PART 2 - GENERAL CONSTRUCTION WORK

SECTION 02070 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 DESCRIPTION OF WORK

A. Extent of selective demolition work is indicated on the drawings.

B. Type(s) of Selective Demolition Work: Demolition requires the selective removal and subsequent offsite disposal of the following:

1. Portion(s) of buildings structures, as indicated on drawings and as required, to accommodate new construction.

2. Removal and protection of existing fixtures and equipment items indicated as "salvage".

C. Removal Work Specified Elsewhere:

1. Mechanical and Electrical Work - Cutting non-structural concrete floors and masonry walls for underground piping, conduit, and for above grade piping, conduit, is included with the work of the respective plumbing and electrical.

D. Related Work Specified Elsewhere:

1. Remodeling construction work and patching is included within the respective sections of specifications, including removal of materials for re-use and incorporated into remodeling or new construction.

1.3 SUBMITTALS

A. Proposed Demolition Activities: Submit schedule indicating proposed methods and sequence of operations for selective demolition work to Owner's Representative for review prior to commencement of work. Provide starting and ending dates for each activity as appropriate.

1. Include coordination for shut-off, capping, and continuation of utility services as required, together with details for dust and noise control protection.

2. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.

3. Sequence construction so as to minimize obstruction of exits and provide temporary alternate exits, as required by authorities having jurisdiction.

4. Coordinate with Owner's continuing occupation of portions of existing buildings, and with Owner's reduced usage during summer months.

B. Photographs: Photograph existing conditions of structure, surfaces, equipment or surrounding properties which could be misconstrued as damage resulting from selective demolition work; file with Owner's Representative prior to starting work.

C. Project Record Documents:

1. Indicate unanticipated structural, electrical, or mechanical conditions.

1.4 JOB CONDITIONS

A. Occupancy: Owner will be continuously occupying areas of the buildings immediately adjacent to areas of selective demolition. Conduct selective demolition work in manner that will minimize need for disruption of Owner's normal operations. Provide minimum of 72 hours advance notice to Owner of demolition activities which will severely impact Owner's normal operations.

B. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.

1. Conditions existing at time of commencement of contract will be maintained by Owner insofar as practicable. However, variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.

C. Protections: Provide temporary barricades and other forms of protection, as required, to protect Owner's personnel and general public from injury due to selective demolition work.

1. Provide protective measures, as required, to provide free and safe passage of Owner's personnel and general public to and from occupied portions of buildings.

2. Protect existing finish work, from being damaged during the project, which is to remain in place and becomes exposed during demolition operations.

3. Protect floors with suitable coverings so as to leave the flooring in same condition at end of job.

4. Construct temporary insulated solid dustproof partitions, where required, to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dustproof doors, if required.

5. Remove protections at completion of work.

D. Damages: Promptly repair damages caused to adjacent facilities by demolition work at no cost to Owner, including but not limited to concealed interior and exterior utility lines not properly investigated by the contractor, prior to commencement of demolition work.

E. Traffic: Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

1. Do not close, block or otherwise obstruct streets, walks or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

F. Explosives: Use of explosives will not be permitted.

G. Utility Services: Maintain existing interior and exterior utilities indicated to remain, keep in service, and protect against damage during demolition operations.

1. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION

3.1 INSPECTION

A. Prior to commencement of selective demolition work, inspect areas in which work will be performed.

1. **Photograph existing conditions of structure, surfaces, equipment or surrounding properties which could be misconstrued as damage resulting from selective demolition work; file with Owner's Representative prior to starting work.**

2. Commencement of work shall constitute acceptance of conditions. Any necessary remedial work required to correct any unsatisfactory conditions, found after the start of installation, will be provided at no cost to the Owner.

3. Prior to the commencement of work review the demolition activities with the Owner's representative to identify additional salvage items requested by the Owner.

3.2 PREPARATION

A. Cover and protect furniture, equipment and fixtures to remain from soiling or damage when demolition work is performed in rooms or areas from which such items have not been removed.

B. Erect and maintain dust-proof partitions and closures, as required, to prevent spread of dust or fumes to occupied portions of the buildings.

1. Provide weatherproof closures for exterior openings resulting from demolition work.

C. Locate, identify, stub off and disconnect utility services that are not indicated to remain.

1. Provide by-pass connections as necessary to maintain continuity of service to occupied areas of buildings. Provide minimum of 72 hours advance notice to Owner if shut-down of service is necessary during change-over.

3.3 DEMOLITION

A. Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.

