



OFFICE OF WILL COUNTY EXECUTIVE
LAWRENCE M. WALSH

Will County Office Building – 302 N Chicago Street – Joliet, Illinois 60432

Kevin Lynn
Purchasing Director

(815) 740-4712
Fax (815) 740-4604
klynn@willcountyillinois.com

August 30, 2019

To Whom It May Concern:

You are invited to submit your sealed bid for the abatement of the Will County Health Department building at 501 Ella Ave., Joliet, IL 60433.

Specifications and drawings are attached hereto and are considered part of the SEALED BID package.

A 10% Bid Bond or Cashier's Check made payable to the Will County Treasurer MUST accompany your sealed bid, or it will be rejected. Money Orders or Company checks will not be accepted.

A **MANDATORY PRE-BID** Conference will be held **10:00 A.M., Tuesday, September 10, 2019** in the lower level conference room of the Will County Health Department at 501 Ella Ave., Joliet, IL 60433 with a **building walk thru** following the meeting.

Sealed bids will be received in the Purchasing Department, 2nd floor, Will County Office Building, 302 N. Chicago Street, Joliet, IL, 60432, **NOT LATER THAN 10:00 A.M., Friday, September 20, 2019.**

Bids will be publicly opened and read by the Will County Executive or his Representative at **10:10 AM, Friday, September 20, 2019** at the Will County Office Building, 302 N. Chicago Street, 2nd Floor, Joliet, IL 60432.

The County of Will reserves the right to accept or reject any or all bids received.

Should you have any questions regarding this bid, please submit them in writing to Kevin Lynn, Purchasing Director, at klynn@willcountyillinois.com.

We welcome your bid.

Sincerely,

Kevin Lynn

**ADVERTISEMENT OF BID
ABATEMENT OF THE WILL COUNTY HEALTH DEPARTMENT
501 ELLA AVE., JOLIET, IL 60433**

SEALED BIDS FOR THE ABATEMENT OF THE WILL COUNTY HEALTH DEPARTMENT WILL BE RECEIVED AT THE PURCHASING DEPARTMENT, 2ND FLOOR OF THE WILL COUNTY OFFICE BUILDING, 302 N. CHICAGO ST., JOLIET, IL 60432, UNTIL THE HOUR OF **10:00 A.M., FRIDAY, SEPTEMBER 20, 2019.**

A MANDATORY PRE-BID CONFERENCE WILL BE HELD ON **TUESDAY, SEPTEMBER 10, 2019, AT 10:00 A.M.** AT LOWER LEVEL CONFERENCE ROOM OF THE WILL COUNTY HEALTH DEPARTMENT AT 501 ELLA AVE., JOLIET, IL 60433 WITH A **BUILDING WALK THRU** TO FOLLOW.

SEALED BIDS WILL BE PUBLICLY OPENED AND READ BY THE WILL COUNTY EXECUTIVE OR HIS REPRESENTATIVE AT **10:10 AM, FRIDAY, SEPTEMBER 20, 2019**, AT THE WILL COUNTY OFFICE BUILDING, 302 N. CHICAGO STREET, COUNTY BOARD ROOM, JOLIET, IL, 60432.

SPECIFICATIONS, DRAWINGS, AND CONDITIONS OF THE BID ARE AVAILABLE AT www.willcountyillinois.com, www.demandstar.com, AS WELL AS THE PURCHASING DEPARTMENT, 2ND FLOOR, WILL COUNTY OFFICE BUILDING, 302 N. CHICAGO ST., JOLIET, IL 60432, (815) 740-4605 OR EMAIL purchasing@willcountyillinois.com.

THE TENDERING OF A BID SHALL BE CONSTRUED AS ACCEPTANCE OF THE SPECIFICATIONS. THE COUNTY OF WILL RESERVES THE RIGHT TO ACCEPT OR REJECT ANY OR ALL BIDS OR PROPOSALS RECEIVED.

BY ORDER OF THE WILL COUNTY EXECUTIVE, LAWRENCE M. WALSH.

**INSTRUCTIONS TO BIDDERS
ABATEMENT OF THE WILL COUNTY HEALTH DEPARTMENT
501 ELLA AVE., JOLIET, IL 60433**

You are invited to submit your sealed bid for the abatement of the Will County Health Department building at 501 Ella Ave., Joliet, IL 60433.

A. PRE-BID CONFERENCE:

A **Mandatory Pre-bid Conference** for all interested Bidders will be held on **Tuesday, September 10, 2019, at 10:00 A.M.**, at lower level conference room of the Will County Health Department at 501 Ella Ave., Joliet, IL 60433 with a building walk thru following the meeting to familiarize conditions under which you will be obliged to work. No allowance will be made subsequently in this condition on behalf of any Bidder for any error or negligence on bidder's part. If you do not attend this meeting or arrive late, you will not be permitted to bid. **No exceptions will be made.**

B. SEALED BIDS:

Sealed bids will be received in the Purchasing Department, 2nd floor of the Will County Office Building located at 302 N. Chicago Street, Joliet, IL, 60432, **not later than 10:00 A.M., Friday, September 20, 2019.** **BIDS RECEIVED AFTER THIS TIME WILL NOT BE ACCEPTED.**

Sealed bids will be publicly opened and read aloud by the Will County Executive or his representative at **10:10 AM, Friday, September 20, 2019** at the Will County Office Building, 302 N. Chicago Street, 2nd Floor, Joliet, IL,60432.

Bids must be made in accordance with the instructions contained herein.

Bid forms shall be completely filled out either typewritten or in ink. The **complete set of contract documents must be submitted** with the proposal, in triplicate with **ONE ORIGINAL AND TWO COPIES, CLEARLY MARKED. BIDS WHICH FAIL TO SUBMIT THE ENTIRE COMPLETED BID PACKAGE AND CONTRACT CLEARLY MARKED WILL BE REJECTED, WILL BE NON-CONFORMING, AND WILL NOT BE ACCEPTED.**

Bids shall be submitted on the forms furnished by the County of Will in a sealed package, plainly marked, with the bidder's name, address, and the notation:

SEALED BID: WC HEALTH DEPARTMENT ABATEMENT CONTRACT
BIDS DUE: FRIDAY, SEPTEMBER 20, 2019 - 10:00 A.M.

Bids shall be addressed to the Will County Purchasing Department, Will County Office Building, 302 N. Chicago Street, Joliet, IL, 60432.

C. SIGNATURE OF BIDS:

The **signature on bid documents must** be that of an authorized representative of bidder. An officer of or agent of the offering bidder who is empowered to bind the bidder in a contract shall sign the proposal and any clarifications to that proposal.

Each bidder, by making his bid, represents that he has read and understands the bidding documents. **Any bid not containing said signed documents shall be non-conforming and will be rejected.**

D. BID SECURITY:

A **10% Bid Bond or Cashier's Check** made payable to the Will County Treasurer shall accompany each bid, attached to the front cover, as a guarantee that if the bid is accepted, a Contract will be entered into. **Money Orders or Company checks will not be accepted.** The unsuccessful bidders'

checks will be returned after the County Board has awarded the bid. The bid bond or cashier's check of the successful bidder will be returned after being replaced with their performance bond.

E. PERFORMANCE BOND:

A Performance Bond for the amount of the Contract, based on the first Contract period, will be required from the successful bidder and shall be valid throughout the life of the Contract. The Performance Bond will be returned at the completion of the Contract. If it is difficult to acquire a Performance Bond by the time of the Contract is to commence, the County of Will will accept a letter notarized by the Insurance Carrier showing that such Bond is being processed. For each option year, the successful bidder shall obtain a performance bond for the term of the option and the performance bond shall be based on the option period.

F. PRIME CONTRACTOR CERTIFICATION:

Included in this bid package is a prime Contractor certification form. This form must be filled out and returned with your sealed bid package or the bid package **will not be accepted and shall be non-conforming and shall be rejected.**

G. BIDDING PROCEDURES:

1. All bids must be prepared on the forms provided by the County and submitted in triplicate, with **ONE ORIGINAL AND TWO COPIES OF THE ENTIRE COMPLETED BID PACKAGE AND CONTRACT, CLEARLY MARKED,** in accordance with the Instructions to bidders. **Any bid packages not containing ONE ORIGINAL AND TWO COPIES OF THE ENTIRE COMPLETED BID PACKAGE AND CONTRACT, CLEARLY MARKED shall be non-conforming and shall be rejected.** The entire bid package are the terms of the agreement.
2. A bid is invalid if it has not been deposited at the designated location prior to the time and date for receipt of bids indicated in the Advertisement for bids or prior to any extension thereof issued to the bidders.
3. Unless otherwise provided in any supplement to the Instructions to bidders, no bidder shall modify, withdraw or cancel his bid or any part thereof for sixty days (60) days after the time designated for the receipt of bids in the Advertisement for bids.
4. Changes or corrections may be made in the bid documents after they have been issued and before bids are received. In such cases a written addendum describing the change or correction will be issued by the County of Will to all bidders recorded by the County of Will as having attended the pre-bid conference. Such addendum shall take precedence over that portion of the documents concerned, and shall become part of the bid documents. Except in unusual cases, addenda will be issued to reach the bidders at least five (5) days prior to date established for receipt of bids. **If the signed receipt of Addenda form is not included in the bid package and contract (EVEN IF NO ADDENDA ITEMS), the bid package and contract shall be non-conforming and shall be rejected.**
5. Each bidder shall carefully examine all bid documents and all addenda thereto, and shall thoroughly familiarize themselves with the detailed requirements thereof prior to submitting a proposal. Should a bidder find discrepancies or ambiguities in, or omissions from documents, or should they be in doubt as to their meaning, they shall, at once, and in any event, not later than five (5) days prior to bid due date, notify the County of Will, who will, if necessary, send written addenda to all bidders. The County of Will will not be responsible for any oral instructions. All inquiries shall be directed to the Purchasing Director in writing at Klynn@willcountyillinois.com. After sealed bids are received, the bidder will make no allowance for oversight.

H. TAX EXEMPTION:

The County of Will is exempt from Federal, State and Municipal Taxes.

I. WORDS AND FIGURES:

Where amounts are given in both words and figures, the words shall govern. If the amount is not written in words the unit cost will take precedence over the extended price in case of a discrepancy in the multiplication.

J. REJECTION OF BIDS:

The bidder acknowledges the right of the County of Will to reject any and all bids received.

K. DEFAULT:

In case of default by the successful bidder, the County of Will may procure the articles or services from other sources and may deduct from any unpaid balance due the successful bidder any increase in cost to the county as a result of said default, or may collect against the bond or surety for excess costs so paid, and the prices paid by the County of Will shall be considered the prevailing market price at the time such purchase is made.

L. NON-DISCRIMINATION:

The Contractor shall at all times observe and comply with any law, statute, regulation or the like relating in any way to civil rights including but not limited to 775 ILCS 10/1.

M. EQUAL EMPLOYMENT OPPORTUNITY:

Contractor shall comply with the Illinois Human Rights Act, 775 ILCS 5/1-101 et seq., as amended and any rules and regulations promulgated in accordance therewith, including, but not limited to the Equal Employment Opportunity Clause, Illinois Administrative Code, Title 44, Part 750. Furthermore, the Contractor shall comply with the Public Works Employment Discrimination Act 775 IL 10/0.01 et seq., as amended.

N. PAYMENT PERIOD:

Payment to the Contractor by the County shall be made pursuant to the Local Government Prompt Payment Act at completion of the job.

O. RISK OF LOSS:

The Contractor shall assume all risks for loss or damages to materials whether stored on the site or elsewhere, or to tools or equipment owned or rented by the Contractor, and he shall maintain such insurance as he may deem necessary to protect himself against such loss or damage.

P. TYPES OF INSURANCE:

1. **Worker's compensation insurance.** The Contractor shall procure worker's compensation insurance as required by applicable state law for all of his employees who would be engaged in work on the project. In case any class of employees engaged in any work on the project under this Contract is not protected under the workmen's compensation statute, the Contractor shall provide adequate employer's liability insurance for the protection of such of his employees as are not otherwise protected. In addition, the Contractor will provide employer's liability (coverage B) in the amount of \$500,000.00.
2. **Contractor's comprehensive general liability and property damage insurance.** Contractor's comprehensive general and property damage insurance shall be in an amount not less than \$500,000.00 for injuries including accidental death to any one person and not less than \$500,000.00 combined single limit bodily injury and property damage.

3. **County's protective liability insurance.** The Contractor shall protect the County or its assignee, if any, from contingent responsibility arising from the work, project operation performed under this Contract by adding these parties as named insured as a rider to the general Contractor specified comprehensive general liability policy shall be: County of Will, 302 North Chicago Street, Joliet, Ill.60432.
4. **Leopardo Insurance.** Due to working within the construction zone, the Contractor shall supply three items to Leopardo Companies Inc.

A. A certificate of insurance evidencing that the undersigned has procured the insurance types, limits, coverages and terms as Leopardo is obligated to provide under the Leopardo-Owner Agreement and evidencing Leopardo Companies, Inc., its subsidiaries, affiliate corporations, and each of their directors, officers, employees, agents and consultants as Additional Insureds on the undersigned's and its subcontractors' Commercial General Liability, Auto Liability and Commercial Umbrella Liability (on a follow form basis) insurance policies (the "Separate Contractor's Provided Insurance").

B. An Additional Insured Endorsement to the Commercial General Liability (for Ongoing Operations) and Commercial Umbrella Liability policies of Separate Contractor's Insurance shall provide: "With respect to any claims, losses, damages, expenses, or liabilities arising out of Named Insured's Work or the Work or performance of Named Insured's subcontractors of any tier Owner's Separate Contractor's Provided Insurance and its Subcontractors' insurance will be primary over any other insurance available to Leopardo Companies, Inc."

C. Proof that Separate Contractor's Provided Insurance policies state that the insurer is to provide Leopardo Companies, Inc. thirty (30) days advance written notice of cancellation, reduction, or material change in coverage or limits.

Q. PROOF OF CARRIAGE OF INSURANCE:

1. The Contractor shall furnish the County at the time of bidding, with certificates showing the type, amount, class or operations covered, effective dates and dates of expiration of policies, which policies shall specifically refer to the indemnity agreement. Such certificates shall also contain substantially the following statement: "The Insurance covered by this Certificate will not be canceled or materially altered except after 30 days written notice has been received by all named insured." **Any bid not containing said proof of insurance shall be non-conforming and shall be rejected.**
2. All policies shall substitute the word "Occurrence" for "accident" for both bodily and property damage. "Occurrence" shall be defined to mean an event or series of events or continuous or repeated exposure to conditions, which unexpectedly cause injury or damage during the policy period.
3. All insurance coverage shall be provided by Insurance Companies maintaining a financial strength and claims paying ability rating no lower than "A" minus "VIII" as rated by the 1999 or most current AM Bests Insurance Guide.

R. TAXES:

The Contractor shall pay all applicable sales, use, service use, service occupation, social security, and other taxes, levies, assessments, and duties, and shall make income tax deductions, all as required by local, State and Federal law.

S. CHOICE OF LAW AND VENUE:

The bid and this agreement shall be governed by the laws of the State of Illinois, without regard to conflict of law provisions. Venue for any cause of action related to this bid or agreement shall be the Twelfth Judicial Circuit, Will County, Illinois.

T. RIGHT OF THE COUNTY TO TERMINATE CONTRACT:

1. If any of the Provisions of the Contract are violated by the Contractor, or if the Contractor shall disregard applicable law, ordinances, rules or regulations or work requirements as spelled out in the bid specifications, or the Contractor shall be adjudged as bankrupt or make a general assignment for the benefit of creditors, or if a receiver should be appointed for the Contractor, or if at any time during the progress of the work the Contractor should allow any indebtedness to accrue for labor, material, or equipment, and should the Contractor fail to pay for labor, material, or equipment, and should the Contractor fail to pay and discharge the same within 5 days after demand made by the person or persons furnishing such labor, material or equipment, the County may serve written notice upon the Contractor and the Surety of its intention to terminate the Contract. Unless within 10 days after the serving of such notice upon the Contractor, such violation or other matter shall have been corrected or satisfactory arrangement for correction have been made, the Contractor shall, upon the expiration of said 10 days, at County's option, cease and terminate work. The Contract shall then be null and void.
2. In the event of any such termination, the County shall immediately serve notice thereof upon the Surety and the Contractor, and the Surety shall have the right to take over and perform the Contract; provided, however, that if the Surety does not commence performance thereof within 10 days from the date of the mailing of such Surety of notice of termination, the County may take over work and prosecute the same to completion by other Contract or by force. Contractor shall be liable to the County for any excess cost to the County occasioned thereby, and in such event the County may take possession of and utilize in completing the work, such material, equipment and the like as may be on the project site of the work and necessary therefore.
3. Not with standing anything contained herein to the contrary, failure to comply with or perform the cleaning services required shall be cause for termination.
4. The County or its assign may terminate this agreement by giving the Contractor written notification of termination of this agreement by registered United States Mail, sufficient postage prepaid, return receipt requested, addressed to the Contractor at its address stated in the Contract, at least 14 days prior to termination, with service of such notice conclusively presumed to be received on date of dispatch. In such event, the Contractor shall only be entitled to receive a prorated payment for work actually and satisfactorily performed pursuant to the Contract through date of termination.
5. In the event that any of the Will County Offices should move to a different location, notice will be given a minimum of sixty (60) days prior to said move.

U. ILLINOIS FREEDOM OF INFORMATION ACT:

Any and all submissions to the County of Will become the property of the County of Will and these and any late submissions will not be returned. Your proposal will be open to the public under the Illinois Freedom of Information Act (FOIA) (5 ILCS 140*et seq.*) and other applicable laws and rules, unless you request in your proposal that we treat certain information as exempt. We will not honor requests to exempt entire proposals. You must show the specific grounds in FOIA or other law or rule that support exempt treatment. If you request exempt treatment, you must submit an additional copy of the proposal with exempt information deleted. This copy must tell the general nature of the material removed and shall retain as much of the proposal as possible. In the event the County of Will receives a request for a document submitted, the County of Will shall provide notice to contractor as soon as practicable. Regardless, contractor will be responsible for any costs or damages associated

with defending your request for exempt treatment. Furthermore, contractor warrants that County of Will's responses to requests for a document submitted that is not requested to be exempt will not violate the rights of any third party.

Please be advised that if your proposal is accepted by the County of Will all related records maintained by, provided to, or required to be provided to the County of Will during the contract duration are subject to FOIA. In the event the County of Will receives a request for a document relating to contractor, its provision of services, or the arranging for the provision of services, the County of Will shall provide notice to contractor as soon as practicable and, within the period available under FOIA, contractor may then identify those records, or portions thereof, that it in good faith believes to be exempt from production and the justification for such exemption. Regardless, contractor will be responsible for any costs or damages associated with defending the request for exempt treatment. Furthermore, contractor will warrant that County of Will's responses to requests for a document relating to contractor, its provision of services, or the arranging for the provision of services, or the arranging for the provision of services, will not violate the rights of any third party.

Please be advised also that FOIA provides that any record in the possession of a party with whom the County of Will has contracted to perform a governmental function on behalf of the County of Will, and that directly relates to the governmental function and is not otherwise exempt under FOIA is considered a public record of the County of Will for purposes of FOIA. 5 ILCS 140/7(2). As such, upon request by the County of Will (or any of its officers, agents, employees or officials), the contractor shall provide to the County of Will at no cost and within the timeframes of FOIA a copy of any "public record" as required by FOIA and in compliance with the provisions of FOIA. After request by the County of Will, contractor may then identify those records, or portions thereof, that it in good faith believes to be exempt from production and the justification for such exemption. Regardless, contractor will be responsible for any costs or damages associated with defending the request for exempt treatment.

V. ADVERTISEMENTS:

The bidder shall not place or maintain any signs, bills, posters, or other advertisements in or about the building, except by written permission of County of Will.

W. AWARDING OF BID:

The bid is expected to be awarded after the October 17, 2019 meeting of the Will County Board.

X. SUBMITTAL SUMMARY REQUIREMENTS:

Each of the following items **must** be submitted by the bid time mentioned herein in order that the bid will be considered. **Any bid not containing items 1-6 below shall be non-conforming and shall be rejected:**

1. 10% Bid Bond or Cashier's Check
2. Certificates of Insurance
3. **Signed** Copy of Prime Contractor Certification
4. **Signed** Bid Form
5. **Signed** Receipt of Addenda Form
6. One original and two copies of entire Bid Package.

PRIME CONTRACTOR CERTIFICATION

The undersigned hereby certifies that _____

Name of Company

is not barred from contracting with any unit of State or local government as a result of a violation of either Section 33E-3 or 33E-4 of the Criminal Code of 1961.

Name of Representative

Title

Signature

Date

Note: A person who makes a false certificate commits a Class 3 Felony.

Sections 33E-3 and 33E-4 provide as follows:

33E-3. Bid-rigging. A person commits the offense of bid-rigging when he knowingly agrees with any person who is, or but for such agreement would be, a competitor of such person concerning any bid submitted or not submitted by such person or another to a unit of State or local government when with the intent that the bid submitted or not submitted will result in the award of a contract to such person or another and he either (1) provides such person or receives from another information concerning the price or other material term or terms of the bid which would otherwise not be disclosed to a competitor in an independent noncollusive submission of bids or (2) submits a bid that is of such a price or other material term or terms that he does not intend the bid to be accepted.

Bid rigging is a Class 3 felony. Any person convicted of this offense or any similar offense of any state or the United States which contains the same elements as this offense shall be barred for 5 years from the date of conviction from contracting with any unit of State or local government. No corporation shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of such corporation if the employee so convicted is no longer employed by the corporation and: (1) it has been finally adjudicated not guilty or (2) if it demonstrates to the governmental entity with which it seeks to contract and that entity finds that the commission of the offense was neither authorized, requested, commanded, nor performed by a director, officer or a high managerial agent in behalf of the corporation as provided in paragraph (2) of subsection (a) of Section 5-4 of this Code.

33E-4 Bid rotating. A person commits the offense of bid rotating when, pursuant to any collusive scheme or agreement with another, he engages in a pattern over time (which, for the purposes of this Section, shall include at least 3 contract bids within a period of 10 years, the most recent of which occurs after the effective date of this amendatory Act of 1988) of submitting sealed bids to units of State or local government with the intent that the award of such bids rotates, or is distributed among, persons or business entities which submit bids on a substantial number of the same contracts. Bid rotating is a Class 2 felony. Any person convicted of this offense or any similar offense of any state or the United States which contains the same elements as this offense shall be permanently barred from contracting with any unit of State or local government. No corporation shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of such corporation if the employee so convicted is no longer employed by the corporation and: (1) it has been finally adjudicated not guilty or (2) if it demonstrates to the governmental entity with which it seeks to contract and that entity finds that the commission of the offense was neither authorized, requested, commanded, nor performed by a director, officer or a high managerial agent in behalf of the corporation as provided in paragraph (2) of subsection (a) **of Section 5-4 of this Code.**

Possible violations of Section 33 can be reported to the Office of the Will County State's Attorney at (815) 727-8453.

SUBMIT BID FORM TO**Date Mailed:****Due:** 9-20-19, 10:00 A.M.**Open:** 9-20-19, 10:10 A.M.**PURCHASING DEPARTMENT****COUNTY OF WILL****302 N. CHICAGO ST.****JOLIET, IL. 60432****CONTRACT 2020-52: ABATEMENT OF THE WILL COUNTY HEALTH DEPARTMENT**

The bidder proposes to provide the Products and/or services in accordance with the specifications and drawings attached herein.

COMPANY NAME _____
 ADDRESS _____ CITY _____
 STATE _____ ZIP _____
 CONTACT _____ E-MAIL _____
 PHONE _____ FEIN # _____

DELIVERY ADDRESS: 302 N. Chicago St, Joliet, IL 60432

FOR ADDITIONAL INFORMATION CONTACT: Kevin Lynn, PURCHASING DIRECTOR, Klynn@willcountyillinois.com

BASE BID	DESCRIPTION	UNIT	AMOUNT
	Perform all work indicated on the drawings and described in the Specifications, Addenda, including the cost of insurance for the Base Contract.	Lump Sum	\$
PER ITEM			
	Fire Doors: Per item cost for the asbestos abatement of the asbestos-containing fire doors. The fire doors shall be analyzed for asbestos at the start of the project by the Consultant.	Per Door	\$
ALTERNATE BID DEDUCT			
	Transite Panels: Provide a deduct cost for the asbestos abatement of the transite on the bridge. The transite shall be analyzed for asbestos at the start of the Project by Consultant, and if found not to contain asbestos, the contractor shall deduct this amount from the Base Bid.	Lump Sum	\$

TOTAL CONTRACT AMOUNT WRITTEN IN WORDS. IN CASE OF DISCREPANCY, THE AMOUNT IN WORDS SHALL GOVERN.

Lump Sum of All Work _____

Per Fire door _____

Transite Panels _____

SUBCONTRACTORS SELECTED

1. _____

2. _____

3. _____

Date Mailed:
Due: 9-20-19, 10:00 A.M.
Open: 9-20-19, 10:10 A.M.

