bidders shall bring inadequacies, omissions or conflicts to the attentions of the Project Designer at least five (5) days before the date set for bid opening. Prompt clarification will be supplied to all bidders by record of addendum.

All requests for clarification, interpretation, or other pertinent information shall be directed to:

Environmental Management Consulting, Inc.
Attn: Thomas J. Bushman
W7748 County Highway V
Lake Mills, WI 53551-9643
tbushman@emc-wi.com

Failure to request clarification or interpretation of the drawings or specification/project manual will not relieve the successful bidder of responsibility.

2.4 Withdrawal of Bids

Bids submitted to the owner may be withdrawn prior to the time set for opening bids. Request for non-consideration must be made in writing, addressed to the owner, and received by the owner prior to the time set for opening of bids. Withdrawn bids will be returned unopened.

2.5 Rejection of Bids

The owner reserves the right to reject any and all bids.

2.6 Irregular Bids

Bids shall be considered irregular if they show any omissions, alterations, additions, or irregularities of any kind. The Owner reserves the right to waive any irregularities and to make the award in the best interest of the Owner.

2.7 Opening of Bids

All bids properly submitted will be opened at 2:00 PM on Tuesday, July 16, 2024.

2.8 Submission of Bids

All bids must be submitted on bid form supplied with the project manual. Only bids, which are submitted on these bid forms, will be considered. No alteration of these bid forms are allowed. Any modifications made to these bid forms can be reason for disqualification of bid. The bid form and affidavit shall be accompanied by all necessary submittals. Bids must be mailed to the EMC Office and clearly labeled with the following: "BID – Asbestos Abatement & Lead Removal – Former OE Gray School." Bids must be received before 2:00 PM on Tuesday, July 16, 2024. Bids should be addressed as follows:

Environmental Management Consulting, Inc.
Attn: Thomas Bushman
W7748 County Road V
Lake Mills, WI 53551

Bid amounts shall be inserted in words and in figures in the spaces provided on the bid form. In case of a conflict, written word amounts will govern.

Addenda issued during the time of bidding shall become part of the project manual and contract. All bidders shall acknowledge receipt of each addendum in the appropriate space provided on the bid form. If receipt of addendum is not acknowledged, the bid may be rejected.

All bids must be received at the designated place for the bid opening on or before the date and time specified. Bids received after the time of closing will be rejected and returned unopened.

Bid will be considered invalid and rejected if it has not been signed by the bidder.

2.9 Submittals to Accompany Bid

- a. Bid Form and Affidavit Signed by the Bidder.
- b. Certificate of Insurance.
- c. List of Subcontractors
- d. Bid Bond (5%)
 1. No proposal will be accepted unless accompanied by a certified check or bid bond equal to at least five percent (5%) of the amount bid, payable to the OWNER as a guarantee that, if the bid is accepted, the Bidder will execute and file the proper contract and bond within 15 days after the award of the contract. The certified check or bid bond will be returned to the Bidder as soon as the contract is signed. If after 15 days the Bidder shall fail to do so, the certified check or bid bond shall be forfeited to the OWNER as liquidated damages.

2.10 Addenda

Any addenda to the drawings of project manual drawings issued before or during the time of bidding shall be included in the bid and become a part of the contract. Failure to acknowledge receipt of all addenda with your bid shall be considered just grounds for rejection of your bid.

2.11 Award of Contract/Performance/Payment Bond

If at the time this contract is to be awarded, the lowest base bid submitted by a qualified, responsible bidder does not exceed the amount of funds then estimated by the Owner as available to finance the contract, the contract will be awarded on the base bid.

The Owner reserves the right to reject all bids or any bid, or to waive any informalities in any bid, or to accept any bid which will best serve the interest of the Owner.

Awarded contractor is required to furnish a Performance and Payment Bond in the

amount of 100% of the contract value, to the benefit of the City of Platteville. This bond shall be delivered to the owner prior to the start of work. The surety company must be licensed to do business in Wisconsin. This bond must be dated the same date or subsequent to the date of the contract.

2.12 Commencement & Completion/Liquidated Damages

The successful bidder must agree to begin work as to set schedule, which can be found on the Project Timetable, located one page behind the cover page in this manual.

The successful bidder is encouraged to complete the project in a most safe and expedient manner possible. The Owner will allow twenty-four (24) hour around the clock access to the job site, throughout the duration of the project.

If contractor fails to complete the work as per the time allowed in the contract documents and this is the direct cause of additional cost to the owner, the contractor shall be responsible for this additional cost. This cost will be deducted from the contract.

2.13

ASBESTOS ABATEMENT & LEAD REMOVAL
FINAL PROJECT DOCUMENTATION

EMC PROJECT #: 240867-01

PROJECT NAME: City of Platteville- Former OE Gray

CONTRACTOR NAME: _____

PROJECT START DATE: _____

PROJECT COMPLETION DATE: _____

- _____ Final, revised notice of intent
- _____ Worker, Supervisor State Certification Cards
- _____ Performance and Payment Bond (if required)
- _____ Daily Project Logs
- _____ Final Waste Manifest signed by landfill
- _____ Certificate of Insurance naming owner

I, hereby certify that all abatement work was done in complete compliance with all applicable Federal, State and Local Regulations including prevailing wage rate laws as applicable. In addition, I certify that all specified ACM was abated and visually inspected by the contractor as per the specification and that the response action has been completed as per AHERA (when applicable). Finally, I certify that all ACM waste has been disposed of properly.

Authorized Representative of Abatement Contractor Date

3.0 GENERAL CONDITIONS OF THE CONTRACT

3.1 Contract Administration

The intention of the contract documents is to include all labor, materials and equipment necessary for the completion of the work in accordance with the standard of quality established by the contract documents and within the allowable time period specified.

The owner shall designate an owner's representative which will be delegated authority to act on behalf of the owner. It is the intent to provide, to the extent possible, a single point of contact and communication for the contractor to facilitate efficient, timely, and cost effective completion of the work.

The contractor shall employ, and specifically assign to the project, a construction superintendent or foreman, experienced in the work required by this contract. This person shall be delegated authority to act on behalf of the contractor, and shall be, to the extent possible, a single point of contact and communication.

3.2 Definitions

- a. "Bidder" is the firm submitting a price for the work on the bid form.
- b. "Owner's Representative" is that individual or firm designated by the owner to oversee and monitor the work and be the point of contact for all communications.
- c. "Project Designer" is the individual certified by the Wisconsin Department of Health Services as an Asbestos Project Designer and who the Project Manual was prepared under his direct supervision.
- d. "Project Schedule" is the timeline established in the project manual for the completion of all work.

3.3 Contract Documents

The contract documents include the project manual, all technical specification sections and all drawings as shown on the Table of Contents.

The contractor's bid price shall include complementary interpretation, and the performance of all work which:

- a. in accordance with industry standards, customary practice or by reasonable inference are details of work that are necessary as part of the construction, operation, and coordination and interface of the work, or,
- b. would necessarily be readily apparent to one skilled in the trades, or,
- c. a competent and experienced contractor would recognize is a part of his responsibility.

3.4 Responsibility of the Contractor

- a. The Contractor shall be responsible for damage to any part of the building or grounds that is a direct result of completing work. He shall be required to make repairs that meet with the satisfaction of the Owner prior to final payment. If repairs are not made in a timely manner, the Owner reserves the right to coordinate repairs and withhold such monies from the contract.
- b. Contractor will comply with State, Federal, Local regulations, and rules designated by the Owner pertaining to safety regulations. He is also to comply with safety regulations as specified by OSHA.
- c. The Contractor shall indemnify and hold harmless the Owner from any liability or cost including attorney's fees and court costs resulting from any claims, actions, or suits based upon accidents on the premises during work resulting in bodily injury, including death, and/or any damage to equipment or property of the Contractor.

3.5 Work Crew

- a. Incompetent employees or employees whose on-site actions are not in the best interest of the Owner, in their opinion, will be removed from the project upon notification of the Contractor's superintendent.
- b. There will be no discrimination against any employee or applicant for employment because of age, race, sex, or creed. Contractor may be asked to provide reasonable certification to prove that he is an equal opportunity employer.
- c. Contractor will be expected to carry out work in a professional workmanlike manner and keep premises clean within reason. If Owner's representative feels that work is contrary to what is considered professional, he will immediately notify the project superintendent. If action is not taken to correct work, the Owner reserves the right to stop work and pay Contractor for only that percentage of work completed.

3.6 Specifications

- a. All work will be done in accordance with this project manual/specifications. If there are questions regarding a particular part of the project manual or drawings, contact the Project Designer at the office of EMC, at least five (5) days prior to bidding. Deviations shall not be considered after this time, unless there is a discrepancy that requires changing to uphold the best interest of the project.
- b. There are dimensions in the specifications; however, figuring material quantities is solely the responsibility of the Contractor. Each contractor is given ample opportunity to verify all material amounts. The project designer does not warrant the drawings and quantities of materials in the bid documents to be totally accurate. It is the bidder's responsibility to ascertain the accuracy of the drawings and estimates prior to bid submission.

3.7 Changes in the Work

- a. Except in cases of emergency, no changes in the work required by the contract documents may be made by the contractor without having prior approval from the owner or the owner's representative.
- b. Any changes in the work that will affect the contract value must be included in a written change order, signed by the owner or owner's representative prior to commencing with additional work.

3.8 Final Completion and Payment Process

- a. Prior to request for final payment, the contractor shall provide a certification that all debts and claims against this project have either been paid in full or otherwise satisfied and give final evidence of release of all liens against the project.
- b. Prior to request for final payment, the contractor shall provide all necessary post project submittals as required by the specific technical section.
- c. All payment requests shall be made through the office of the project designer. No payments will be released until verification of completed work is conducted by the project designer. Ten percent (10%) of the total contract value will be withheld until all post project submittals have been received, reviewed and accepted, by the project designer.

3.9 Clean-up

- a. Before the work is complete, all debris related to the project will be cleaned up to the satisfaction of the owner. All impaired grounds or damages to property or buildings shall be repaired to the satisfaction of the owner.

3.10 Storage of Materials

- a. Contractor shall be responsible for coordinating delivery, off-loading of materials, and pick up of all waste materials.
- b. Storage and set up locations shall be agreed upon by the owner's representative.

3.11 Insurance

The contractor shall maintain, at its own cost and expense, the following types and minimum limits of insurance coverages:

- a. Worker's Compensation insurance, covering each employee of the Contractor engaged in the performance of work under this Contract. Worker's Compensation Limit – Statutory.
- b. Commercial General Liability insurance, written on an occurrence basis including, but not limited to, coverage for contractual liability, products and completed operations, personal injury, bodily injury and broad form property damage liabilities with liability limits not less than \$1,000,000.00 per

- occurrence and \$2,000,000.00 annual aggregate.
- c. When applicable Automobile Liability insurance covering all owned, non-owned and hired vehicles used in connection with the performance of work under this Contract, with a combined single limit of liability for bodily injury and property damage of not less than \$2,000,000.00 per occurrence.
 - d. Contractor must maintain Environmental Liability insurance in the event the Contractor performs work related to the remediation or abatement of "Hazardous Material" which includes, without limitation, any flammable explosives, hazardous materials, hazardous waste, hazardous or toxic substances or related materials. The Contractor performing such work shall provide Contractor's Pollution Liability insurance as applicable to the work to be performed with limits not less than \$2,000,000.00 per occurrence and \$2,000,000.00 in the aggregate, covering claims from third party injury and property damage as a result of pollution conditions emanating from on-site, under site or off site arising out of its operations and completed operations.
 - e. The Contractor must be able to document that he or she has notified their insurance carrier of the nature of his work involvement with asbestos and that the coverage in effect specifically includes an endorsement for asbestos abatement activities.
 - f. If the owner permits the Contractor to use any of the owner's equipment tools or facilities, such use will be gratuitous and the Contractor shall release the Owner from any responsibility arising from claims for personal injuries, including death, arising out of the use of such equipment, tools, or facilities irrespective of the condition thereof or any negligence on the part of the Owner in permitting their use.

3.12 Scheduling and Coordination of Work

- a. The contractor has complete and full responsibility for the accomplishment of the work within the time indicated in the contract documents.
- b. The contractor shall prepare a breakdown of all work activities that they are required to perform on the project, indicating the proposed duration and sequencing of such activities for successful completion of the project within the allowable time specified in the contract documents.

4.1

BID FORM

ASBESTOS ABATEMENT AND LEAD REMOVAL – FORMER OE GRAY SCHOOL
EMC PROJECT NUMBER: 240867-01
BID DUE DATE: 2:00 PM, TUESDAY, JULY 16, 2024

TO: City of Platteville

We _____
(a joint venture)
(a corporation)
(a partnership)
(an individual)
(cross out inapplicable)

Of _____
Street City County State Zip

hereby agree to execute the proposed contract and to furnish a satisfactory Performance Bond in the amount specified within 7 days of award of contract, and to provide all labor and material required for the construction of the project designated above, for the prices hereinafter set forth, in strict accordance with the Project Manual prepared by Environmental Management Consulting, Inc. and dated May 6, 2024.

All work required to complete the project in accordance with the drawings and specifications for Abatement at the Former OE Gray School.

BASE BID

NO. 1: All work as specified within this project manual for the Former OE Gray School.

For the sum of _____ Dollars (\$ _____).

ALTERNATE
UNIT PRICES: \$ _____ per Sq, Ft,
\$ _____ per TSI fitting
\$ _____ per LF
\$ _____ per All-inclusive man hour
\$ _____ per Additional Mobilization

ADDENDUM RECEIPT

We acknowledge receipt of the following Addendum:

Addendum No. _____	Dated _____
Addendum No. _____	Dated _____
Addendum No. _____	Dated _____
Addendum No. _____	Dated _____

Prior to signing, bidder shall read all instructions to bidders and articles contained within Project Manual/Specification Package to avoid invalidating this bid.