1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.

    a. The Contractor shall use caution when cutting into existing masonry construction (eg.: concrete slabs, single wythe and cavity wall construction) as there may be un-documented utilities within the cavity or built into the cores of cmu wall construction or under the floor slab. The contractor shall perform all necessary investigation prior to demolition work to determine the presence of existing utilities within construction to be demolished, including but not limited to radar, thermal, impact echo, etc. The Contractor shall pay for restoring / repairing the existing construction if utilities are cut and proper selective demolition investigation work was not performed. Refer to Section 01050.

2. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors or framing.

3. Provide services for effective air and water pollution controls, as required by authorities having jurisdiction.

4. For interior slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.

B. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Owner's Representative / Architect in written, accurate detail. Pending receipt of directive from Owner's Representative / Architect rearrange selective demolition schedule as necessary to continue overall job progress without delay.

3.4 SALVAGE MATERIALS

A. Salvage Items: Where indicated on Drawings as "Salvage-Deliver to Owner", carefully remove indicated items, clean, store and turn over to Owner and obtain receipt.

1. Unless otherwise indicated all materials, items, equipment, etc. resulting from demolition work shall be removed from the site at the Contractor’s expense.

B. Historic artifacts, including cornerstones and their contents, commemorative plaques and tablets, antiques, and other articles of historic significance remain the property of the Owner. Notify Owner's Representative if such items are encountered and obtain acceptance regarding method of removal and salvage for Owner.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove debris, rubbish and other materials resulting from demolition operations from building site. Transport and legally dispose of materials off site.

B. If hazardous materials are encountered during demolition operations, notify the Owner’s Representative immediately, comply with applicable regulations, laws, and ordinances concerning removal, handling and protection against exposure or environmental pollution.

C. Burning of removed materials is not permitted on project site.

3.6 CLEAN-UP AND REPAIR

A. Upon completion of demolition work, remove tools, equipment and demolished materials from site. Remove protections and leave interior areas broom clean.

B. Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION 02070

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TECHNICAL SPECIFICATIONS

FRIABLE ASBESTOS ABATEMENT OF PIPE FITTING INSULATION

Ewing Township Board of Education
William L. Antheil Elementary School
Ewing Township, NJ

Prepared for:

Ewing Township Board of Education
2099 Pennington Road
Ewing, New Jersey 08618

Project No. EWBEX18002

January 16, 2019

Project Designer:
Alan Lloyd
Certification # MEF51EFA5A04C34C4

Signature

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END OF SECTION

PROJECT DIRECTORY

PROJECT NAME:	Asbestos Abatement of Friable Fitting Insulation Ewing Township Board of Education William L. Antheil Elementary School
PROJECT LOCATION:	William L. Antheil Elementary School 339 Ewingville Road Ewing Township, New Jersey 08638
BUILDING OWNER:	Ewing Township Board of Education 2099 Pennington Road Ewing Township, New Jersey 08638 Contact: Dennis Nettleton School Business Administrator (609) 538-9800 x1302
ASBESTOS MONITORING FIRM	Pennoni Associates, Inc. 515 Grove Street, Suite 1B Haddon Heights, New Jersey 08035 Contact: Alan Lloyd (856) 547-0505 Office (856) 547-9174 Fax
DATE OF CONTRACT DOCUMENTS:	January 16, 2019

SECTION 01013

SUMMARY OF WORK

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 PROJECT/WORK IDENTIFICATION

A. The Project name is Asbestos Abatement of William L. Antheil Elementary Schools fitting insulation removal.

Site locations are as follows:

William L. Antheil Elementary School
220 Ewingville Road
Ewing Township, New Jersey 08638

The contract documents have been prepared by the Owner's Environmental Consultant, Pennoni Associates Inc., and are dated January 17, 2019.

B. The scope of the project includes the complete removal and proper off-site disposal of identified asbestos-containing materials on the attached drawings and in the below listed table. Removal activities shall be conducted under full containment as described in this specification and accompanying drawings in preparation of planned renovation activities. **All abatement activities will be regulated and governed by N.J.A.C. 5:23-8. The building will be OCCUPIED during abatement activities.**

Homogeneous Material	Location	Approx Quantity	Type	Percent
Pipe Fitting Insulation	Janitor Closet between Rooms 04 and 06 (work area #1)	5 LF	Chrysotile	4%
Pipe Fitting Insulation	Janitor Closet between Rooms 24 and 26 (work area #2)	30 LF	Chrysotile	4%

LF – Linear Feet

ABATEMENT SCOPE OF WORK: (occupied friable abatement)

- Contractor will remove identified fittings under occupied limited containment from the above listed areas.

C. Section 3.4 - Summary of Work, provides estimated quantities of asbestos-containing materials to be removed. The Contractor is responsible to determine exact quantities of asbestos-containing materials and scope of work as outlined in the specification and drawings prior to the submission of their bid.