PURCHASING DEPARTMENT
COUNTY OF WILL
302 N. CHICAGO ST
JOLIET, IL. 60432

CONTRACT FOR
ABATEMENT OF HEALTH DEPT.
2020-52 WC BUILDINGS

The Bidder proposes to provide the products and/or services in accordance with the specifications attached herein.

COMPANY NAME _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____
CONTACT _____ E-MAIL _____
PHONE _____ FAX _____ FEIN# _____

ADDENDUM RECEIPT: Receipt of the following Addendum to the Bidding Documents is hereby acknowledged:

No. _____, dated _____, signed _____

ADDENDUM RECEIPT: Receipt of the following Addendum to the Bidding Documents is hereby acknowledged:

No. _____, dated _____, signed _____

ADDENDUM RECEIPT: Receipt of the following Addendum to the Bidding Documents is hereby acknowledged:

No. _____, dated _____, signed _____

ADDENDUM RECEIPT: Receipt of the following Addendum to the Bidding Documents is hereby acknowledged:

No. _____, dated _____, signed _____

LATE BIDS CANNOT BE ACCEPTED!

<u>SEALED BID DOCUMENT</u>	
<u>Vendor Return Address:</u> 	
BID #:	2020-52
DUE DATE:	9/20/19
DUE:	10:00 A.M.
DESCRIPTION:	Abatement of Health Department Bid
DATED MATERIAL-DELIVER IMMEDIATELY	
WILL COUNTY PURCHASING DEPARTMENT 302 N. CHICAGO ST., 2ND FLOOR JOLIET, IL 60432	

**PLEASE CUT OUT AND AFFIX THIS BID LABEL (ABOVE)
TO THE OUTERMOST ENVELOPE OF YOUR SEALED BID
TO HELP ENSURE PROPER DELIVERY!**

LATE BIDS CANNOT BE ACCEPTED!

**SPECIFICATIONS FOR ABATEMENT OF THE
WILL COUNTY HEALTH DEPARTMENT
501 ELLA AVE., JOLIET, IL 60433**

PROJECT DESIGN

Project Location:



**WILL COUNTY HEALTH DEPARTMENT BUILDING
501 Ella Avenue
Joliet, IL 60433**

Consultant: Midwest Environmental Consulting Services, Inc.
2551 N. Bridge Street
Yorkville, IL 60560
(630) 553-3989
MEC PROJECT #: 19-04-238-PD
IDPH Project Designer Number #: 100-18957

GENERAL

Contractor shall be responsible for complying with all applicable licensing and patent regulations. The owner and consultant are not responsible for any Contractor's licensing or patent infringements.

All Contractors shall submit a list of all Subcontractors including personal air sampler selected with their respective Bid prices. These prices must be included in the Base Bid and must not be considered as additions to the Bid.

EXAMINATION OF BID DOCUMENTS AND PROJECT SITE

Each Bidder shall examine the Bid Documents carefully and not later than two working days after the walk through, Bidders shall make a written request to Will County for interpretation or correction of any ambiguity, inconsistency, or error therein which he may discover. Any interpretation or correction will be issued as an Addendum by Will County. Only a written interpretation or correction by Addendum shall be binding.

Prior to the Bid submittal, each Bidder shall visit the Project Site during the mandatory walk through to ascertain the conditions and limitations under which the work will be performed.

The contractor shall also meet with the Will County and the Consultant during the mandatory walk through so that he may be informed of any restrictions or conditions, which could have a direct bearing on his work. Submission of a Bid shall be taken as evidence of compliance with this requirement. No extra charge or compensation will be allowed to the Contractor on account of existing conditions which may affect the Contractor's work and which could have been ascertained upon visiting the site.

INTERPRETATIONS

Discrepancies or ambiguities in, or omissions from, the proposed Contract Documents, which raise questions shall be brought to the attention of Will County who will answer by Addendum addressed to all Bidders.

Neither Owner nor Consultant will be responsible for oral interpretations. Written requests received later than two working days after the mandatory walkthrough cannot be answered.

Interpretations and supplemental instructions will be in the form of written Addenda to the Removal Specifications. Written Addenda, if issued, will be mailed to prospective Bidders (at the addresses provided for such purposes). All addenda so issued shall become part of the Contract Documents. The Bid Form contains spaces for the Bidder to inscribe the number of such addendum that is issued. If none are issued, fill these spaces with the word "none". All Addenda issued during the bidding period will be incorporated into the Contract.

MEC – DRAWINGS:

The following Drawings are considered to be part of the Bidding Documents. The Contractor will formulate his base bid and alternative bids on the following Drawings:

ASBESTOS ABATEMENT DRAWING INDEX

GENERAL:

G - 0	Cover Sheet
G - 1	Scope of Work / General Notes
G - 2	Project Overview – Building Plan

ASBESTOS ABATEMENT PLAN:

ASB - 1	Lower Level – Asbestos Abatement Plan
ASB - 2	1 st Floor – Asbestos Abatement Plan
ASB - 3	2 nd Floor – Asbestos Abatement Plan

Contractor is responsible for all field verification of all quantities. Any discrepancies noted on the drawings will be brought to the attention of the owner immediately. Contractor's failure to note discrepancies at walkthrough will still be held accountable for work to be completed if awarded contract by owner.

CONTRACT DURATION:

The Contract is projected to start June 17, 2020 for four calendar weeks. A new building is under construction so coordination with construction manager, Leopardo Companies Inc, will be required and the start date to be coordinated accordingly. All personnel will be moved prior to work commencing and only bidder's personnel will be in building while work is on-going.

SUMMARY OF THE WORK - ASBESTOS ABATEMENT

PART 1 - GENERAL

PROJECT/WORK IDENTIFICATION

General: Project name is **Will County Health Department Building Asbestos Abatement** for County of Will as shown on Contract Documents prepared by Owner's Representative, Midwest Environmental Consulting Services, Inc. (**Drawings and Specifications are dated August 15, 2019**).

Contract Documents: Indicate the work of the Contract and related requirements and conditions that have an impact on the project. Related requirements and conditions that are indicated on the Contract Documents include, but are not necessarily limited to the following:

- Applicable codes and regulations.
- Notices and permits.
- Existing site conditions and restrictions on use of the site.
- Work performed prior to work under this Contract.
- Alterations and coordination with existing work.
- Work to be performed concurrently by the Owner.
- Work to be performed concurrently by separate contractors.
- Work to be performed subsequent to work under this Contract.
- Alternates.

Abbreviated Written Summary: Briefly and without force and effect upon the contract documents, the work of the Contract can be summarized as follows:

The Work includes the removal of **thermal system insulation, floor tile, floor tile mastic, sheet flooring, carpet glue, vibration dampers, terrazzo, transite panels, exterior window caulking, exterior door caulking, and fire doors**, according to the requirements of the following specification sections in the sequence indicated:

General and Administrative Requirements: are set forth in the following specification sections:

- 01043 Project Coordination - Asbestos Abatement
- 01046 Definitions and Standards
- 01091 Definitions and Standards - Asbestos Abatement
- 01301 Submittals
- 01601 Materials and Equipment - Asbestos Abatement
- 01632 Product Substitutions
- 01701 Project Closeout - Asbestos Abatement

Abatement Work: requirements are set forth in the following specification sections, listed here according to the sequence of the work:

- 01092 Codes, Regulations, and Standards - Asbestos Abatement: Sets forth governmental regulations and industry standards, which are included and incorporated herein by reference and made a part of the specification. This section also sets forth those notices and permits, which are known to the Owner and which either must be applied for and received, or which must be given to governmental agencies before start of work.
- 01410 Test Laboratory Services: Air monitoring to determine required respiratory protection is the responsibility of the Contractor.
- 01503 Temporary Facilities - Asbestos Abatement: Sets forth the support facilities needed such as electrical and plumbing connections for the decontamination unit.

01513 Temporary Pressure Differential and Air Circulation System: Sets forth the procedures to set up pressure differential isolation and ventilation of the work area.

01526 Temporary Enclosures: Details the requirements for the sheet plastic barriers isolating the work area from the balance of the building.

01560 Worker Protection - Asbestos Abatement: Describes the equipment and procedures for protecting workers against asbestos contamination and other workplace hazards except for respiratory protection.

01562 Respiratory Protection: Sets forth the procedures and equipment required for adequate protection against inhalation of airborne asbestos fibers.

01563 Decontamination Units: Explains the setup and operation of the personnel and material decontamination units.

Asbestos Removal Work Procedures: are described in the following specification sections:

02081 Removal of Asbestos-Containing Materials

02084 Disposal of Asbestos-Containing Materials

Decontamination of the Work Area: after completion of abatement work is described in the following sections:

01701 Project Closeout: Details the closeout procedures to end the project once abatement work is complete including final paperwork requirements.

01711 Project Decontamination: Describes the sequence of cleaning and decontamination procedures to be followed during removal of the sheet plastic barriers isolating a work area.

01713 Project Decontamination Micro-fibers: Describes the special procedures required to clean an area of contamination by asbestos fibers too small to be seen with an optical microscope.

01714 Work Area Clearance: Describes the analytical methods used to determine if the work area has been successfully cleaned of contamination.

Separate Contracts are being issued for bid to perform demolition work at the site, which will follow the work of this Contract.

PLAN OF ACTION

Submit a detailed plan of the procedures proposed for use in complying with the requirements of this specification. Include in the plan the location and layout of decontamination areas, the sequencing of asbestos work, the interface of trades involved in the performance of work, methods to be used to assure the safety of building occupants and visitors to the site, disposal plan including location of approved disposal site, and a detailed description of the methods to be employed to control pollution. Expand upon the use of portable HEPA ventilation system, closing out of the building's HVAC system, method of removal to prohibit visible emissions in work area, and packaging of removed asbestos debris. The plan must be approved by, Midwest Environmental Consulting Services, Inc., prior to the commencement of work.

POTENTIAL ASBESTOS HAZARD

The disturbance or dislocation of asbestos-containing materials may cause asbestos fibers to be released into the building's atmosphere, thereby creating a potential health hazard to workmen and building occupants. Apprise all workers, supervisory personnel, subcontractors, and consultants who will be at the job site of the seriousness of the hazard and of proper work procedures, which must be followed.

Where in the performance of the work, workers, supervisory personnel, subcontractors, or consultants may encounter, disturb, or otherwise function in the immediate vicinity of any identified asbestos-containing materials, take appropriate continuous measures as necessary

to protect all building occupants from the potential hazard of exposure to airborne asbestos. Such measures shall include the procedures and methods described herein, and compliance with regulations of applicable federal, state, and local agencies.

STOP WORK

If the Owner, the Owner's Representative, or the Project Administrator presents a written stop work order, all work shall immediately and automatically stop. Do not recommence work until authorized in writing by Owner's Representative.

CONTRACTOR USE OF PREMISES

General: The Contractor shall limit his use of the premises to the work indicated.

Use of the Site: Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond areas on which work is indicated are not to be disturbed. Conform to site rules and regulations affecting the work while engaged in project construction.

Keep driveways and entrances serving the premises clear and available to the Owner and his employees at all times. Do not use these areas for parking or storage of materials.

Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage sheds to the areas indicated.

The building is scheduled for demo after abatement. Maintain existing building in a safe and weather-tight condition throughout the abatement period for abatement contractor employees.

Smoking or open fires will not be permitted within the building enclosure or on the premises.

Limited use of existing toilets within the building, by the Contractor and his/her personnel, will be permitted, as allowed by Owner.

Perform the work so as not to interfere with the Owner's operation in building next door.

ADDRESSING CORRESPONDENCE

All correspondence relating to contractual matters, including prices, delivery and changes in Scope of Work, shall be directed to the Owner.

The address of the Owner is: **Will County Executive's Office**
302 N. Chicago Street
Joliet, IL 60432
Attention: **Joel Van Essen, Facilities Management Director**
Email: jvanessen@willcountyillinois.com
Phone **815-724-1629, cell 779-702-1500.**

SECTION 1043 - PROJECT COORDINATION-ASBESTOS ABATEMENT

PART 1 - GENERAL

SUMMARY

This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:

- Administrative and supervisory personnel.
- Progress Meetings
- Pre-Construction Conference
- Daily Log
- Special reports.
- Contingency Plans
- Notifications to other entities at job site.

Related Work:

ADMINISTRATIVE AND SUPERVISORY PERSONNEL:

General Superintendent: Provide a full-time General Superintendent who is experienced in administration and supervision of asbestos abatement projects including work practices, protective measures for building and personnel, disposal procedures, etc. This person is the Contractor`s Representative responsible for compliance with all applicable federal, state and local regulations, particularly those relating to asbestos-containing materials.

Experience and Training: The General Superintendent must have completed a course at an EPA Training Center or equivalent certificate course in asbestos abatement procedures, and have had a minimum of two (2) years on-the-job training in asbestos abatement procedures.

Competent Person: The General Superintendent is to be a Competent Person as required by OSHA in 29 CFR 1926.

Accreditation: The General Superintendent is to be accredited as an Asbestos Abatement Supervisor in accordance with the AHERA regulation 40 CFR Part 763, Subpart E, Appendix C.

Owner occupants, etc. as to the nature of the Work being conducted including but not limited to the following:

NOTIFICATION: The Contractor shall be responsible for notifying all agencies, authorities having jurisdiction,

- Notify other entities at the job site of the nature of the asbestos abatement activities, locations of asbestos-containing materials, requirements relative to asbestos set forth in these Specifications and applicable regulations.

- Notify emergency service agencies including fire, ambulance, police or other agencies that may service the abatement work site in case of an emergency.

Notification is to include methods of entering Work area, emergency entry and exit locations, modifications to fire notification or fire-fighting equipment and/or sprinkler systems, and other information needed by agencies providing emergency services.

- Notification of Emergency: Any individual at the job site may notify emergency service agencies if necessary without effect on this Contract or Contract Sum.

General The contractor shall comply with the requirements specified in Section 01301 - Submittals, and as specified herein.

Before the Start of Work submit the following to the Owner's Representative for review. No Work shall begin until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for use without revisions or corrections. Submittals shall include, but not necessarily be limited to the following:

Contingency Plans: for emergency actions.

Telephone Numbers and locations of emergency services

Notifications: sent to emergency service agencies / authorities having jurisdiction.

Accreditation: submit evidence in form of training course certificate of accreditation of General Superintendent as an asbestos abatement Supervisor.

Staff Names Within 15 days of Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site: identify individuals, their duties and responsibilities; list their addresses and telephone numbers. Post copies of the list in the project meeting room, the temporary field office, and each temporary telephone.

PROGRESS MEETINGS:

General: In addition to specific coordination and pre-installation meetings for each element of work, and other regular project meetings held for other purposes, Owner's Representative will hold general progress meetings as required. These meeting will be scheduled, where possible, at time of preparation of payment request. Require each entity then involved in planning, coordination or performance of work to be properly represented at each meeting.

COORDINATION WITH LEOPARDO CONSTRUCTION:

Due to construction of the new Health Department next to the old Health Department, move out of the employees along with demolition of old building is overseen by Leopardo Companies Inc. The employees have 30 days to move out of building. A scheduling meeting is held with Leopardo to keep personnel informed on progress of construction. Beginning as soon as March 2020, progress/schedule updates should be attended by bidder in order to be prepared to start work. As of bid time, the abatement is schedule to start June 17, 2020 for four calendar weeks.

PRE-CONSTRUCTION CONFERENCE:

An initial meeting, recognized as "Pre-Construction Conference" will be convened by the Owner's Representative prior to start of any work along with Leopardo Construction. Meet at project site, or as otherwise directed with General Superintendent, Owner, Owner's Representative, Project Administrator, and other entities concerned with the asbestos abatement work. 72 hours advance notice will be provided to all participants prior to convening Pre-Construction Conference. This is an organizational meeting, to review responsibilities and personnel assignments and to locate the containment and decontamination areas and temporary facilities including power, light, water, etc.

DAILY LOG:

Daily Log: Maintain within the Decontamination Unit a daily log documenting the dates and time of, but not limited to, the following items:

Meetings; purpose, attendees, brief discussion

Visitations; authorized and unauthorized

Personnel, by name, entering and leaving the work area
Special or unusual events, i.e. barrier breeching, equipment failures, accidents
Air monitoring tests and test results
Documentation of Contractor's completion of the following:

- Inspection of work area preparation prior to start of removal and daily thereafter.
- Removal of any sheet plastic barriers
- Contractor's inspections prior to spray back, lock back, encapsulation, enclosure or any other operation that will conceal the condition of asbestos-containing materials or the substrate from which such materials have been removed.
- Removal of waste materials from work area
- Decontamination of equipment (list items)
- Contractors final inspection/final air test analysis.

Provide two (2) copies of this log to Project Administrator on a daily basis.

Submit 3 copies of this log at final close-out of project as a project close-out submittal.

SPECIAL REPORTS:

General: Except as otherwise indicated, submit special reports directly to Owner within one day of occurrence requiring special report, with copy to Owner's Representative and others affected by occurrence.

Reporting Unusual Events: When an event of unusual and significant nature occurs at site (examples: failure of pressure differential system, rupture of temporary enclosures), prepare and submit a special report listing chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. When such events are known or predictable in advance, advise Owner in advance at earliest possible date.

Reporting Accidents: Prepare and submit reports of significant accidents, at site and anywhere else work is in progress. Record and document data and actions; comply with industry standards. For this purpose, a significant accident is defined to include events where personal injury is sustained, property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury.

Report Discovered Conditions: When an unusual condition of the building is discovered during the work (e.g. leaks, termites, corrosion) prepare and submit a special report indicating condition discovered.

CONTINGENCY PLAN:

Contingency Plan: Prepare a contingency plan for emergencies including fire, accident, power failure, pressure differential system failure, supplied air system failure, or any other event that may require modification or abridgement of decontamination or work area isolation procedures. Include in plan specific procedures for decontamination or work area isolation. Note that nothing in this specification should impede safe exiting or providing of adequate medical attention in the event of an emergency.

Post: in clean room of Personnel Decontamination Unit telephone numbers and locations of emergency services including but not limited to fire, ambulance, doctor, hospital, police, power company, telephone company.

SECTION 01046 - DEFINITIONS AND STANDARDS

PART 1 - GENERAL

RELATED DOCUMENTS:

Sections 01562 and 02084

QUALITY ASSURANCE

Cutting and patching of asbestos-containing materials shall be performed in accordance with recognized and applicable standards and as herein specified. Cutting and patching of such materials shall be restricted to regulated areas and shall be performed by personnel properly attired.

SUBMITTALS

Before the Start of Work: Submit the following to the Owner's Representative for review. Begin no work until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use or final-but-restricted use.

Tools: equipped with HEPA vacuum dust collection attachments

PART 2 - PRODUCTS

Provide local exhaust ventilation systems that comply with ANSI 29.2-1971. Products for encapsulation are specified in Section 09805.

PART 3 - EXECUTION

Before beginning work of this section, comply with:

Section 01527 - Regulated Areas

Section 01562 - Respiratory Protection

Perform cutting, drilling, abrading, or otherwise penetrating any asbestos-containing material in a manner that will minimize the dispersal of asbestos fibers into the air.

Provide adequate local exhaust to capture fibers produced by cutting, drilling, or abrading by means of an approved High Efficiency Particulate Absolute (HEPA) filter vacuum. Use specialized equipment such as drills or saws having integral ventilation hoods which are connected to a HEPA vacuum with a flexible hose. Handle and dispose of HEPA filters as contaminated material. See Section 02084.

Thoroughly saturate absorbent surfaces of asbestos-containing material to be penetrated with a penetrating type encapsulant. Allow encapsulant to penetrate to substrate before working on materials.

Seal edges of asbestos-containing material exposed by cutting, drilling, or abrading, etc. with two (2) coats of an approved penetrating encapsulant applied in accordance with manufacturers' printed instruction for use of the encapsulant as an asbestos coating and requirements of Section 09805.

SECTION 01091 - DEFINITIONS AND STANDARDS - ASBESTOS ABATEMENT

PART 1 -GENERAL

SUMMARY

General Explanation: A substantial amount of specification language constitutes definitions for terms found in other contract documents, including the drawings. (Drawings must be recognized as diagrammatic in nature and not completely descriptive of the requirements indicated thereon.) Certain terms used in Contract Documents are defined in this article.

QUALITY ASSURANCE

All Work shall conform to the applicable provisions of the codes, standards and Specifications as specified herein. Comply with specified standards as a minimum quality for the Work except where more stringent requirements apply. Where contradictions occur between codes, standards or Specifications, the more stringent shall apply.

SUBMITTALS :

Permits, Licenses and Certificates: For the owner's records, submit copies of permits, licenses, certifications, inspections reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the work. All such permits, licenses and certificates to be obtained by Contractor at Contractor's own expense.

DEFINITIONS:

Definitions contained in this Article are not necessarily complete, but are general to the extent that they are not defined more explicitly elsewhere in the Contract Documents.

Directed: Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean "directed by the Owner's Representative", "requested by the Owner's Representative", and similar phrases. However, no implied meaning shall be interpreted to extend the Owner's Representative's responsibility into the Contractor's area of construction supervision.

Approve: The term "approved," where used in conjunction with the Owner's Representative's action on the Contractor's submittals, applications, and requests, is limited to the responsibilities and duties of the Architect stated in General and Supplementary Conditions. Such approval shall not release the Contractor from responsibility to fulfill Contract Document requirements, unless otherwise provided in the Contract Documents.

Regulation: The term "Regulations" includes laws, statutes, ordinances and lawful orders issued by authorities having jurisdiction, as well as rules, conventions and agreements within the construction industry that control performance of the Work, whether they are lawfully imposed by authorities having jurisdiction or not.

Furnish: The term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and similar operations."

Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations."

Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."

Installer: An "Installer" is an entity engaged by the Contractor, either as an employee, subcontractor or sub- subcontractor for performance of a particular construction activity, including installation, erection, application and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

The term "experienced," when used with the term "Installer" means having a minimum of 5 previous Projects similar in size and scope to this project, and familiar with the precautions required, and has complied with requirements of the authority having jurisdiction.

Project Site is the space available to the Contractor for performance of the work, either exclusively or in conjunction with others performing other construction as part of the project. The extent of the project site is shown on the Drawings, and may or may not be identical with the description of the land upon which the project is to be built.

Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the project site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests.

Owner's Representative: This is the entity described as the "Architect" in AIA Document A201 "General Conditions of the Contract for Construction," or is the entity described as "Engineer" in Engineers Joint Contract Document Committee (EJCDC) Document 1910-8 "Standard General Conditions of the Construction Contract." All references to Architect or Engineer in the Contract Documents in all cases refer to the Owner's Representative. The Owner's Representative will represent the Owner during construction and until final payment is due. The Owner's Representative will advise and consult with the Owner. The Owner's instructions to the Contractor will be forwarded through the Owner's Representative.

General Superintendent: This is the Contractor's Representative at the work site. This person will generally be the Competent Person required by OSHA in 29 CFR 1926.

DEFINITIONS RELATIVE TO ASBESTOS ABATEMENT:

Accredited or Accreditation (when referring to a person or laboratory): A person or laboratory accredited in accordance with section 206 of Title II of the Toxic Substances Control Act (TSCA).

Aerosol: A system consisting of particles, solid or liquid, suspended in air.

Air Cell: Insulation normally used on pipes and duct work that is composed of corrugated cardboard which is frequently composed of asbestos combined with cellulose or refractory binders.

Air Monitoring: The process of measuring the fiber content of a specific volume of air.

Amended Water: Water to which a surfactant has been added to decrease the surface tension to 35 or less dynes.

Asbestos: The asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, anthophyllite, and actinolite-tremolite. For purposes of determining respiratory and worker protection both the asbestiform and non-asbestiform varieties of the above minerals and any of these materials that have been chemically treated and/or altered shall be considered as asbestos.

Asbestos-Containing Material (ACM): Any material containing more than 1% by weight of asbestos of any type or mixture of types.

Asbestos-Containing Building Material (ACBM): Surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a building.

Asbestos-Containing Waste Material: Any material which is or is suspected of being or any material contaminated with an asbestos-containing material which is to be removed from a work area for disposal.

Asbestos debris: Pieces of ACBM that can be identified by color, texture, or composition, or means dust, if the dust is determined by an accredited inspector to be ACM.

Authorized Visitor: The Owner, the Owner's Representative, testing lab personnel, the Architect/Engineer, emergency personnel or a representative of any federal, state and local regulatory or other agency having authority over the project.

Barrier: Any surface that seals off the work area to inhibit the movement of fibers.

Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.

Ceiling Concentration: The concentration of an airborne substance that shall not be exceeded.

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

Demolition: The wrecking or taking out of any building component, system, finish or assembly of a facility together with any related handling operations.

Disposal Bag: A properly labeled 6 mil thick leak-tight plastic bags used for transporting asbestos waste from work and to disposal site.

Encapsulant: A material that surrounds or embeds asbestos fibers in an adhesive matrix, to prevent release of fibers.

Bridging encapsulant: an encapsulant that forms a discrete layer on the surface of an in situ asbestos matrix.

Penetrating encapsulant: an encapsulant that is absorbed by the in situ asbestos matrix without leaving a discrete surface layer.

Removal encapsulant: a penetrating encapsulant specifically designed to minimize fiber release during removal of asbestos-containing materials rather than for in situ encapsulation.