Firm Name

Address

Area Code/Telephone Number

Signature of Bidder

Title
(Seal, if bid is by a Corporation)

Date _____

4.2

AFFIDAVIT

ENVIRONMENTAL MANAGEMENT CONSULTING, INC.

The Signatory, being duly sworn, does depose and say the undersigned is an authorized representative of

_____ (Name of Firm)

located at _____ (Address)

hereinafter referred to as "Bidder" and does hereby affirm to have personal knowledge of the following:

1. That said Bidder has examined the drawings and specifications, carefully prepared the bid form, and has checked the same in detail before submitting said bid; and that said Bidder, or the agents, officers, or employees thereof, have not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this bid.
2. That all of said work will be performed at the Bidder's own proper cost and expense, that the Bidder will furnish all necessary materials, labor, tools, machinery, apparatus, and other means of construction in the manner provided in the applicable specifications, and at the time stated in the contract of which this Affidavit will become a part, if and when accepted.

(Signed By)

Subscribed to and Sworn before me

This _____ day of _____, 20__

_____(Signature)

(Notary Public)

_____ (Typed Name of Notary Public)

My commission expires _____, 20__

5.1

CONTRACT

Environmental Management Consulting, Inc. W7748 County Highway V Lake Mills, WI 53551-9643

Project No.: 240867-01 Contract No.: 1

THIS AGREEMENT, made this _____ day of _____, by and between City of Platteville, herein called "Owner", and _____, doing business as (a corporation) (a partnership) (an individual) of the City of _____, County of _____, and State of _____, hereinafter called "Contractor".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the OWNER, the CONTRACTOR hereby agrees with the OWNER, to commence and complete the construction described as follows:

WORK TO BE PERFORMED:

The Contractor shall perform all work as required by the Project Manual/Specification Package entitled "Project Manual, Asbestos Abatement & Lead Removal Project, Former OE Gray School," as prepared by Environmental Management Consulting, Inc. and dated May 6, 2024, which is attached hereto and incorporated herein by reference as though set forth at length herein. All addenda issued during the bidding period and acknowledged on the bid documents shall be part of this contract, and such addenda are attached hereto and incorporated herein by reference as though set forth at length herein.

CONTRACT SUM:

The Owner will pay the contractor in current funds for the performance of the above mentioned work, subject to additions and deductions by change order as provided in the contract documents, the contract sum of

_____ Dollars (\$_____).

TIME:

The work to be performed under this contract shall comply strictly to the schedule stated in the project manual.

PAYMENT:

Based upon application for payment submitted to the Owner through the Project Designer by the Contractor, and certificates for payment issued by the Project Designer, payment will be made on the next scheduled payment cycle by the owner.

- Final 10% payment will be made upon receipt of all post project submittals as required in the technical specifications.

Signed:

City of Platteville

Contractor

By

By

Date

Date

**SECTION 02 82 13
ASBESTOS ABATEMENT**

PART 1 - GENERAL

SCOPE

Perform all operations in connection with asbestos abatement, encapsulation, removal and related work as shown on drawings and/or specified herein.

PART 1 - GENERAL

- Summary of Work
- References
- Qualifications
- Definitions
- Submittals and Notices
- Site Security
- Emergency Planning
- Preconstruction Meeting
- Delivery, Storage and Handling

PART 2- PRODUCTS

- Materials
- Equipment

PART 3 - EXECUTION

- General Compliance Measures
- Preparations of Regulated Area
- Decontamination Enclosure System
- Temporary Isolation Partitions
- Maintenance of Enclosure System
- Workplace Entry and Exit Procedures
- Waste Container Pass-Out Procedure
- Water Collection and disposal
- Wet Removal Procedure
- Ceiling System Removal
- Pipe Tunnel or Crawl Space Removal Work
- Flooring Removal
- Operations and Maintenance/Small Scale - Short Duration Removal Procedure
- Encapsulation Procedures
- Air Monitoring – Contractor
- Air Monitoring – Owner
- Laboratory Services
- Cleanup Procedure
- Disposal Procedures
- Reestablishment of Regulated Area
- Restoration

PART 4 – Scope of Work
Building Specific Information
Scope of Abatement Work
Additional Project Notes
Project Schedule

SUMMARY OF WORK: Asbestos abatement as specified in Part 4 of this section and as outlined on attached drawings

Special Precautions:

Coordinate with the Owners Project Representative for the shutdown and isolation of all electrical circuits and air movement systems within the regulated area from that of the rest of the facility to prevent any inconvenience to building occupants and contamination outside of the regulated area. Refer to Article entitled: "Preparation of Regulated area," of this section relative to shutdown of mechanical and electrical systems.

REFERENCES

General Reference:

All work under this contract shall be done in strict accordance with all applicable General and State regulations, standards and codes governing asbestos abatement and any other trade work done in conjunction with the abatement.

The most recent edition of any relevant regulation in force at the time of bid opening shall be in effect. Where conflict among the laws, rules, and regulations or with these specifications exists the most stringent requirements shall be utilized.

The Contractor shall make available, in the clean change area of the worker decontamination system, copies of this specification and all standards, regulations, and codes listed hereinafter.

Specific Reference:

Occupational Safety and Health Administration (OSHA):

Title 29 Code of Federal Regulations, Section 1910.134(d) - air Quality.

Title 29 Code of Federal Regulations, Section 1926.1101- Construction Industry, including the mandatory appendices;

Appendix A - OSHA Reference Method.

Appendix C - Qualitative and Quantitative Fit Testing Procedures.

Appendix D - Medical Questionnaires.

Appendix E - Interpretation and Classification of Chest Roentgenograms.

Nonmandatory appendices:

Appendix B - Detailed Procedures for Asbestos, Tremolite, Anthrophyllite, and Actinolite Sampling and Analysis.

Appendix F - Work Practices and Engineering Controls for Major Asbestos Removal, Renovation, and Demolition Operations.

Appendix G - Work Practices and Engineering Controls for Small Scale, Short Duration Asbestos Renovation and Maintenance Activities.

Appendix H - Substance Technical Information for Asbestos.

Appendix I - Medical Surveillance Guidelines for Asbestos, Tremolite, Anthrophyllite, and Actinolite.

Title 29 Code of Federal Regulations, Section 1926.59 - Hazard Communication Standard. Requires employers to inform their workers of the hazards of any chemicals used on the project and to train their employees in proper safeguards.

Environmental Protection Agency (EPA): Title 40 Code of Federal Regulations (CFR) Part 763 Subpart G - Asbestos Abatement Projects; worker Protection (effective March 27, 1987).

Environmental Protection Agency (EPA) Title 40 Code of Federal Regulations (CFR) Part 61 - National Emission Standards for Hazardous Air Pollutants; Asbestos NESHAP Revision; Final Rule effective November 20, 1990.

Department of Health Services (H & SS) State of Wisconsin Administrative Rule, Chapter HSS 159, Asbestos Certification and Training.

Department of Natural Resources (DNR) State of Wisconsin Administrative Rule, Chapter NR 447, procedures for preventing emissions of particulate asbestos material to outside air, warning signs and waste disposal of asbestos materials.

Compressed Gas Association, Inc., New York, Pamphlet G-7, "Compressed Air for Human Respiration", and Specification G-7.1 "Commodity Specification for Air".

Department of Natural Resources (DNR) State of Wisconsin Administrative Rule Chapter NR 506, Landfill Operations Criteria for Disposal of Asbestos Containing Material.

QUALIFICATIONS

The prospective Contractor who is proposed to actually perform the asbestos abatement work, shall submit to the Project Designer the data hereinafter requested within ten (10) days after Bid **Opening**. The proposed asbestos abatement Contractor will be awarded a Contract, only if data submitted is determined to be favorable in all instances, by the Project Designer, and the prospective Contractor further meets the qualifications requirements specified in the Instructions to Bidders.

The proposed asbestos abatement Contractor shall, if requested:

Demonstrate prior experience on asbestos abatement projects of similar nature and scope of that being bid, through the submission of letters of reference from building owners including the name, address, and telephone numbers of the contact persons who are specifically familiar with the referenced projects. At least five previous users of this service shall be submitted. Include descriptions of projects and records of all air monitoring data that was generated during the projects.

Submit a description of all major Asbestos Abatement Equipment owned by the prospective Contractor which is available for use on this project such as:

- Respiratory protection equipment.
- HEPA vacuum equipment.
- Negative air pressure equipment.
- Spray equipment for amended water.
- Equipment used for shower facilities in decontamination enclosure system.

Submit a list of names, work responsibilities and evidence of certification for all employees that will be assigned to this project:

At least one firm principal, the firm's "competent person" and any other personnel performing supervisory duties must be certified by the Wisconsin Department of Health Services as having successfully completed a comprehensive 5-day course for Asbestos Abatement Contractors and Supervisors in conformance with Wisconsin Administrative Code DHS 159.

Contractor's employees who perform asbestos abatement activities must be certified by the Wisconsin Department of Health Services as having successfully completed a comprehensive 4-day course for Asbestos Abatement Workers in conformance with Wisconsin Administrative Code DHS 159.

DEFINITIONS

ACGIH: American Conference of Governmental Industrial Hygienists

AIHA: American Industrial Hygiene Association

Air Monitoring: The process of measuring the fiber content of a known volume of air collected during a specific period of time shall conform with Appendix A to OSHA 29 CFR 1926.1101. The procedure normally utilized for asbestos follows the NIOSH Standard Analytical Method 7400 for Asbestos in Air. For clearance air monitoring, electron microscopy methods may be utilized for lower detectability limit and specific fiber identification.

Air Sampling Professional: The Professional contracted or employed by the Division to supervise and conduct air monitoring and analysis schemes. This individual shall not be affiliated in any way other than through this contact with the Contractor performing the abatement work.

ANSI: American National standards Institute

Asbestos: Means the asbestiform varieties of chrysotile (serpentine); crocidolite (riebeckite); amosite (cummingtonite-grunerite); tremolite; anthrophyllite, and actinolite.

Asbestos Containing Material (ACM): Material composed of asbestos of any type and in an amount greater than 1%, either alone or mixed with other fibrous or nonfibrous materials.

Asbestos Containing Waste Material: Asbestos containing material or asbestos contaminated objects requiring disposal.

ASTM: American Society for Testing and Materials

Authorized Visitor: The Building Owner (and designated representatives) and any representative of a regulatory agency having jurisdiction over the project.

Certified Industrial Hygienist (CIH): An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.

Competent Person: Means an employee of the asbestos abatement contractor who is capable of identifying existing asbestos hazards in the workplace and who has the authority to take prompt corrective measures to eliminate them pursuant to OSHA 1926.1101(b).

Decontamination Enclosure: A decontamination system consisting of a clean room, a shower room, and an equipment room separated from each other and from the

regulated area by airlocks. This system is used for all workers to enter and exit the regulated area and may also serve as equipment and waste pass out on small jobs.

Department of Natural Resources (DNR): A Wisconsin state agency that is responsible for enforcement of Chapter NR 447.

Encapsulation: The application of a bridging or penetrating liquid material to asbestos containing materials to control the release of asbestos fibers into the air. The bridging liquid material creates a membrane over the surface and the penetrating liquid material seeps through the surface and binds all components together.

Enclosure: The construction of an airtight, impermeable, permanent barrier around asbestos containing material to control the release of asbestos fibers into the air.

EPA: U. S. Environmental Protection Agency

Glovebag Technique: A method with limited applications for removing small amounts of friable asbestos-containing material from ducts, short piping runs, valves, joints, elbows, and other nonplanar surfaces in a noncontained (plasticized) regulated area. The glovebag is constructed and **installed in such** a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process.

HEPA Filter: A high efficiency particulate air filter capable of removing particles 0.3 microns in diameter with 99.97% efficiency.

HEPA Vacuum: A vacuum system equipped with HEPA filtration.

NESHAPS National Emission Standards for Hazardous Air Pollutants

OSHA: The Occupational Safety and Health Administration

Permissible Exposure Limits (PELS): No personnel associated with asbestos abatement work shall be exposed to an airborne concentration of asbestos in excess of the following limits, as determined by the method prescribed in Appendix A to OSHA 29 CFR 1926.1101, or by an equivalent method:

P.E.L. is 0.1 fiber per cubic centimeter of air as an eight (8) - hour time-weighted average.

Excursion Limit (EL) 1.0 fiber per cubic centimeter of air as averaged over a sampling period of thirty (30) minutes.

Regulated Area: An area identified by specific boundaries where airborne concentrations of asbestos exceed, or can reasonably be expected to exceed the P.E.L. and/or Excursion Limit. The regulated area may take the form of:

Surfactant: A chemical wetting agent added to water to improve penetration.

Visible Emissions: Any emissions containing particulate asbestos material that is visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

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.

SUBMITTALS AND NOTICES

Prior to Commencement of Work, Contractor shall:

File a "Notification of Demolition and/or Renovation and Application for Permit Exemption", Form 4500-113" with the appropriate parties named hereinafter, when required, at least 10 working days prior to commencement of demolition or renovation project involving any regulated asbestos-containing material greater than 160 SQFT or 260 LF.

Department of Natural Resources
Asbestos Coordinator, AM/7
P.O. Box 7921
Madison WI 53707-7921

File a notice with the DHS for all other projects

Department of Health Services
Division of Public Health
Asbestos/Lead(Pb) Section
P.O Box 2659
Madison, WI 53701-2659

Submit the following documentation to the Project Designer prior to commencing work:

Manufacturer's information and MSDS for the mastic remover that the Contractor intends to use for floor tile mastic removal. Mastic remover shall be low odor and shall not contain known carcinogens.