D. 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:

1. Applicable codes and regulations
2. Notices and permits
3. Existing site conditions and restrictions on use of the site
4. Work performed prior to work under this Contract
5. Alterations and coordination with existing work
6. Work to be performed concurrently by the Owner
7. Work to be performed concurrently by separate contractors
8. Work to be performed subsequent to work under this Contract
9. Alternates
10. Allowances

E. Summary by References: Work of the Contract can be summarized by references to the Contract, General Conditions, Supplementary Conditions, Specification Sections, Drawings, addenda and modifications to the contract documents issued subsequent to the initial printing of this project manual and including but not necessarily limited to printed material referenced by any of these. Work of the Contract is also unavoidably affected or influenced by governing regulations, natural phenomenon including weather conditions and other forces outside the contract documents.

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

1. 01013 SUMMARY OF THE WORK
2. 01043 PROJECT COORDINATION
3. 01091 DEFINITIONS AND STANDARDS
4. 01301 SUBMITTALS

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

1. 01092 CODES, REGULATIONS, AND STANDARDS - 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.
2. 01503 TEMPORARY FACILITIES - Sets forth the support facilities needed such as electrical and plumbing connections for the decontamination units and office space for the AST.
3. 01526 TEMPORARY ENCLOSURES - Details the requirements for the sheet plastic barriers isolating the work area from the balance of the building.
4. 01410 AIR MONITORING - Describes air monitoring by Owner's Asbestos Safety Control Monitor (ASCM) so that the building beyond the work area will remain uncontaminated. Air monitoring to determine required respiratory protection is the responsibility of the Contractor.
5. 01513 TEMPORARY PRESSURE DIFFERENTIAL & AIR FILTRATION SYSTEM - Sets forth the procedures to set up the air filtration units and ventilation of the work area.
6. 01560 WORKER PROTECTION - Sets forth the procedures and equipment for adequate worker protection.
7. 01562 RESPIRATORY PROTECTION - Sets forth the procedures and equipment required for adequate protection against inhalation of airborne asbestos fibers.

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

1. 02081 REMOVAL OF ASBESTOS

2. 02084 DISPOSAL OF ASBESTOS-CONTAINING WASTE MATERIAL.

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

1. 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.
2. 01714 WORK AREA CLEARANCE - Describes the analytical methods used to determine if the work area has been successfully cleaned of contamination.

1.3 PROJECT COORDINATION

A. The Asbestos Contractor shall coordinate all Asbestos Abatement work with the ASCM in accordance with Section 01043 – Project Coordination.

B. The Asbestos Contractor shall not perform any work in the absence of the Asbestos Safety Control Monitor's Asbestos Safety Technician, who shall decide in his absolute discretion as to the meaning and applicability of any part of the Asbestos Abatement Specification.

1.4 INSPECTION

A. Prior to commencement of work, the Contractor shall inspect areas in which work will be performed. Prepare a listing of damages to structure, surfaces, equipment or surrounding properties, which could be misconstrued as damage resulting from the work. Photograph or videotape existing conditions as necessary, to document conditions. Submit to ASCM prior to starting work.

1.5 POTENTIAL ASBESTOS HAZARD

A. 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 workers and building occupants. Apprise all workers, supervisory personnel, subcontractors and consultants who will be at the jobsite of the seriousness of the hazard and of proper work procedures, which must be followed.

B. 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.

1.6 STOP WORK

A. If the Owner or ASCM presents a written stop work order, immediately and automatically stop all work. Do not recommence work until authorized in writing by ASCM.

1.7 ASBESTOS-CONTAINING MATERIALS

A. The following asbestos-containing materials are to be removed as part of this scope of work under full containment. If any other materials are found, which are suspected of containing asbestos (i.e. floor tile, pipe insulation, pipe fittings, etc.), notify the ASCM immediately both verbally and in writing. Do not proceed with any additional work without written approval. Summary tables of materials, estimated quantities and locations of asbestos materials to be removed is also included under 3.4 of this Section.

1. Pipe Fitting Insulation

B. The following materials were tested by Pennoni or listed in the AHERA report as tested and found to not contain asbestos:

1. Ceiling Tiles (Dotted)
2. Ceiling Tiles (Dotted and Fissured)
3. Sheetrock and Joint Compound
4. Plaster (<1%)
5. Fire Stop (red)
6. Fire Stop (brown)
7. 1x1 Spline Ceiling Tiles
8. 12x12 Beige Floor Tile and Mastic
9. 12x12 Blue Floor Tile and Mastic
10. Exterior Door Caulk
11. Interior Door Caulk
12. Sills

C. The following materials are confirmed or assumed to be asbestos-containing per the district's AHERA management plan but are not expected to be impacted with the planned scope of work. However, the contractor must not disturb these materials unless properly tested and/or removed:

1. Pipe Insulation (Compressed and Block)
2. Roof Drain Insulation
3. Electrical Stage Wiring
4. Acoustical Plaster (auditorium)
5. Roof Drain Insulation
6. Linoleum
7. Smoke Door Insulation
8. Miscellaneous Flooring Material
9. Chalkboards
10. Laboratory Table Tops
11. Duct Vibration Cloth
12. Sink Under Coating
13. 9x9 Flooring (Being removed under non-Sub8/non friable)

If any other materials are observed and are not noted in this document they are to be assumed asbestos containing and the ASCM must be notified immediately.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 OWNER OCCUPANCY

A. The buildings **will be OCCUPIED** during abatement activities. Cooperate fully with other personnel that may be working at the site. Perform all work so as not to interfere with other personnel.

B. All Asbestos Abatement work shall be performed in accordance with these specifications, and all federal, state and local regulations, as applicable.

3.2 CONTRACTOR USE OF PREMISES:

A. 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.

1. Keep existing driveways and entrances serving the premises clear and available to the Owner at all times. Do not use these areas for parking or storage of materials.
2. Do not unreasonably encumber the site with materials or equipment.
3. Lock automotive type vehicles, such as passenger cars and trucks and other mechanized or motorized construction equipment, when parked and unattended, so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended with the motor running or the ignition key in place or accessible to unauthorized persons.

B. Contractor's Use of the Existing Building(s): Maintain existing building(s) in a safe and weather tight condition throughout the construction period.

1. Smoking or open fires will not be permitted within the building.
2. Keep means of egress clear of rubbish, construction materials and asbestos waste.
3. The use of existing toilets within the building will be allowed at the Owner’s discretion.

3.3 WORK TO BE PERFORMED BY OTHERS:

A. The Owner will coordinate with the Contractor to facilitate shut down, blanking off and lockout of all HVAC, electrical, mechanical and security equipment and systems located within and/or servicing the work area(s) as feasible.

3.4 SUMMARY OF WORK

A. The scope of the Project includes the complete removal and off-site disposal of certain identified asbestos-containing materials. The asbestos-containing materials are summarized in the following summary tables and on the attached drawings will be removed under full containment. The tables are provided to supply Contractors with information to aid in the bidding process. The quantities listed are only estimated and it is the contractor’s responsibility to verify the actual quantities prior to submitting a bid. The tables shall in no way limit the scope of work. The Contractor shall be responsible to fully investigate the scope of work and provide a bid proposal based on all existing conditions.

Homogeneous Material	Location	Approx Quantity	Type	Percent
Pipe Fitting Insulation	Janitor Closet between Rooms 04 and 06 (work area #1)	5 LF	Chrysotile	4%
Pipe Fitting Insulation	Janitor Closet between Rooms 24 and 26 (work area #2)	30 LF	Chrysotile	4%

B. The Contractor shall:

1. Make all required notifications, obtain all permits and pay all fees associated with the work.
2. Remove all identified asbestos-containing materials in strict accordance with all applicable federal, state and local regulations and this specification under full containment.
3. Dispose of all asbestos-containing materials in strict accordance with N.J.D.E.P. rules and regulations, N.J.A.C. 7:26, and this specification.
4. Coordinate with the Facilities Manager for the shutdown, blanking off and lockout all HVAC, electrical, mechanical and security equipment and systems located within and/or servicing

the work area locations where feasible.

5. Provide personnel and waste decontamination facilities where indicated on the contract drawings. The Contractor shall be responsible to make all connections and disconnections to existing electrical panels and water sources. The Contractor shall provide the necessary equipment to supply the decontamination unit with hot water.
6. Vent all HEPA-equipped air filtration units to the exterior of the building or as indicated on the Contract Drawings. The Contractor shall remove doors and/or windows as required and construct plywood manifold systems to allow for exhaust ducts to run to the building exterior.
7. Install scaffolding as necessary to access the work.
8. Remove and dispose of asbestos-containing materials as indicated on the Contract Drawings and described herein under full containment.
9. Clean and decontaminate the work areas as per this specification.
10. Contractor to remove boiler and hot water heater from site.
11. Route all waste directly to the secured dumpster/truck.
12. Coordinate the location of dumpsters with the ASCM. All asbestos dumpsters shall be the enclosed lockable type and shall be kept locked when left unattended.
13. The Contractor shall be required to achieve the post abatement, air monitoring clearance criteria as specified in Section 01714, Work Area Clearance.

3.5 SCHEDULE

The following schedule shall govern work of this contract:

1. To Be Determined.

END OF SECTION

SECTION 01043

PROJECT COORDINATION

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
   1. Notifications.
   2. Permits and Fees.
   3. Administrative and supervisory personnel.
   4. Pre-Construction meeting.
   5. Progress Meetings.
   6. Documentation required at work site.
   7. Coordination of Subcontractors and other trades.
   8. Requirements for the Contractor's Construction Schedule are included in Section “Submittals”.