Encapsulation: Treatment of asbestos-containing materials, with an encapsulant.

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

Filter: A media component used in respirators to remove solid or liquid particles from the inspired air.

Friable Asbestos Material: Material that contains more than 1.0% asbestos by weight and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.

Glovebag: A sack (typically constructed of 6 mil transparent polyethylene or polyvinylchloride plastic) with inward projecting long sleeve gloves, which are designed to enclose an object from which an asbestos-containing material is to be removed.

HEPA Filter: A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97% of asbestos fibers greater than 0.3 microns in diameter.

HEPA Filter Vacuum Collection Equipment (or vacuum cleaner): High efficiency particulate air filtered vacuum collection equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be of 99.97% efficiency for retaining fibers of 0.3 microns or larger.

High-efficiency particulate air filter: (HEPA) refers to a filtering system capable of trapping and retaining 99.97 percent of all monodispersed particles 0.3 um in diameter or larger.

Negative Pressure Respirator: A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.

Negative Pressure Ventilation System: A pressure differential and ventilation system.

Personal Monitoring: Sampling of the asbestos fiber concentrations within the breathing zone of an employee.

Pressure Differential and Ventilation System: A local exhaust system, utilizing HEPA filtration capable of maintaining a pressure differential with the inside of the Work Area at a lower pressure than any adjacent area, and which cleans recirculated air or generates a constant air flow from adjacent areas into the Work Area.

Protection Factor: The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.

Repair: Returning damaged ACBM to an undamaged condition or to an intact state so as to prevent fiber release.

Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres.

Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

Time Weighted Average (TWA): The average concentration of a contaminant in air during a specific time period.

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

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 amended water or diluted removal encapsulant and afterwards thoroughly decontaminated or disposed of as asbestos-contaminated waste.

Work Area: The area where asbestos-related work or removal operations are performed which is defined and/or isolated to prevent the spread of asbestos dust, fibers or debris, and entry by unauthorized personnel. Work area is a Regulated Area as defined by 29 CFR 1926.

INDUSTRY STANDARDS

Applicability of Standards: Except where Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into Contract Documents. Such standards are made a part of the Contract Documents by reference. Individual Sections indicate which codes and standards the Contractor must keep available at the Project Site for reference.

Referenced industry standards take precedence over standards that are not referenced but recognized in the construction industry as applicable.

Unreferenced industry standards are not directly applicable to the work, except as a general requirement of whether the work complies with recognized construction industry standards.

Publication Dates: Where compliance with an industry standard is required, comply with standard in effect as of date of Contract Documents.

Updated Standards: At the request of the Owner's Representative, Contractor or authority having jurisdiction, submit a Change Order proposal where applicable code or standard has been revised and reissued after the date of the Contract Documents and before performance

of Work affected. The Owner's Representative will decide whether to issue a Change Order to proceed with the updated standard.

Conflicting Requirements: Where compliance with two or more standards is specified, and they establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced, unless the Contract Documents indicate otherwise. Refer requirements that are different, but apparently equal, and uncertainties as to which quality level is more stringent to the Owner's Representative for a decision before proceeding.

Minimum Quantities or Quality Levels: In every instance the quantity or quality level shown or specified shall be the minimum to be provided or performed. The actual installation may comply exactly, within specified tolerances, with the minimum quantity or quality specified, or it may exceed that minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum values, as noted, or appropriate for the context of the requirements. Refer instances of uncertainty to the Owner's Representative for decision before proceeding.

Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entities' construction activity. Copies of applicable standards are not bound with the Contract Documents. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source. Although copies of standards needed for enforcement of requirements may be part of required submittals, the Owner's Representative reserves the right to require the Contractor to submit additional copies as necessary for enforcement of requirements.

Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. The following acronyms or abbreviations as referenced in Contract Documents are defined to mean the associated names. Names and addresses are subject to change, and are believed to be, but are not assured to be, accurate and up-to-date as of date of Contract Documents:

- AIHA American Industrial Hygiene Association
- AIA American Institute of Architects
- ANSI American National Standards Institute
- ASHRAE American Society for Heating, Refrigerating, Air Conditioning Engineers
- ASME American Society of Mechanical Engineers
- ASPE American Society of Plumbing Engineers
- ASTM American Society for Testing and Materials
- AWCI Association of the Wall and Ceiling Industries-International
- CFR Code of Federal Regulations
- DOT Department of Transportation
- EPA Environmental Protection Agency
- FS Federal Specification (General Services Admin.)
- GA Gypsum Association
- GSA General Services Administration
- IEEE Institute of Electrical and Electronic Engineers
- MIL Military Standardization Documents
- NEC National Electrical Code (by NFPA)

NFPA National Fire Protection Association
RFCI Resilient Floor Coverings Institute
UL Underwriters Laboratories

SECTION 01092 - CODES, REGULATIONS, AND STANDARDS - ASBESTOS ABATEMENT

PART 1 - GENERAL

SUMMARY

This section sets forth governmental regulations and industry standards which are included and incorporated herein by reference and made a part of the specification. This section also sets forth those notices and permits which are known to the Owner and which either must be applied for and received, or which must be given to governmental agencies before start of work.

Requirements include adherence to work practices and procedures set forth in applicable codes, regulations and standards.

Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with codes, regulations, and standards.

CODES AND REGULATIONS

General Applicability of Codes and Regulations, and Standards: Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable codes, regulations, and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith.

Contractor Responsibility: The Contractor shall assume full responsibility and liability for the compliance with all applicable Federal, State, and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State, and local regulations. The Contractor shall hold the Owner and Owner's Representative harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of himself, his employees, or his subcontractors.

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

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

Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite; Final Rules Title 29, Part 1910, Section 1001 and Part 1926, Section 58 of the Code of Federal Regulations Respiratory Protection Title 29, Part 1910, Section 134 of the Code of Federal Regulations

Construction Industry Title 29, Part 1926.1101 of the Code of Federal Regulations
Access to Employee Exposure and Medical Records Title 29, Part 1910, Section 2 of
the Code of Federal Regulations
Hazard Communication Title 29, Part 1910, Section 1200 of the Code of Federal
Regulations
Specifications for Accident Prevention Signs and Tags Title 29, Part 1910, Section
145 of the Code of Federal Regulations

DOT: U. S. Department of Transportation, including but not limited to:
Hazardous Substances Title 29, Part 171 and 172 of the Code of Federal Regulations

EPA: U. S. Environmental Protection Agency (EPA), including but not limited to:
Asbestos Hazard Emergency Response Act (AHERA) Regulation
Asbestos Containing Materials in Schools Final Rule & Notice Title 40, Part 763, Sub-
part E of the Code of Federal Regulations
Training Requirements of (AHERA) Regulation Asbestos Containing Materials in
Schools Final Rule & Notice Title 40, Part 763, Sub-part E, Appendix C of the
Code of Federal Regulations
National Emission Standard for Hazardous Air Pollutants (NESHAPS)
National Emission Standard for Asbestos Title 40, Part 61, Sub-part A, and Sub-part M
(Revised Sub-part B) of the Code of Federal Regulations

State Requirements: which govern asbestos abatement work or hauling and disposal of
asbestos waste materials include but are not limited to the following:
Illinois- Rules for Asbestos Abatement for Public and Private Schools and Commercial
and Public Buildings in Illinois (77Ill Adm. Code 855)
Department of Public Health 535 West Jefferson Street, Springfield, IL. 62761

Local Requirements: Abide by all local requirements which govern asbestos abatement work
or hauling and disposal of asbestos waste materials.

STANDARDS:

General Applicability of Standards: Except to the extent that more explicit or more stringent
requirements are written directly into the Contract Documents, all applicable standards have
the same force and effect (and are made a part of the Contract Documents by reference) as if
copied directly into the Contract Documents, or as if published copies are bound herewith.

Contractor Responsibility: The Contractor shall assume full responsibility and liability for the
compliance with all standards pertaining to work practices, hauling, disposal, and protection
of workers, visitors to the site, and persons occupying areas adjacent to the site. The
Contractor shall hold the Owner and Owner's Representative harmless for failure to comply
with any applicable standard on the part of himself, his employees, or his subcontractors.

Standards: which apply to asbestos abatement work or hauling and disposal of asbestos
waste materials include but are not limited to the following:
American National Standards Institute (ANSI)
1430 Broadway New York, New York 10018 (212)354-3300
Fundamentals Governing the Design and Operation of Local Exhaust Systems
Publication Z9.2-79 Practices for Respiratory Protection Publication Z88.2-80

American Society for Testing and Materials (ASTM) 1916 Race Street Philadelphia,
PA 19103
(215)299-5400
Safety and Health Requirements Relating to Occupational Exposure to Asbestos
E 849-82 Specification for Encapsulants for Friable Asbestos Containing Building
Materials Proposal P-189

EPA GUIDANCE DOCUMENTS:

EPA Guidance Documents: discuss asbestos abatement work or hauling and disposal of asbestos waste materials listed below for the Contractor's information only. These documents do not describe the work and are not a part of the work of this contract. EPA maintains an information number (800) 334-8571, publications can be ordered from (800) 424-9065 (554-1404 in Washington, DC):

Asbestos-Containing Materials in School Buildings - A Guidance Document. Part 1 & 2. (Orange Books)

EPA C00090 (out of print)

Guidance for Controlling Asbestos-Containing Materials in Buildings (Purple Book)

EPA 560/5-85-024

Friable Asbestos-Containing Materials in Schools: Identification and Notification Rule (40 CFR Part 763)

Evaluation of the EPA Asbestos-in-Schools Identification and Notification Rule. EPA 560/5-84-005.

Asbestos in Buildings: National Survey of Asbestos-Containing Friable Materials. EPA 560/5-84-006.

Asbestos in Buildings: Guidance for Service and Maintenance Personnel. EPA 560/5-85-018.

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

Asbestos Fact Book. EPA Office of Public Affairs.

Asbestos in Buildings. Simplified Sampling Scheme for Friable Surfacing Materials. Commercial Laboratories with Polarized Light Microscopy Capabilities for bulk asbestos identification.

A Guide to Respiratory Protection for the Asbestos Abatement Industry
EPA -560-OPS-86-001

NOTICES, PERMITS AND LICENSES

U.S. Environmental Protection Agency Send Written Notification as required by USEPA National Emission Standards for Hazardous Air Pollutants (NESHAPS) Asbestos Regulations (40 CFR 61, Subpart M) to the regional Asbestos NESHAPS.

Notification: Include the following information in the notification sent to the NESHAPS contact:

Name and address of owner or operator.

Description of the facility being demolished or renovated, including the size, age, and prior use of the facility.

Estimate of the approximate amount of friable asbestos material present in the facility in terms of linear feet of pipe, and surface area on other facility components. For facilities in which the amount of friable asbestos materials less than 80 linear meters (260 linear feet) on pipes and less than 15 square meters (160 square feet) on other facility components, explain techniques of estimation.

Location of the facility being demolished or renovated.
Scheduled starting and completion dates of demolition or renovation.
Nature of planned demolition or renovation and method(s) to be used.
Procedures to be used to comply with the requirements of USEPA National Emission Standards for Hazardous Air Pollutants (NESHAPS) Asbestos Regulations (40 CFR 61 Subpart M).

Name and location of the waste disposal site where the friable asbestos waste material will be deposited. For facilities being demolished under an order of a State or Local governmental agency, issued because the facility is structurally unsound and in danger of imminent collapse, the name, title, and authority of the State or local governmental representative who has ordered the demolition.

STATE AND LOCAL AGENCIES:

Send written notification as required by state and local regulations prior to beginning any work on asbestos-containing materials.

PERMITS:

Permit: All asbestos containing waste is to be transported by an entity maintaining a current "Industrial waste hauler permit" specifically for asbestos-containing materials, as required for transporting of waste asbestos-containing materials to a disposal site.

LICENSES:

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

POSTING AND FILING OF REGULATIONS

Posting and Filing of Regulations: Post all notices required by applicable federal, state and local regulations. Maintain two (2) copies of applicable federal, state and local regulations and standards. Maintain one copy of each at job site. Keep on file in Contractor's office one copy of each.

SUBMITTALS:

Before Start of Work: Submit the following to the Owner's Representative for review. No work shall begin until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use or final-but-restricted use.

Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work including:

State and Local Regulations: Submit copies of codes and regulations applicable to the work.

Notices: Submit notices required by federal, state and local regulations together with proof of timely transmittal to agency requiring the notice.

Permits: Submit copies of current valid permits required by state and local regulations.

Licenses: Submit copies of all State and local licenses and permits necessary to carry out the work of this contract.

SECTION 01301 - SUBMITTALS

PART 1 - GENERAL

SUMMARY

This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including:

- Contractor's construction schedule.
- Submittal schedule.
- Daily construction reports.
- Shop Drawings.
- Product Data.
- Samples.
- Miscellaneous Submittals

Administrative Submittals: Refer to other Division-1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:

- Permits
- Applications for payment
- Performance and payment bonds
- Insurance certificates
- List of Subcontractors

SUBMITTAL PROCEDURES

Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay. Contractor shall responsibly coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.

Coordinate transmittal of different types of submittals for related elements of the work so processing will not be delayed by the need to review submittals concurrently for coordination. The Owner's Representative reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.

Allow two weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Owner's Representative will promptly advise the Contractor when a submittal being processed must be delayed for coordination.

If an intermediate submittal is necessary, process the same as the initial submittal.

Allow two weeks for reprocessing each submittal. No extension of Contract Time will be authorized because of failure to transmit submittals to the Owner's Representative sufficiently in advance of the work to permit processing.

Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.

Include the following information on the label for processing and recording action taken.

Project name.

Date.

Name and address of Owner's Representative.

Name and address of Contractor.

Name and address of subcontractor.

Name and address of supplier.

Name of manufacturer.

Number and title of appropriate Specification Section.

Drawing number and detail references, as appropriate.

Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Owner's Representative using a transmittal form. Submittals received from sources other than the Contractor will be returned without action. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

CONTRACTOR'S CONSTRUCTION SCHEDULE

Schedule: Within 10 days after issuance of the Notice to Proceed, the contractor will provide a proposed detailed schedule including work dates, work shift time, number of employees, dates of start and completion including dates of preparation work, removals and final inspection dates.

Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart type Contractor's construction schedule. Submit within 10 days of the date established for "Commencement of the Work".

Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the work as indicated in the "Schedule of Values."

Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.

Secure time commitments for performing critical elements of the work from parties involved.

Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the work. Show each activity in proper sequence.

Indicate graphically sequences necessary for completion of related portions of the work.

Coordinate the Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests and other schedules.

Phasing: Provide notations on the schedule to show how the sequence of the work is affected by requirements for phased completion to permit work by separate Contractors and partial occupancy by the Owner prior to Substantial Completion.

Work Stages: Indicate important stages of construction for each major portion of the work, including testing and installation. Include indication of start and finish times for the following:

Non-asbestos demolitions.

Preparation of the Work Area.

Asbestos removal.
Clearance testing.
Substantial Completion.

Area Separations: Provide a separate time bar to identify each Work Area or major construction area for each major portion of the work. Indicate where each element in an area must be sequenced or integrated with other activities.

Cost Correlation: At the head of the schedule, provide a two item cost correlation line, indicating "recalculated" and "actual" costs. On the line show dollar-volume of work performed as of the dates used for preparation of payment requests. Refer to Section "Applications for Payment" for cost reporting and payment procedures.

Distribution: Following response to the initial submittal, print and distribute copies to the Owner's Representative, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project Administrator's field office, project meeting room and temporary field office. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.

Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

SUBMITTAL SCHEDULE

Listing: At the end of this section is a listing of the principal submittals required for the work. This listing is not necessarily complete, nor does the listing reflect the significance of each submittal requirement. The listing is included only for the convenience of users of the Contract Documents.

After review and action on the Contractor's construction schedule, prepare a complete schedule of submittals. Submit the schedule of submittals within 10 days of the date required for establishment of the Contractor's construction schedule.

Distribution: Following response to initial submittal, print and distribute copies to the Owner's Representative, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the project meeting room and field office. Indicate completion and Clearance of each Work Area in advance of the date established for Substantial Completion. Allow time for testing and other Owner's Representative's procedures necessary for certification of Clearance and Substantial Completion. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in construction activities.

Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

PRODUCT DATA

Collect Product Data into a single submittal. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."

Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:

Manufacturer's printed recommendations.

Compliance with recognized trade association standards.

Compliance with recognized testing agency standards.

Application of testing agency labels and seals.

Notation of dimensions verified by field measurement.

Notation of coordination requirements.

Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

MISCELLANEOUS SUBMITTALS:

Material Safety Data Sheets: Process material safety and data sheets as "product data."

Inspection and Test Reports: Classify each inspection and test report as being either "shop drawings" or "product data" depending on whether the report is specially prepared for the project, or a standard publication of workmanship control testing at the point of production. Process inspection and test reports accordingly.

Standards: Where submittal of a copy of standards is indicated, and except where copies of standards are specified as an integral part of a "Product Data" submittal, submit a single copy of standards for the Owner's Representative's use. Where workmanship, whether at the project site or elsewhere is governed by a standard, furnish additional copies of the standard to fabricators, installers and others involved in the performance of the work.

Close-out Submittals: Refer to section "Project Close-out" and to individual sections of these specifications for specific submittal requirements of project close-out information.

Record Documents: Furnish set of original documents as maintained on the project site. Along with original marked-up record drawings provide 2 photographic copies of marked-up drawings, which, at the Contractor's option, may be reduced to not less than half size.

OWNER'S REPRESENTATIVE'S ACTION

Except for submittals for record, information or similar purposes, where action and return is required or requested, the Owner's Representative will review each submittal, mark to indicate action taken, and return promptly. Compliance with specified characteristics is the Contractor's responsibility.

Action Stamp: The Owner's Representative will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:

Final Unrestricted Release: Where submittals are marked "Approved," that part of the work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.

Final-But-Restricted Release: When submittals are marked "Approved as Noted," that part of the work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.

Returned for Resubmittal: When submittal is marked "Not Approved, Revise and Resubmit," do not proceed with that part of the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark. Do not permit submittals marked "Not Approved, Revise and Resubmit" to be used at the Project site, or elsewhere where work is in progress.

Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Action Not Required".

SECTION 01410 - AIR MONITORING - TEST LABORATORY SERVICES

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division - 1 Specification Sections, apply to work of this section.

Air Monitoring: during work area clearance is described in Section 01711 Work Area Clearance.

DESCRIPTION OF THE WORK

This section describes air monitoring carried out by the owner to verify that the building beyond the work area and the outside environment remains uncontaminated. This section also sets forth airborne fiber levels both inside and outside the work area as action levels, and describes the action required by the Contractor if an action level is met or exceeded. Air monitoring required by OSHA is work of the Contractor and is not covered in this section.

AIR MONITORING:

Work Area Isolation: The purpose of the Owner's air monitoring is to detect faults in the work area isolation such as:

- Contamination of the building outside of the work area with airborne asbestos fibers,
- Failure of filtration or rupture in the differential pressure system,
- Contamination of air outside the building envelop airborne asbestos fibers.

Should any of the above occur immediately cease asbestos abatement activities until the fault is corrected. Do not recommence work until authorized by the Owner's Representative.

Work Area Airborne Fiber Count: The Owner will monitor airborne fiber counts in the Work Area. The purpose of this air monitoring will be to detect airborne asbestos concentrations which may challenge the ability of the Work Area isolation procedures to protect the balance of the building or outside of the building from contamination by airborne fibers.

Work area clearance: To determine if the elevated airborne fiber counts encountered during abatement operations have been reduced to an acceptable level, the Owner will sample and analyze air per Section 01714 Work Area Clearance.

The Owner will be conducting air monitoring throughout the course of the project.

STOP ACTION LEVELS:

Inside Work Area: Maintain an average airborne count in the work area of less than the Stop Action Level given below for the type of respiratory protection in use. If the fiber counts rise above this figure for any sample taken, revise work procedures to lower fiber counts. If the Time Weighted Average (TWA) fiber count for any work shift or 8 hour period exceeds the Stop

Action Level, stop all work except corrective action, leave pressure differential and air circulation

system in operation and notify Owner's Representative. After correcting cause of high fiber levels,

do not recommence work for 24 hours unless otherwise authorized, in writing, by Owner's Representative.

STOP ACTION LEVEL (f/cc)	IMMEDIATE STOP LEVEL (f/cc)	MINIMUM RESPIRATOR REQUIRED	MINIMUM PROTECTION FACTOR
0.1	1.0	Half face	10
0.5	5.0	PAPR	50
1.0	10.0	Type C	100

If airborne fiber counts exceed Immediate Stop Level given above for type of respiratory protection in use for any period of time cease all work except corrective action. Notify Owner's Representative. Do not recommence work until fiber counts fall below Stop Action Level given above for the type of respiratory protection in use. After correcting cause of high fiber levels, do not recommence work for 24 hours unless otherwise authorized, in writing, by Owner's Representative.

Outside Work Area: If any air sample taken outside of the Work Area exceeds the base line established below, immediately and automatically stop all work except corrective action. The Owner's Representative will determine the source of the high reading and so notify the Contractor in writing.

If the high reading was the result of a failure of Work Area isolation measures initiate the following actions:

Immediately erect new critical barriers as set forth in Section 01526 Temporary Enclosures to isolate the affected area from the balance of the building. Erect Critical Barriers at the next existing structural isolation of the involved space (eg. wall, ceiling, floor).

Decontaminate the affected area in accordance with Section 01712 Cleaning & Decontamination Procedures.

Require that respiratory protection as set forth in Section 01562 Respiratory Protection be worn in affected area until area is cleared for reoccupancy in accordance with Section 01714 Work Area Clearance.

Leave Critical Barriers in place until completion of work and insure that the operation of the pressure differential system in the Work Area results in a flow of air from the balance of the building into the affected area.

If the exit from the clean room of the personnel decontamination unit enters the affected area,

establish a decontamination facility consisting of a Shower Room and Changing Room as set forth in Section 01564 Decontamination Units at entry point to affected area. After Certification of Visual Inspection in the Work Area remove critical barriers separating the work area from the

affected area. Final air samples will be taken within the entire area as set forth in Section 01714 Work Area Clearance.

If the high reading was the result of other causes initiate corrective action as determined by the Owner's Representative.

Effect on Contract Sum: Complete corrective work with no change in the Contract Sum if high airborne fiber counts were caused by Contractor's activities. The Contract Sum and schedule will be adjusted for additional work caused by high airborne fiber counts beyond the Contractor's control.

Fibers Counted: The following procedure will be used to resolve any disputes regarding fiber types when a project has been stopped due to excessive airborne fiber counts.

Large Fibers: "Airborne Fibers" referred to above include all fibers regardless of composition as counted by phase contrast microscopy (PCM), unless additional analysis by transmission or scanning electron microscopy demonstrates to the satisfaction of the Owner's Representative that non-asbestos fibers are being counted. "Airborne Fibers" counted in samples analyzed by scanning or transmission electron microscopy shall be asbestos fibers, greater than 5 microns in length and greater than 0.25 microns in diameter. For purposes of stop action levels, subsequent to analysis by electron microscopy, the number of "Airborne Fibers" shall be determined by multiplying the number of fibers, regardless of composition, counted by PCM by a number equal to asbestos fibers counted divided by all fibers counted in the electron microscopy analysis.

Small Structures: "Airborne Fibers" referred to above include asbestos structures (fibers, bundles, clusters or matrices) of any diameter and any length greater than 0.5 microns.

ANALYTICAL METHODS:

General The following methods will be used by the Owner in analyzing filters used to collect air samples. Sampling rates may be varied from printed standards to allow for high volume sampling.

Phase Contrast Microscopy (PCM) will be performed using the NIOSH 7400 method.

Transmission Electron Microscopy will be performed using the analysis method set forth in the AHERA regulation 40 CFR Part 763 Appendix A.

SAMPLE VOLUMES:

General: The number and volume of air samples taken by the Owner will be in accordance with the following schedule. Sample volumes given may vary depending upon the analytical method used.

SCHEDULE OF AIR SAMPLES:

Before Start of Work:

The Owner will secure the following Air Samples to establish a base line before start of work. As required by AHERA and IDPH requirements. Minimums are as follows, however, the more stringent shall apply.

Sample cassettes: Samples will be collected on 25 mm. cassettes as follows:

PCM: 0.8 micrometer mixed cellulose ester.

TEM: 0.45 micrometer mixed cellulose ester or 0.40 micrometer polycarbonate, with 5.0 micron mixed cellulose ester backing filter.

Sampling sensitivity in the table below refers to:

Detection Limit for PCM analysis as set forth in the analytical method used

Analytical Sensitivity for TEM analysis as set forth in the analytical method used or the AHERA regulation

Location Sampled	Number of Samples	Analysis Method	Sampling Sensitivity Fibers/cc.	Minimum Volume (Liters)	Rate LPM
Each Work Area	1	PCM	0.01	1,200	1-10
Each Work Area	1	hold for TEM	0.005	1,300	1-10
Outside Each Work Area	5	PCM	0.01	1,200	1-10
Outside Each Work Area	1	hold for TEM	0.005	1,300	1-10
Outside Building	5	PCM	0.01	1,200	1-10
Outside Building	1	hold for TEM	0.005	1,300	1-10

Base Line: an action level expressed in fibers per cubic centimeter which is twenty-five percent greater than the largest of the following:

Average of the PCM samples collected outside each Work Area

Average of the PCM samples collected outside the building

0.01 fibers per cubic centimeter

Samples collected for TEM analysis will be held without analysis. These samples will be analyzed under the conditions and terms set forth in "Fibers Counted" and "Effect On Contract Sum".