Submit the following documentation at completion of the work:

- Final DNR Form 4500—113
- Copies of all WDHS Certification Cards for all employees that worked on the project.
- Copy of Daily Project Log as required by DHS 159.21(2)
- Copy of Occupant Protection Plan as required by DHS 159.21(3)

- All Waste manifests/Disposal Tickets signed by the accepting landfill
- Written certification that all work was conducted in complete compliance with all applicable Federal, State and Local Regulations.
- Written certification that all asbestos containing materials specified for removal have been removed and disposed of properly.
- Certificate of Insurance naming the owner as certificate holder.
- Completed and signed final project documentation checklist contained herein.

During Abatement Activities, Contractor shall submit to the Owners Project Representative, if requested:

Shop drawings for layout and construction of decontamination enclosure systems and barriers for isolation of the regulated area as detailed in this specification and required by applicable regulations. If work is to be phased, a phasing schedule shall also be submitted.

Weekly (or as required) job progress reports detailing abatement activities. Include review of major problems and action taken, injury reports, equipment breakdown.

Logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, local exhaust ventilation systems, and other engineering controls.

Results of bulk material analysis and air sampling data collected during the course of the abatement including OSHA compliance air monitoring results.

Results of materials testing conducted during the abatement for purposes of utilization during abatement activities (e. g., testing of encapsulant for depth of penetration, testing of materials for adherence to encapsulated surfaces).

Contractor shall post at the entrance to the regulated area a list containing the names, addresses, and telephone numbers of the Contractor, Fire Department and any other personnel who may be required to be contracted during abatement activities.

SITE SECURITY

Contractor shall be responsible for the security of the regulated area(s) during abatement operations in order to protect work efforts and equipment.

The regulated area shall be restricted to only authorized, trained, and protected personnel. These may include the Contractor's employees, employees of subcontractors, state representatives, and any other designated individuals. A list of authorized personnel shall be established prior to job start and posted in the clean room of the decontamination facility.

A daily project log shall be maintained in the clean room area of the decontamination system. Anyone who enters the regulated area must record name, affiliation, time in, and time out for each entry.

Access to the regulated area shall be through a single decontamination system located where shown on approved Shop Drawings. All other means of access (doors, windows, hallways, etc.) shall be blocked or locked so as to prevent entry to or exit from the regulated area. The only exceptions to this rule are the waste pass-out air lock which shall be sealed except during the removal of containerized asbestos waste from the regulated area, and emergency exits in case of fire or accident. Emergency exits shall not be locked from the inside, however, they shall be sealed with polyethylene sheeting and tape until needed.

EMERGENCY PLANNING

Written emergency plan shall be submitted through the Owners Project Representative and approved by the Architect/Engineer prior to the initiation of abatement activities.

Emergency procedures shall be in written form and prominently posted in the clean change area and equipment room of the worker decontamination area. Everyone prior to entering the regulated area must read and have an understanding of work site layout, location of emergency exits and emergency procedures.

Emergency planning shall include notification of police, fire and emergency medical personnel of planned abatement activities, work schedule and layout of regulated area, particularly barriers that may affect response capabilities.

Emergency planning shall include considerations of fire, explosion, toxic atmospheres, electrical hazards, slips, trips and falls, confined spaces and heat related injury. Written procedures shall be developed and employee training in procedures shall be provided.

Employees shall be trained in evacuation procedures in the event of workplace emergencies under the following conditions:

For non-life threatening situations, employees injured or otherwise incapacitated shall decontaminate following normal procedures with assistance from fellow workers if necessary, before exiting the workplace to obtain proper medical treatment.

For life-threatening injury or illness, worker decontamination shall take least priority, after measures to stabilize the injured worker, remove the worker from the workplace and secure proper medical treatment.

Telephone numbers of all emergency response personnel shall be prominently posted in the clean change area and equipment room, along with the location of the nearest telephone.

PRECONSTRUCTION MEETING

The Contractor shall attend a preconstruction meeting to be conducted at a time and place designated by the Owners Project Representative. All parties having an active role in asbestos abatement will be in attendance.

The Contractor, Contractor's competent person and other supervisory personnel who will provide on-site direction of the abatement activities must attend.

At this meeting the Contractor shall provide all documentation as required by Article entitled: "Submittals and Notices," herein. In addition, the Contractor shall be prepared to provide detailed information concerning:

Preparation of regulated area.

Personal protective equipment including respiratory protection and protective clothing.

Employees who will participate in the project, including delineation of experience, training, certification, and assigned responsibilities during the project.

Decontamination procedures for personnel, regulated area and equipment.

Abatement methods and procedures to be utilized.

Required air monitoring procedures.

Procedures for handling and disposing of waste materials.

Procedures for final decontamination and cleanup.

A sequence of work and performance schedule.

Procedures for dealing with heat stress.

Emergency procedures.

Methods of adhering plastic sheeting to the surfaces to be covered.

DELIVERY, STORAGE AND HANDLING

Deliver all materials in the original packages, containers or bundles bearing the name of the manufacturer and the brand name.

Damaged, deteriorating or previously used materials shall not be used and shall be removed from the work site and disposed of properly.

PART 2 - PRODUCTS

MATERIALS

Polyethylene sheeting for walls and stationary objects shall be a minimum of four (4) mil thick. For floors, critical barriers, and all other uses sheeting of at least six (6) mil thickness shall be used in widths selected to minimize the frequency of joints.

Polyethylene sheeting utilized for decontamination enclosure shall be opaque white or black in color.

Flame retardant polyethylene sheeting shall be utilized when working near heat sources.

Hardboard or plywood, minimum 1/4 inch thick shall be furnished to protect finished floor surfaces such as carpet or hardwood floors to prevent damage from scaffolds or falling objects. Such protection shall also be provided for polyethylene sheeting under the scaffold area if the material being removed has sharp projections which could readily puncture the enclosure material.

Disposal bags shall be of six (6) mil polyethylene, preprinted with labels as required by OSHA Requirement 29 CFR 1926.1101 (k) (8).

Disposal drums for transporting disposal bags shall be metal or fiberboard with locking ring tops.

Stick-on labels as per EPA, OSHA or DNR requirements for disposal containers.

Surfactant (Wetting Agent):

For use with materials containing asbestos identified as "Amosite", shall be a 50/50 mixture of polyoxyethylene ether and polyoxyethylene ester, mixed in a proportion of one (1) fluid ounce to five (5) gallons of water or as specified by manufacturer.

For all materials containing asbestos identified as "chrysotile", "crocidolite", or types other than Amosite, shall consist of soapy water mixed in a proportion of two (2) fluid ounces of liquid soap to five (5) gallons of water.

Where regulated area temperature may cause freezing of the amended water solution, the addition of ethylene glycol in amounts sufficient to prevent freezing is permitted.

Asbestos Removal Encapsulant (substitute for surfactant): In lieu of using a wetting agent in water to control airborne fibers, and asbestos removal encapsulant may be used. Products that meet these needs are: Serpiflex Shield manufactured by International Protective Coatings Carol 725 Carol Ave., Ocean, NJ 07710; and BWE

5000, by Better Working Environments, Inc., 3716 Scripps Way, Las Vegas, NV 89103; or an approved equal.

Encapsulating Material:

Bridging type encapsulant (for sealing masonry and concrete walls, barrier surfaces during cleanup phase and asbestos containing surfaces to remain in place) shall be capable of being applied with airless spray equipment, able to withstand light impact or abrasion without releasing fibers, water insoluble when cured, and must retain sufficient integrity after six (6) years to allow recoating. Products that meet these requirements are: Foster 32-32 Bridging Encapsulant and ABC Asbestos Binding Compound by Fiberlock Technologies.

Penetrating type encapsulant (for sealing scratch coat plaster, wood grounds and wood blocking which have been in contact with asbestos containing material and also exposed ends of pipe insulation) shall not be noxious or toxic to applicator or subsequent occupants, shall have high flame retardance and low toxic fume and smoke emission ratings, shall have some permeability to water vapor to prevent condensation accumulation. Products such as Cafco-Bond-Seal by U.S.I Mineral and 32-22 Protektor Sealant by Foster are acceptable.

EQUIPMENT

Negative Pressure Ventilation Units:

A sufficient quantity of negative pressure ventilation units equipped with HEPA filtration and operated in accordance with ANSI Z9.2-79 (local exhaust ventilation requirements) and EPA guidance document EPA 560/5-83-002 Guidance for Controlling Friable Asbestos-Containing Material in Buildings Appendix F: Recommended Specifications and Operating Procedures for the Use of Negative Pressure Systems for Asbestos Abatement shall be utilized so as to provide one workplace air change every 15 minutes.

To calculate total air flow requirement:

$$\text{Total Ft}^3/\text{Min.} = \frac{\text{Volume of Regulated area (in Ft}^3\text{)}}{15 \text{ Min.}}$$

To calculate the number of units needed for the abatement:

$$\text{Number of Units Needed} = \frac{\text{Total Ft}^3/\text{Min.}}{0.75(\text{Capacity of Unit in Ft}^3/\text{Min.})}$$

The air filtering equipment shall be capable of filtering asbestos fibers at 0.3 um at 99.9 percent efficiency. Prefilters, which protect the final filter by removing the larger particles, are required to prolong the operating life of the HEPA filter. Two stages of prefiltration are required. The first-stage prefilter shall be a low

efficiency type (e.g., for particles 10 um and larger). The second-stage (or intermediate) filter shall have a medium efficiency (e.g., effective for particles down to 5 um). Prefilters and intermediate filters shall be installed either on or in the intake grid of the unit and held in place with special housings or clamps.

Exhaust air from the regulated area shall maintain a negative pressure of 0.02 inches of water (head). The ventilation shall operate on a 24 hours basis throughout the abatement process until final clearance has been approved.

All HEPA filtered exhaust fans must be exhausted to the outside of the building. Contractor shall obtain approval from the owner's project representative for situations where this is not feasible.

Contractor shall supply and maintain 4-6 2,000 CFM HEPA filtered air scrubbers per containment area to help control airborne fibers. These scrubbers should run throughout the entire project until air clearance is granted.

Air Purifying Respirators:

Respirator bodies shall be of half face or full face type with removable cartridges. Single use, disposable or quarter face respirators shall not be used. Full face respirators shall be equipped with a nose cup or other anti-fogging devices as would be appropriate for use in air temperatures less than 32 degrees F.

Filter cartridges shall, at a minimum, be HEPA type filters certified by NIOSH under 30 CFR Part 11 or with filters certified for particulates under 42 CFR Part 84.

Supplied Air Respirator System:

The equipment used shall be capable of producing air of the quality and volume required by OSHA Standard (29 CFR 1910) Section 1910.134 and Compressed Gas Association, Inc., New York, Pamphlet G-7, "Compressed Air for Human Respiration", and Specification G-7.1 "Commodity Specification for Air", applied to the job site conditions and crew size. The standards above shall be augmented by provisions of this specification with the more stringent standard governing.

Face piece and hose shall be by same manufacturer and shall be certified by NIOSH/MSHA as an approved Type "C" respirator assembly for continuous flow or pressure demand with a positive pressure face piece.

Backup air supply shall be provided that is adequate to allow a minimum of one-half hour escape time for each six man crew. The one-half hour shall be based upon all connections to the backup air supply being in use by an average sized

adult male engaged in moderately strenuous activity or by the air requirements of the particular respirator in use is greater.

Warning device shall be located in the regulated area which will be clearly audible in all parts of the regulated area and can be heard above the noise level produced by equipment and work procedures in use. This warning device shall warn of:

Compressor shutdown or other fault requiring use of backup air supply.

Carbon Monoxide (CO) levels in excess of 50 PPM/V over 8 hours.

Carbon Monoxide (C)) levels shall be continually monitored and recorded. This monitor shall be placed in the air line between backup air supply and workers and shall also sound an alarm as specified under "Warning Devices".

The compressor shall automatically be shutdown and the alarms sounded if any of the following occur:

Carbon Monoxide (CO) concentrations exceed 500 PPM/V in the air line between the filter bank and backup air supply.

Compressor temperature exceeds normal operating range.

Compressor motor shall be an electric motor. Compressors driven by gas or diesel engines shall not be used.

An after cooler shall be provided at the entry to the filter system which is capable of reducing temperatures to outside ambient air temperatures.

System configuration shall permit the recharging of 1/2 hours 2260 PSI SCBA cylinders.

Compressed air systems shall be designed to provide air volumes and pressures to accommodate respirator manufacturer's specifications. The compressed air systems shall have a receiver of adequate capacity to allow escape of all respirator wearers from contaminated areas in the event of compressor failure. Compressors must meet the requirements of 29 CFR 1910.134 (d). Compressors must have an in-line carbon monoxide monitor; periodic inspection of the carbon monoxide monitor must be evidenced. Documentation of adequacy of compressed air systems/respiratory protection system must be retained on site. This documentation will include a list of compatible components with the maximum number and type of respirators that may be used with the system. Periodic testing of compressed air shall insure that systems provide air of sufficient quality (Grade D breathing air as described in Compressed Gas Association Commodity Specifications G-7.1).

Full body disposable protective clothing, including head, body and foot coverings consisting of material impenetrable by asbestos fibers (TyvekR or equivalent) shall be provided to all workers and authorized visitors in sizes adequate to accommodate movement without tearing.

Additional safety equipment, such as hard hats meeting the requirements of ANSI Standard Z89.1-1981, eye protection meeting the requirements of ANSI Standard Z87.1-1979, safety shoes meeting the requirements of ANSI Standard Z41.1-1967, disposable PVC gloves, as necessary, shall be provided to all workers and authorized visitors.

Nonskid footwear shall be provided to all abatement workers. Disposable clothing shall be adequately sealed to the footwear to prevent body contamination. Provide sufficient supply of disposable mops, rags and sponges for work area decontamination.

Provide scaffolds, ladders, lifts and hand tools such as scrapers, wire cutters, brushes, utility knives, wire saws, as the work requires.

Sprayers with pumps capable of providing 14-15 pounds per square inch (psi) at the nozzle tip at a flow rate of 2 gallons per minute for spraying amended water.