1.3 NOTIFICATIONS:

A. The Contractor shall make all required notifications associated with his contract to include, but not limited to those listed in Section 01902 Codes, Regulations and Standards.

1.4 PERMITS AND FEES:

A. The Contractor shall obtain all required Permits, and pay all fees associated with his contract to include, but not limited to those listed in Section 01092 Codes, Regulations and Standards.

1.5 ADMINISTRATIVE AND SUPERVISORY PERSONNEL:

A. General Superintendent: Provide on a twenty-four hour a day on call basis, a 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 Competent Person as required by OSHA in 29 C.F.R. 1926 for the Contractor and is the Contractor's Representative's responsible for compliance with all applicable Federal, State, and Local Regulations, and this specification. This person shall have completed a course at an E.P.A. Training Center or an equivalent certified course in asbestos abatement procedures and have had a minimum of three years of on-the-job training and meet any additional requirements set forth in 29 C.F.R. 1926 for a Competent Person and this specification. The responsibilities of the General Superintendent shall include but not be limited to the following:

   1. The General Superintendent shall submit special reports directly to the Owner within one day of occurrence. A copy shall be submitted to the Owner's Representative, Project Consultants, and others affected by the occurrence.

   2. When an event of unusual and significant nature occurs at the site (e.g. failure of negative pressure 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 the Owner in advance at the earliest possible date.

B. Project Supervisor: Provide a full-time Project Supervisor who is certified and fully knowledgeable in the use of equipment and situations unique to that worksite. A separate individual shall be required to fulfill this function for each work shift that exceeds ten hours within any twenty-four hour period. The responsibilities of the Project Supervisor shall include but not be limited to the following:

1. Ensure that the individuals are wearing all proper personal protective equipment as outlined in Sections 01560 - 01562 of this specification and are trained in their use.

2. Ensure that precautions have been taken to prevent heat stress and other emergencies from occurring (e.g. selecting light-weight protective clothing, reducing the work rate, and providing adequate fluid breaks).

1.6 PRE-CONSTRUCTION MEETING:

A. The Contractor shall attend pre-construction meeting(s) scheduled by the ASCM. These meetings shall be attended by the Owner and/or the Owner's Representative, and the Contractor's OSHA Monitoring Firm. At this meeting, the Contractor shall present in detail the following:

1. A detailed plan for preparation of each work area.
2. Description of protective clothing and approved respirators (by NIOSH and the Project Consultants) to be used.
3. Delineation of responsibility of work site isolation.
4. Explanation of the decontamination sequence.
5. Description of all removal methods to be used.
6. Explanation of the handling of asbestos-contaminated waste.
7. Proof of workers' medical exams substantiated by reports signed by the physician.
8. Description of the final clean up procedures to be used.
9. Proposed waste disposal site and proof of transporter registration. If a change in either of these items occurs during the course of the project, the Contractor shall notify the ASCM.
10. A sample of the waiver form to be used for all authorized visitors to the site.
11. Explanation of air filtration systems to be used for personnel protection, building protection, and environmental protection.
12. List of equipment on hand or to be obtained, how to be used, and the operation of each to include impact on the personnel, building environmental, and work environment.
13. Plan of action in the event of an emergency (Asbestos Spill Plan, fire routes, etc.).
14. A Detailed Work Schedule, with start and completion dates for all phases of asbestos abatement, to include, but not limited to, Worksite Preparation, Pre-inspection, Removal, Clean-up, Pre-encapsulation Inspection, Encapsulation, Clean-up Inspection, Final Cleaning, Disposal, Final Inspection, Post-testing, Analysis and Post State Inspection.

B. The Quality Assurance Air Monitoring Firm shall present in detail an explanation of air monitoring procedures to be used on behalf of the Owner. The Contractor (or independent air monitoring laboratory employed on his behalf) shall present in detail how compliance with OSHA monitoring requirements shall be fulfilled.

C. Asbestos work shall not proceed until the Owner, ASCM, and the Contractor agree on the details listed in this article.

1.7 PROGRESS MEETINGS:

A. The Contractor shall attend prescheduled Progress Meetings. These shall be scheduled by the ASCM. These meetings shall also be attended by Owner's Representative and the ASCM. Any such meetings shall serve to update all items discussed in the Pre-Construction meeting.

1.8 DOCUMENTATION REQUIRED AT WORK SITE:

A. One copy of each regulation cited in Section 01092 shall be available in the Contractor's business office and one copy of each shall be maintained in view at the job site.