Daily:

From start of work of Section 01526 Temporary Enclosures through the work of Section 01711 Project Decontamination, the Owner may be taking the following samples on a daily basis.

Samples will be collected on 25 mm. cassettes with the following filter media:

PCM: 0.8 micrometer mixed cellulose ester.

Location Sampled	Number of Samples	Analysis Method Fibers/cc.	Detection Limit	Minimum Volume (Liters)	Rate LPM
Each Work Area	2	PCM OR AS REQUIRED BY CONDITIONS	0.01	1,200	1-10
Outside Each Work Area at Critical Barrier	1	PCM	0.01	1,200	1-10
Clean Room	1	PCM	0.01	1,200	1-10
Equip Decon	1	PCM	0.01	1,200	1-10
Outside Building Output Pressure Differential Sys	1	PCM	0.01	1,200	1-10

Additional samples may be taken at Owner's or Owner's Representatives discretion. If airborne fiber counts exceed allowed limits additional samples will be taken as necessary to monitor fiber levels.

LABORATORY TESTING:

The services of a testing laboratory may be employed by the Owner to perform laboratory analyses of the air samples. A microscope and technician will be set up at the job site, so that verbal reports on air samples can be obtained immediately.

Written Reports: of all air monitoring tests will be posted at the job site on a daily basis.

SECTION 01503 - TEMPORARY FACILITIES - ASBESTOS ABATEMENT

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to work of this section.

DESCRIPTION OF REQUIREMENTS:

General: Provide temporary connection to existing building utilities or provide temporary facilities as required herein or as necessary to carry out the work.

SUBMITTALS

Before the Start of Work: Submit the following to the Owner's Representative for review. Begin no work until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use or final-but-restricted use.

Scaffolding: submit list of rolling and fixed scaffolding intended for use on the project. Submit sufficient detail to indicate compliance with applicable worker safety regulations or other requirements.

Hot water heater: Submit manufacturers name, model number, size in gallons, heating capacity, power requirements.

Decontamination Unit Sub-panel: Submit product data.

Ground Fault Circuit Interrupters (GFCI): Submit product data.

Lamps and Light Fixtures: Submit product data.

Temporary Heating Units: Provide product data.

Temporary Cooling Units: Provide product data and installation instructions.

Self Contained Toilet Units: Provide product data and name of sub-contractor to be used for servicing self-contained toilets. Submit method to be used for servicing.

First Aid Supplies: Provide list of contents of first aid kit. Submit in form of check list.

Fire Extinguishers: Provide product data. Submit schedule indicating location at job site.

PART 2 - PRODUCTS

MATERIALS AND EQUIPMENT:

General: Provide new or used materials and equipment that are undamaged and in serviceable condition. Provide only materials and equipment that are recognized as being suitable for the intended use, by compliance with appropriate standards.

SCAFFOLDING:

Provide all scaffolding, ladders and/or staging, etc. as necessary to accomplish the work of this contract. Scaffolding may be of suspension type or standing type such as metal tube and coupler, tubular welded frame, pole or outrigger type or cantilever type. The type, erection and use of all scaffolding shall comply with all applicable OSHA provisions.

Non-slip/Non-skid Surface Equip rungs of all metal ladders, etc. with an abrasive non-slip surface. Provide a nonskid surface on all scaffold surfaces subject to foot traffic.

WATER SERVICE:

Temporary Water Service Connection: All connections to the Owner's water system shall include back flow protection. Valves shall be temperature and pressure rated for operation of the temperatures and pressures encountered. After completion of use, connections and

fittings shall be removed without damage or alteration to existing water piping and equipment. Leaking or dripping valves shall be piped to the nearest drain or located over an existing sink or grade where water will not damage existing finishes or equipment.

Water Hoses: Employ heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water into each work area and to each Decontamination Unit. Provide fittings as required to allow for connection to existing wall hydrants or spouts, as well as temporary water heating equipment, branch piping, showers, shut-off nozzles and equipment.

Hot Water Heater: Provide UL rated 40 gallon electric hot water heater to supply hot water for the Decontamination Unit shower. Activate from 30 amp circuit breaker located within the Decontamination Unit subpanel. Provide with relief valve compatible with water heater operation; pipe relief valve down to drip pan on floor with type L copper. Drip pans shall consist of a 12" X 12" X 6" deep pan, made of 19 gauge galvanized steel, with handles. A 3-quart kitchen saucepan may be substituted for this purpose. Drip pan shall be securely fastened to the hot water heater with bailing wire or similar material. Wiring of the hot water heater shall be in compliance with NEMA, NECA, and UL standards. *(for IDPH & AHERA JOBS)*

Hot Water: may be secured from the building hot water system, provided back flow protection is installed at point of connection as described in this section under Temporary Water Service connection, and if authorized in writing by the Owner's Representative.

ELECTRICAL SERVICE:

General: Comply with applicable NEMA, NECA and UL standards and governing regulations for materials and layout of temporary electric service.

Temporary Power: Provide service to Decontamination Unit subpanel with minimum 60 amp, 2 pole circuit breaker or fused disconnect connected to the buildings main distribution panel. Subpanel and disconnect shall be sized and equipped to accommodate all electrical equipment required for completion of the work.

Voltage Differences: Provide identification warning signs at power outlets which are other than 110-120 volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 volt plugs into higher voltage outlets. Dry type transformers shall be provided where required to provide voltages necessary for work operations.

Ground Fault Protection: Equip all circuits for any purpose entering Work Area with ground fault circuit interrupters (GFCI). Locate GFCI's exterior to Work Area so that all circuits are protected prior to entry to Work Area. Provide circuit breaker type ground fault circuit interrupters (GFCI) equipped with test button and reset switch for all circuits to be used for any purpose in work area, decontamination units, exterior, or as otherwise required by national electrical code, OSHA or other authority. Locate in panel exterior to Work Area.

Electrical Power Cords: Use only grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Use single lengths or use waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas of work.

Lamps and Light Fixtures: Provide general service incandescent lamps or fluorescent lamps of wattage indicated or required for adequate illumination as required by the work or this section. Protect lamps with guard cages or tempered glass enclosures, where fixtures are exposed to breakage by construction operations. Provide vapor tight fixtures in work area and decontamination units. Provide exterior fixtures where fixtures are exposed to the weather or moisture.

HEAT TEMPORARY

Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the fuel being consumed. Use steam or hot water radiant heat where available, and where not available use electric resistant fin radiation supplied from a branch circuit with ground fault circuit interrupter.

TEMPORARY COOLING:

Cooling Units: Provide temporary cooling units consisting of a fan coil unit inside the work area with a compressor and heat rejection coil outside.

FIRST AID:

First Aid Supplies: Comply with governing regulations and recognized recommendations within the construction industry.

FIRE EXTINGUISHERS:

Fire Extinguishers: Provide Type "A" fire extinguishers for temporary offices and similar spaces where there is minimal danger of electrical or grease-oil-flammable liquid fires. In other locations provide type "ABC" dry chemical extinguishers, or a combination of several extinguishers of NFPA recommended types for the exposures in each case.

PART 3 - EXECUTION

SCAFFOLDING:

During the erection and/or moving of scaffolding, care must be exercised so that the polyethylene floor covering is not damaged.

Clean as necessary debris from non-slip surfaces.

At the completion of abatement work clean all construction aids within the work area, wrap in one layer of 6 mil polyethylene sheet and seal before removal from the Work Area.

INSTALLATION, GENERAL:

General: Use qualified tradesmen for installation of temporary services and facilities. Locate temporary services and facilities where they will serve the entire project adequately and result in minimum interference with the performance of the Work. Require that tradesmen accomplishing this work be licensed as required by local authority for the work performed. Relocate, modify and extend services and facilities as required during the course of work so as to accommodate the entire work of the project.

WATER SERVICE:

General: Water connection (without charge) to Owner's existing potable water system is limited to one 3/4" pipe-size connection, and a maximum flow of 10 gpm each to hot and cold water supply. Install using vacuum breakers or other back flow prevented as required by local authority. Hot water shall be supplied at a minimum temperature of 100 F. Supply hot and cold water to the Decontamination Unit in accordance with Section 01564. In addition, water shall be supplied for the following uses:

Hoses and Drip Pans: Maintain hose connections and outlet valves in leakage, provide a drip pan of suitable size to minimize the possibility of water damage. Drain water promptly from pans as it accumulates.

ELECTRICAL SERVICE:

General: Provide a weatherproof, grounded temporary electric power service and distribution system of sufficient size, capacity, and power characteristics to accommodate performance of work during the construction period. Install temporary lighting adequate to provide sufficient illumination for safe work and traffic conditions in every area of work.

Lockout: Lockout all existing power to or through the work area as described below. Unless specifically noted otherwise existing power and lighting circuits to the Work Area are not to be used. All power and lighting to the Work Area and Decontamination facilities are to be provided from temporary electrical panel described below.

Lockout power to Work Area by switching off all breakers serving power or lighting circuits in work area. Label breakers with tape over breaker with notation "DANGER circuit being worked on". Lock panel and have all keys under control of Contractor's Superintendent or Owner's designated Representative.

Lockout power to circuits running through Work Area wherever possible by switching off all breakers serving these circuits. Label breakers with tape over breaker with notation "DANGER circuit being worked on". Sign and date danger tag. Lock panel and supply keys to Contractor, Owner and Owner's Representative. If circuits cannot be shut down for any reason, label at intervals 4'-0" on center with tags reading, "DANGER live electric circuit. Electrocution hazard."

Temporary Electrical Panel: Provide temporary electrical panel sized and equipped to accommodate all electrical equipment and lighting required by the work. Connect temporary panel to existing building electrical system. Protect with circuit breaker or fused disconnect. Locate temporary panel as directed by Owner or Owner's Representative.

Power Distribution System: Provide circuits of adequate size and proper characteristics for each use. In general run wiring overhead, and rise vertically where wiring will be at least exposed to damage from construction operations.

Circuit Protection: Protect each circuit with a ground fault circuit interrupter (GFCI) of proper size located in the temporary panel. Do not use outlet type GFCI devices.

Temporary Wiring: in the Work Area shall be type UF non-metallic sheathed cable located overhead and exposed for surveillance. Do not wire temporary lighting with plain, exposed (insulated) electrical conductors. Provide liquid tight enclosures or boxes for wiring devices.

Number of Branch Circuits: Provide sufficient branch circuits as required by the work. All branch circuits are to originate at temporary electrical panel. At minimum provide the following:

- One Circuit for each HEPA filtered fan unit

For power tools and task lighting, provide one temporary 4-gang outlet in the following locations. Provide a separate 110-120 Volt, 20 Amp circuit for each 4-gang outlet (4 outlets per circuit).

- One outlet in the work area for each 2500 square feet of work area.

- One outlet at each decontamination unit, located in equipment room.

Provide 110-120 volt 20 amp branch circuits with 4-gang outlet for Owner's exclusive use while conducting air sampling during the work as follows:

- One in each work area

- One at clean side of each Decontamination Unit.

- One at each exhaust location for HEPA filtered fan units

Provide 110-120 volt 20 amp branch circuits with 4-gang outlet for Owner's exclusive use for conducting final air sampling as set forth in Section 01714 Work Area

Clearance as follows:

- Five inside work area

- Two outside work area in location designated by Owner's Representative

TEMPORARY LIGHTING:

Lockout: Lock out all existing power to lighting circuits in Work Area as described in section 01526 Temporary Enclosures. Unless specifically noted otherwise existing lighting circuits to the Work Area are not to be used. All lighting to the Work Area and Decontamination facilities is to be provided from temporary electrical panel described above.

Provide the following or equivalent where natural lighting or existing building lighting does not meet the required light level:

- One 200-watt incandescent lamp per 1000 square feet of floor area, uniformly distributed, for general construction lighting, or equivalent illumination of a similar nature. In corridors and similar traffic areas provide one 100-watt incandescent lamp every 50 feet. In stair ways and at ladder runs, provide one lamp minimum per story, located to illuminate each landing and flight. Provide sufficient temporary lighting to ensure proper workmanship everywhere; by combined use of daylight, general lighting, and portable plug-in task lighting.

Provide lighting in areas where work is being performed as required to supply a 100 foot candle

minimum light level. Provide lighting in any area being subjected to a visual inspection as required to supply a 100 foot candle minimum light level.

Provide lighting in the Decontamination Unit as required to supply a 50 foot candle minimum light level

Number of Lighting Circuits: Provide sufficient lighting circuits as required by the work. All lighting circuits are to originate at temporary electrical panel.

Circuit Protection: Protect each circuit with a ground fault circuit interrupter (GFCI) of proper size located in the temporary panel.

TEMPORARY COOLING:

Required Cooling: Provide units sufficient to supply 20,000 BTU's of cooling per 8,000 cubic feet of work area.

SANITARY FACILITIES:

Toilets: Use of the Owner's existing toilet facilities, as indicated, will be permitted, so long as these facilities are properly cleaned and maintained in a condition acceptable to the Owner. At substantial completion, restore these facilities to the condition prevalent at the time of initial use. Written permission from the owner must be obtained, and all provisions of these specifications regarding leaving the work area are met.

FIRE EXTINGUISHERS:

Fire Extinguishers: Comply with the applicable recommendations of NFPA Standard 10 "Standard for Portable Fire Extinguishers". Locate fire extinguishers where they are most convenient and effective for their intended purpose, but provide not less than one extinguisher in each Work Area in Equipment Room and One outside Work Area in Clean Room.

SECTION 01513 - TEMPORARY PRESSURE DIFFERENTIAL AND AIR CIRCULATION SYSTEM

PART 1 - GENERAL

Description: This section covers the air distribution equipment and associated accessories required for the temporary pressure differential and air circulation system(s) including all necessary appurtenances to be furnished, installed and tested as shown on the drawings and as specified herein. All fittings connectors, hangers, supports and anchors where required, not otherwise specifically provided for in these specifications, but necessary to provide a complete and operational system(s) shall be included under this section of work. Contractor's responsibility also includes continuously monitoring and recording the pressure differential between the Work Area and the building outside of the Work Area with a monitoring device incorporating a continuous recorder (e.g. strip chart).

RELATED DOCUMENTS:

Heating and cooling requirements are set forth in Section 01503 Temporary Facilities - Asbestos Abatement

MONITORING

Monitor pressure differential at Personnel and Equipment Decontamination Units with a differential pressure meter equipped with a continuous recorder. Meter shall be equipped with a warning type alarm buzzer which shall sound if pressure differential drops below 0.01" of water.

SUBMITTALS

Before Start of Work: Submit design of pressure differential system to the Owner's Representative for review. Do not begin work until submittal is returned with the Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use. Include in the submittal at a minimum:

- Number of HEPA filtered fan units required and the calculations necessary to determine the number of machines
- Description of projected air flow within Work Area and methods required to provide adequate air flow in all portions of the work area
- Anticipated pressure differential across Work Area enclosures
- Description of methods of testing for correct air flow and pressure differentials
- Manufacturer's product data on the HEPA filtered fan units to be used
- Location of the machines in the Work Area
- Method of supplying adequate power to the machines and designation of building electrical panel(s) which will be supplying the power
- Description of work practices to insure that airborne fibers travel away from workers
- Manufacturer's product data on equipment used to monitor pressure differential between inside and outside of Work Area
- Manufacturer's product data on auxiliary generator to be used
- Manufacturer's product data on auxiliary power switch to be used

On a weekly basis: Submit printout from pressure differential monitoring equipment. Mark printout with date and start of time for each day. Use printout paper that indicates elapsed time in intervals no greater than hours. Indicate on each days record times of starting and stopping abatement work, type of work in progress, breaks for lunch or other purposes, periods of stop work, and filter changes. Cut printout into segments by day, attach to 8 1/2" by 11" paper. Label with project name, contractors name and date.

PART 2 - PRODUCTS

HEPA FILTERED FAN UNITS:

General: Supply the required number of HEPA filtered fan units to the site in accordance with these specifications. Use units that meet the following requirements.

Cabinet: Constructed of durable materials able to withstand damage from rough handling and transportation. The width of the cabinet should be less than 30 inches to fit through standard-size doorways. Provide units whose cabinets are:

- Factory-sealed to prevent asbestos-containing dust from being released during use, transport, or maintenance
- Arranged to provide access to and replacement of all air filters from intake end
- Mounted on casters or wheels

Fans: Rate capacity of fan according to usable air-moving capacity under actual operating conditions.

HEPA Filters: Provide units whose final filter is the HEPA type with the filter media (folded into closely pleated panels) completely sealed on all edges with a structurally rigid frame.

Provide units with a continuous rubber gasket located between the filter and the filter housing to form a tight seal.

Provide HEPA filters that are individually tested and certified by the manufacturer to have an efficiency of not less than 99.97 percent when challenged with 0.3 um dioctylphthalate (DOP) particles when tested in accordance with Military Standard Number 282 and Army Instruction Manual 136-300-175A. Provide filters that bear a UL586 label to indicate ability to perform under specified conditions.

Provide filters that are marked with: the name of the manufacturer, serial number, air flow rating, efficiency and resistance, and the direction of test air flow.

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.

Provide units with the following prefilters:

First-stage prefilter: low-efficiency type (e.g., for particles 100 um and larger)

Second-stage (or intermediate) filter: medium efficiency (eg., effective for particles down to 5 um)

Instrumentation: Provide units equipped with:

Magnehelic gauge or manometer to measure the pressure drop across filters and indicate when filters have become loaded and need to be changed

A table indicating the usable air-handling capacity for various static pressure readings on the Magnehelic gauge affixed near the gauge for reference, or the Magnehelic reading indicating at what point the filters should be changed, noting Cubic Feet per Minute (CFM) air delivery at that point

Elapsed time meter to show the total accumulated hours of operation

Safety and Warning Devices: Provide units with the following safety and warning devices:

Electrical (or mechanical) lockout to prevent fan from operating without a HEPA filter
Automatic shutdown system to stop fan in the event of a rupture in the HEPA filter or blocked air discharge

Warning lights to indicate normal operation (green), too high a pressure drop across the filters (i.e., filter overloading) (yellow), and too low of a pressure drop (i.e., rupture in HEPA filter or obstructed discharge) (red)

Audible alarm if unit shuts down due to operation of safety systems

Electrical components: Provide units with electrical components approved by the National Electrical Manufacturers Association (NEMA) and Underwriter's Laboratories (UL). Each unit is to be equipped with overload protection sized for the equipment. The motor, fan, fan housing, and cabinet are to be grounded.

Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:

AUXILIARY GENERATOR:

Auxiliary Generator: Provide a gasoline-powered self-starting generator with a capacity adequate to power a minimum of 50% of the HEPA filtered fan units in operation at any time during the work.

AUXILIARY POWER SWITCH:

Auxiliary Power Switch: Provide a switching relay which will automatically start auxiliary generator and switch over power supplied to HEPA filtered fan units to auxiliary generator.

PART 3 - EXECUTION

PRESSURE DIFFERENTIAL ISOLATION

Isolate the Work Area from all adjacent areas or systems of the building with a Pressure Differential that will cause a movement of air from outside to inside at any breach in the physical isolation of the Work Area.

Relative Pressure in Work Area: Continuously maintain the work area at an air pressure that is lower than that in any surrounding space in the building, or at any location in the immediate proximity outside of the building envelope. This pressure differential when measured across any physical or critical barrier must equal or exceed a static pressure of:

Accomplish the pressure differential by exhausting a sufficient number of HEPA filtered fan units from the work area. The number of units required will depend on machine characteristics, the seal at barriers, and required air circulation. The number of units will increase with increased make-up air or leaks into the Work Area. Determine the number of units required for pressure isolation by the following procedure:

Establish required air circulation in the work area, personnel and equipment decontamination units.

Establish isolation by increased pressure in adjacent areas or as part of seals where required.

Exhaust a sufficient number of units from the work area to develop the required pressure differential.

The required number of units is the number determined above plus one additional unit.

Vent HEPA filtered fan units to outside of building unless authorized in writing by Owner's Representative. Mount units to exhaust directly or through disposable ductwork. Use only new ductwork except for sheet metal connections and elbows. Use ductwork and fittings of same diameter or larger than discharge connection on fan unit. Use inflatable, disposable plastic ductwork in lengths not greater than 100 feet. Use spiral wire-reinforced flex duct in lengths not greater than 50 feet. Arrange exhaust as required to inflate duct to a rigidity sufficient to prevent flapping. If direction of discharge from fan unit is not aligned with duct use sheet metal elbow to change direction. Use six feet of spiral wire reinforced flex duct after direction change.

Isolation of elevators, stair towers, and return air intakes: Erect seals with an air space at doors to elevators and stair towers. Pressurize this space with HEPA-filtered air so that it is at a pressure greater than either the Work Area elevator shaft or stair tower.

Fabricate seal by first sealing door with duct tape and 6 mil polyethylene. Construct a barrier from 1/2" gypsum board supported by 3-5/8" 25 gauge metal studs at 16" on centers. Space face of barrier a minimum of 3" from face of door. Seal barrier with 6 mil sheet plastic and duct tape. Pressurize space with exhaust from HEPA filtered fan unit. Continuously maintain a pressure differential with this space a minimum of 0.02 inches of water higher in static pressure than any adjacent space. Locate HEPA filtered fan unit outside of work area. Fabricate a manifold as required to distribute air to individual spaces to be isolated. Provide

relief venting at unit as required to prevent shut down due to low air flow while still maintaining required air pressure.

Isolation of chases and enclosed stairs: Pressurize chases and enclosed stairs with HEPA filtered air so that it is at a pressure greater than any adjacent work area. Pressurize space with exhaust from HEPA filtered fan unit. Continuously maintain a pressure differential with this space a minimum of 0.02 inches of water higher in static pressure than any adjacent work area.

Isolation of return air ductwork: Return air duct work which must be kept operating is located in the Work Area. This duct work is to be isolated from the Work Area by an enclosure forming an annular space around the duct which is positively pressurized with HEPA filtered air. Minimum requirement shall include but not be limited to the following:
Wrap the duct with 6 mil polyethylene. Seal all polyethylene seams with spray glue and duct tape. Enclose wrapped duct with two layers of polyethylene. Fabricate inner layer from 6 mil polyethylene with all seams sealed with spray glue and duct tape.
Arrange outer layer to support inner layer. Fabricate out of reinforced sheet plastic with seams sealed with spray glue and duct tape and reinforced with staples. Support outer layer with a frame work fabricated from 2" x 4"s at 24" on center. Enclosures less than 2' - 6' in diameter may be reinforced with box strapping in lieu of wood framing.

AUXILIARY GENERATOR

Provide auxiliary gasoline-powered generator located outside of the building in a location protected from the weather. Arrange so that if a power failure occurs the generator automatically starts and supplies power to a minimum of 50% of the HEPA filtered fan units in operation.

AIR CIRCULATION IN THE WORK AREA:

Air Circulation: For purposes of this section air circulation refers to either the introduction of outside air to the Work Area or the circulation and cleaning of air within the Work Area. Air circulation in the Work Area is a minimum requirement intended to help maintain airborne fiber counts at a level that does not significantly challenge the work area isolation measures. The Contractor may also use this air circulation as part of the engineering controls in his worker protection program.

Determining the Air circulation Requirements: Provide a fully operational air circulation system supplying a minimum of the following air circulation rate:

Determine Number of Units needed to achieve required air circulation according to the following procedure:

Determine the volume in cubic feet of the work area by multiplying floor area by ceiling height. Determine total air circulation requirement in cubic feet per minute (CFM) for the work area by dividing this volume by the air change rate and multiplying by 60.

Air Circulation Required in Cubic Feet of Air per Minute (CFM) =

Volume of work area (cu. ft.) X Number of air changes per hour

60 (minutes per hour)

Divide the air circulation requirement (CFM) above by capacity of HEPA filtered fan unit(s) used. Capacity of a unit for purposes of this section is the capacity in cubic feet per minute with fully loaded filters (pressure differential which causes loaded filter warning light to come on) in the machine's labeled operating characteristics.

Number of Units Needed =

$$\frac{\text{Air circulation Requirement (CFM)}}{\text{Capacity of Unit with Loaded Filters (CFM)}}$$

Add one (1) additional unit as a backup in case of equipment failure or machine shutdown for filter changing.

EXHAUST SYSTEM:

Pressure differential isolation and air circulation in the Work Area are to be accomplished by an exhaust system as described below.

Exhaust all units from the Work Area to meet air circulation requirement of this section.

Location of HEPA Filtered Fan Units: Locate fan unit(s) so that makeup air enters work area primarily through decontamination facilities and traverses Work Area as much as possible. This may be accomplished by positioning the HEPA filtered fan unit(s) at a maximum distance from the worker access opening or other makeup air sources.

Place End of Unit an intake duct or its exhaust duct through an opening in the plastic barrier or wall covering. Seal plastic around the unit or duct with tape.

Vent to Outside of Building, unless authorized in writing by the Owner's Representative.