Rubber dust pans and rubber squeegees shall be provided for cleanup.

Brushes utilized for removing loose asbestos containing material shall have nylon or fiber bristles, not metal.

A sufficient supply of HEPA filtered vacuum systems shall be available during cleanup.

Airless spray equipment with an adjustable low pressure nozzle shall be provided for spraying encapsulants. Nozzle tip size and pressure adjustment shall conform to encapsulant manufacturers written recommendations.

Heavy duty power cables for temporary electrical service and a portable electric generator for maintaining negative pressure in the work area in case of power failure.

Warning Signs and Labels: As required OSHA Regulation 29 CFR 1926.1101(k).

Other equipment the Contractor deems necessary for asbestos abatement work shall be submitted to the Architect/Engineer for approval prior to their use.

PART 3 - EXECUTION

GENERAL COMPLIANCE MEASURES

Mandatory Protection Conditions: Contractor's employees shall wear appropriate respiratory protection and protective clothing under the following conditions:

During installation or implementation of engineering work practices and control measures.

During maintenance and repair activities for which control measures, hereinafter described, are not feasible.

Whenever the control measures are not yet sufficient to reduce exposure below the Permissible Exposure Limits (TWA and/or Excursion Limits).

Whenever emergency conditions exist.

Control Measures: The Contractor shall use one or any combination of the following control methods to achieve compliance with the "Permissible Exposure Limits" defined hereinbefore:

Local exhaust ventilation equipped with HEPA filter dust collection systems.

General dilution ventilation equipped with HEPA filtration systems on both exhaust and return air.

Vacuum cleaners equipped with HEPA filters.

Enclosure or isolation of processes producing airborne asbestos fibers and dust. Use of wet methods, wetting agents or removal encapsulants to control employee exposures during their performance of asbestos abatement activities. Where wet methods would result in equipment damage or a safety hazard, dry removal is allowed with written approval from WDNR pursuant to NR447.08(3)(b).

Prompt disposal of wastes contaminated with asbestos in leak-tight containers.

Supplement to Control Measures: Whenever the control measures described above are not sufficient to reduce the employee exposure to or below the "Permissible Exposure Limits" (TWA and/or Excursion Limit), the Contractor shall continue to use the control measures to maintain the employee exposure to the lowest levels attainable and supplement them with the use of appropriate respiratory protection and protective clothing.

Negative-Pressure Enclosure: A negative-pressure enclosure shall be employed whenever feasible, prior to commencing removal, demolition and renovation operations involving asbestos containing materials.

Types of Respiratory Protection: The following Table represents the minimum respiratory protection required for given airborne concentrations of asbestos:

Airborne Concentration of Asbestos, Tremolite, Anthophyllite, Actinolite, or a Combination of These Minerals

<u>Airborne Concentration of Asbestos, Tremolite, Anthophyllite, Actinolite, or a Combination of These Minerals</u>	<u>Required Respirator</u>
Not in excess of 1 f/cc (10 X PEL)	1. Half-mask air purifying respirator equipped with high-efficiency filters.
Not in excess of 5 f/cc (50 X PEL)	1. Full faceplate air purifying respirator equipped with high-efficiency filters.
Not in excess of 10 f/cc (100 X PEL)	1. Any powered air purifying respirator equipped with high efficiency filters. 2. Any supplied air respirator operated in continuous flow mode.
Not in excess of 100 f/cc (1000 X PEL)	1. Full face piece supplied air respirator operated in pressure demand mode.
Greater than 100 f/cc (1,000 X PEL) or unknown concentration	1. Full face piece supplied air respirator operated in pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus.

NOTE: Respirators assigned for higher environmental concentrations may be used at lower concentrations.

A high-efficiency filter means a filter that is at least 99.97 percent efficient against mono-dispersed particles of 0.3 micrometers in diameter or larger.

Employee Rotation: The Contractor shall not use employee rotation as a means of compliance with Permissible Exposure Limits (TWA and/or Excursion Limit).

Supervision: The Contractor shall have a project supervisor on site at all times that only supervises the project and is responsible to assure contract and regulatory compliance.

PREPARATION OF REGULATED AREA

Post the following warning signs at all approaches to a regulated area per OSHA 1926.110(k)(7). Signs shall be posted at a distance sufficiently far enough away from the regulated area to permit any person to read the sign and take the necessary protective measures before entering the area marked by the signs.

**DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY**

Post the Occupant Protection Plan at the entrance to the regulated area per DHS 159.21(3).

Post at the entrance to the regulated area a list containing the names, addresses and telephone numbers of the Contractor, Fire Department and any other personnel who may be required to be contacted during abatement activities.

Maintain Project Log per DHS 159.21(2).

Shutdown and lock out all heating, cooling and air conditioning system (HVAC) components that are in, supply or pass through the regulated area. Appropriate equipment and control measures shall be utilized to prevent contamination of building spaces. Seal all intake and exhaust vents in the work area with tape and two layers of 6 mil polyethylene. Also seal any seams in system components that pass through the regulated area.

All electrical circuits to the area in which asbestos abatement work is to take place must be disconnected. The regulated area and other uncontaminated areas that were dependent on the disconnected electrical circuits shall be serviced by a temporary electrical service provided by owner. In accordance with the latest issue of the National Electrical Code, temporary electrical service shall be equipped with combination ground fault interrupted and circuit breakers meeting the requirements of UL for Class A, Group 1 devices. The ground fault interrupter portion shall be solid state type, insulated and isolated from the breaker mechanism. A test mechanism shall provide overload and short circuit protection and shall be operated by a toggle switch with over-center switching mechanism so that contact cannot be held closed.

Preclean all movable objects within the regulated area using a HEPA filtered vacuum or wet cleaning methods as appropriate. After cleaning, these objects shall be removed from the regulated area and carefully stored in an uncontaminated location.

Preclean all fixed objects in the regulated area using HEPA filtered vacuums or wet cleaning techniques as appropriate, if contamination is visibly covering them. Careful attention must be paid to machinery and 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 precleaning, enclose fixed objects in four (4) mil polyethylene sheeting and seal securely in place with tape.

Preclean all surfaces in the regulated 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 precleaning phase.

Seal off all windows, doorways, elevator openings, corridors, tunnels, entrances, drains, ducts, grills, grates, diffusers, skylights and any other openings between the regulated area and uncontaminated areas outside of the regulated area (including the outside of the building, tunnels and crawl spaces) with four (4) mil polyethylene sheeting and tape.

Critical Barriers:

Critical barriers shall be installed over all openings including, but not limited to the following:

- Doors
- Windows
- HVAC diffusers/grilles
- HVAC ductwork
- Wall openings

Critical barriers shall be constructed of two layers of 6 mil polyethylene sheeting, and duct tape. Any critical barrier over an opening that is larger than a standard size single door, must be reinforced by wood framing. Contractor shall install critical barriers such that they will maintain throughout the duration of the project.

Wall Covering:

Where gross removal techniques will be utilized, walls shall be covered with two (2) layers of four (4) mil polyethylene sheeting, starting at top of wall and extending down and across the floor area until it meets in the center of the floor. Here the covering sheets shall be taped together to form a monolithic covering which completely encases the regulated area.

Polyethylene sheets shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six (6) feet.

Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This may require additional support/attachment when negative pressure ventilation systems are utilized.

Floor Covering:

The floor area which has previously been covered with sheeting extended from the walls, shall be covered with one additional layer of six (6) mil (minimum) sheeting. Provide additional protection such as plywood, canvas, or extra plastic sheeting for floors requiring special protection such as carpeting, hardwood flooring and tile floors which may be damaged by water leakage, ladder feet or scaffold wheels. Additional layers of sheeting may be utilized as drop cloths to aid in cleanup of bulk materials.

Polyethylene sheets 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 six (6) feet between seams is sufficient. Do not locate any parallel seams at wall/floor joints.

Floor sheeting shall extend at least 24" up the side walls of the work area.

If glovebag operations are utilized, drop cloths may be installed below all work areas in lieu of full poly ethylene floors.

DECONTAMINATION ENCLOSURE SYSTEM

A decontamination enclosure system shall be provided at each location where workers will enter or exit a regulated area.

Plans for construction, including materials and layout, shall be submitted as shop drawings and approved by the Project Designer prior to work initiation. Decontamination enclosure systems constructed at the work site shall utilize six (6) mil opaque black or white polyethylene sheeting or other acceptable materials for privacy. Detailed descriptions of portable, prefabricated units, if used, must be submitted for the Project Designer's approval. Plans must include floor plan with dimensions, materials, size, thickness, plumbing and electrical utilities.

The decontamination enclosure system shall consist of at least a clean room, a shower room, and an equipment room, each separated from each other and from the regulated area by air locks.

Entry to and exit from all airlocks and decontamination enclosure system chambers shall be through curtained doorways consisting of two sheets of overlapping six (6) mil polyethylene sheeting. The curtain doorway sheets shall be secured at the top and one side opposite each other. All curtains shall have weights attached to the bottom to insure that they hang straight and maintain a seal over the doorway when not in use. Doorway designs, providing equivalent protection and acceptable to the Project Designer may be utilized.

Access between any two rooms in the decontamination enclosure system shall be through an airlock with at least three (3) feet separating each curtained doorway.

Pathways into (from clean to contaminated) and out from (contaminated to clean) the regulated area shall be clearly designated.

Clean room shall be sized to adequately accommodate the work crew. Clean disposable clothing, replacement filters for respirators, disposable towels and other necessary items shall be provided in adequate supply at the clean room. A location for postings shall also be provided in this area. Whenever possible, a lockable door shall be used to permit access into the clean room from outside the regulated area.

Shower room shall contain one or more shower heads as necessary to adequately accommodate workers. Each shower head shall be supplied with hot and cold water adjustable at the tap. The shower enclosure shall be constructed to insure against leakage of any kind. An adequate supply of soap and disposable towels shall be supplied by the Contractor and available at all times. Shower water shall be drained, collected and filtered as specified in the Article entitled: "Water Collection and Disposal," herein.

The equipment room shall be used for storage of equipment and tools at the end of a shift after workers have been decontaminated using a HEPA filtered vacuum and/or wet cleaning techniques as appropriate. Replacement filters (in sealed containers until used) for HEPA vacuums and negative pressure ventilation equipment, extra tools, containers or surfactant and other materials and equipment that may be required during the abatement may also be stored here as needed. A walk-off pan (a small children's swimming pool or equivalent filled with water) shall be located in the regulated area just outside the equipment room for workers to clean off foot coverings after leaving the regulated area and prevent excessive contamination of the worker decontamination enclosure system. A drum lined with a labeled six (6) mil polyethylene bag for collection of disposable clothing shall be located in this room. Contaminated rubber boots or other reusable footwear shall be stored in this area for reuse the following workday.

Waste Container Pass-Out Airlock:

The waste container pass-out airlock shall be constructed at some location away from the worker decontamination enclosure system. Wherever possible, this shall be located where there is direct access from the regulated area to the outside of the building.

This airlock system shall consist of an airlock, a container staging area, and another airlock with access to outside the regulated area.

The waste container pass-out airlock shall be constructed in similar fashion to the worker decontamination enclosure system using similar materials and airlock and curtain doorway designs.

This airlock system shall not be used to enter or exit the regulated area. The airlock system shall be tightly sealed when not in use.

Emergency exits shall be established and clearly marked with duct tape arrows or other effective designations to permit easy location from anywhere within the regulated area. They shall be secured to prevent access from uncontaminated areas, but still permit emergency exiting. These exits shall be properly sealed with polyethylene sheeting which can be cut to permit egress if needed.

TEMPORARY ISOLATION PARTITIONS

Large rooms or open areas that require temporary air tight barriers to separate a contaminated regulated area from an uncontaminated area shall be provided with temporary partitions, constructed in the following manner:

Walls shall be constructed of wood or metal framing to support barriers in all openings larger than 4' x 8'.

A sheathing material (plywood, drywall) of at least 3/8" thickness shall be applied to work side of barrier.

Cover the work side of partition with a double layer of four (4) mil polyethylene sheeting with staggered joints and seal in place.

Provide at least one (12" x 12") window in the barrier system, where feasible, for the purpose of viewing into the regulated area. The window shall consist of heavy gauge plastic or clear safety glass. Panes shall be framed into the barrier system and completely sealed to prevent any leakage of air through the unit.

MAINTENANCE OF ENCLOSURE SYSTEM

Following completion of the construction of all polyethylene barriers and decontamination system enclosures, initiate negative pressure system and allow overnight settling to insure that barriers will remain intact and secured to walls and fixtures before beginning actual abatement activities.

All polyethylene barriers and decontamination enclosure systems shall be inspected at least twice daily by the Contractor's competent person prior to the start of each day's abatement activities and following the completion of the day's abatement activities. Document inspections and observations in the daily project log.

Damage and defects in the enclosure system are to be repaired immediately upon discovery.

Use smoke tubes to test the effectiveness of the barrier system when directed by Owners Project Representative.

Anytime during the abatement activities, if visible construction related dust or debris is observed outside of the regulated area or if damage occurs to barriers, work shall

immediately stop, repairs shall be made to barriers, and debris/residue cleaned up using appropriate HEPA vacuuming and wet mopping procedures.

Openings made in the enclosure system to accommodate negative air pressure system shall be made airtight with tape and caulking as needed. If more than one unit is installed, they should be turned on one at a time, checking the integrity of wall barriers for secure attachment and need for additional reinforcement. Insure that adequate power supply is available to satisfy the requirements of the ventilating and exhaust units. Negative pressure units shall be exhausted to the outside of the building. If exhaust to the outside is not feasible, contractor shall request and obtain written approval prior to exhaust to the inside of any building. HEPA filtered exhaust fans shall never be exhausted into occupied areas of the building. Careful installation and daily inspections shall be done to insure that the ducting does not release fibers into uncontaminated building areas.