B. The Contractor shall display copies of the required letters of Notification, Permits, and Variances.

C. Additional documentation required of the Contractor and to be available at the job site shall include:

1. List of emergency telephone numbers to include:
    a. The ASCM and AST.
    b. E.P.A.
    c. O.S.H.A.
    d. D.E.P.
    e. D.O.H.
    f. Fire Department.
    g. Police Department.
    h. Local Hospital.
    i. Emergency Squad.
    j. DCA Asbestos Safety Unit.
    k. Contractors Project Supervisor and General Superintendent.

2. The Contractor shall establish written work area emergency procedures and shall have such procedures posted in view and also inside each work area. In case of an emergency, decontamination procedures shall not impede emergency procedures.
3. List or personnel including all new employees.
4. A Daily Log of all persons entering the work area, including all visitors. The Log shall include the full name and certification number of all employees, and the time when they enter and exit the work area. Non-employees of the Asbestos Contractor shall be required to sign an acceptable waiver form. The waiver form shall be approved by the ASCM.
5. The Daily Log shall include a record of start and stop times, any work area problems encountered, any corrective action, and estimated amount of asbestos waste generated.
6. The Contractor shall be responsible for obtaining a copy of the daily monitoring logs from their air testing firm and maintaining this with the Daily Log at the job site.
7. Copies of Daily Log forms shall be given to the ASCM at the end of each week's work.

D. Work schedules and updated progress charts depicting all phases of work and completion deadlines.

E. Copy of Waste Hauler's Certificate and copy of all landfill receipts.

1.9 COORDINATION OF SUBCONTRACTORS AND OTHER TRADES:

A. The Contractor shall work in complete cooperation and coordination with any Subcontractors or any other trades that may be involved in other work within or related to the site.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01091

DEFINITIONS AND STANDARDS

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. 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.

B. General Requirements: The provisions or requirements of Division-1 sections apply to entire work of Contract and, where so indicated, to other elements which are included in project.

1.3 GENERAL DEFINITIONS:

A. 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.

1. Building Owner: The person in whom legal title to the premises is vested unless the premises are held in land trust, in which instance the Building Owner means the person in whom beneficial title is vested.
2. Contractor: A public authority or any other governmental agency or instrumentality thereof, self-employed person, company, unincorporated association, firm, partnership, or corporation and any owner or operator thereof, which engages in an asbestos project or employs persons engaged in an asbestos project.
3. Indicated: This term refers to graphic representations, notes or schedules on the Drawings, or other Paragraphs or Schedules in Specifications, and similar requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help locate the reference; no limitation on location is intended except as specifically noted.
4. Directed: Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean "directed by the Owner 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.
5. Approve: The term "approved," where used in conjunction with the Owner 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.
6. 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.
7. Furnish: The term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and similar operations.

8. 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."
9. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."
10. 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. Project Administrator: This is the entity described as the "Project Representative" 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." The Project Administrator is a full time representative of the Owner at the job site with authority to stop the work upon verbal order if requirements of the Contract Documents are not met, or if in the sole judgement of the Project Administrator, Owner's Representative, Owner, the interests of the Owner, safety of any person or the Owner's property are jeopardized by the work.
16. 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.

1.4 DEFINITIONS RELATIVE TO ASBESTOS ABATEMENT:

A. Definitions:

1. Abatement: Any and all procedures physically taken to control fiber release from asbestos-containing materials. This includes removal, encapsulation, enclosure and repair.
2. Abatement Activities: All activities from the initiation of work area preparation through successful clearance air monitoring performed at the conclusion of an asbestos project.
3. 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).
4. Action Level: An airborne concentration of asbestos of 0.1 fibers per cubic centimeter (f/cc) of air calculated as an eight-hour time-weighted average.

5. Aerosol: A system consisting of particles, solid or liquid, suspended in air.
6. Aggressive Sampling: A method of sampling in which the individual collecting the air sample creates activity by the use of mechanical equipment during the sampling period to stir up settled dust and simulate activity in that area of the building.
7. Airlock: A system for permitting entrance and exit while restricting air movement between a contaminated area and an uncontaminated area. It consists of two curtained doorways separated by a distance of at least four feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.
8. Air Cell: Insulation normally used on pipes and duct work that is comprised of corrugated cardboard which is frequently comprised of asbestos combined with cellulose or refractory binders.
9. Air Monitoring: The process of measuring the fiber content of a specific volume of air.
10. Air Sampling: The process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure utilized for asbestos follows the NIOSH Standard Analytical Method 7400, or the provisional transmission electron microscopy methods developed by the USEPA which are utilized for lower detectability and specific fiber identification.
11. Ambient Air Monitoring: Measurement or determination of airborne asbestos fiber concentrations outside but in the general vicinity of the worksite.
12. Amended Water: Water to which a surfactant has been added to decrease the surface tension to 35 or less dynes.
13. Approved Safety and Health Program: A Program certified by the Commissioner providing training in the handling and use of asbestos-containing material, and safety and health risks inherent in such handling and use, together with methods for minimizing the exposure of workers and the public to asbestos fibers, and instruction in all applicable federal, state and local laws and regulations pertaining to asbestos-related work.
14. Area Air Sampling: Any form of air sampling or monitoring where the sampling device is placed at some stationary location.
15. Asbestos: The asbestiform varieties of serpentine (chrysotile), riebecktite (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.
16. Asbestos-Containing Material (ACM): Any material containing more than 1% by weight of asbestos of any type or mixture of types.
17. 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.
18. 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.
19. Asbestos-Contaminated Objects: Any objects which have been contaminated by asbestos or asbestos-containing material.
20. 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.
21. Asbestos Handler: An individual who disturbs, removes, encapsulates, repairs, or encloses friable asbestos material. This individual shall have completed an approved training course and be fully certified.