Decontamination Units: Arrange Work Area and decontamination units so that the majority of makeup air comes through the Decontamination Units. Use only personnel or equipment Decontamination Unit at any time and seal the other so that make up air passes through unit in use.

Supplemental Makeup Air Inlets: Provide where required for proper air flow through the Work Area in location approved by the Owner's Representative by making openings in the plastic sheeting that allow air from outside the building into the Work Area. Locate auxiliary makeup air inlets as far as possible from the fan unit(s) (e.g., on an opposite wall), off the floor (preferably near the ceiling), and away from barriers that separate the Work Area from occupied clean areas. Cover with flaps to reseal automatically if the pressure differential system should shut down for any reason. Spray flap and around opening with spray adhesive so that if flap closes meeting surfaces are both covered with adhesive. Use adhesive that forms contact bond when dry.

RECIRCULATION SYSTEM:

Pressure differential isolation and air circulation in the Work Area are to be accomplished by a recirculation system as described below.

Recirculate air in the Work Area through HEPA filtered fan units to accomplish air circulation requirements of this section.

Location of Fan Units: Locate HEPA filtered fan units so that air is circulated through all parts of the Work Area, and so that required pressure is maintained at all parts of Work Area geometry. Move units as necessary so that in any location where asbestos-containing materials are being disturbed the discharge from one HEPA filtered fan unit is blowing contamination away from workers. Direct air flow in these locations so that it is predominantly toward workers' backs at the breathing zone elevation.

AIR CIRCULATION IN DECONTAMINATION UNITS:

Pressure Differential Isolation: Continuously maintain the pressure differential required for the work area in the:

Personnel Decontamination Unit: across the Shower Room with the Equipment Room at a lower pressure than the Clean room.

Equipment Decontamination Unit: Across the Holding Room with the Wash Room at a lower pressure than the Clean Room.

Air Circulation: Continuously maintain air circulation in Decontamination Units at same level as required for Work Area.

Air Movement: Arrange air circulation through the Personnel Decontamination Unit so that it produces a movement of air from the Clean Room through the Shower Room into the Equipment Room. Maintain continuous minimum velocities of Sixty (60) feet per minute in the breathing zone area of the shower and thirty (30) feet per minute in all other locations of the shower.

USE OF THE PRESSURE DIFFERENTIAL AND AIR CIRCULATION SYSTEM:

General: Each unit shall be serviced by a dedicated minimum 115V-20A circuit with ground fault circuit interrupter (GFCI) supplied from temporary power supply installed under requirements of Section 01503 "Temporary Facilities." Do not use existing branch circuits to power fan units.

Testing the System: Test pressure differential system before any asbestos-containing material is wetted or removed. After the Work Area has been prepared, the decontamination facility set up, and the fan unit(s) installed, start the unit(s) (one at a time). Demonstrate operation and testing of pressure differential system to Owner's Representative. Demonstrate Condition of Equipment for each HEPA filtered fan unit and pressure differential monitoring equipment including proper operation of the following:

- Squareness of HEPA Filter

- Condition of Seals

- Proper operation of all lights

- Proper operation of automatic shut down if exhaust is blocked

- Proper operation of alarms

- Proper operation of magnehelic gauge

- Proper operation and calibration on pressure monitoring equipment

Demonstrate Operation of the pressure differential system to the Owner's Representative will include, but not be limited to, the following:

Plastic barriers and sheeting move lightly in toward Work Area,

Curtain of decontamination units move lightly in toward Work Area,

- There is a noticeable movement of air through the Decontamination Unit.

- Use smoke tube to demonstrate air movement from Clean Room through Shower Room to Equipment Room.

- Use smoke tubes to demonstrate a definite motion of air across all areas in which work is to be performed.

- Use a differential pressure meter or manometer to demonstrate the required pressure differential at every barrier separating the Work Area from the balance of the building, equipment, ductwork or outside.

Modify the Pressure Differential System as necessary to demonstrate successfully the above.

Use of System During Abatement Operations:

Start fan units before beginning work (before any asbestos-containing material is disturbed).

After abatement work has begun, run units continuously to maintain a constant pressure differential and air circulation until decontamination of the work area is complete. Do not turn off units at the end of the work shift or when abatement operations temporarily stop.

Do not shut down air pressure differential system during encapsulating procedures, unless authorized by the Owner's Representative in writing. Supply sufficient pre-filters to allow frequent changes.

Start abatement work at a location farthest from the fan units and proceed toward them. If an electric power failure occurs, immediately stop all abatement work and do not resume until power is restored and fan units are operating again.

At completion of abatement work, allow fan units to run as specified under section 01711, to remove airborne fibers that may have been generated during abatement work and cleanup and to purge the Work Area with clean makeup air. The units may be required to run for a longer time after decontamination, if dry or only partially wetted asbestos material was encountered during any abatement work.

Dismantling the System:

When a final inspection and the results of final air tests indicate that the area has been decontaminated, fan units may be removed from the Work Area. Before removal from the Work Area, remove and properly dispose of pre-filter, decontaminate exterior of machine and seal intake to the machine with 6 mil polyethylene to prevent environmental contamination from the filters.

SECTION 01526 - TEMPORARY ENCLOSURES

PART 1 - GENERAL

RELATED DOCUMENTS:

Sections 01560, 01562 and 01564.
Other Sections as specified herein.

QUALITY ASSURANCE

Acceptable Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following: Spray Poly as manufactured by Isotek corporation, P.O. Box 29799, New Orleans, LA 70189-0799, or equal.

Applicable Standards. All Work shall conform to the applicable provision of code standards and Specifications as specified herein.

SUBMITTALS:

Before Start of Work submit the following to the Owner's Representative for review. Do not begin work until these submittals are returned with the Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use.

Strippable Coatings: Submit following:

Product description including major components and solvents.

Test report on ASTM E84 test of surface burning characteristics.

Manufacturer's installation instructions. Indicate portions applicable to the project and selected assemblies where the manufacturer offers alternatives.

Material Safety Data Sheet: Submit the Material Safety Data Sheet, or equivalent, in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) for strippable coating material proposed for use on the work. Include a separate attachment for each sheet indicating the specific worker protective equipment proposed for use with the material indicated.

Spray Cement: Submit following:

Product description including major components and solvents.

Manufacturer's installation instructions. Indicate portions applicable to the project.

Material Safety Data Sheet: Submit the Material Safety Data Sheet, or equivalent, in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) for spray cement material proposed for use on the work. Include a separate attachment for each sheet indicating the specific worker protective equipment proposed for use with the material indicated.

Sheet Plastic: For fire retardant plastic submit test reports on NFPA 701 test.

Signs: Submit samples of signs to be used.

PART 2 - PRODUCTS SHEET PLASTIC:

Polyethylene Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, 4.0 or 6.0 mil thick as indicated, clear, frosted, or black as indicated.

STRIPPABLE COATINGS:

Strippable Coatings: Provide strippable coatings in aerosol cans or premixed for spray application formulated to adhere gently to surfaces and remove cleanly by peeling off at the completion of the work.

Provide only water-based latex materials.

Provide materials manufactured for the specific application required.

Wall coating: designed to be easy to remove.

Floor coating: designed to provide a tough film which resists spread of water beneath plastic layer.

Window coating: recommended by the manufacturer for use on windows. Supply materials that are designed to be stable on glass in sunlight and resist the transmission of ultraviolet radiation.

Fire Safety: Provide materials that meet the following requirements:

When wet or while being installed:

Do not create combustible vapors,

Have no flash point

Are not noxious

Department of Transportation category of non-flammable.

When dry, material must have a Class A rating as a building material and meet the following requirements when tested in accordance with ASTM E-84:

Flame Spread no greater than 20

Fuel Contributed 0

Smoke Developed no more than 110

Deliver materials to the job site in unopened, factory-labeled containers.

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:

MISCELLANEOUS MATERIALS:

Duct Tape: Provide duct tape in 2" or 3" widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene.

Spray Cement: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

PART 3 - EXECUTION

SEQUENCE OF WORK:

Carry out work of this section sequentially. Complete each activity before proceeding to the next.

GENERAL:

Work Area: the location where asbestos-abatement work occurs. It is a variable of the extent of work of the Contract. It may be a portion of a room, a single room, or a complex of rooms. A "Work Area" is considered contaminated during the work, and must be isolated from the balance of the building, and decontaminated at the completion of the asbestos-control work.

Completely isolate the Work Area from other parts of the building so as to prevent asbestos-containing dust or debris from passing beyond the isolated area. Should the area beyond the Work Area(s) become contaminated with asbestos-containing dust or debris as a consequence of the work, clean those areas in accordance with the procedures indicated in Section 01711. Perform all such required cleaning or decontamination at no additional cost to owner.

Place all tools, scaffolding, staging, etc. necessary for the work in the area to be isolated prior to completion of Work Area isolation.

Remove all removable furniture that has been designated uncontaminated by the Contract Documents or Owner's Representative. Also remove uncontaminated equipment, and/or supplies from the Work Area before commencing work, or completely cover with two (2) layers of polyethylene sheeting, at least 6 mil in thickness, securely taped in place with duct tape. Such furniture and equipment shall be considered outside the work area unless covering plastic or seal is breached.

Disable ventilating systems or any other system bringing air into or out of the Work Area. Disable system by disconnecting wires, removing circuit breakers, by lockable switch or other positive means that will prevent accidental premature restarting of equipment.

Lockout power to Work Area by switching off all breakers serving power or lighting circuits in work area. Label breakers with tape over breaker with notation "DANGER circuit being worked on". Lock panel and have all keys under control of Contractor's Superintendent of Owner's designated Representative.

Lockout power to circuits running through work area wherever possible by switching off all breakers or removing fuses serving these circuits. Label breakers with tape over breaker with notation "DANGER circuit being worked on". Lock panel and have all keys under control of contractor's superintendent or owner's designated representative. If circuits cannot be shut down for any reason, label at intervals 4'-0" on center with tags reading, "DANGER live electric circuit. Electrocutation hazard." Label circuits in hidden locations but which may be affected by the work in a similar manner.

Inspection Windows: Install inspection windows in locations shown on the plans or as directed by the Owner's Representative. Each inspection window is to have a 24" X 24" viewing area fabricated from 1/4" acrylic or polycarbonate sheet. Install window with top at 6'-6" above floor height in a manner that provides unobstructed vision from outside to inside of the Work Area. Protect window from damage from scratching, dirt or any coatings used during the work. A sufficient number of windows are to be installed to provide observation of all portions of the Work Area that can be made visible from adjacent areas. Inspection windows that open into uncontrolled area are to be covered with a removable plywood hatch secured by lock and key. Provide keys to Owner's Representative for all such locks.

EMERGENCY EXITS:

Provide emergency exits and emergency lighting as set forth below:

Emergency Exits: At each existing exit door from the Work Area provide the following means for emergency exiting:

Arrange exit door so that it is secure from outside the Work area but permits exiting from the Work Area.

Mark outline of door on Primary and Critical Barriers with luminescent paint at least 1" wide. Hang a razor knife on a string beside outline. Arrange Critical and Primary barriers so that they can be easily cut with one pass of razor knife. Paint words "EMERGENCY EXIT" inside outline with luminescent paint in letters at least one foot high and 2" thick.

Provide lighted EXIT sign at each exit.

Provide battery-operated emergency lighting that switches on automatically in the event of a power failure.

CONTROL ACCESS:

Isolate the Work Area to prevent entry by building occupants into Work Area or surrounding controlled areas. Accomplish isolation by the following:

Submit to Owner's Representative a list of doors and other openings that must be secured to isolate Work Area. Include on list notation if door or opening is in an indicated exit route.

After receiving written authorization from the Owner's Representative lock all doors into Work Area. Cover any signs that direct emergency exiting, either outside or inside of Work Area, to locked doors. Do not obstruct doors required for emergency exits from Work Area or from building.

After receiving written authorization from the Owner's Representative: construct partitions or closures across any opening into Work Area. Partitions are to be a minimum of 8 feet high.

Fabricate partitions from 3-5/8", 25 gage metal studs with 1/2" gypsum board on both faces. Brace at 4'-0" on center.

Locked Access: Arrange Work Area so that the only access into Work Area is through lockable doors to personnel and equipment decontamination units.

Replace lock sets or passage sets on doors leading to decontamination units with temporary lock sets for duration of the project. Remove any deadbolts or padlocks.

Use entry type lock sets that are key lockable from outside and always unlocked and operable from inside. After meeting contractor release criteria set forth in Section 01714 Work Area Clearance reinstall original locks, passage sets and lock sets and adjust for proper operation.

Provide one key for each door to Owner, and Owner's Representative and maintain one key in clean room of decontamination unit (3 total).

Visual Barrier: Where the Work Area is immediately adjacent to or within view of occupied areas, provide a visual barrier of opaque polyethylene sheeting at least 6 mil in thickness so that the work procedures are not visible to building occupants. Where this visual barrier would block natural light, substitute frosted or woven rip-stop sheet plastic in locations approved by the Owner's Representative.

Provide Warning Signs at each locked door leading to Work Area reading as follows:

<u>Legend</u>	<u>Notation</u>
KEEP OUT	3" Sans Serif Gothic or Block
CONSTRUCTION	1" Sans Serif Gothic or Block
WORK AREA	1" Sans Serif Gothic or Block
PROTECTIVE CLOTHING REQUIRED BEYOND THIS POINT	14 Point Gothic

Immediately inside door and outside critical barriers post an approximately 20 inch by 14 inch manufactured caution sign displaying the following legend with letter sizes and styles of a visibility required by 29 CFR 1926:

LEGEND

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

Provide spacing between respective lines at least equal to the height of the respective upper line.

ALTERNATE METHODS OF ENCLOSURE:

Alternate methods of containing the Work Area may be submitted to the Owner's Representative for approval in accordance with procedures set forth in Section 01632 Product Substitution. Do not proceed with any such method(s) without prior written approval of the Owner's Representative.

RESPIRATORY AND WORKER PROTECTION:

Before proceeding beyond this point in providing Temporary Enclosures:
Provide Worker Protection per Section 01560
Provide Respiratory Protection per Section 01562
Provide Personnel Decontamination Unit per Section 01563
Submittals shall conform to applicable requirements of Section 01301

CRITICAL BARRIERS:

Completely Separate the Work Area from other portions of the building, and the outside by closing all openings with sheet plastic barriers at least 6 mil in thickness, or by sealing cracks leading out of Work Area with duct tape.

Individually seal all ventilation openings (supply and exhaust), lighting fixtures, clocks, doorways, windows, convectors and speakers, and other openings into the Work Area with duct tape alone or with polyethylene sheeting at least 6 mil in thickness, taped securely in place with duct tape. Maintain seal until all work including Project Decontamination is completed. Take care in sealing of lighting fixtures to avoid melting or burning of sheeting.

Provide Sheet Plastic barriers at least 6 mil in thickness as required to seal openings completely from the Work Area into adjacent areas. Seal the perimeter of all sheet plastic barriers with duct tape or spray cement.

Mechanically Support sheet plastic independently of duct tape or spray cement seals so that seals do not support the weight of the plastic.

Provide Pressure Differential System per Section 01513.

Clean housings and ducts of all overspray materials prior to erection of any Critical Barrier that will restrict access.

PREPARE AREA:

Scaffolding: If fixed scaffolding is to be used to provide access HEPA vacuum and wet clean area prior to scaffolding installation.

Remove all electrical and mechanical items, such as lighting fixtures, clocks, diffusers, registers, escutcheon plates, etc. which cover any part of the surface to be worked on with the work.

Remove all general construction items such as cabinets, casework, door and window trim, moldings, ceilings, trim, etc., which cover the surface of the work as required to prevent interference with the work. Clean, decontaminate and reinstall all such materials, upon completion of all removal work with materials, finishes, and workmanship to match existing installations before start of work.

PRIMARY BARRIER:

Protect building and other surfaces in the Work Area from damage from water and high humidity or from contamination from asbestos-containing debris, slurry or high airborne fiber levels by covering with a primary barrier as described below.

Sheet Plastic: Protect surfaces in the Work Area with two (2) layers of plastic sheeting on floor and walls, or as otherwise directed on the Contract Drawings or in writing by the Owner's Representative. Perform work in the following sequence.

Cover Floor of Work Area with 2 individual layers of clear polyethylene sheeting, each at least 6 mil in thickness, turned up walls at least 12 inches. Form a sharp right angle bend at junction of floor and wall so that there is no radius which could be stepped on causing the wall attachment to be pulled loose. Both spray-glue and duct tape all seams in floor covering. Locate seams in top layer six feet from, or at right angles to, seams in bottom layer. Install sheeting so that top layer can be removed independently of bottom layer.

Cover Sheet Plastic in areas where scaffolding is to be used with a single layer of 1/2" CDX plywood or 1/4" tempered hardboard. Wrap edges and corners of each sheet with duct tape. At completion of abatement work wrap plywood or hardboard with 2 layers of 6 mil polyethylene and move to next Work Area or dispose of as an asbestos-contaminated waste material in accordance with section 02084 of this specification.

Cover all walls in Work Area including "Critical Barrier" sheet plastic barriers with one layer of polyethylene sheeting, at least 6 mil in thickness, mechanically supported and sealed with duct tape or spray-glue in the same manner as "Critical Barrier" sheet plastic barriers. Tape all joints including the joining with the floor covering with duct tape or as otherwise indicated on the Contract Documents or in writing by the Owner's Representative.

Stairs and Ramps: Do not cover stairs or ramps with unsecured sheet plastic. Where stairs or ramps are covered with plastic, provide 3/4" exterior grade plywood treads securely held in place, over plastic. Do not cover rungs or rails with any type of protective materials.

Repair of Damaged Polyethylene Sheeting: Remove and replace plastic sheeting which has been damaged by removal operations or where seal has failed allowing water to seep between layers. Remove affected sheeting and wipe down entire area. Install new sheet plastic only when area is completely dry.

ISOLATION AREA:

Maintain isolation areas between the Work Area and adjacent building area: Form isolation area by controlling access to the space in the same manner as a Work Area. Physically isolate the space from the Work Area and adjacent areas. Accomplish physical isolation by: Erecting a second Critical Barrier a minimum of 3'-0" away from Work Area.

STOP WORK:

If the Critical or Primary barrier falls or is breached in any manner stop work immediately. Do not start work until authorized in writing by the Owner's Representative.

EXTENSION OF WORK AREA:

Extension of Work Area: If the Critical Barrier is breached in any manner that could allow the passage of asbestos debris or airborne fibers, then add affected area to the Work Area, enclose it as required by this Section of the specification and decontaminate it as described in Section 01711 Project Decontamination.

SECONDARY BARRIER:

Secondary layer of plastic as a drop cloth to protect the primary layer from debris generated by the asbestos abatement work is specified in the appropriate work sections.

SECTION 01560 - WORKER PROTECTION - ASBESTOS ABATEMENT

PART 1 - GENERAL

DESCRIPTION OF WORK:

This section describes the equipment and procedures required for protecting workers against asbestos contamination and other workplace hazards except for respiratory protection.

RELATED WORK SPECIFIED ELSEWHERE:

Respiratory Protection: is specified in Section 01562.

Certificate of Workers Acknowledgment: Section 01561

WORKER TRAINING:

AHERA Accreditation: All workers are to be accredited as Abatement Workers as required by the AHERA regulation 40 CFR 763 Appendix C to Subpart E, April 30, 1987.

State and Local License: All workers are to be trained, certified and accredited as required by state or local code or regulation.

Train, in accordance with 29 CFR 1926, all workers in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. Include but do not limit the topics covered in the course to the following:

Methods of recognizing asbestos

Health effects associated with asbestos

Relationship between smoking and asbestos in producing lung cancer

Nature of operations that could result in exposure to asbestos

Importance of and instruction in the use of necessary protective controls, practices and procedures to minimize exposure including:

Engineering controls

Work Practices

Respirators

Housekeeping procedures

Hygiene facilities

Protective clothing

Decontamination procedures

Emergency procedures

Waste disposal procedures

Purpose, proper use, fitting, instructions, and limitations of respirators as required by 29 CFR 1910.134

Appropriate work practices for the work

Requirements of medical surveillance program

Review of 29 CFR 1926

Pressure Differential Systems

Work practices including hands on or on-job training

Personal Decontamination procedures

Air monitoring, personal and area

MEDICAL EXAMINATIONS:

Provide medical examinations for all workers who may encounter an airborne fiber level of 0.1 f/cc or greater for an 8 hour Time Weighted Average. In the absence of specific airborne fiber data provide medical examinations for all workers who will enter the Work Area for any reason. Examination shall as a minimum meet OSHA requirements as set forth in 29 CFR 1926 In addition, provide an evaluation of the individuals ability to work in environments capable of producing heat stress in the worker.

SUBMITTALS:

Before Start of Work: Submit the following to the Owner's Representative for review. Do not start work until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use.

AHERA Accreditation: Submit copies of certificates from an EPA-approved AHERA Abatement Workers course for each worker as evidence that each asbestos Abatement Worker is accredited as required by the AHERA Regulation 40 CFR 763 Appendix C to Subpart E, April 30, 1987.

State and Local License: Submit evidence that all workers have been trained, certified and accredited as required by state or local code or regulation.

Certificate Worker Acknowledgment: Submit an original signed copy of the Certificate of Worker's Acknowledgment found at the end of this section, for each worker who is to be at the job site or enter the Work Area.

Report from Medical Examination: conducted within last 12 months as part of compliance with OSHA medical surveillance requirements for each worker who is to enter the Work Area. Submit, at a minimum, for each worker the following:

Name and Social Security Number

Physicians Written Opinion from examining physician including at a minimum the following:

Whether worker has any detected medical conditions that would place the worker at an increased risk of material health impairment from exposure to asbestos.

Any recommended limitations on the worker or on the use of personal protective equipment such as respirators.

Statement that the worker has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.

Copy of information that was provided to physician in compliance with 29 CFR 1926

Statement that worker is able to wear and use the type of respiratory protection proposed for the project, and is able to work safely in an environment capable of producing heat stress in the worker.

Notarized Certifications: Submit certification signed by an officer of the abatement contracting firm and notarized that exposure measurements, medical surveillance, and worker training records are being kept in conformance with 29 CFR 1926.

PART 2 - EQUIPMENT

PROTECTIVE CLOTHING:

Coveralls: Provide disposable full-body coveralls and disposable head covers, and require that they be worn by all workers in the Work Area. Provide a sufficient number for all required changes, for all workers in the Work Area.

Boots: Provide work boots with non-skid soles, and where required by OSHA, foot protective, for all workers. Provide boots at no cost to workers. Paint uppers of all boots red with waterproof enamel. Do not allow boots to be removed from the Work Area for any reason, after being contaminated with asbestos-containing material. Dispose of boots as asbestos-contaminated waste at the end of the work.

Hard Hats: Provide head protective (hard hats) as required by OSHA for all workers, and provide 4 spares for use by Owner's Representative, Project Administrator, and Owner. Label hats with same warning labels as used on disposal bags. Require hard hats to be worn at all times that work is in progress that may potentially cause head injury. Provide hard hats of type with plastic strap type suspension. Require hats to remain in the Work Area throughout the work. Thoroughly clean, decontaminate and bag hats before removing them from Work Area at the end of the work.

Goggles: Provide eye protective (goggles) as required by OSHA for all workers involved in scraping, spraying, or any other activity which may potentially cause eye injury. Thoroughly

clean, decontaminate and bag goggles before removing them from Work Area at the end of the work.

Gloves: Provide work gloves to all workers and require that they be worn at all times in the Work Area Do not remove gloves from Work Area and dispose of as asbestos-contaminated waste at the end of the work.

ADDITIONAL PROTECTIVE EQUIPMENT:

Respirators, disposable coveralls, head covers, and footwear covers shall be provided by the Contractor for the Owner, Owner's Representative, Project Administrator, and other authorized representatives who may inspect the job site. Provide two (2) respirators and six (6) complete coveralls and, where applicable, six (6) respirator filter changes per day.

PART 3 - EXECUTION

GENERAL:

Provide worker protection as required by the most stringent OSHA and/or EPA standards applicable to the work. The following procedures are minimums to be adhered to regardless of fiber count in the Work Area.

Each time Work Area is entered remove all street clothes in the Changing Room of the Personnel Decontamination Unit and put on new disposable coverall, new head cover, and a clean respirator. Proceed through shower room to equipment room and put on work boots.

DECONTAMINATION PROCEDURES:

Require all workers to adhere to the following personal decontamination procedures whenever they leave the Work Area: Type C Supplied Air or Powered Air-Purifying Respirators: Require that all workers use the following decontamination procedure as a minimum requirement whenever leaving the Work Area:

When exiting area, remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the equipment room.

Still wearing respirators, proceed to showers. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator to avoid asbestos fibers while showering. The following procedure is required as a minimum:

Thoroughly wet body including hair and face. If using a Powered Air-Purifying Respirator (PAPR) hold blower unit above head to keep canisters dry.

With respirator still in place thoroughly wash body, hair, respirator face piece, and all parts of the respirator except the blower unit and battery pack on a PAPR. Pay particular attention to seal between face and respirator and under straps.