At exhaust locations, contractor shall secure the opening that is utilized to exhaust. It shall be secured to not allow access to the building, prevent weather from damaging the building and maintain the exhaust duct from releasing from the location.

Use of enclosure system shall not commence until the following has been accomplished:

Enclosure systems have been constructed, inspected, and tested.

Negative pressure systems are functioning adequately.

All preabatement submissions, notifications, postings and permits have been provided and approved by the Project Designer, or Construction Representative, as applicable.

All equipment for abatement, cleanup and disposal are on hand.

All worker training is completed.

Contractor has received written notice to commence abatement work from the Division, based on recommendation of the Owners Project Representative.

WORKPLACE ENTRY AND EXIT PROCEDURES

All workers and authorized personnel shall enter the regulated area through the decontamination enclosure system.

All personnel who enter the regulated area must sign the registration log, located in the clean room, both upon entry and exiting the area.

All personnel shall proceed first to the clean room, remove all street clothes, and appropriately don respiratory protection (as approved for the job conditions) and

disposable coveralls, head covering and foot covering. Hard hats, eye protection and gloves shall also be utilized if required. Clean respirators and protective clothing shall be provided and utilized by each person for each separate entry into the regulated area.

Personnel wearing designated personal protective equipment shall proceed from the clean room through the decontamination enclosure system to the regulated area.

Before leaving the regulated area all personnel shall remove gross contamination from the outside of respirators and protective clothing by brushing or wet wiping procedures. (Small HEPA vacuums with brush attachments may be utilized for this purpose.) Each person shall clean bottoms of protective footwear in the walk-off pan just prior to entering the equipment room.

Personnel shall proceed to equipment room where they remove all protective equipment except respirators. Deposit disposable clothing into appropriately labeled containers for disposal.

Reusable, contaminated footwear shall be stored in the equipment room when not in use in the regulated area. Upon completion of abatement it shall be disposed of as asbestos contaminated waste. Rubber boots may be decontaminated at the completion of the abatement for reuse.

Still wearing respirators, personnel shall proceed to the shower area, clean the outside of the respirators and the exposed face area under running water prior to removal of respirator and shower and shampoo to remove residual asbestos contamination. Various types of respirators will require slight modification of these procedures. An airline respirator with HEPA filtered disconnect protection may be disconnected in the equipment room and worn into the shower. A powered air purifying respirator face piece will have to be disconnected from the filter/power pack assembly which is not waterproof, upon entering the shower. Cartridges must be in place for each new entry into the regulated area.

After showering and drying off, proceed to the clean room and don street clothing even though there will be later reentry into the regulated area or street clothes if it is the end of the work shift.

Workers shall NOT eat, drink, smoke, chew gum or tobacco or apply cosmetics in the regulated area. To eat, drink or smoke, workers shall follow the procedure described above, then dress in street clothes before entering the nonregulated areas of the building.

These procedures shall be posted in the clean room and equipment room.

WASTE CONTAINER PASS-OUT PROCEDURE

Asbestos contaminated waste that has been containerized shall be transported out of the regulated area through the waste container pass-out airlock (or through the decontamination enclosure if a separate airlock has not been constructed).

The inside team wearing protective clothing and respirators appropriate for the contaminated regulated area shall clean the entire surface, including bottoms, of properly labeled bags, using HEPA vacuums and wet wiping techniques and transport them into the waste container pass-out airlock where they will be placed into another properly labeled bag. No worker from the inside team shall further exit the regulated area through this airlock.

Workers from outside the regulated area wearing appropriately assigned respirators, shall enter the airlock from outside the regulated area. No worker from the outside team shall further enter the regulated area through this airlock.

The exit from this airlock shall be secured to prevent unauthorized entry.

All waste containers shall be clean before leaving the waste container pass-out.

WATER COLLECTION AND DISPOSAL

All water resulting from precleaning operation, excess from floor of regulated area and the final cleaning operation shall be collected and placed in sealed containers for disposal as contaminated material.

Water from the decontamination shower shall be collected in a holding tank and filtered to remove particles of 0.5 microns or larger size before draining water into sanitary sewer system. The drainage and filtering system shall consist of the following:

A centrifugal pump capable of pumping at least 25 gallons/minute.

Two filter cartridge housings, one serving as a prefilter, utilizing at least 6 cylindrical 100 micron filters (reusable type) and the other serving as final filter with 6 cylindrical 0.5 micron filters.

Maintain two sets (6 cylinders per set) of 100 micron filters, to allow one set to be cleaned while the other set is in use.

A common garden hose may be connected to final filter housing to drain water to sanitary sewer system.

WET REMOVAL PROCEDURE

Wet all asbestos containing material with an amended water solution, or removal encapsulant, using equipment capable of providing a fine spray mist, in order to reduce airborne fiber concentrations when the material is disturbed. Saturate the material to the substrate. Keep all removed material wet to prevent fiber release until it can be containerized for disposal. If regulated area temperatures are below 32°F and amended water is subject to freezing, modify as specified for surfactant in Article entitled: "Materials," herein. Maintain a high humidity in the regulated area by misting or spraying to assist in fiber settling and reduce airborne concentrations.

Saturated asbestos containing material shall be removed in manageable sections. Removed material should be containerized before moving to a new location for continuance of work. Surrounding areas shall be periodically sprayed and maintained in a wet condition until visible material is cleaned up.

Material removed from building structures or components shall not be dropped or thrown to the floor. Material should be removed as intact sections or components whenever possible and carefully lowered to the floor. If this cannot be done for materials greater than 50 feet above the floor, a dust-tight chute shall be constructed to transport the material to containers on the floor or the material may be containerized at elevated levels (e.g. on scaffolds) and carefully lowered to the ground by mechanical means. For materials between 15 and 50 feet above the ground they may be containerized at elevated levels or dropped onto inclined chutes or scaffolding for subsequent collection and containerization.

Bags shall be considered full when half their capacity have been filled. They should be securely sealed to prevent accidental opening and leakage by tying tops of bags in an overhand knot or by taping in gooseneck fashion. Do not seal bags with wire or cord.

Large components removed intact may be wrapped in two (2) layers of six (6) mil polyethylene sheeting secured with tape for transport to the approved disposal site.

Asbestos containing waste with sharp edged components (e.g., nails, screws, metal lath, tin sheeting) shall be placed into drums for disposal in lieu of polyethylene bags. Drums shall be marked to differentiate contents from those drums containing bagged material.

After completion of all stripping work, surfaces from which asbestos containing materials have been removed such as plaster base coat or metal deck, etc., the surfaces shall be wet brushed and sponged to remove all visible residue.

CEILING SYSTEM REMOVAL

Remove, clean and enclose in polyethylene the ceiling mounted objects such as lights and other items that may interfere with the abatement process and were not previously

cleaned and sealed off. Utilize localized spraying of amended water, or HEPA vacuums, to reduce fiber dispersal during the removal of these fixtures.

Remove ceiling (tiles) (panels) within the regulated area carefully. If panels are to be reused, vacuum them with a HEPA filtered vacuum cleaner and carefully damp sponge and wrap cleaned (tiles) (panels) in four (4) mil polyethylene sheeting and seal with tape. Store as designated by Owners Project Representative (preferably outside of the regulated area). If (tiles) (panels) are to be discarded it is not necessary to clean them, but wrap in a similar fashion and stage for disposal in the waste container pass-out airlock. Contaminated ceiling tile shall be disposed of as friable asbestos waste.

Where suspended ceiling T-grid components are to remain, gridwork must be properly cleaned by removing all dust and debris from grid. HEPA vacuums and wet wiping techniques should be used.

Where the T-grid components are to be removed and disposed of, the components must be wrapped in 10 mil poly and sealed or placed in drums and sealed for disposal.

When removal of ceiling grid suspension system is not necessary for accessibility, to the asbestos containing materials leave the system in place and clean properly following completion of abatement, as specified in the Article of this section entitled: "Cleanup Procedure."

Remove plaster/drywall ceilings including lath, furring channel system, wire mesh, ties, clips, screws, nails and other accessory items as necessary and dispose of them as asbestos contaminated waste material. As work progresses, spray ceiling materials and debris with amended water to keep wet until containerized for disposal.

PIPE TUNNEL OR CRAWL SPACE REMOVAL WORK

A decontamination enclosure shall be provided at the entrance to the pipe tunnel or crawl space. All requirements for regulated area entry and exit procedures and waste container pass-out procedures, as hereinbefore specified, shall apply to this work.

All openings within the pipe tunnel or crawl space shall be sealed with six (6) mil polyethylene and tape. The existing surfaces within the space will not be required to be covered with polyethylene sheeting, unless otherwise indicated.

A negative pressure system shall be required to maintain the security of the work space and the integrated decontamination enclosure.

All loose and fallen asbestos-containing material shall be very carefully cleaned up with an industrial vacuum equipped with HEPA filter.

After asbestos abatement work has been completed in the crawl space or pipe tunnel, all ceiling, wall and floor surfaces shall be cleaned with the HEPA equipped vacuum. All cleaned surfaces shall be sealed with an approved encapsulant.

FLOORING REMOVAL

Where flooring removal is specified, the substrate shall have no adhesive residue or debris remaining. Contractor shall wash the substrate with soap and water to remove any solvent used. Contractor shall be responsible for the cost of repair or replacement of any building components damaged by excessive use of solvents.

OPERATIONS AND MAINTENANCE/SMALL SCALE - SHORT DURATION REMOVAL PROCEDURE

Glovebag Method:

All workers who are permitted to use the glovebag technique must be trained, experienced and skilled in this method.

All tools and materials that will be required during the removal procedure, shall be placed into the tool pouch.

Glovebag shall be installed so that it completely encompassed the surface where removal work will take place. The side seams of the glovebag shall be cut the appropriate length to accommodate a size that will fit over the removal area. The bag shall be placed in position, the edges of the bag shall be folded together and sealed with tape. All openings in the bag shall be sealed with duct tape (or equivalent material). The bottom seam of the bag must also be sealed with tape to prevent leakage.

Workers performing asbestos removal with glovebag shall wear (as a minimum) half mask dual--cartridge HEPA--equipped respirator, and full protective clothing to protect against the possibility of accidental leakage.

All material removed within the glovebag shall be thoroughly wetted with wetting agent, or removal encapsulant, applied with airless sprayer through the side port provided in the bag. After asbestos containing material has been removed, the exposed base surface must be thoroughly cleaned and wet wiped until all traces of asbestos-containing material is removed.

Create constant negative pressure by running a HEPA vacuum hose into bag.

Any exposed edges of asbestos-containing that will remain after bag is removed, shall be encapsulated with a bridging encapsulant to seal the material from releasing fibers to the atmosphere. Provide neatly beveled and coated terminations where insulation terminates suitable for a butt joint with new insulation.

In all glovebag removal settings, all doors, windows and other openings to the functional space must be sealed with a minimum of six (6) mil polyethylene sheeting. The HVAC system must be shut down, and all HVAC openings must be sealed with two critical barriers. Once the area is completely sealed off, negative air pressure must be introduced to the entire functional space.

In glove bag settings which involve small scale short duration removal the immediate area shall be prepared using the following techniques; polyethylene drop cloths (minimum 6 mil) on floor and walls in a 12 foot perimeter of the removal area, negative air machine present and running in the immediate area. Glove bag must be placed under variable negative pressure during removal stages. A centralized five stage decontamination system must be established in the building for this method of glovebag removal.

Mini-Enclosure Method:

A mini-enclosure may be built around an area which is too large for glovebag method, but is of small-scale and short duration work and would not warrant large enclosure.

The mini-enclosure can be small enough to restrict the space to use by one worker. A small change room shall be contiguous to the mini-enclosure. The change room shall be a minimum of three (3) feet square.

The mini-enclosure shall be constructed by affixing plastic sheeting to existing walls and covering the floor with plastic sheeting which shall extend up walls at least 24 inches and sealed with tape. If existing walls are not available, a 2 x 4 wood frame shall be constructed and two (2) layers of six (6) mil polyethylene sheeting applied to the interior side of frame to allow clean "take-down," at completion. Sheeting shall be sealed with tape.

The change room shall be constructed of 2 x 4 wood framing to which shall be applied two (2) layers of six (6) mil polyethylene sheeting to interior side of frame and sealed with tape. The change room shall be provided with double six (6) mil polyethylene curtains at the exit and the entrance to the mini work enclosure. Both curtains in each opening shall be secured at the top and one side opposite from the other.

A hose from a HEPA vacuum shall be extended through the wall of the Mini-Enclosure and the opening around the hose shall be sealed with tape. The HEPA vacuum shall run continuously during the time asbestos abatement work is taking place.

All abatement work shall be conducted using the wet removal method and all debris from such work shall be bagged and disposed of as contaminated material. Upon completion, the interior surfaces of the regulated area shall be cleaned and sprayed with an encapsulant.

Worker using the mini-enclosure method shall wear two (2) TyvekR or equivalent disposable work suit and the appropriate HEPA filtered dual cartridge respiratory protection. Upon completion of the work and before leaving the change area, worker shall remove outer work suit and then proceed to a shower that is not contiguous with the work area.

The polyethylene enclosure, comprising the regulated area and the change room, shall be collapsed inwardly, bagged and disposed of as contaminated material.

ENCAPSULATION PROCEDURES

Clean and isolate the regulated area as specified in Article entitled: "Preparation of Regulated Area", hereinbefore.

Repair damaged and missing areas of existing materials with non-asbestos-containing substitutes. Material must adhere adequately to existing surfaces and provide an adequate base for application of encapsulating agents. Filler material shall be applied in accordance with manufacturer's recommended specifications.

Spray apply with airless equipment with low nozzle pressure to all surfaces where asbestos is removed or surfaces containing asbestos that are to remain in place. Spray must encapsulate any remaining asbestos in place.