22. Asbestos Handler Supervisor: An individual who supervises the handlers during an asbestos project and ensures that proper asbestos abatement procedures as well as individual safety procedures are being adhered to. This individual shall have completed approved training courses and be fully certified.
23. Asbestos Inspection Report: A report on the condition of a building or structure in relation to the presence and condition of asbestos therein.
24. Asbestos investigator: A certified individual having satisfactorily demonstrated his or her ability to identify the presence and evaluate the condition of asbestos in a building or structure.
25. Asbestos Removal Plan: A plan which will be undertaken so as to prevent asbestos from becoming airborne in the course of the alteration, renovation, modification or demolition of any building or structure.
26. Asbestos Safety Control Monitor: A business entity authorized pursuant to N.J.A.C. 5:23-8 to ensure compliance with the Asbestos Hazard Abatement Subcode.
27. Asbestos Safety Technician: A person licensed by New Jersey Department of Community Affairs who continuously monitors and inspects the asbestos abatement work. This person shall be required to be on the jobsite during all phases of the asbestos abatement project.
28. Asbestos Spill Plan: This is to be implemented immediately in the event of failure. This includes, but is not limited to, a HEPA vacuum, extra trash bags, mops, sponges, buckets, etc., for rapid cleanup.
29. 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.
30. Barrier: Any surface that seals off the work area to inhibit the movement of fibers.
31. Baseline Monitoring: A measurement or determination of airborne asbestos fiber concentrations inside the work area and outside the building prior to starting the abatement activities.
32. Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.
33. Calibration: The determination within specific limits of the true value of the scale reading or indication of an instrument.
34. Ceiling Concentration: The concentration of an airborne substance that shall not be exceeded.
35. Certified Industrial Hygienist (C.I.H.): An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.
36. Certified Safety Person (C.S.P): An individual having a bachelor's degree from an accredited college or university and a minimum of four years of experience as a safety professional and who has successfully completed both levels of the examination administered by the Board of Certified Safety Professionals and who is currently certified.
37. Clean room: An uncontaminated area or room which is part of the worker decontamination enclosure system with provisions for storage of workers' street clothes and protective equipment.
38. Clearance Air Monitoring: The employment of aggressive sampling techniques with a volume of air collected to determine the airborne concentration of residual fibers, and shall be performed as the final abatement activity.
39. Containment: An area which has been sealed with polyethylene sheeting to prevent contamination of asbestos to the outside environment.