Take a deep breath, hold it and/or exhale slowly, completely wet hair, face, and respirator. While still holding breath, remove respirator and hold it away from face before starting to breath.

Carefully wash face piece of respirator inside and out.

If using PAPR: shut down in the following sequence, first cap inlets to filter cartridges, then turn off blower unit (this sequence will help keep debris which has collected on the inlet side of filter from dislodging and contaminating the outside of the unit).

Thoroughly wash blower unit and hoses. Carefully wash battery pack with wet rag. Be extremely cautious of getting water in battery pack as this will short out and destroy battery.

Shower completely with soap and water.

Rinse thoroughly.

Rinse shower room walls and floor prior to exit.

Proceed from shower to Changing Room and change into street clothes or into new disposable work items.

Air Purifying-Negative Pressure Respirators: Require that all workers use the following decontamination procedure as a minimum requirement whenever leaving the Work Area with a half or full face cartridge type respirator:

When exiting area, remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the Equipment Room.

Still wearing respirators, proceed to showers. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator and filters to avoid asbestos fibers while showering. The following procedure is required as a minimum:

Thoroughly wet body from neck down.

Wet hair as thoroughly as possible without wetting the respirator filter if using an air purifying type respirator. Take a deep breath, hold it and/or exhale slowly, complete wetting of hair, thoroughly wetting face, respirator and filter (air purifying respirator). While still holding breath, remove respirator and hold it away from face before starting to breath.

Dispose of wet filters from air purifying respirator.

Carefully wash face piece of respirator inside and out.

Shower completely with soap and water.

Rinse thoroughly.

Rinse shower room walls and floor prior to exit.

Proceed from shower to Changing Room and change into street clothes or into new disposable work items.

Remote Shower: The procedures above are to be used if the decontamination facility is used as a remote shower. If a worker cannot gain direct access to the Equipment Room require that he enter Decontamination Unit and proceed directly through Shower Room to Equipment Room. Decontamination procedure is then completed as required above.

Within Work Area:

Require that workers NOT eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the Work Area. To eat, chew, drink or smoke, workers shall follow the procedure described above, then dress in street clothes before entering the non-Work Areas of the building.

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT:

Following this section is a Certificate of Worker Training. After each worker has been included in the Contractor's Respiratory Protection Program, completed the training program and medical examination, secure a fully executed copy of this form.

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

PROJECT NAME _____ DATE _____
PROJECT ADDRESS _____
CONTRACTOR'S NAME _____

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

Your employer's contract with the Owner for the above project requires that: You be supplied with the proper respirator and be trained in its use. You be trained in safe work practices and in the use of the equipment found on the job. You receive a medical examination. These things are to have been done at no cost to you.

RESPIRATORY PROTECTION: You must have been trained in the proper use of respirators, and informed of the type respirator to be used on the above referenced project. You must be given a copy of the written respiratory protection manual issued by your employer. You must be equipped at no cost with the respirator to be used on the above project.

TRAINING COURSE: You must have been trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. The topics covered in the course must have included the following:

- Physical characteristics of asbestos
- Health hazards associated with asbestos
- Respiratory protection
- Use of protective equipment
- Pressure Differential Systems
- Work practices including hands on or on-job training
- Personal decontamination procedures
- Air monitoring, personal and area

MEDICAL EXAMINATION: You must have had a medical examination within the past 12 months at no cost to you. This examination must have included: health history, pulmonary function tests and may have included an evaluation of a chest x-ray.

By signing this document you are acknowledging only that the Owner of the building you are about to work in has advised you of your rights to training and protection relative to your employer, the Contractor.

Signature _____ Social Security No _____

Printed Name _____ Witness _____

SECTION 01562 - RESPIRATORY PROTECTION

PART 1 - GENERAL

RELATED DOCUMENTS:

Section 01564

Other Sections as specified herein

QUALITY ASSURANCE

North Safety Equipment Protect Respirators, Inc.

3M Company Mine Safety Appliances Co.

Wilson Safety Products Survivair Comasec, Inc.

APPLICABLE STANDARDS: Except to the extent that more stringent requirements are written directly into the Contract Documents, the following regulations and standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies were bound herewith. Where there is a conflict in requirements set forth in these regulations and standards, meet the more stringent requirement.

OSHA - U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards 29 CFR 1910, Section 1001 and Section 1910.134.29 CFR 1926.1101.

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

ANSI - American National Standard Practices for Respiratory Protection, ANSI Z88.2-1980.

IDPH - Illinois Department of Public Health, Asbestos Abatement Act & Rules and Regulations, Title 77: Public Health, Chapter I, Subchapter P, Part 855, "Asbestos Abatement in Public and Private Schools"

NIOSH - National Institute for Occupational Safety and Health

MSHA - Mine Safety and Health Administration

SUBMITTALS:

Before Start of Work submit the following to the Owner's Representative for review. Do not begin work until these submittals are returned with the Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use.

Product Data: Submit manufacturer's product information for each component used, including NIOSH

System Diagram: When a Type "C" supplied air respiratory system is required by the work, submit drawing showing assembly of components into a complete supplied air respiratory system. Include diagram showing location of compressor, filter banks, backup air supply tanks, hose line connections in Work Area(s), routing of air lines to Work Area(s) from compressor.

Operating Instruction: Submit complete operating and maintenance instructions for all components and systems as a whole. Submittal is to be in bound manual form suitable for field use. Respiratory Protection Program: Submit Contractor's written respiratory protection program manual as required by OSHA 1926.134 and 1926.1101.

Respiratory Protection Schedule: Submit level of respiratory protection intended for each operation required by the project. Submit this information on the "Respiratory Protection schedule" on the form included at the end of this Section.

Historic Airborne Fiber Data: Submit airborne asbestos fiber count data from an independent air monitoring firm to substantiate selection of respiratory protection proposed. Data submitted shall include at least the following for each procedure required by the work:

Date of measurements

Operation monitored

Sampling and analytical methods used and evidence of their accuracy

Number, duration, and results of samples taken

Resume information: Submit resume and information on training for individual monitoring the operation of supplied air respiratory systems. Submit training certifications where applicable.

AIR QUALITY FOR SUPPLIED AIR RESPIRATORY SYSTEMS:

Provide air used for breathing in Type "C" supplied air respiratory systems that meets or exceeds standards set for C.G.A. type 1 (Gaseous Air) Grade H or CSA Z180.1 whichever presents the more stringent quality standard:

ALLOWABLE CONTAMINANTS: Supply air that has an asbestos concentration no greater than outside ambient conditions.

DELIVERY:

Deliver replacement parts, etc., not otherwise labeled by NIOSH or MSHA to job site in manufacturer's containers.

PART 2 - EQUIPMENT

AIR PURIFYING RESPIRATORS

Respirator Bodies: Provide half face or full face type respirators. Equip full face respirators with a nose cup or other anti-fogging device as would be appropriate for use in air temperatures less than 32 degrees Fahrenheit.

Filter Cartridges: Provide, at a minimum, HEPA type filters labeled with NIOSH and MSHA Certification for "Radionuclides, Radon Daughters, Dust, Fumes, Mists including Asbestos-Containing Dusts and Mists" and color coded in accordance with ANSI Z228.2 (1980). In addition, a chemical cartridge section may be added, if required, for solvents, etc., in use. In this case, provide cartridges that have each section of the combination canister labeled with the appropriate color code and NIOSH/MSHA Certification.

SUPPLIED AIR RESPIRATOR SYSTEMS:

Provide equipment capable of producing air of the quality and volume required by the above reference standards applied to the job site conditions and crew size. Comply with provisions of this specification if more stringent than the governing standard.

Face Piece and Hose: Provide full face piece and hose by same manufacturer that has been certified by NIOSH/MSHA as an approved Type "C" respirator assembly operating in pressure demand mode with a positive pressure face-piece.

Auxiliary backup system: In atmospheres which contain sufficient oxygen (greater than or equal to 19.5% oxygen) provide a pressure-demand full face piece supplied air respirator equipped with an emergency backup HEPA filter.

Escape air supply: In atmospheres which are oxygen deficient (less than 19.5% oxygen) provide a pressure-demand full face piece supplied air respirator incorporating an auxiliary self-contained breathing apparatus (SCBA) which automatically maintains an uninterrupted air supply in pressure demand mode with a positive pressure face piece.

Backup air supply: Provide a reservoir of compressed air located outside the Work Area which will automatically maintain a continuous uninterruptable source of air automatically available to each connected face piece and hose assembly in the event of compressor shut-down, contamination of air delivered by compressor, power loss or other failure. Provide sufficient capacity in the back-up air supply to allow a minimum escape time of one-half hour times the number of connections available to the Work Area. Air requirement at each connection is the air requirement of the respirators in use plus the air requirement of an average-sized adult male engaged in moderately strenuous activity.

Warning device: Provide a warning device that will operate independently of the building's power supply. Locate so that alarm is clearly audible above the noise level produced by equipment and work procedures in use in all parts of the Work Area and at the compressor. Connect alarm to warn of:

- Compressor shut down or other fault requiring use of backup air supply
- Carbon Monoxide (CO) levels in excess of 5 PPM/V

Carbon Monoxide (CO) Monitor: Continuously monitor and record on a strip chart recorder Carbon Monoxide (CO) levels. Place monitors in the air line between compressor and backup air supply and between backup air supply and workers. Connect monitors so that they also sound an alarm as specified under "Warning Devices".

Compressor Shut Down: Interconnect monitors, alarms and compressor so that compressor is automatically shut down and the alarms sounded if any of the following occur:

- Carbon Monoxide (CO) concentrations exceed 5 PPM/v in the air line between the filter bank and backup air supply
- Compressor temperature exceeds normal operating range

Compressor Motor - Provide a compressor driven by an electric motor. Do not use a gas or diesel engines to drive compressor. Insure that electrical supply available at the work site is adequate to energize motor.

Air Intake: Locate air intake remotely from any source of automobile exhaust or any exhaust from engines, motors, auxiliary generator or buildings.

After-Cooler: Provide an after-cooler at entry to filter system which is capable of reducing temperatures to outside ambient air temperatures.

Self Contained Breathing Apparatus (SCBA): Configure system to permit the recharging of 1/2 hour 2260 PSI SCBA cylinders.

PART 3 - EXECUTION

GENERAL:

Respiratory Protection Program: Comply with ANSI Z88.2 - 1980 "Practices for Respiratory Protection" and OSHA 29 CFR 1910 and 1926.

Require that respiratory protection be used at all times that there is any possibility of disturbance of asbestos-containing materials whether intentional or accidental.

Require that a respirator be worn by anyone in a Work Area at all times, regardless of activity, during a period that starts with any operation which could cause airborne fibers until the area has been cleared for re-occupancy in accordance with Section 01714.

Regardless of Airborne Fiber Levels: Require that the minimum level of respiratory protection used be half-face air-purifying respirators with high efficiency filters.

FIT TESTING:

Initial Fitting: Provide initial fitting of respiratory protection during a respiratory protection course of training set up and administered by a Certified Industrial Hygienist. Fit types of respirator to be actually worn by each individual. Allow an individual to use only those respirators for which training and fit testing has been provided.

On a Weekly Basis, check the fit of each worker's respirator by having irritant smoke blown onto the respirator from a smoke tube.

Upon Each Wearing: Require that each time an air-purifying respirator is put on it be checked for fit with a positive and negative pressure fit test in accordance with the manufacturer's instructions or ANSI Z88.2 (1980).

TYPE OF RESPIRATORY PROTECTION REQUIRED:

Provide Respiratory Protection as indicated in paragraph below. Where paragraph below does not apply, determine the proper level of protection by dividing the expected or actual airborne fiber count in the Work Area by the "protection factors" given below. The level of respiratory protection which supplies an airborne fiber level inside the respirator, at the breathing zone of the wearer, at or below the permissible exposure limit (PEL) is the minimum level of protection allowed.

Type "C" Supplied-air respirators: full face piece pressure demand supplied air respirators are to be used by all workers engaged in the removal, or demolition of pipes, structures, or equipment covered or insulated with asbestos, or in the removal or demolition of asbestos insulation or coverings, or any other activity which results in or may result in airborne asbestos fibers.

PERMISSIBLE EXPOSURE LIMIT (PEL):

8-Hour Time Weighted Average (TWA) of asbestos fibers to which any worker may be exposed shall not exceed the following.

Fibers: For purposes of this section, fibers are defined as all fibers regardless of composition as counted in the OSHA Reference Method (ORM), or NIOSH 7400 procedure.

Electron Microscopy: If Electron Microscopy is used to determine airborne fiber levels, only asbestos fibers will be enumerated, but fibers of any size detected by the testing of Section 01714 Work Area Clearance will be counted.

Time Weighted Average (TWA) - 0.1 fibers/cubic centimeter

RESPIRATORY PROTECTION FACTOR:

<u>Respirator Type</u>	<u>Protection Factor</u>
Air purifying: Negative pressure respirator High efficiency filter Half face piece	10
Air purifying: Negative pressure respirator High efficiency filter Full face piece	50
Powered Air Purifying (PAPR): Positive pressure respirator High efficiency filter Half or Full face piece	50
Type C supplied air: Positive pressure respirator Pressure demand or other Positive pressure mode Half face piece	1,000
Type C supplied air: Positive pressure respirator Pressure demand or other Positive pressure mode Full face piece	2,000
Type C supplied air: Positive pressure respirator Pressure demand or other Positive pressure mode, Full face piece Equipped with an auxiliary positive pressure Self-contained breathing apparatus (SCBA)	10,000
Self-contained breathing apparatus (SCBA): Positive Pressure respirator, Pressure demand or other positive pressure mode Full face piece	10,000

AIR PURIFYING RESPIRATORS:

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

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

TYPE "C" RESPIRATOR:

Air Systems Monitor: Continuously monitor the air system operation including compressor operation, filter system operation, backup air capacity and all warning and monitoring devices at all times that system is in operation. Assign an individual, trained by manufacturer of the equipment in use or by a Certified Industrial Hygienist, in the operation and maintenance of the system to provide this monitoring. Assign no other duties to this individual which will take him away from monitoring the air system.

01563 - RESPIRATORY PROTECTION SCHEDULE

Project Name _____
Location _____
Date _____

Based upon airborne asbestos-fiber counts encountered on previous projects of similar type working on materials similar to those found on the above referenced project. The following level of respiratory protection is proposed for the indicated operations to maintain an Airborne Fiber Count below the specified Permissible Exposure Limit (PEL) inside the respirator face-piece.

SECTION 01564 - DECONTAMINATION UNITS

PART 1 - GENERAL

RELATED DOCUMENTS:

Refer to sections 01503 Temporary Facilities- Asbestos abatement for electrical requirements and requirement relative to connection of decontamination facilities to building systems such as water, sewer, and electrical

QUALITY ASSURANCE

All Work shall conform to the applicable provisions of the codes, standards and Specifications as specified herein. Comply with specified standards as a minimum quality for the Work except where more stringent requirements apply. Where contradictions occur between codes, standards or Specifications, the more stringent shall apply.

SUBMITTALS

General. The Contractor shall submit to the Owner's Representative for review drawings, data and information in accordance with the applicable requirements of Section 01301 and as herein specified. Submittals shall include product specifications and descriptions, and drawings showing details together with related accessories.

Before the Start of Work: Submit the following to the Owner's Representative for review. Do not begin work until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use or final-but-restricted use.

Personnel Decontamination Unit: Provide shop drawing showing location and assembly of personnel decontamination units.

Equipment Decontamination Unit: Provide shop drawing showing location and assembly of equipment decontamination units.

Shower Pan: Provide shop drawing.

Shower Walls: Provide product data.

Shower Head and Controls: Provide product data.

Filters: Provide product data and shop drawing of installation on decontamination unit.

Hose Bib: Provide product data.

Shower Stall: for Wash Down Station provide product data and shop drawing showing and modifications.

Elastomeric membrane: Provide product data.

Lumber: Provide product data on fire resistance treatment.

Sump Pump: Provide product data.

Signs: Submit samples of signs to be used.

PART 2 - PRODUCTS

Polyethylene Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, 4.0 or 6.0 mil thick as indicated, clear, frosted, or black as indicated.

Reinforced Polyethylene Sheet: Where plastic sheet is the only separation between the Work Area and building exterior, provide translucent, nylon reinforced, laminated, flame resistant, polyethylene film that conforms to requirements set forth by the National Fire Protection Association Standard 701, Small Scale Fire Test for Flame-resistant Textiles and Films. Provide largest size possible to minimize seams, 4.0 or 6.0 mil thick as indicated, frosted or black as indicated.

Shower Pan: Provide one piece waterproof shower pan 4' x 8' by 6" deep. Fabricate from seamless fiberglass minimum 1/16" thick reinforced with wood, 18 ga. stainless or galvanized steel with welded seams, copper or lead with soldered seams, or a seamless liner of minimum 60 mil thick elastomeric membrane.

Shower Walls: Provide 8' long by approximately 7' high walls fabricated from rigid, impervious, waterproof material, either corrugated fiberglass roofing or equivalent. Structurally support as necessary for stability.

Shower Head and Controls: Provide a factory-made shower head producing a spray of water which can be adjusted for spray size and intensity. Feed shower with water mixed from hot and cold supply lines. Arrange so that control of water temperature, flow rate, and shut off is from inside shower without outside aid.

Filters: Provide cascaded filter units on drain lines from showers or any other water source carrying asbestos-contaminated water from the Work Area. Provide units with disposable filter elements as indicated below. Connect so that discharged water passes primary filter and output of primary filter passes through secondary filter.

Primary Filter - Passes particles 20 microns and smaller

Secondary Filter - Passes particles 5 microns and smaller

Hose Bib: Provide heavy bronze angle type with wheel handle, vacuum breaker, and 3/4" National Standard male hose outlet.

Shower Stall: For Wash Down Station provide leak tight shower enclosure with integrated drain pan fabricated from fiberglass or other durable waterproof material, approximately 3' x 3' square with minimum 6' high sides and back. Structurally support as necessary for stability. Equip with hose bib, as specified in this section, mounted at approximately 4'-0" above drain pan. Connect drain to a reservoir, pump water from reservoir through filters to a drain or store and use for amended water. Mount filters inside shower stall on back wall beneath hose bib.

Elastomeric membrane: Provide uniform flat sheets of flexible sheet roofing material fabricated from EPDM (ethylene propylene diene monomers) or Neoprene (polychloroprene), in a nominal 45 mil thickness.

Lumber: Provide kiln dried lumber of any grade or species.

Sump Pump: Provide totally submersible waterproof sump pump with integral float switch. Provide unit sized to pump 2 times the flow capacity of all showers or hoses supplying water to the sump, through the filters specified herein when they are loaded to the extent that replacement is required. Provide unit capable of pumping debris, sand, plaster or other materials washed off during decontamination procedures without damage to mechanism of pump. Adjust float switch so that a minimum of 3" remains between top of liquid and top of sump pan.

Lighting Provide temporary lighting within decontamination Units as necessary to reach a lighting level of 100 foot candles.

MISCELLANEOUS MATERIALS

Duct Tape provide duct tape in 2" or 3" widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene

Spray Adhesive provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

PART 3 - EXECUTION

PERSONNEL DECONTAMINATION UNIT:

Provide a Personnel Decontamination Unit consisting of a serial arrangement of connected rooms or spaces, Changing Room, Drying Room, Shower Room, Equipment Room. Require all persons without exception to pass through this Decontamination Unit for entry into and exiting from the Work Area for any purpose. Do not allow parallel routes for entry or exit. Do not remove equipment or materials through Personnel Decontamination Unit. Provide temporary lighting within Decontamination Units as necessary to reach a lighting level of 100 foot candles.

Changing Room (clean room): Provide a room that is physically and visually separated from the rest of the building for the purpose of changing into protective clothing.

Construct using polyethylene sheeting, at least 6 mil in thickness, to provide an airtight seal between the Changing Room and the rest of the building.

Locate so that access to Work Area from Changing Room is through Shower Room.

Separate Changing Room from the building by a sheet plastic flapped doorway.

Require workers to remove all street clothes in this room, dress in clean, disposable coveralls, and don respiratory protection equipment. Do not allow asbestos-contaminated items to enter this room. Require Workers to enter this room either from outside the structure dressed in street clothes, or naked from the showers.

An existing room may be utilized as the Changing Room if it is suitably located and of a configuration whereby workers may enter the Changing Room directly from the Shower Room. Protect all surfaces of room with sheet plastic as set forth in Section 01526 Temporary Enclosures. Authorization for this must be obtained from the Owner's Representative in writing prior to start of construction. Submit written request in accordance with Section 01632 "Product Substitutions" detailing layout and protective measures proposed.

Maintain floor of changing room dry and clean at all times. Do not allow overflow water from shower to wet floor in changing room.

Damp wipe all surfaces twice after each shift change with a disinfectant solution.

Provide posted information for all emergency phone numbers and procedures.

Provide 1 storage locker per employee.

Airlock (clean Side) Provide an Airlock as shown on the drawing between Drying Room and Changing "Clean" Room. This is a transit area for workers and shall satisfy the following requirements:

Separate this room from Drying Room and Changing Room by sheet plastic flapped doorways.

Separate this room from the rest of the building with airtight walls fabricated of 6 mil polyethylene.

Separate this room from the Drying and Changing Rooms with airtight walls fabricated of 6 mil polyethylene.

Drying Room: Provide a drying room as an airlock and a place for workers to dry after showering.

Construct room by providing a pan continuous with or draining to Shower Room pan. Install a freely draining wooden or non-skid metal floor in pan at elevation of top of pan.

Separate this room from the rest of the building with airtight walls fabricated of 6 mil polyethylene.

Separate this room from the Changing Room and Shower Room with airtight walls fabricated of 6 mil polyethylene.

Separate from Changing Room by a sheet plastic flapped doorway.

Provide a continuously adequate supply of disposable bath towels.

Shower Room: Provide a completely watertight operational shower to be used for transit by cleanly dressed workers heading for the Work Area from the Changing Room, or for showering by workers headed out of the Work Area after undressing in the Equipment Room. Construct room by providing a shower pan and 2 shower walls in a configuration that will cause water running down walls to drip into pan. Install a freely draining wooden floor in shower pan at elevation of top of pan.

Separate this room from the rest of the building with airtight walls fabricated of 6 mil polyethylene.

Separate this room from the Drying Room and Airlock with airtight walls fabricated of 6 mil polyethylene.

Provide splashproof entrances to Drying Room and Airlock with doors arranged in the following configuration:

At each entrance to the Shower Room construct a door frame out of nominal 2" x 4" lumber with 1-1/2" jamba (sides) and 1-1/2" head (top) and sill (bottom). Attach to this door frame two overlapping flaps of elastomeric membrane material, fastened at the head (top) and jamba (sides) (by clamping between a 1-1/2" x 3/4" batten and frame). Overlap the flaps a minimum of 6" in a direction that presents a shingle-like configuration to the water stream from the shower. Overlap sill (bottom) by 1-1/2" minimum. Arrange so that any air movement out of the Work Area will cause the flaps to seal against the door frame.

Provide shower head and controls.

Provide temporary extensions of existing hot and cold water and drainage, as necessary for a complete and operable shower.

Provide a soap dish and a continuously adequate supply of soap and maintain in sanitary condition.

Arrange so that water from showering does not splash into the Changing or Equipment Rooms.

Arrange water shut off and drain pump operation controls so that a single individual can shower without assistance from either inside or outside of the Work Area.

Provide flexible hose shower head.

Pump waste water to drain or to storage for use in amended water. If pumped to drain, provide 20 micron and 5 micron waste water filters in line to drain or waste water storage.

Change filters daily or more often if necessary. Locate filters inside shower unit so that water lost during filter changes is caught by shower pan.

Provide hose bib.

Airlock: Provide an airlock between Shower Room and Equipment Room. This is a transit area for workers. Separate this room from Equipment Room by a sheet plastic flap doorway. Separate this room from the rest of the building with airtight walls fabricated of 6 mil polyethylene.

Separate this room from the Equipment Room and Shower Room with airtight walls fabricated of 6 mil polyethylene. Separate from Equipment Room by a sheet plastic flapped doorway.

Equipment Room (contaminated area): Require work equipment, footwear and additional contaminated work clothing to be left here. This is a change and transit area for workers.

Separate this room from the Work Area by a 6 mil polyethylene flapped doorway.

Separate this room from the rest of the building with airtight walls fabricated of 6 mil polyethylene.

Separate this room from the Shower Room and Work Area with airtight walls fabricated of 6 mil polyethylene.

Provide a drop cloth layer of sheet plastic on floor in the Equipment Room for every shift change expected. Roll drop cloth layer of plastic from Equipment Room into Work Area after each shift change. Replace before next shift change. Provide a minimum of two (2) layers of plastic at all times. Use only clear plastic to cover floors.

Airlock (Dirty Side): Provide an airlock between Equipment Room and Work Area. This is a transit area for workers.

Separate this room from Equipment Room and Work Area by a sheet plastic flapped doorways.

Separate this room from the rest of the building with airtight walls fabricated of 6 mil polyethylene.

Separate this room from the Equipment Room and Work Area with airtight walls fabricated of 6 mil polyethylene.