Apply a minimum of one (1) coat with coverage in strict accordance with manufacturer's recommendations. Surfaces must be dry and free of dirt, oil and dust.

AIR MONITORING – CONTRACTOR

Daily Personal Air Monitoring (OSHA Compliance):

Daily determination of employee exposure shall be made by collecting one or more breathing zone samples that are representative of the 8-hour TWA, full-shift exposure for each employee in each regulated area; and one or more breathing zone air samples that are representative of 30-minute exposures associated with operations that are most likely to produce exposures above the excursion limit for employees in each regulated area.

OSHA P.E.L. As required by 29CFR 1926.1101(c). Within the breathing zone of each worker category (i.e., wetter, receiver, bagger) 25% of the crew or one per job category.

All samples collected shall be analyzed by a laboratory accredited by the American Industrial Hygiene Association or PAT proficient.

The Owners Project Representative has the authority to stop the abatement work under the provisions of the General Conditions of this contract at any time the Construction

Representative determines either personally or through the services of an air sampling professional that conditions are not in compliance with the specifications and applicable regulations. The stoppage of work shall continue until conditions have been corrected and corrective steps have been taken to the satisfaction of the Construction Representative. Standby time required to resolve violations shall be at the Contractor's expense.

AIR MONITORING – OWNER

Pre-Abatement/During Abatement

The owner shall, if deemed necessary, conduct pre-abatement and during abatement air sampling. Samples will be collected outside of the regulated area and analyzed by Phase Contrast Microscopy. Work must stop and corrective action must be taken if outside area sample results exceed the level of 0.01 f/cc.

When fiber levels in excess of 0.01 f/cc are found outside the work area, the contractor may request, and shall pay for analysis of the samples by Scanning Electron Microscopy (SEM) or Transmission Electron Microscopy (TEM) to determine whether actual asbestos fiber concentration is in excess of acceptable levels. If asbestos fiber concentration is found to be less than 0.005 s/mm², work may continue.

Post-Abatement Clearance Sampling

Owner's representative shall conduct clearance air sampling in compliance with 40 CFR Part 763. A minimum of 5 air samples will be collected for each containment area. Minimum volume of air samples will be 1200 liters of air for TEM and PCM analysis. Samples will be analyzed by Phase Contrast Microscopy (PCM) or Transmission Electron Microscopy (TEM), depending on the amount of ACM removed, and the complexity of the containment area.

The clearance air test shall be considered successful if all samples meet the clearance criteria established in 40 CFR Part 763.

If clearance air test is unsuccessful, contractor shall reclean the containment area and the clearance air test shall be conducted again.

The abatement contractor will be responsible for the cost of any clearance air test that is deemed necessary because of an unsuccessful initial clearance air test.

LABORATORY SERVICES

Laboratories utilized for analyzing air samples by Phase Contrast Microscopy (PCM) shall be satisfactory participants in the NIOSH Proficiency Analytical Testing (PAT). Laboratories must also have in place a quality control program in accordance with the NIOSH 7400 Standard Analysis Specification. Personnel conducting PCM analysis shall have successfully completed the NIOSH 582 course or equivalent training.

Laboratories used for analyzing air samples by Transmission Electron Microscopy (TEM), or bulk samples by Polarized Light Microscopy (PLM), shall be satisfactory participants in the EPA Quality Assurance Program (NVLAP).

All sample results must be made available to the owner's representative within 48 hours of collection.

CLEANUP PROCEDURE

Remove and containerize all visible accumulations of asbestos containing material and asbestos contaminated debris utilizing rubber dust pans and rubber squeegees to move material around. Do not use metal shovels to pick up or move accumulated waste. Special care shall be taken to minimize damage to floor sheeting.

Wet clean all surfaces in the regulated area using rags, mops and sponges as appropriate. (Note: Some HEPA vacuums might not be wet-dry vacuums.)

Prior to removing the inner layer of plastic sheeting, the sheeting shall be sprayed with an encapsulant, so that any residue remaining will be adhered to the plastic sheeting.

Remove the cleaned inner layer of plastic sheeting from walls and floors. Windows, doors, HVAC system vents and all other openings shall remain sealed. The negative pressure ventilation units shall remain in continuous operation. Decontamination enclosure systems shall remain in place and be utilized.

Remove all containerized waste from the regulated area and waste container pass-out airlock.

The Contractor shall inspect the regulated area for visible residue. If any accumulation of residue is observed, it will be assumed to be asbestos and the cleaning cycle shall be repeated.

After cleaning the regulated area the Contractor may either spray the remaining barrier material with encapsulant or, wait at least 24 hours to allow fibers to settle and HEPA vacuum and wet clean all objects and surfaces in the regulated area again.

Decontaminate all tools and equipment and remove at the appropriate time in the cleaning sequence.

DISPOSAL PROCEDURES

As the work progresses to prevent exceeding available storage capacity onsite, sealed and labelled containers of asbestos-containing waste shall be removed and transported directly to the prearranged disposal location, which must be an authorized site in accordance with regulatory requirements of NESHAP and Wisconsin Administrative Rule NR 447.13 and NR 506.10. Use of intermediate storage locations is not accepted

disposal procedure. Mark vehicles used to transport asbestos-containing waste in accordance with Nr 447.12(4)(a)1 to 3. Comply with US DOT Hazardous Material regulations, 49 CFR 171-180.

The Contractor shall provide documentation in the form of a transportation and disposal manifest that will provide a chain-of-custody record of all asbestos-containing waste from project site to the disposal site. All asbestos-containing waste generated must be accounted for by these records and copies of all such records shall be delivered to the Construction Representative.

Transportation to the Landfill:

Contractor shall provide an enclosed lockable waste container, consisting of a truck, trailer or dumpster, for storage and transportation of waste. The waste container shall be locked while unattended and during transportation of waste. Once bags have been removed from the regulated area, they shall be loaded directly into the waste container for transportation.

Drums shall be placed on level surfaces in the waste container and packed tightly together to prevent shifting and tipping. Large components shall be secured to prevent shifting and bags placed on top. Do not throw containers into waste container.

Personnel loading asbestos containing waste shall be protected by disposable clothing including head, body and foot protection and at a minimum, half-face piece, air-purifying, dual cartridge respirators equipped with HEPA filters.

Any debris or residue observed on containers or surfaces outside of the regulated area resulting from cleanup or disposal activities shall be immediately cleaned up using HEPA filtered vacuum equipment and/or wet methods.

Disposal at the Landfill:

Upon reaching the landfill, trucks are to approach the dump location as closely as possible for unloading of the asbestos containing waste.

Bags, drums and components shall be inspected as they are off-loaded at the disposal site. Damaged containers shall be very carefully taped shut and repacked into drums or bags as applicable.

Waste containers shall be placed on the ground at the disposal site, not pushed or thrown out of trucks (weight of wet material could rupture bags).

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-face piece, air-purifying, dual cartridge respirators equipped with HEPA filters.

Following the removal of all containerized waste, the truck cargo area shall be decontaminated using HEPA vacuums and wet methods to meet the no visible residue criteria. Polyethylene sheeting shall be removed and discarded along with contaminated cleaning materials and protective clothing, in bags or drums at the disposal site.

REESTABLISHMENT OF REGULATED AREA

Reestablishment of the regulated area shall occur only after completion of cleanup procedures and documentation has been performed to the satisfaction of the Project Representative.

Resecure mounted objects removed from their former positions during area preparation activities.

Resecure and relocate objects that were removed to temporary locations back to their original positions.

Reestablish HVAC, mechanical and electrical systems in proper working order. Remove potentially contaminated HVAC system filters and dispose of as asbestos contaminated waste. Decontaminate filter assembly using HEPA vacuums and wet cleaning techniques.

RESTORATION

Contractor is responsible for restoring all existing finish surfaces to their original state, which were damaged as a result of abatement activities.

PART 4 – SCOPE OF WORK

BUILDING INFORMATION	
Building Name:	Former OE Gray School
Building Address:	110 W. Adams Avenue, Platteville, WI 53818
County:	Grant
Construction Date:	N/A
Square Footage:	N/A
Levels:	One
Inspector Name:	Thomas J. Bushman
Date of Inspection:	October 19, 2023
Client Name:	City of Platteville
Client Phone Number:	Shannon Butson: 608-778-3546

SCOPE OF ABATEMENT WORK

<u>Room/Area</u>	<u>Asbestos Containing or Lead Containing Material To Be Removed</u>	<u>Approx. Quantity</u>
Tunnels	Pipe Insulation	2,340 LF
Tunnel Below Rooms 7 & 8	Pipe Fitting Insulation	35 Fittings
Pipe Chase Between Boy's & Girl's Restroom	Pipe Insulation	130 LF
Boy's Restroom	Pipe Insulation (Pipe Insulation in Walls Behind Water Source) Abatement Contractor Demolish to Access	30 LF
	Ceramic Wall Tile, Thin Set & Grout Lead Containing Yellow Ceramic Wall Tile (Thin Set Contains Asbestos)	320 Sq. Ft.
	Interior Door Frame Caulk (Original Building)	1 Single Door
Girl's Restroom	Pipe Insulation (Pipe Insulation in Walls Behind Water Source) Abatement Contractor Demolish to Access	30 LF
	Ceramic Wall Tile, Thin Set & Grout Lead Containing Yellow Ceramic Wall Tile (Thin Set Contains Asbestos)	320 Sq. Ft.
	Interior Door Frame Caulk (Original Building)	1 Single Door
Room 1	Interior Door Frame Caulk (Original Building)	1 Single Door
	12" Floor Tile & Mastic	760 Sq. Ft.

<u>Room/Area</u>	<u>Asbestos Containing or Lead Containing Material To Be Removed</u>	<u>Approx. Quantity</u>
Room 2	12" Floor Tile & Mastic	760 Sq. Ft.
	Interior Door Frame Caulk (Original Building)	1 Single Door
Room 3	Interior Door Frame Caulk (Original Building)	1 Single Door
	12" Floor Tile & Mastic	760 Sq. Ft.
Room 4	12" Floor Tile & Mastic	760 Sq. Ft.
	Interior Door Frame Caulk (Original Building)	1 Single Door
Room 5	Interior Door Frame Caulk (Original Building)	1 Single Door
	12" Floor Tile & Mastic	760 Sq. Ft.
Room 6	12" Floor Tile & Mastic	760 Sq. Ft.
	Pipe Insulation (Below Sink)	2 LF
	Interior Door Frame Caulk (Original Building)	1 Single Door
Room 7	Interior Door Frame Caulk (Original Building)	2 Single Doors
	12" Floor Tile & Mastic (Carpet Over Mastic)	850 Sq. Ft.
Storage 7/8	12" Floor Tile & Mastic	132 Sq. Ft.
	Fire Doors	2 Doors
Room 8	Fire Doors	1 Door
	Interior Door Frame Caulk (Original Building)	3 Single Doors
	12" Floor Tile & Mastic	1,222 Sq. Ft.
Room 8 Storage	12" Floor Tile & Mastic	88 Sq. Ft.
Room 9	12" Floor Tile & Mastic	760 Sq. Ft.
	Interior Door Frame Caulk (Original Building)	1 Single Door
Room 10	Interior Door Frame Caulk (Original Building)	1 Single Door
	12" Floor Tile & Mastic	760 Sq. Ft.
Room 11	12" Floor Tile & Mastic	760 Sq. Ft.
	Interior Door Frame Caulk (Original Building)	1 Single Door
Main Office	Interior Door Frame Caulk (Original Building)	5 Single Doors

<u>Room/Area</u>	<u>Asbestos Containing or Lead Containing Material To Be Removed</u>	<u>Approx. Quantity</u>
Main Office Complex 12	Interior Door Frame Caulk (Original Building)	6 Single Doors 1 Window Frame (10'x3')
	12" Floor Tile & Mastic	168 Sq. Ft. (Carpet Over Mastic) 930 Sq. Ft. (Floor Tile Over Mastic)
Main Office Restroom	Ceramic Wall Tile, Thin Set & Grout Lead Containing Yellow Ceramic Wall Tile (Thin Set Contains Asbestos)	100 Sq. Ft.
	Pipe Insulation (Pipe Insulation in Walls Behind Water Source)	15 LF
Hallway (At Main Office)	Interior Window Glazing Compound (Original Building)	2 – 5'x3' Windows
Hallway	Ceramic Wall Tile, Thin Set & Grout (Thin Set Contains Asbestos)	2,482 Sq. Ft.