Work Area: Separate Work Area from the Equipment Room by polyethylene barriers. If the airborne asbestos level in the Work Area is expected to be high, as in dry removal, add an intermediate cleaning space between the Equipment Room and the Work Area. Damp wipe clean all surfaces after each shift change. Provide one additional floor layer of 6 mil polyethylene per shift change and remove contaminated layer after each shift.

PERSONNEL DECONTAMINATION SEQUENCE:

General. Require that all workers adhere to the following sequence when entering or leaving the Work Area.

Entering Work Area: Worker enters Changing Room and removes street clothing, puts on clean disposable overalls and respirator, and passes through the Shower Room into the Equipment Room.

Any additional clothing and equipment left in Equipment Room needed by the worker are put on in the Equipment Room.

Worker proceeds to Work Area.

Exiting Work Area:

Before leaving the Work Area, require the worker to remove all gross contamination and debris from overalls and feet.

The worker then proceeds to the Equipment Room and removes all clothing except respiratory protection equipment.

Extra work clothing such as boots, hard hats, goggles, gloves are to be stored in contaminated end of the Equipment Room.

Disposable coveralls are placed in a bag for disposal with other material.

Require that Decontamination procedures found in Section 01560 be followed by all individuals leaving the Work Area. After showering, the worker moves to the Changing Room and dresses in either new coveralls for another entry or street clothes if leaving.

EQUIPMENT DECONTAMINATION UNIT:

General. Provide an Equipment Decontamination Unit consisting of a serial arrangement of rooms, Clean Room, Holding Room, Wash Room for removal of equipment and material from Work Area. Do not allow personnel to enter or exit Work Area through Equipment Decontamination Unit.

Wash Down Station: Provide an enclosed Shower Unit located in Work Area just outside Wash Room as an equipment, bag and container cleaning station.

Fabricate waterproof floor extending 6' - 0" beyond Wash Down station in all directions. Install seamless waterproof membrane over area and extend over curbs on all four sides. Form curbs from 2" x 4" lumber laid on the flat.

Waterproof membrane is to be fabricated from elastomeric membrane.

Waterproof membrane is to be fabricated from minimum 10 mil polyethylene.

Do not allow water to collect on waterproof membrane. Remove continuously with a wet vacuum or mops.

Wash Room: provide wash room for cleaning of bagged or containerized asbestos-containing waste materials passed from the Work Area.

Construct wash room of nominal 2" x wood framing and polyethylene sheeting, at least 6 mil in thickness and located so that packaged materials, after being wiped clean, can be passed to the Holding Room.

Separate this room from the Work Area by a single flapped door of 6 mil polyethylene sheeting.

Airlock: Provide an airlock between Wash Room and Holding Room. This is a transit area.

Separate this room from adjacent spaces by a sheet plastic flapped doorway.

Separate this room from the rest of the building and adjacent spaces with airtight walls fabricated of 6 mil polyethylene.

Holding Room: Provide Holding Room as a drop location for bagged asbestos-containing materials passed from the Wash Room.

Construct Holding Room of nominal 2" x wood framing and polyethylene sheeting, at least 6 mil in thickness and located so that bagged materials cannot be passed from the Wash Room through the Holding Room to the Clean Room.

Separate this room from the adjacent rooms by flapped doors fabricated from 1/16" +/- thick single ply elastomeric membrane material either EPDM or Neoprene.

Separate this room from the adjacent rooms by flap doors fabricated from 6 mil sheet plastic.

Airlock: Provide an airlock between Holding Room and Clean Room. This is a transit area.

Separate this room from adjacent spaces by a sheet plastic flap doorway.

Separate this room from the rest of the building and adjacent spaces with airtight walls fabricated of 6 mil polyethylene.

Clean Room: provide Clean Room to isolate the Holding Room from the building exterior. If possible locate to provide direct access to the Holding Room from the building exterior. Erect Critical and Primary Barriers as described in Section 01526 "Temporary Enclosures" in an existing space. If no space exists construct Clean Room of 2X wood framing and polyethylene sheeting, at least 6 mil in thickness.

Separate this room from the exterior by a single flap door of 6 mil polyethylene sheeting.

Load-out Area: The load-out area is the transfer area from the building to a truck or dumpster. It may be the Clean Room of the Equipment Decontamination unit or a separate room or loading dock area.

Erect Critical and Primary barriers as described in Section 01526 "Temporary Enclosures" in load-out area.

During transfer of material from load-out area erect primary barriers as described in Section 01526 "Temporary Enclosures" as necessary to seal path from load-out area to truck or dumpster.

EQUIPMENT DECONTAMINATION SEQUENCE

Take all equipment or material from the Work Area through the Equipment Decontamination Unit according to the following procedure:

At wash down station, thoroughly wet clean contaminated equipment or sealed polyethylene bags and pass into Wash Room.

When passing equipment or containers into the Wash Room, close all doorways of the Equipment Decontamination Unit, other than the doorway between the Wash down Station and the Wash Room. Keep all outside personnel clear of the Equipment Decontamination Unit.

Once inside the washroom, wet clean the bags and/or equipment.

When cleaning is complete pass items into Holding Room. Close all doorways except the doorway between the Holding room and the Clean Room.

Workers from the building exterior enter Holding Area and remove decontaminated equipment and/or containers for disposal.

Require these workers to wear full protective clothing and appropriate respiratory protection. At no time is a worker from an uncontaminated area to enter the enclosure when a removal worker is inside.

CONSTRUCTION OF THE DECONTAMINATION UNITS:

Walls and Ceiling: Construct airtight walls and ceiling using polyethylene sheeting, at least 6 mil in thickness. Attach to existing building components or a temporary framework.

Floors: Use 2 layers (minimum) of 6 mil polyethylene sheeting to cover floors in all areas of the Decontamination Units. Use only clear plastic to cover floors.

Flap Doors: Fabricated from three (3) overlapping sheets with openings a minimum of three feet (3') wide. Configure so that sheeting overlaps adjacent surfaces. Weigh sheets at bottoms as required so that they quickly close after being released. Put arrows on sheets to indicate direction of overlap and/or travel. Provide a minimum of six feet (6') between entrance and exit of any room. Provide a minimum of three feet (3') between doors to airlocks.

Ceilings: If the Decontamination area is located within an area containing friable asbestos on overhead ceilings, ducts, piping, etc., provide the area with a minimum 1/4 inch hardboard or 1/2 inch plywood "ceiling" with polyethylene sheeting, at least 6 mil in thickness covering the top of the "ceiling".

Visual Barrier: Where the Decontamination area is immediately adjacent to and within view of occupied areas, provide a visual barrier of opaque polyethylene sheeting at least 6 mil in thickness so that worker privacy is maintained and work procedures are not visible to building occupants. Where the area adjacent to the Decontamination area is accessible to the public, construct a solid barrier on the public side of the sheeting to protect the sheeting. Construct barrier with wood or metal studs covered with minimum 1/4 inch thick hardboard or 1/2 inch plywood. Where the solid barrier is provided, sheeting need not be opaque.

Electrical: Provide subpanel at Changing Room to accommodate all removal equipment. Power subpanel directly from a building electrical panel. Connect all electrical branch circuits in Decontamination unit and particularly any pumps in shower room to a ground-fault circuit protection device.

CLEANING OF DECONTAMINATION UNITS:

Clean debris and residue from inside of Decontamination Units on a daily basis or as otherwise indicated on Contract Drawings. Damp wipe or hose down all surfaces after each shift change. Clean debris from shower pans on a daily basis.

If the Changing Room of the Personnel Decontamination Unit becomes contaminated with asbestos-containing debris, abandon the entire Decontamination Unit and erect a new Decontamination Unit. Use the former Changing Room as an inner section of the new Equipment Room.

SIGNS:

Post an approximately 20 inch by 14 inch manufactured caution sign at each entrance to the Work Area displaying the following legend with letter sizes and styles of a visibility required by 29 CFR 1926: Provide signs in both English and Spanish.

LEGEND

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED

IN THIS AREA

Provide spacing between respective lines at least equal to the height of the respective upper line.

Post an approximately 10 inch by 14 inch manufactured sign at each entrance to each Work Area displaying the following legend with letter sizes and styles of a visibility at least equal to the following: provide signs in both English and Spanish.

LEGEND

NO FOOD, BEVERAGES OR TOBACCO PERMITTED

ALL PERSONS SHALL DON PROTECTIVE

CLOTHING (COVERINGS) BEFORE

ENTERING THE WORK AREA

ALL PERSONS SHALL SHOWER IMMEDIATELY

AFTER LEAVING WORK AREA AND BEFORE

ENTERING THE CHANGING AREA

SECTION 01601 - MATERIALS AND EQUIPMENT - ASBESTOS ABATEMENT

PART 1 - GENERAL

RELATED DOCUMENTS

All other Sections related to materials and equipment.

QUALITY ASSURANCE

Standards. Refer to Section "Definitions and Standards" for applicability of industry standards to products specified.

Compatibility of Options. When the contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

This Section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the project.

The Contractor's Construction Schedule and the Schedule of Submittals are included under Section "Submittals."

SUBMITTALS

General. The Contractor shall submit to the Owner's representative for review drawings, data and information in accordance with the applicable requirements of Sections 01301 and as herein specified. Submittals shall include product specifications and descriptions, and drawings showing details together with related accessories

Required submittals. Submittals requirements are found in each Specification Section. For all General materials and equipment the Contractor shall prepare a schedule in tabular form showing each product listed. Include the manufacturer's name and proprietary product names for each item listed.

Product List Schedule. Prepare a schedule showing products specified in a tabular form acceptable to the Owners Representative. Include generic names of products required. Include the manufacturer's name and proprietary product name for each item listed.

DEFINITIONS

Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms such are self-explanatory and have well recognized meanings in the construction industry.

"Products" are items purchased for use in performing the work or for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

"Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current as of the date of the Contract Documents.

"Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

"Equipment" are products that may be either operational or fixed.

"Operational Equipment" are products with operating parts, whether motorized or manually operated, that requires temporary or permanent service connections, such as wiring or piping.

"Fixed Equipment" are products necessary for accomplishing the work that are used as a temporary facility during the work and removed afterward.

Required submittals: A general listing of products requiring submittals is included at the end of Section 01301 "Submittals." This listing may not be complete. Submittal requirements are found in each specification section. Prepare a schedule in tabular form showing each product listed.

PART 2 SUBMITTALS

GENERAL PRODUCT REQUIREMENTS

General. Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.

Complete. Provide products complete with all accessories, trim finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.

Standard Products. Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects

PRODUCT SELECTION PROCEDURES

General. Product selection is governed by the Contract documents and governing regulations, not by previous project experience. Minimum requirements for procedures governing product selection shall be as specified herein.

Non-Proprietary Specifications. When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of these products only, the contractor may propose any available product that complies with contract requirements. The Contractor shall comply with Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.

Descriptive Specification Requirements. Where Specifications specify a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a

product or assembly that provides the characteristic and otherwise complies with contract requirements.

Performance Specification Requirements. Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certifications of performance.

Compliance with Standards, Codes and Regulations. Where the specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standard, code or regulation specified.

Allowances. Refer to individual Specification Sections and "Allowance" provisions in Division-1 for allowances that control product selection, and for procedures required for processing such selections. Include the manufacturer's name and proprietary product names for each item listed.

PART 3 EXECUTION

PRODUCT DELIVERY, STORAGE, AND HANDLING

Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft. Schedule delivery to minimize long-term storage at the site and overcrowding of construction spaces.

Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.

Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.

Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.

Store heavy materials away from the project structure in a manner that will not endanger the supporting construction.

Store products subject to damage by the elements above ground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

INSTALLATION OF PRODUCTS

Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other work. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

SECTION 01701 - PROJECT CLOSE-OUT - ASBESTOS ABATEMENT

PART 1 - GENERAL

Description. This section specifies administrative and procedural requirements for Project Close-out, including but not limited to:

1. Inspection procedures.
2. Project record document submittal.
3. Submittal of warranties.
4. Final cleaning.

SUBSTANTIAL COMPLETION

Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.

In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the work claimed as substantially complete. Include supporting documents for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.

If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the work is not complete.

Advise Owner of pending insurance change over requirements.

Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.

Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases. Submit record drawings, final project photographs, damage or settlement survey, and similar final record information.

Make final change over of permanent locks and transmit keys to the Owner. Advise Owner of change over in security provisions.

Complete start up testing of systems. Discontinue or change over and remove temporary facilities from the site, along with construction tools, and similar elements.

Complete final clean up requirements, including touch up painting. Touch up and otherwise repair and restore marred exposed finishes.

Inspection Procedures: On receipt of a request for inspection, the Owner's Representative will either proceed with inspection or advise the Contractor of unfilled requirements. The Owner's Representative will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued. The Owner's Representative will repeat inspection when requested and assured that the work has been substantially completed. Results of the completed inspection will form the basis of requirements for final acceptance.

FINAL ACCEPTANCE

Preliminary Procedures: Before requesting final inspection for Certification of Final Acceptance and Final Payment, complete the following. List exceptions in the request.

Submit the Final Payment Request with releases and supporting documentation not previously submitted and accepted. Include Certificates of Insurance for products and completed operations where required.

Submit an updated final statement, accounting for final additional changes to the Contract Sum.

Submit a certified copy of the Owner's Representative's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Owner's Representative.

Submit final meter readings for utilities, and similar data as of the date of Substantial Completion, or when the Owner took possession of and responsibility for corresponding elements of the Work.

Submit consent of surety to Final Payment.

Submit a final liquidated damages settlement statement.

Submit evidence of final, continuing insurance coverage complying with insurance requirements.

Reinspection Procedure: The Owner's Representative will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Owner's Representative. Upon completion of reinspection, the Owner's Representative will prepare a Certificate of Final Acceptance, or advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for Final Acceptance. In the case where the contractor is advised that Work is incomplete or of unfulfilled obligations, the contractor shall perform the required work at no additional charge to the Owner. If necessary, reinspection will be repeated to the satisfaction of the Owner's Representative.

FINAL CLEANING

General: General cleaning during construction is required by the General Conditions and included in Section "Temporary Facilities".

Cleaning: Remove labels that are not permanent labels.

Removal of Protection: Remove temporary protection and facilities installed for protection of the work during construction.

Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

SECTION 01711 - PROJECT DECONTAMINATION

PART 1 - GENERAL

DESCRIPTION OF REQUIREMENTS:

General: Decontamination of the Work Area following asbestos abatement. The asbestos abatement Work of the Project is considered to be on damaged and/or friable asbestos materials. The Project Decontamination Work shall consist of a four step procedure with three cleanings of the Primary Barrier plastic prior to its removal and three cleanings of the work area surfaces to remove any new or existing contamination. Unless specifically indicated otherwise all asbestos materials shall be considered damaged and/or friable for the purposes of this Section. During decontamination, operation of the pressure differential system shall be used to remove airborne fibers generated by the abatement Work.

RELATED WORK SPECIFIED ELSEWHERE:

Removal of Gross Debris is integral with the performance of abatement work and as such is specified in the appropriate work section(s) of these specifications:
Section 02081 Removal of Asbestos-Containing Materials

Work Area Clearance: Air testing and other requirements which must be met before release of Contractor and reoccupancy of the work area are specified in Section 01714 Work Area Clearance.

Quality Assurance

All work shall conform to the applicable provisions of the codes, standards and Specifications as specified herein. Comply with specified standards as a minimum quality for the Work except where more stringent requirements apply. Where contradictions occur between codes, standards or Specifications, the more stringent shall apply.

SUBMITTALS

Comply with applicable requirements of Section 01301 as well as substantial completion documentation as follows:

1. Certified Visual Inspection
2. Disposal Documentation
3. Punch List

Submit test report from an independent testing laboratory on the fire resistance rating of the assembly of the spray back fire proofing on the lock back encapsulant

PART 3 - EXECUTION

GENERAL:

Work of This Section includes the decontamination of air in the Work Area which have been contaminated by the elevated airborne asbestos fiber levels generated during abatement activities, or which may previously have had elevated fiber levels due to friable asbestos-containing materials in the space.

Work of This Section includes the cleaning, decontamination, and removal of temporary facilities installed prior to abatement work, including:

- Primary and Critical Barriers erected by work of Section 01526
- Decontamination Unit erected by work of Section 01564
- Pressure Differential System installed by work of Section 01513

Work of This Section includes the cleaning, and decontamination of all surfaces (ceiling, walls, floor) of the Work Area, and all furniture or equipment in the Work Area.

START OF WORK:

Previous Work: During completion of the asbestos abatement work specified in other sections, the Secondary Barrier of polyethylene sheeting will have been removed and disposed of along with any gross debris generated by the asbestos abatement work.

Start of Work: Work of this section begins with the cleaning of the Primary Barrier. At start of work the following will be in place:

Primary Barrier: Two layers of polyethylene sheeting on floor and two layer on walls.

Critical Barrier: An airtight barrier between the Work Area and other portions of the building or the outside.

Critical Barrier Sheeting: Over lighting fixtures and clocks, ventilation openings, doorways, convectors, speakers and other openings.

Decontamination Units: For personnel and equipment in operating condition.

Pressure Differential System: In operation.

FIRST CLEANING:

First Cleaning: Carry out a first cleaning of all surfaces of the work area including items of remaining sheeting, tools, scaffolding and/or staging by use of damp-cleaning and mopping, and/or a High Efficiency Particulate Air (HEPA) filtered vacuum. (Note: A HEPA vacuum may fail if used with wet material.) Do not perform dry dusting or dry sweeping. Use each surface of a cleaning cloth one time only and then dispose of as contaminated waste. Continue this cleaning until there is no visible debris from removed materials or residue on plastic sheeting or other surfaces.

Remove All Filters in Air Handling System(s) and dispose of as asbestos-containing waste in accordance with requirements of Section 02084 Disposal of Asbestos-Containing Waste Material. Wait 96 Air Changes to allow HEPA filtered fan units to clean air of airborne asbestos fibers. Use oscillating fans as necessary to assure circulation of air in all parts of work areas during this period. Maintain Pressure Differential System in operation for the entire 96 air change period. This may vary depending upon variances that have been applied for from IDPH.

SECOND CLEANING:

Second Cleaning: Carry out a second cleaning of all surfaces in the work area in the same manner as the first cleaning.

Encapsulation of substrate: Perform encapsulation of substrate or installation of spray-applied finishes or fireproofing, where required, at this time. Maintain Pressure Differential System in operation during encapsulation work. **Contractor will use a encapsulation product that will not jeopardize the building's current fire rating.** Perform work only after meeting the following requirements

Surfaces to be covered have met the requirements for a visual inspection in this section.

Airborne fiber counts in the Work Area are at or below 0.01 fibers per cubic centimeter as measured by phase contrast microscopy.

Removal of Primary Barriers:

Immediately following the second cleaning of the Primary plastic, remove all Primary Barrier sheeting and Material Decontamination Unit, if there is one, leaving only:

Critical Barrier: Which forms the sole barrier between the Work Area and other portions of the building or the outside.

Critical Barrier Sheeting: Over lighting fixtures and clocks, ventilation openings, doorways, convectors, speakers, and other openings.

Decontamination Unit: For personnel, in operating condition.
Pressure Differential System: Maintain in continuous operation.

THIRD CLEANING:

Third cleaning: Carry out a third cleaning of all surfaces in the work area in the same manner as the first cleaning immediately after removal of Primary plastic. This cleaning is now being applied to existing room surfaces. Take care to avoid water marks or other damage to surfaces.

Contractor's Testing: At the completion of the above cleaning visually inspect all surfaces. Clean again if any dust, debris, etc. is found. At completion of this inspection sweep entire Work Area including walls, ceilings, ledges, floors and other surfaces in the Work Area with exhaust from forced-air equipment (leaf blower with approximately 1 horsepower electric motor or equivalent). Do not direct forced-air equipment at any seal in any Critical Barrier. If any debris or dust is found repeat the cleaning. Continue this process until no debris dust or other material is found while sweeping of all surfaces with forced-air equipment.

Cover carpeting in the work area with 6 mil polyethylene during Contractor's testing procedures. Seal plastic to baseboards with duct tape.

Cleaning Carpeting: At the completion of cleaning of all surfaces except carpeting, HEPA vacuum carpeting designated to remain in Work Areas using a floor cleaning attachment adjusted so that rubber skirting is in contact with carpet surface. Use a passive (non-power brush type) floor attachment with rubber floor seals and adjustable above-floor height.

Completely clean carpeting in one direction with each pass of the floor attachment overlapping the previous pass by one-half the attachment width. At the completion of one such cleaning, vacuum clean in the same manner in a direction at right angles to the initial cleaning. Wait 96 Air Changes to allow HEPA filtered fan units to clean air of airborne asbestos fibers. Use oscillating fans as necessary to assure circulation of air in all parts of work areas during this period. Maintain pressure differential system in operation for the entire 96 air change period. This may vary depending on if any variances have been applied for from IDPH

LOCK BACK:

Encapsulation of substrate: Perform encapsulation of substrate or installation of spray-applied finishes or fireproofing, where required, before Removal of Work Area Isolation as specified below. Maintain Pressure Differential System in operation during encapsulation work.

VISUAL INSPECTION:

After Final Cleaning Perform a Complete Visual Inspection of the entire Work Area including: all surfaces, ceiling, walls, floor, decontamination unit, all plastic sheeting, seals over ventilation openings, doorways, windows, and other openings; look for debris from any sources, residue on surfaces, dust or other matter. During visual inspection sweep entire work area including walls, ceilings, ledges, floors, and other surfaces in the room with exhaust from forced air equipment (leaf blower with approximately 1 horsepower electric motor or equivalent). If any debris, residue, dust or other matter is found repeat final cleaning and continue decontamination procedure from that point. When the area is visually clean, and if after sweeping of all surfaces with leaf blower, no debris, residue, dust or other material is found, complete the certification at the end of this section. Visual inspection is not complete until confirmed in writing, on the certification, by Project Administrator.

Temporary lighting: Provide a minimum of 100 foot candles of lighting on all surfaces in the areas to be subjected to visual inspection. Provide hand held lights providing 150 foot candles at 4 feet capable of reaching all locations in work area.

Lifts: Provide ladders, scaffolding, and lifts as required to provide access to all surfaces in the area to be subjected to visual inspection. Access is to allow touching of all surfaces.

FINAL AIR SAMPLING PCM:

Phase Contrast Microscopy (PCM): After the Work Area is found to be visually clean, air samples will be taken and analyzed in accordance with the procedure for Phase Contrast Microscopy set forth in Section 01714 Work Area Clearance:

If Release Criteria are not met, repeat Final Cleaning and continue decontamination procedure from that point.

If Release Criteria are met continue with the air testing by Transmission Electron microscopy.

Transmission Electron Microscopy (TEM): After the work area is found to be visually clean and PCM air sampling completed, TEM air samples will be collected and analyzed in accordance with the procedure for Transmission Electron Microscopy set forth in Section 01714 Work Area Clearance:

If Release Criteria are not met, repeat Final Cleaning and continue Decontamination procedure from that point.

If Release Criteria are met, proceed to work of Article on removal of Work Area isolation.

FINAL AIR SAMPLING PCM: Work Area Size Limitation: PCM without TEM sampling will be used to clear Work Areas where the asbestos-containing materials involved in the work are below the following size limitations:

Less than or equal to 160 square feet, or 260 linear feet.

Phase Contrast Microscopy (PCM): After the work area is found to be visually clean, air samples will be taken and analyzed in accordance with the procedure for Phase Contrast Microscopy set forth in Section 01714 Work Area Clearance:

If Release Criteria are not met, repeat Final Cleaning and continue Decontamination Procedure from that point.

If Release Criteria are met, proceed to work of this Section on Removal of Work Area Isolation.

REMOVAL OF WORK AREA ISOLATION:

Comply with applicable requirements of Section 01714 Work Area Clearance have been met: Shut down and remove the Pressure Differential System. Seal HEPA filtered fan units, HEPA vacuums and similar equipment with 6 mil polyethylene sheet and duct tape to form a tight seal at intake end before being moved from Work Area.

Remove Personnel Decontamination Unit.

Remove the Critical Barriers separating the Work Area from the rest of the building. Remove any small quantities of residual material found upon removal of the plastic sheeting with wet wiping, HEPA filtered vacuum cleaners and local protection. If significant quantities, as determined by the Owner's Representative, are found then the entire area affected shall be decontaminated as specified in Section 01712 Cleaning & Decontamination Procedures.

Remove all equipment, materials, debris from the work site.

Dispose of all asbestos-containing waste material as specified in Section 02084 Disposal of Asbestos Containing Waste Material.

SUBSTANTIAL COMPLETION OF ABATEMENT WORK:

Asbestos Abatement Work is Substantially Complete upon meeting the requirements of this section and Section 01714 Work Area Clearance, including submission of: Certificate of Visual Inspection, Receipts Documenting proper disposal as required by Section 02084 Disposal of Asbestos-Containing Waste Material Punch list detailing repairs to be made and incomplete items.

CERTIFICATE OF VISUAL INSPECTION:

Section 01712 is a "Certificate of Visual Inspection". This certificate shall be completed by the Contractor and certified by the Project Administrator. Submit completed Certificate with Application for Final Payment. Final payment will not be made until this Certification is executed. Following this section is a "Certificate of Visual Inspection". This certification is to be completed by the Contractor and certified by the Project Administrator. Submit completed Certificate with Application for Final Payment. Final payment will not be made until this Certification is executed.