<u>Room/Area</u>	<u>Asbestos Containing or Lead Containing Material To Be Removed</u>	<u>Approx. Quantity</u>
Hallway	12" Floor Tile & Mixed Mastics (Yellow & Black) Note: Below 12" Floor Tile there is primarily yellow non-asbestos mastic with spotty areas of black asbestos mastic. The abatement contractor will need to pull up all of the flooring to remove the asbestos black mastic.	3,926 Sq. Ft.
Exterior Attic	Exterior Glass Block Caulking (Original Building)	10 – 12'x6' Openings
Exterior at Door E-2	Transite Paneling (Soffit) (Original Building)	40 Sq. Ft.
Exterior at Door E-1	Transite Paneling (Soffit) (Original Building)	760 Sq. Ft.
Interior at Door S-3	Transite Paneling (Soffit) (Original Building)	60 Sq. Ft.
Boiler Room	Fire Doors	1 Door

<u>Room/Area</u>	<u>Asbestos Containing or Lead Containing Material To Be Removed</u>	<u>Approx. Quantity</u>
Kitchen	Pipe Insulation (Pipe Insulation in Walls Behind Water Source) Abatement Contractor Demolish to Access	4 LF
Kitchen Complex	Ceramic Wall Tile, Thin Set & Grout (Only Ceramic Base Tile) (Thin Set Contains Asbestos)	127 LF
	Interior Door Frame Caulk (Original Building)	6 Single Doors
Storage Room off Room 13	12" Floor Tile & Mastic (Carpet Over Mastic)	36 Sq. Ft.
	Ceramic Wall Tile, Thin Set & Grout (Thin Set contains asbestos)	60 Sq. Ft.
Room 14	12" Floor Tile & Mastic	760 Sq. Ft.
Room 15	12" Floor Tile & Mastic	760 Sq. Ft.
Room 15	Interior Door Frame Caulk (Original Building)	1 Single Door
Room 16	12" Floor Tile & Mastic	912 Sq. Ft.
Room 16	Interior Door Frame Caulk (Original Building)	3 Single Doors
Room 16 Storage	Ceramic Wall Tile, Thin Set & Grout (Only Ceramic Base Tile) (Thin Set Contains Asbestos)	24 LF
Gym	12" Floor Tile & Mastic	2,880 Sq. Ft.
	Pipe Insulation (Above Tectum Ceiling) Abatement Contractor Demolish to Access	75 LF
	Ceramic Wall Tile, Thin Set & Grout (Thin Set Contains Asbestos)	940 Sq. Ft.
	Interior Door Frame Caulk (Original Building)	3 Single Doors/ 3 Double Doors
Gym Storage	Ceramic Wall Tile, Thin Set & Grout (Only Ceramic Base Tile) (Thin Set Contains Asbestos)	78 LF
	12" Floor Tile & Mastic	406 Sq. Ft.
Custodial Closet	12" Floor Tile & Mastic	35 Sq. Ft.
	Interior Door Frame Caulk (Original Building)	1 Single Door
PE Office	Box of 9" Floor Tile	1 Box
PE Office Complex	Ceramic Wall Tile, Thin Set & Grout Lead Containing Blue Ceramic Wall Tile (Thin Set Contains Asbestos)	490 Sq. Ft.

<u>Room/Area</u>	<u>Asbestos Containing or Lead Containing Material To Be Removed</u>	<u>Approx. Quantity</u>
PE Office Shower/RR	Pipe Insulation (Pipe Insulation in Walls Behind Water Source) Abatement Contractor Demolish to Access	30 LF
OT/PT Office Complex	Ceramic Wall Tile, Thin Set & Grout Lead Containing Blue Ceramic Wall Tile (Thin Set Contains Asbestos)	490 Sq. Ft.
OT/PT Office Shower/RR	Pipe Insulation (Pipe Insulation in Walls Behind Water Source); Abatement Contractor Demolish to Access	30 LF
Electrical Room Near Room 14	Fire Doors	2 Doors
Boiler Room	Interior Door Frame Caulk (Original Building)	1 Single Door
Attic Around Gym	Roofing Flashing (Original Building)	450 Sq. Ft.
Additional Unknown Materials to be Included in Base Bid	Pipe Insulation	300 LF
	Pipe Fitting Insulation	50 Fittings

ADDITIONAL PROJECT NOTES

GENERAL NOTES – ALL WORK

- A. Electrical power to the building will be disconnected prior to this work being performed. The abatement contractor will be responsible to supply all power necessary for this work.
- B. Water to the building has been shut down. The abatement contractor will be responsible supplying all water necessary for the project. There are two fire hydrants located at the site.
- C. Remove and dispose of all ACM in accordance with applicable regulations and project specifications. If suspect ACMs are encountered during construction and demolition that are not identified on the asbestos abatement drawings, stop work and contact the project manager.
- D. All work is to be performed in accordance with all applicable federal, state, and local regulations, project specifications, and accepted industry practice. When requirements overlap or conflict, the most stringent requirement shall apply. All work shall be craftsman-like and subject to inspection by the owner, the owner's consultants, and regulatory personnel.
- E. Demolition of non-ACM building materials may be required to access regulated materials, including but not limited to, cabinets, univents, raised flooring, gypsum wallboard, expanded metal or wood lath and plaster walls and ceilings, wall framing, carpet, ceramic and vinyl floor coverings, wood, etc. The abatement

contractor shall be responsible for demolition of non-ACM materials as needed to access regulated materials for abatement, and for coordinating the limits of demolition and abatement with the general contractor.

- F. All costs associated with the exploratory demolition and demolition of non-ACM materials needed to accomplish abatement shall be included in the abatement contractor's base bid(s) for the project. No additional compensation shall be considered for this work.
- G. Contractor shall provide all scaffolding, ladders, plywood, manlifts, etc. required and/or necessary to complete all work required by the contract documents.
- H. All building finishes, construction equipment or other components of the building which are damaged or in any way disrupted as a result of the execution of this contract shall be replaced or restored to original condition.
- I. Contractor shall provide as many shifts of laborers as necessary to complete the project in the amount of time specified in the contract documents at no extra cost.

GENERAL NOTES – THERMAL SYSTEM INSULATION (TSI)

- A. Contractor shall conduct the removal of all thermal system insulation (TSI) within a negative pressure enclosure observing glovebag techniques. Demolition of non-ACM building materials may be required to access regulated materials, including but not limited to, cabinets, raised flooring, gypsum wallboard, expanded metal or wood lath and plaster CMU walls and ceilings, wall framing, carpet, ceramic and vinyl floor coverings, wood, etc. The abatement contractor shall be responsible for the demolition of non-ACM materials as needed to access regulated materials for abatement, and for coordinating the limits of demolition and abatement with the general contractor. Demolition necessary to access TSI shall be included in base bid.
- B. A 6 mil poly drop cloth shall be placed on the ground below the removal activities.
- C. Any ceiling tiles below the removal activities within a 4' radius shall be HEPA vacuumed after the removal is completed.
- D. The piping must be free of any residual ACM prior to the application of a penetrating encapsulant.
- E. Upon removal of the poly drop cloth, the floor shall be thoroughly HEPA vacuumed and wet wiped/mopped, if feasible.

GENERAL NOTES - CONCRETE TUNNEL ABATEMENT NOTES

- A. Contractor shall construct a negative pressure enclosure with an attached three-stage decontamination suite with shower.
- B. All removal shall take place within a negative pressure enclosure.
- C. Wet removal and prompt clean-up methods shall be utilized.
- D. Any windows or doors that are used to vent negative air machines shall be secured using 2"x4"s and plywood. This is required for security purposes.
- E. Contractor shall remove all asbestos containing pipe insulation in the tunnel system, observing glovebag techniques with a drop cloth below all removal.

- F. Contractor must use air scrubbers (2000 CFM) during abatement in the tunnel system (min. 3).
- G. The contractor shall achieve negative pressure within the tunnels prior to abatement. Make up air must be provided for tunnels to maximize air flow.
- H. The tunnels must be thoroughly cleaned by wet wash and HEPA vacuum. No dust will be present at the completion of cleaning. Contractor must use a leaf blower to agitate air during cleaning.
- I. Owner's representative will conduct a final visual inspection and clearance air sampling.

GENERAL NOTES – ASBESTOS-CONTAINING CERAMIC TILE/GROUT/MASTIC/ THINSET

- A. Contractor to remove all ceramic tile/grout/mastic/thinset from the substrate. The substrate must be free of any residual grout/mastic/thinset.
- B. All work to be conducted within a negative pressure enclosure with one (1) 2000 CFM HEPA-filtered air scrubber per 2000 square feet of floor space. This is in addition to the machines needed to provide negative air pressure.
- C. If the walls that have the ceramic tile/grout/mastic/thinset are scheduled for demolition, the contractor can choose to completely demolish the entire wall system. If complete demolition of wall is elected, the work must be coordinated with the General Contractor and owner.

GENERAL NOTES – FLOOR TILE REMOVAL

- A. Contractor to verify exact extent of removal area. Contractor must consult EMC and owner to verify exact start and stop points for abatement.
- B. Critical barriers must be secured with wood studs, 2" x 4."
- C. Contractor will be required to use low/zero VOC based mastic remover to minimize odors.
- D. Caution must be observed in not using excess mastic remover. Contractor will be responsible for all damage resulting in any way from the specified work.
- E. Any ducting of negative air ducts outdoors via doors and windows must be secured through plywood openings with 2" x 4" reinforcement.
- F. Contractor shall be cautious with mastic remover, make sure excess mastic remover cannot leak through to level below. In areas where occupied spaces are present below poly shall cover any contents prior to removal.
- G. Contractor to monitor adjacent spaces for mastic remover leak through and clean up immediately.
- H. Contractor will be responsible for any damage caused by tape spray glue or tape residue.
- I. Splash guards shall be installed 6' from the floor and be sealed at the top and bottom with tape.
- J. Any floor where solvent is utilized for mastic removal shall be neutralized with a detergent and hot water rinse.

- K. Carpet - some of the floor tile shown on the plans is covered with carpet. The carpet is considered incidental to the work and will be removed by the abatement contractor, if necessary.
- L. Coordination for HVAC shut-down and isolation of utilities for asbestos abatement work shall be the responsibility of the abatement contractor.
- M. Utility disconnects and isolation necessary for abatement work will be the responsibility of the abatement contractor.
- N. Existing conditions shall be field verified by the contractor and discrepancies reported to the project designer prior to start of work.
- O. The intent of the owner is to have all flooring and related mastics removed from the floors surface. The contractor shall be responsible for all layers of flooring and mastics present regardless of the nature or color of the material. Floor fillers are considered incidental to the removal project.
- P. Contractor shall investigate below all cabinets, casework, walls, raise floors, etc. for asbestos containing flooring present below. All asbestos containing flooring shall be removed.

GENERAL NOTES – INTERIOR DOOR /WINDOW FRAME REMOVAL

- A. Interior door/window frame with asbestos containing (AC) caulk/glaze or fire door removal shall take place within a regulated area as defined by OSHA 29 CFR 1926.1101.
- B. All work shall be conducted using non-friable (hand methods) work practices and wet methods.
- C. Proper PPE shall be worn when working in the regulated area and include at a minimum a half-mask respirator and a disposable suit. Workers shall double suit and remove the outer suit prior to leaving the regulated area.
- D. Only HEPA vacuums shall be used to clean up debris and to decontaminate prior to leaving the regulated area.
- E. The entire door/window system including the window and door itself shall be properly removed, wrapped in poly within the regulated area, labeled and disposed of as asbestos containing material (ACM). All residual caulk shall be removed from adjacent building materials.

PROJECT SCHEDULE

Start Date: Tuesday, September 3, 2024

Completion of Removal Date: Prior to Friday, September 27, 2024

Air Monitoring Date: To Be Determined

Final Tear Down Date: Prior to Friday, September 27, 2024

SECTION 02 87 00
OTHER HAZARDOUS MATERIALS
PART 1 – GENERAL

SCOPE OF WORK

This project involves the proper removal and disposal of hazardous/regulated materials identified in the building prior to demolition. These structures will subsequently be demolished.

In addition to the designated hazardous materials, asbestos-containing materials must be properly removed and disposed as necessary to conduct building demolition in accordance with WDNR NR447 as addressed in Technical Section 02 82 13 section.

A detailed hazardous/regulated material inventory is presented in Table 1. Contractors are encouraged to verify the estimated quantities presented in Table1.

Hazardous/Regulated Materials Removal

The Consultant has conducted a building survey to identify and inventory mercury-containing fluorescent lamps, PCB-containing ballasts, CFC-containing refrigeration equipment, containers of chemical products and other hazardous/regulated or potentially hazardous building components located in the Former OE Gray School. This inventory is presented as Table 1 (attached). All remaining hazardous/regulated materials are to be properly removed, transported, recycled, and/or disposed in accordance with all applicable regulations and these specifications.

Fluorescent Lamps, Mercury Vapor Bulbs, and High Intensity Discharge Bulbs

The scope of work for the abatement contractor includes the removal and recycling of all fluorescent lamps, mercury vapor bulbs, and high intensity discharge (HID) bulbs from lighting fixtures located in the Former OE Gray School. Fluorescent lamps, mercury vapor bulbs, and HID bulbs shall be removed prior to starting demolition, properly packaged to prevent breakage, and transported intact to an EPA-approved recycling facility.

Contractors responsible for the removal and recycling of the fluorescent lamps, mercury vapor bulbs, and HID bulbs shall handle and manage them in accordance with the current NR673 Standards for Universal Waste Management Requirements and the Wisconsin WDNR Publication WA-195.:

An Overview of Guidelines include:

- Carefully remove lamps and bulbs from fixtures. Lamps and bulbs shall remain intact (unbroken) and shall be carefully placed into cardboard containers designed to hold them (preferably original boxes obtained from the manufacturer

or special boxes obtained from a lamp recycler).

- Broken lamps and bulbs should still be recycled. However, if they are not acceptable to the recycling facility, they must be evaluated to determine if they are hazardous waste. Remove and discard residues from broken lamps and bulbs promptly. Personnel cleaning up spills should have appropriate training, cleanup equipment, and wear appropriate personal protective equipment. Acceptable storage for broken, damaged, or leaking lamps and bulbs include a closed 55-gallon steel drum or a closed wax fiberboard drum.
- Store boxed lamps and bulbs in a secure area and limit access to personnel qualified to handle them.
- Contact WDNR/EPA-approved lamp recycler and arrange for transport of the properly packaged and labeled lamps and bulbs to the recycler.
- Submit copies of the original shipment records documenting proper transport, recycling, and proper disposal of any non-recycled components to the owner's representative upon project completion.

PCB-Containing Ballasts and Transformers

A limited visual inspection of some ballast labels indicates that the ballasts contain or may contain PCBs. The Contractor is required to inspect every ballast in each fixture and visually verify that each ballast is labeled "No PCBs" or is unlabeled and presumed to contain PCBs.

Any known or presumed PCB-containing ballast shall be removed and placed into a 55-gallon steel drum (17C or 17H) or other DOT-approved container appropriately labeled in accordance with EPA and DOT regulations. Any leaking PCB-containing ballasts or transformers shall be wrapped and sealed in 6-mil plastic disposal bags and placed in a separate steel drum or other approved container. Each disposal drum or container will have a sufficient amount of oil-absorbent material placed in the bottom to absorb any oil from ballasts that are leaking or may leak during transport.

Contractor shall stage all properly containerized PCB-containing ballasts on-site for proper disposal by owner.

The contractor shall properly containerize and recycle any Non-PCB ballasts or transformers and provide proof of recycling or destruction upon completion of project.

Ozone-Depleting Refrigerants [chlorofluorocarbons (CFC) including Freon]

The Contractor is responsible for the removal and proper reclamation of Freon and any other ozone-depleting gases from drinking fountains and any remaining refrigerators, air conditioners, air handling units, air compressors/dryers or other CFC-containing equipment within the Former Environmental Education and Harvey Philip Buildings prior to demolition of the building.

The Contractor or its designated subcontractor hired and assigned to remove CFC-

containing refrigerants shall meet all federal and state requirements for certification as a "Refrigerant Reclaimer" as defined in Section 608 of the Clean Air Act. The refrigerant reclaimer is responsible for preventing the release of any refrigerant to the atmosphere, ensuring that the refrigerant recovery is performed in compliance with all applicable regulations, and for transport/removal of Freon from the site.

The Contractor shall obtain and submit to the owner's representative upon project completion a copy of the Refrigerant Reclaimer's EPA certification, written documentation that all sources of Freon from refrigeration and other equipment on this site have been properly removed, reclaimed, and recycled as required by applicable law and regulations. Equipment from which CFCs have been properly removed and reclaimed shall be clearly tagged or labeled by the Contractor to indicate that they no longer contain CFCs.

Mercury-Containing Thermostats and Electrical Switches

The Contractor shall inspect every thermostat and electrical switch for the presence of liquid mercury. Thermostats and electrical switches that contain mercury shall be carefully removed in accordance with the WDNR Publication WA 1004-2006 and NR673 Standards for Universal Waste Management. The Contractor shall arrange to have the mercury properly transported to and recycled by an authorized recycling facility. Provide to the Owner's Representative, copies of shipping papers, manifest, and documentation demonstrating that the mercury has been properly transported and recycled upon project completion.

Nickel-Cadmium, Lead-Acid, and Other Metal-Containing Batteries

The Contractor shall check all batteries in emergency lighting fixtures, emergency exit signs, generators and battery charging systems, and other electrical equipment or components for batteries that may contain heavy-metals. All batteries shall be removed in accordance with the WDNR NR673 Standards for Universal Waste Management and placed in a separate sealable container and delivered to an approved recycling/disposal facility. Provide to the owner's representative documentation demonstrating that all batteries containing hazardous components have been properly removed, transported, and disposed upon project completion.

Computer Monitors, Televisions, and Desktop Computers

The Contractor shall remove all remaining computer monitors, televisions and desktop computers from the premises and arrange to have them properly containerized, transported, and disposed in accordance with WDNR "Managing Used Electronics", and all other applicable rules and regulations. Provide to the owner's representative documentation demonstrating that all computer monitors, televisions and desktop computers have been properly removed, transported, and disposed upon project completion.

Hydraulic Lifts and Elevator Hydraulic Systems

The Contractor shall, drain, properly containerized, transport, and dispose of any hydraulic oils/fluids from all lifts, hydraulic equipment, and elevator systems at the project site in accordance with applicable local, state, and federal regulations.

Fire Extinguishers and Chemical Containers

The Contractor shall remove from the premises all fire extinguishers, pressurized containers, and other containers containing chemicals or products and arrange to have them properly containerized, transported, and disposed in accordance with applicable local, state, and federal regulations. Empty containers (e.g., cans, bottles, buckets, drums, etc.) that once may have contained hazardous liquids or solids may be removed, if required, by the demolition contractor. Provide to the owner's representative documentation demonstrating that all fire extinguishers and chemical containers have been properly removed, transported, and disposed.

Lead-Containing Paint

The owner's representative has conducted a lead survey of Recyclable Building Materials. Any planned demolition work that disturbs lead paint during the course of this abatement project must be conducted in accordance with all applicable requirements of the OSHA lead standard for construction (29 CFR 1926.62) and applicable U.S. and WDNR environmental regulations. Recycling of concrete shall be conducted in accordance with the WDNR "Concrete Recycling and Disposal Fact Sheet, Publication WA605.

Submittals

Submit the following documentation at completion of the work:

- Written proof of proper recycling, disposal or destruction of any universal wastes removed and discarded from this project.

**TABLE 02 87 00 1
INVENTORY OF OTHER HAZARDOUS/REGULATED MATERIALS SPECIFIED
FOR REMOVAL**

Building: Former O.E. Gray School			
Description of Waste	Equipment Containing Waste	Estimated Quantity	Units
2-Bulb Mercury Containing Fixture	Light Fixtures	7	Each
4-Bulb Mercury Containing Fixture	Light Fixtures	221	Each
Incandescent Bulbs	Light Fixtures	37	Each
Sodium Bulbs	Light Fixtures	16	Each
Ozone Depleting Refrigerants	Air Condition Units	2	Each
Smoke Detectors	Detectors	5	Each
Transformers	Transformers	1	Each
Batteries	Emergency Lighting Exit Signs ETC	17	Each
Batteries	Emergency Strobes	60	Each

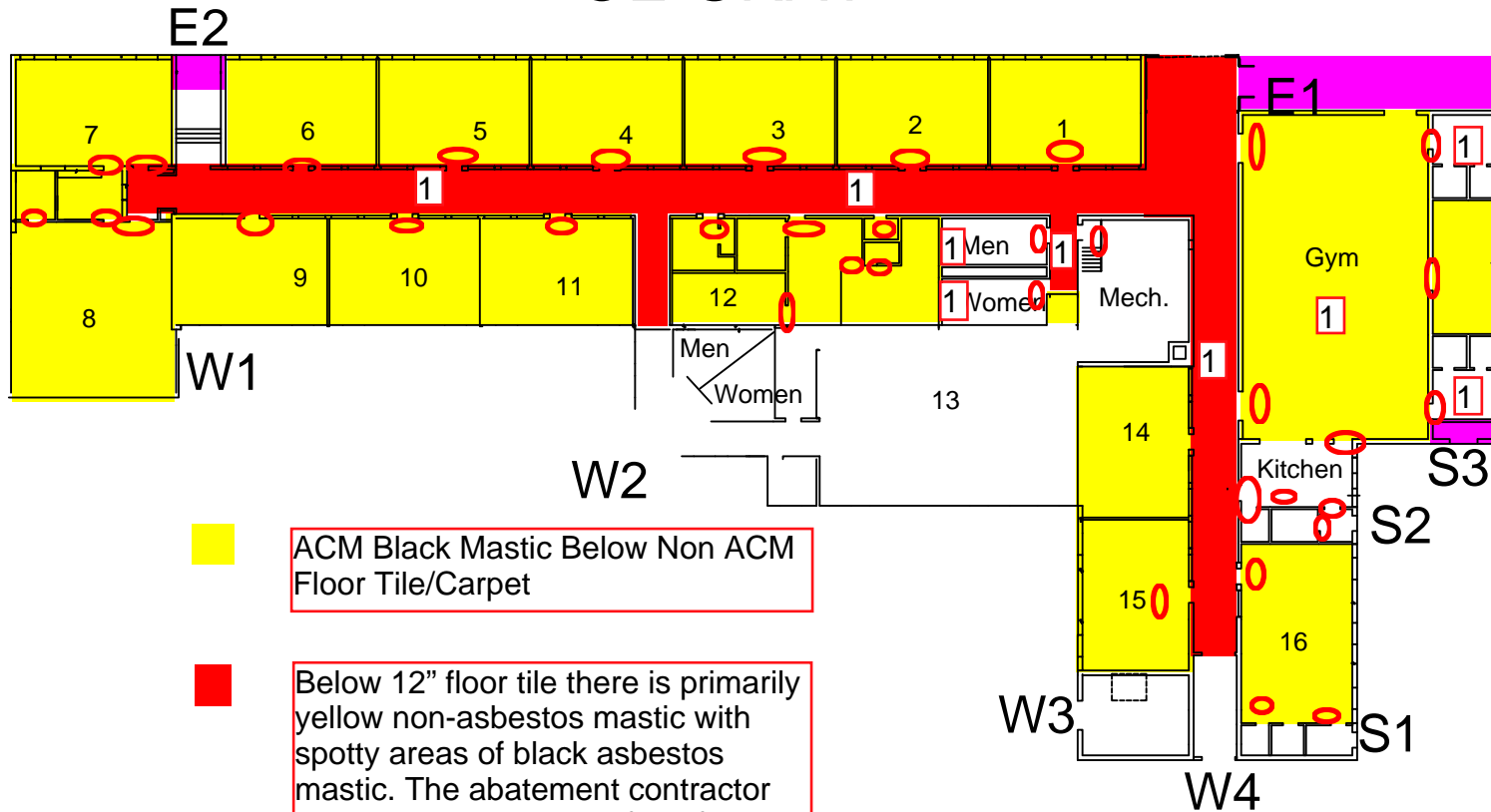
TABLE 02 87 00 2
INVENTORY OF PAINTED/GLAZED SURFACES CONTAINING LEAD

**See 02 82 13 Asbestos Abatement, Part 4 – Scope of Work.

END OF OTHER HAZARDOUS MATERIALS SECTION

Asbestos Drawing 1st Floor

OE GRAY



ACM Black Mastic Below Non ACM Floor Tile/Carpet

Below 12" floor tile there is primarily yellow non-asbestos mastic with spotty areas of black asbestos mastic. The abatement contractor will need to pull up all of the flooring to remove the asbestos black mastic.

ACM Door Frame Caulk

ACM Transite Soffit

1 Ceramic Wall Tile with ACM Thin Set

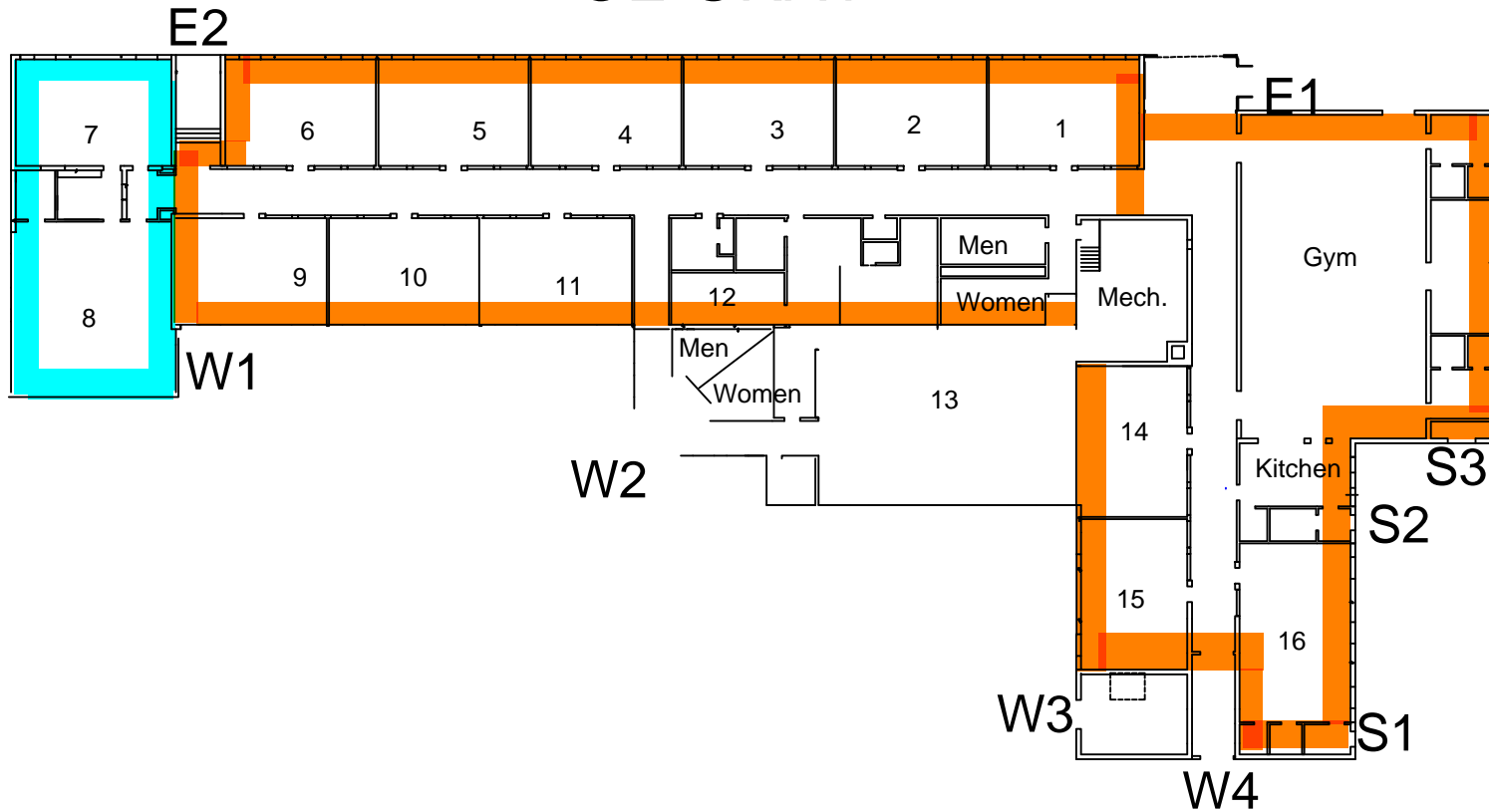
Note: Only large quantities of ACM are shown on these drawings please refer to the report for all materials.

Asbestos Drawing Tunnel

ACM Pipe Insulation

ACM Pipe Fitting Insulation

OE GRAY



Note: Only large quantities of ACM are shown on these drawings please refer to the report for all materials.