SECTION 01712 CERTIFICATION OF VISUAL INSPECTION
CERTIFICATION OF VISUAL INSPECTION

In accordance with Section 01711 "Project Decontamination" the Contractor hereby certifies that he has visually inspected the Work Area (all surfaces including pipes, beams, ledges, walls, ceiling and floor, Decontamination Unit, sheet plastic, etc.) and has found no dust, debris or residue.

by: (Signature) _____ Date _____
(Print Name) _____
(Print Title) _____

PROJECT ADMINISTRATOR CERTIFICATION

The Project Administrator hereby certifies that he has accompanied the contractor on his visual inspection and verifies that this inspection has been thorough and to the best of his knowledge and belief, the Contractor's Certification above is a true and honest one.

by: (Signature) _____ Date _____
(Print Name) _____
(Print Title) _____

SECTION 01713 - CLEANING AND DECONTAMINATION PROCEDURES

PART 1 - GENERAL

RELATED WORK:

Section 01714

Other Sections as Specified

DESCRIPTION OF THE WORK: This section covers cleaning and decontamination procedures. Cleaning and decontamination Work shall be as required to satisfy requirements of related Work and as specified herein.

RELATED WORK:

Work area clearance Section 01714.

Other sections as specified herein.

PART 2 EXECUTION

GENERAL:

Complete the following before start of work of this section:

01527 Regulated Areas

01562 Respiratory Protection

WET CLEANING:

Accomplish wet cleaning during decontamination with paper towels or disposable rags: Immerse paper towel or rag in container of water with surfactant, or diluted removal encapsulant. Wring out, Fold into quarters, Wipe surface once and refold to a fresh face of cloth. Proceed in this manner until all available faces of paper towel or rag have been used.

Dispose of paper towel or rag, Do not place rag back in container to rinse out or for any other purpose. If a used towel or rag comes in contact with water, empty container and refill. Material adhered to a surface with removal encapsulant may require the application of additional removal encapsulant to facilitate cleaning.

REMOVAL OF ASBESTOS-CONTAINING DEBRIS

General. Work of this Section is limited to the cleanup of a small quantity of amassed debris which has fallen from an architectural finish, fire-proofing, or thermal insulation on pipes boilers and other thermal equipment.

Remove asbestos-containing debris and decontaminate the area involved using the following sequence: Shut down all ventilation into room.

Seal entry to work area with 6 mil polyethylene. Slit polyethylene for entry. Install a flap to cover the slit automatically; tape slit closed after entry.

Start HEPA vacuum before entering the area.

Use the HEPA vacuum to clean a path at least 6 feet wide from the entry point of the work area to the site of the fallen material.

Remove all small debris with the HEPA vacuum.

HEPA vacuum surfaces of all pieces too large to be removed by the suction of the HEPA vacuum.

Pick up such pieces and place in the bottom of a 6 mil polyethylene disposal bag conforming to the requirements of Section 02084 Disposal of Asbestos-Containing Waste Material. Place pieces in the bag without dropping and avoiding unnecessary disturbance and release of material.

Remove all remaining visible debris with HEPA vacuum.

HEPA vacuum an area 3 feet beyond the location in which any visible debris was found in two directions each at right angles to the other.

Place a 6 mil polyethylene drop cloth in accordance with Section 01527, Local Area Protection, immediately on top of the HEPA vacuumed area before performing any repair work on site from which fall-out occurred.

HEPA vacuum the site from which material fell removing all loose material which can be removed by the vacuums suction.

Repair or remove remaining material.

HEPA vacuum ladder and/or any tools used and pass out of the work area.

HEPA vacuum all surfaces in the room starting at the top of wall and working downward to the

floor. Then start at corner of floor farthest from Work Area entrance and work towards entrance.

HEPA vacuum the floor using a floor attachment with rubber floor seals and adjustable floor to attachment height. Adjust the height so that the rubber seals just touch the floor if carpeted and are within 1/16" of hard surface floors. Vacuum the floor in parallel passes with each pass overlapping the previous by one-half the width of the floor attachment. At the completion of one cleaning vacuum the floor a second time at right angles to the first.

Secure area from occupancy until air monitoring results per Section 01714 Project Decontamination indicate that area is safe for reoccupancy.

CLEANING AND DECONTAMINATING OBJECTS

Perform all work of decontaminating objects wherever possible on a plastic drop sheet installed.

HEPA vacuum all surfaces of object and immediate area before moving the object.

Pick-up object, if possible, and HEPA vacuum all surfaces.

Hand to off-sheet worker who will wet-clean object, if possible, and place in storage location.

Decontaminate area where object was located by HEPA vacuuming twice, in two perpendicular directions. Wet clean if necessary to remove any debris.

Return object to its original location.

DECONTAMINATION OF ROOMS:

Shut down all ventilation into space.

Seal entry to Work Area with 6 mil polyethylene. Slit polyethylene for entry. Install a flap to cover the slit automatically; tape slit closed after entry.

Install Differential Pressure System in accordance with Section 01513.

Recirculate HEPA filtered fan units in space by operating them so that discharge from machine is back into room. Use one HEPA filtered fan unit for each 2,500 cubic feet of room volume.

HEPA vacuum all surfaces in the room starting at the ceiling, then top of wall and working downward to the floor.

HEPA vacuum the floor using a floor attachment with rubber floor seals and adjustable floor to attachment height. Adjust the height so that the rubber seals just touch the floor if carpeted and are within 1/16" of hard surface floors. Vacuum the floor in parallel passes with each pass overlapping the previous by one half the width of the floor attachment. At the completion of one cleaning, vacuum the floor a second time at right angles to the first. Operate HEPA filtered fan unit in space for 24 hours minimum. At completion of Decontamination Work workers decontaminate in accordance. Secure area from occupancy until air monitoring results per Section 01714 Work Area Clearance indicate area is safe for reoccupancy.

SECTION 01714 - WORK AREA CLEARANCE

PART 1 - GENERAL

Description. This Section describes work being performed by the Owner which will be used to determine if the Contractor has satisfied the requirements of the Contract Documents. This work is not in the Total Contract Price except as described herein.

This Section sets forth required post-abatement airborne asbestos concentrations in the Work Area and describes testing procedures the Owner will use to measure these levels. Contractor shall be responsible for all associated costs for providing additional Work Area Sample Clearance testing including remedial action required should the first set of clearance air tests fail to meet criteria in this Section. Such additional Work Area air sample clearance testing shall be conducted in accordance with this Section.

RELATED DOCUMENTS:

Visual Inspection: required as a prerequisite of air testing, is set forth in Section 01711 Project Decontamination.

Air Monitoring: performed by the Owner during abatement work, is described in Section 01410 Test Laboratory Services.

CONTRACTOR RELEASE CRITERIA:

The Asbestos Abatement Work Area is Cleared when the Work Area is visually clean and airborne asbestos structure concentrations have been reduced to the level specified below.

VISUAL INSPECTION:

Work of this Section will not begin until the visual inspection described in Section 01711 Project Decontamination is complete and has been certified by the Project Administrator.

AIR MONITORING:

To determine if the elevated airborne asbestos structure concentration encountered during abatement operations has been reduced to the specified level, the Owner will secure samples and analyze them according to the following procedures.

Aggressive sampling All air samples will be taken using aggressive sampling technique.

PCM and TEM samples will be secured as indicated below. PCM samples will be analyzed and TEM samples will be transmitted to the laboratory. If the area meets the clearance criteria by PCM, then TEM analysis will proceed.

Work Area Clearance: upon meeting the TEM Clearance requirements the work of Section 01711 Project Decontamination can continue. **If Contractor fails TEM Clearance, the Contractor will be responsible for additional TEM clearance sample cost. This at owners discretion may also include additional project management cost.**

SCHEDULE OF AIR SAMPLES:

The number and volume of air samples taken and analytical methods used by the Owner will be in accordance with **AHERA and IDPH requirements**. Minimum requirements are as follows, However the more stringent shall apply.

PHASE CONTRAST MICROSCOPY:

Air Samples Taken In each homogeneous Work Area after completion of all cleaning work, a minimum of 7 samples will be taken and analyzed as follows:

Samples will be collected on 25 mm. cassettes with the following filter media:

PCM: 0.8 mixed cellulose ester in a cassette with a conductive extension cord.

Location Sampled	Number of Samples	Analysis Method Fibers/cc.	Detection Limit	Minimum Volume (Liters)	Date LPM
Each Work Area	5	PCM	0.01	1,200	1-10
or					
Each Room of Work Area	1 (5 min.)	PCM	0.01	1,200	1-10
Work Area Blank	1	PCM	0.01	0	open for 30 seconds
Laboratory Blank	1	PCM	0.01	0	Do Not Open

Analysis: Fibers on each filter will be measured using the NIOSH Method 7400 entitled "Fibers" published in the NIOSH Manual of Analytical Methods, 3rd Edition, Second Supplement, August 1987.

Fibers: referred to in this section include fibers regardless of composition as counted by the phase contrast microscopy method used.

Split Sample: One Work Area sample will be split and both halves analyzed separately for duplicate analysis.

Release Criteria: Decontamination of the work site is complete when every Work Area sample is at or below the Detection Limit above. If any sample is above the Detection Limit then the decontamination is incomplete and recleaning per section 01711 Project Decontamination is required.

TRANSMISSION ELECTRON MICROSCOPY:

Air Samples Taken In each homogeneous work area after completion of all cleaning work, a minimum of 13 samples will be taken and analyzed as follows:

Location Sampled	Number of Samples	Analysis Method Fibers/cc.	Analytical Sensitivity	Recommended Volume (Liters)	Rate LPM
Each Work Area	5	TEM	0.005	1,300-1,800	1-10
Outside Each Work Area Blank	5	TEM	0.005	1,300-1,800	1-10
	1	TEM	0.005	0	Open for 30 Seconds
Outside Blank	1	TEM	0.005	0	Open for 30 Seconds
Laboratory Blank	1	TEM	0.005	0	Do Not Open

Analysis will be performed using the analysis method set forth in the AHERA Regulation 40 CFR Part 763 Appendix A.

Asbestos Structures referred to in this Section include asbestos fibers, bundles, clusters or matrices, as defined by method of analysis.

Release Criteria: Decontamination of the work site is complete if either of the following two sets of conditions are met:

Work Area Samples are below filter background levels

All Work Area sample volumes are greater than 1,199 liters for a 25 mm. sampling cassette.

The average concentration of asbestos on the five Work Area Samples does not exceed the filter background level of 70 structures per square millimeter of filter area.

Work Area Samples are not statistically different from Outside samples

All sample volumes except for blanks are greater than 560 liters for a 25 mm. sampling cassette.

The average asbestos concentration of the three blanks is below the filter background level of 70 structures per square millimeter of filter area.

Average asbestos concentrations in Work Area Samples are not statistically different from Outside samples, as determined by the Z-test calculation found in 40 CFR Part 763, Subpart E, Appendix A (Z is less than or equal to 1.65)

If these conditions are not met then the decontamination is incomplete and the cleaning procedures of Section 01710 shall be repeated.

Termination of Analysis: if the arithmetic mean (average) asbestos concentration on the blank filters exceed 70 structures per square millimeter of filter area the analysis will cease and new samples collected.

LABORATORY TESTING:

PHASE CONTRAST MICROSCOPY:

The services of a testing laboratory will be employed by the Owner to perform laboratory analysis of the air samples. A microscope and technician will be set up at the job site, so that verbal reports on air samples can be obtained immediately. A complete record, certified by the testing laboratory, of all air monitoring tests and results will be furnished to the Owner's Representative, the Owner and the Contractor.

TRANSMISSION ELECTRON MICROSCOPY:

Samples will be sent by overnight courier for analysis by Transmission Electron Microscopy. Samples will not be carried on weekends, so that samples shipped on Friday will arrive on the following Monday. Verbal results will normally be available 24 hours after receipt of samples by the laboratory. The laboratory is capable of analyzing a maximum of 13 such samples from this project at any one time. All Transmission Electron Microscopy results will be available to the Contractor.

SECTION 01800 FINAL INSPECTION AND ACCEPTANCE

FINAL INSPECTION AND ACCEPTANCE

WALK THROUGH INSPECTION

Upon completion of all Work specified in the Contract Documents, the Contractor shall perform final field walk-through inspection to verify that the overall requirements of the Contract Documents have been satisfied, and that all furniture, furnishings, material, equipment, and/or other items which were removed, shut-down disassembled, etc. during the abatement Work have been satisfactorily replaced, re-built, reinstalled, placed back into operation and/or otherwise restored to a condition equal to or exceeding the condition prior to the abatement Work. Acceptance inspections conducted on the completed Work will be witnessed and subject to the approval of the Owner.

FINAL ACCEPTANCE

When all Work has been completed, a thorough inspection will be made by the Owner in the company of the Contractor, and if the Work is found to comply with the Specifications, the Work will be formally accepted and the Contractor so notified in writing as to the Final Acceptance of the Work by the Owner.

SECTION 02081 - REMOVAL OF ASBESTOS-CONTAINING MATERIALS

PART 1 - GENERAL

Description. The Work in this Section includes the removal of asbestos-containing materials from surfaces and/ or installations where such materials are present.

RELATED WORK:

Installation of Critical and Primary Barriers, and Work Area Isolation Procedures are set forth in Section 01526 Temporary Enclosures.

Project Decontamination procedures after removal of the Secondary Barrier are specified in Section 01711 Project Decontamination.

Disposal of asbestos-containing waste is specified in Section 02084 Disposal of Asbestos-Containing Waste Material.

QUALITY ASSURANCE

All work shall conform to the applicable provisions of the codes, standards and Specifications as specified herein. Comply with specified standards as a minimum quality for the Work except where more stringent requirements apply. Where contradictions occur between codes, standards or Specifications, the more stringent shall apply.

Before Start of Work: Submit the following to the Owner's Representative for review. Do not start work until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use.

Surfactant: Submit product data, use instructions and recommendations from manufacturer of surfactant intended for use. Include data substantiating that material complies with requirements.

Removal Encapsulant: Submit product data, use instructions and recommendations from manufacturer of removal encapsulant intended for use. Include data substantiating that material complies with requirements.

NESHAP Certification: Submit certification from manufacturer of surfactant or removal encapsulant that, to the extent required by this specification, the material, if used in accordance with manufacturer's instructions, will wet Asbestos-Containing Materials to which it is applied as required by the National Emission Standard for Hazardous Pollutants (NESHAP) Asbestos Regulations (40 CFR 61, Subpart M).

Material Safety Data Sheet: Submit the Material Safety Data Sheet, or equivalent, in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) for each surfactant, encapsulating material and solvent proposed for use on the work. Include a separate attachment for each sheet indicating the specific worker protective equipment proposed for use with the material indicated.

Wetting Materials:

Amended Water: Provide water to which a surfactant has been added. Use a mixture of surfactant and water which results in wetting of the Asbestos-Containing Material and retardation of fiber release during disturbance of the material equal to or greater than that provided by the use of one ounce of a surfactant consisting of 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with five gallons of water.

Removal Encapsulant: Provide a penetrating type encapsulant designed specifically for removal of Asbestos-Containing Material. Use a material which results in wetting of the Asbestos-Containing Material and retardation of fiber release during disturbance of the material equal to or greater than that provided by water amended with a surfactant consisting of one ounce of a mixture of 50% polyoxyethylene ester and 50% polyoxyethylene ether in five gallons of water.

MISCELLANEOUS MATERIALS

Polyethylene Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, 4.0 or 6.0 mil thick as indicated, clear, frosted, or black as indicated.

Duct Tape: Provide duct tape in 2" or 3" widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene.

Spray Cement: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

Disposal Bags: Provide 6 mil thick leak-tight polyethylene bags labeled as required by Section 02084 Disposal of Asbestos Containing Waste Material.

Fiberboard Drums: Provide heavy duty leak tight fiberboard drums with tight sealing locking metal tops.

Paper board Boxes: Provide heavy duty corrugated paper board boxes coated with plastic or wax to retard deterioration from moisture. Provide in sizes that will easily fit in disposal bags.

Felt: Standard felt approximately 1/16" thick and 36" to 72" in width.

PART 3 - EXECUTION

SECONDARY BARRIER:

Secondary Barrier: Over the Primary Barrier, install as a drop cloth a clear 6 mil sheet plastic in all areas where asbestos removal work is to be carried out. Completely cover floor with sheet plastic. Where the work is within 10'-0" of a wall extend the Secondary Barrier up wall to ceiling. Support sheet plastic on wall with duct tape, seal top of Secondary plastic to Primary Barrier with duct tape so that debris is unable to get behind it. Provide cross strips of duct tape at wall support as necessary to support sheet plastic and prevent its falling during removal operations.

Install Secondary Barrier at the beginning of each work shift. Install only sufficient plastic for work of that shift.

Remove Secondary Barrier at end of each work shift or as work in an area is completed. Fold plastic toward center of sheet and pack in disposal bags. Keep material on sheet continuously wet until bagged.

Install Walkways of black 6 mil plastic between active removal areas and decontamination units to protect Primary Layer from tracked material. Install walkways at the beginning of, and remove at the end of, each work shift.

WORKER PROTECTION:

Before beginning work with any material for which a Material Safety Data Sheet has been submitted provide workers with the required protective equipment. Require that appropriate protective equipment be used at all times.

WET REMOVAL:

Thoroughly wet to satisfaction of Owner's Representative Asbestos-Containing Materials to be removed prior to stripping and/or tooling to reduce fiber dispersal into the air. Accomplish wetting by a fine spray (mist) of amended water or removal encapsulant. Saturate material sufficiently to wet to the substrate without causing excess dripping. Allow time for amended water or removal encapsulant to penetrate material thoroughly. If amended water is used, spray material repeatedly during the work process to maintain a continuously wet condition. If a removal encapsulant is used, apply in strict accordance with manufacturer's written instructions. Perforate outer covering of any installation which has been painted and/or jacketed in order to allow penetration of amended water or removal encapsulant, or use injection equipment to wet material under the covering. Where necessary, carefully strip away while simultaneously spraying amended water or removal encapsulant on the installation to minimize dispersal of asbestos fibers into the air.

Mist work area continuously with amended water whenever necessary to reduce airborne fiber levels.

Remove saturated Asbestos-Containing Material in small sections from all areas. Do not allow material to dry out. As it is removed, simultaneously pack material while still wet into disposal bags. Twist neck of bags, bend over and seal with minimum three wraps of duct tape. Clean outside and move to Wash Down Station adjacent to Material Decontamination Unit. Evacuate air from disposal bags with a HEPA filtered vacuum cleaner before sealing.

Fireproofing or Architectural Finish on Scratch Coat: Spray asbestos-containing fireproofing or architectural acoustic finish with a fine mist of amended water or removal encapsulant. Allow time for amended water or removal encapsulant to saturate materials to substrate. Do not over-saturate to cause excess dripping. Scrape materials from substrate. Remove materials in manageable quantities and control the descent to staging or floor below, if over 20' use drop chute to contain material during decent. If using amended water, spray mist surface continuously during work process. If using removal encapsulant follow manufacturer's written instructions. Remove residue remaining on scratch coat after scraping using stiff nylon bristled hand brush. Use high pressure washer only with written authorization of Owner's Representative. If a removal encapsulant is used remove residue completely before encapsulant dries. If substrate dries before complete removal of residue re-wet with amended water or removal encapsulant.

Fireproofing or Architectural Finish on Wire Lath: Spray asbestos-containing fireproofing or architectural acoustic finish with a fine mist of amended water or removal encapsulant. Allow time for amended water or removal encapsulant to saturate material completely. Do not over-saturate to cause excess dripping. If surface of material has been painted or otherwise coated cut small holes as required and apply amended water or removal encapsulant from above. Cut wire lath into 2' X 6' sections and cut hanger wires. Roll or fold up complete with Asbestos-Containing Material and hand place in container. Do not drop on floor. After removal of lath and Asbestos-Containing Material remove any overspray on decking and structure above using stiff nylon bristled brush. Use high pressure washer only with written authorization from Owner's Representative. Use one of the following methods for containing waste. Deposit material in corrugated paper board box. When box is full duct tape closed and place in disposal bag. Wrap material in felt and place in fiberboard drum lined with two disposal bags. Use caution to insure that all edges of wire lath that could cut plastic are covered with felt. Place material directly in a steel drum. Seal drums when full with leak tight seal. Drum is to be leak tight in any orientation.

Pipe Insulation: Spray with a mist of amended water or removal encapsulant. Allow amended water or removal encapsulant to saturate material to substrate. If a removal encapsulant is used, use in strict accordance with manufacturer's instructions. Cut bands holding performed pipe insulation, slit jackets at seams, remove and hand-place in a disposal bag. Remove job-molded fitting insulation in chunks and hand place in a disposal bag. Do not drop to floor. Remove any residue on pipe or fitting with stiff bristle nylon hand brush. In locations where pipe fitting insulation is removed from pipe with straight runs insulated with fibrous glass or other non-asbestos-containing fibrous material, remove fibrous material 6" from the point where it contacts the asbestos-containing insulation.

SECTION 02084 - DISPOSAL OF ASBESTOS-CONTAINING WASTE MATERIAL

PART 1 - GENERAL

RELATED DOCUMENTS:

Section 01092 Codes and Regulations - Asbestos Abatement describes applicable federal, state and local regulations.

QUALITY ASSURANCE

All work shall conform to the applicable provisions of the codes, standards and Specifications as specified herein. Comply with specified standards as a minimum quality for the Work except where more stringent requirements apply. Where contradictions occur between codes, standards or Specifications, the more stringent shall apply.

DESCRIPTION OF THE WORK:

This section covers the disposal of Asbestos-Containing Materials. Disposal includes packaging of asbestos-containing waste materials. Disposal may be accomplished either by landfilling or converting asbestos containing materials to non-asbestos waste.

SUBMITTALS:

Before Start of Work: Submit the following to the Owner's Representative for review. Do not start work until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use.

Copy of state or local license for waste hauler.

Name and address of landfill where asbestos-containing waste materials are to be buried.

Include contact person and telephone number.

Product data on process to be used

Letters or other documents from the United States Environmental Protection Agency relative to the process.

Indicating that the process to be used can produce an asbestos-free product and is capable of satisfying the requirement for an acceptable "alternative" means of complying with Section 61.152(a) of the NESHAP for asbestos

Identifying process parameters or operating conditions important to the successful operation of the process

Chain of Custody form and form of waste manifest proposed

On a weekly basis submit copies of all manifests and disposal site receipts to Owner's Representative.

PART 2 - PRODUCTS:

Disposal Bags: Provide 6 mil thick leak-tight polyethylene bags labeled with three labels with text as follows:

First Label:

**CAUTION
CONTAINS ASBESTOS FIBERS
AVOID OPENING OR BREAKING CONTAINER
BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH**

Second Label: Provide in accordance with 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard:

**DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
BREATHING AIRBORNE ASBESTOS, TREMOLITE, ANTHOPHYLLITE, OR
ACTINOLITE FIBERS IS HAZARDOUS TO YOUR HEALTH**

Third Label: Provide in accordance with U. S. Department of Transportation regulation on hazardous waste marking. 49 CFR parts 171 and 172. Hazardous Substances: Final Rule. Published November 21, 1986 and revised February 17, 1987:

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

PART 3 - EXECUTION

Comply with the following sections during all phases of this work:

Section 01560 Worker Protection - Asbestos Abatement

Section 01562 Respiratory Protection

GENERAL:

All waste is to be hauled by a waste hauler with all required licenses from all state and local authority with jurisdiction.

LOADING AND TRANSPORTING

Load all asbestos-containing waste material in disposal bags or leak-tight drums. All materials are to be contained in one of the following

Two 6 mil disposal bags or Two 6 mil disposal bags and a fiberboard drum or Sealed steel drum with no bag.

Protect interior of truck or dumpster with Critical and Primary Barriers as described in Section 01526 Temporary Enclosures.

Carefully load containerized waste in fully enclosed dumpsters, trucks or other appropriate vehicles for transport. Exercise care before and during transport, to insure that no unauthorized persons have access to the material. Do not store containerized materials outside of the Work Area. Take containers from the Work Area directly to a sealed truck or dumpster. Do not transport disposal bagged materials on open trucks. Label drums with same warning labels as bags. Uncontaminated drums may be reused. Treat drums that have been contaminated as asbestos-containing waste and dispose of in accordance with this specification.

Advise the landfill operator or processor, at least ten days in advance of transport, of the quantity of material to be delivered.

AT DISPOSAL SITE UNLOAD CONTAINERIZED WASTE:

At a disposal site, sealed plastic bags may be carefully unloaded from the truck. If bags are broken or damaged, return to work site for rebagging. Clean entire truck and contents using procedures set forth in section 01711 Project Decontamination.

At a processing site truck and loading dock are arranged as a controlled work area and containerized waste is transferred to storage area by site personnel. All bags including broken ones will be transferred. Clean truck, using procedures set forth in section 01711 Project Decontamination.

Retain receipts from landfill or processor for materials disposed of.

At completion of hauling and disposal of each load submit copy of waste manifest, chain of custody form, and landfill receipt to Owner's Representative