40. Controlled Area: An area which can be separated off from occupied areas of the building for the purpose of controlling fiber release to the occupied areas of the building. This area is controlled so as to limit access and to ensure that, when accessed, all appropriate health and safety protocols are utilized.
41. Curtained Doorway: A device which consists of at least three overlapping sheets of plastic over an existing or temporarily framed doorway. One sheet shall be secured at the top and left side, the second sheet at the top and right side, and the third sheet at the top and left side. All sheets shall have weights attached at the bottom to ensure that the sheets hang straight and maintain a seal over the doorway when not in use.
42. Decontamination Unit: A serial arrangement of rooms or spaces for the purpose of separating the work area from the building environment upon entering the work area and for the cleaning of persons, equipment, and contained waste prior to returning to the clean environment.
43. Demolition: The wrecking or taking out of any building component, system, finish or assembly of a facility together with any related handling operations.
44. Disposal Bag: A properly labeled 6 mil thick leak-tight plastic bags used for transporting asbestos waste from work and to disposal site.
45. Disturb: Any action taken which may alter, change, or stir, such as but not limited to the removal, encapsulation, enclosure or repair of asbestos-containing material.
46. Encapsulant: A material that surrounds or embeds asbestos fibers in an adhesive matrix, to prevent release of fibers.
    a. Bridging encapsulant: an encapsulant that forms a discrete layer on the surface of an in situ asbestos matrix.
    b. Penetrating encapsulant: an encapsulant that is absorbed by the in situ asbestos matrix without leaving a discrete surface layer.
    c. Removal encapsulant: a penetrating encapsulant specifically designed to minimize fiber release during removal of asbestos-containing materials rather that for in situ encapsulation.
47. Encapsulation: Treatment of asbestos-containing materials, with an encapsulant.
48. Enclosure: The construction of an air-tight, impermeable, permanent barrier around asbestos-containing material to control the release of asbestos fibers into the air.
49. Equipment Room: A contaminated area or room which is part of the worker decontamination enclosure system with provisions for the storage of contaminated clothing and equipment.
50. Fiber: An acicular single crystal or a similarly elongated polycrystalline aggregate which displays some resemblance to organic fibers by having such properties as flexibility, high aspect ratio, silky luster, axial lineation, and others, and which has attained its shape primarily through growth rather than cleavage.
51. Fiber Count: Average number of fibers in a cubic centimeter of air (f/cc).
52. Filter: A media component used in respirators to remove solid or liquid particles from the inspired air.
53. Fixed Object: A unit of equipment or furniture in the work area which cannot be removed from the work area.
54. Filter: A media component used in respirators to remove solid or liquid particles from the inspired air.
55. 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.
56. Friable Material Containment: The encapsulation or enclosure of any friable ACM in a facility.

57. 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.
58. 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.
59. 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.
60. High-efficiency particulate air filter (HEPA): Refers to a filtering system capable of trapping and retaining 99.97 percent of all mono-dispersed particles 0.3 um in diameter or larger.
61. High Volume Sampling Pump: An instrument used to draw ambient air over a filter at a flow rate between ten (10) and thirty (30) liters per minute. The high volume sampling pumps are generally utilized for background or baseline samples, environmental samples, decontamination unit samples, and post-abatement samples.
62. Holding Area: A small chamber in the equipment decontamination enclosure located between the washroom and an uncontaminated area.
63. Homogeneous Work Area: A portion of the work area which contains one type of asbestos-containing material and/or where one type of abatement is used.
64. Incidental Exposure: Occupational exposure to asbestos fibers caused to oneself by disturbing ACM during the performance of one's job, except during the performance of an asbestos project or minor project.
65. Industrial Hygiene: That science and art devoted to the recognition, evaluation and control of those environmental factors or stresses, arising in or from the work place, which may cause sickness, impaired health and well being, or significant discomfort and inefficiency among workers or among the citizens of the community.
66. Industrial Hygienist: An individual having a college or university degree or degrees in Engineering, Chemistry, Physics, or Medicine or related Biological Sciences who, by virtue of special studies and training must have been sufficient in all of the above cognate sciences to provide the following abilities:
    a. To recognize the environmental factors and to understand their effect on people and their well being.
    b. To evaluate, on the basis of experience and with the aid of quantitative measurement techniques, the magnitude of these stresses in terms of ability to impair people's health and well being.
    c. To prescribe methods to eliminate, control or reduce such stresses when necessary to alleviate their effects.
67. Isolation Barrier: The construction of partitions, the placement of solid materials, and the plasticizing of apertures to seal off the work place from surrounding areas to contain asbestos fibers in the work area.
68. Large Asbestos Project: The removal, enclosure, or encapsulation within one year of 160 square feet or more of asbestos-containing material used on an equipment, wall, or ceiling area; or involves the removal or encapsulation, using a liquid material applied by a pressurized spray, within one year of 260 linear feet or more of asbestos-containing material on covered piping.
69. Log: An official record of all activities that occurred during the project and it shall identify the Building Owner, Agent, Contractor, and Workers, and other pertinent information (e.g., equipment malfunctions, contamination beyond the work area, etc.).
70. Low Volume Sampling Pump: An instrument used to collect air samples at rates ranging from one (1) to three (3) liters per minute. The low volume sampling pump, also known as

the personal sampling pump, is essentially utilized for personal samples and work area samples.

71. Minor Asbestos Project: Corrective action using recommended work practices to minimize the likelihood of fiber release from damaged areas of asbestos ceilings, pipe and boiler insulation which involves the removal, repair, encapsulation or enclosure of 25 square feet or less of asbestos-containing material used on an equipment, wall or ceiling area, or involves the removal or encapsulation, using a liquid material applied by a pressurized spray, of 10 linear feet or less of asbestos-containing material on covered piping within one year from the start of the initial abatement work. The repair, enclosure and encapsulation by methods other than pressurized spray of any amount of asbestos-containing material, used to cover piping, shall also be a minor asbestos hazard abatement project.
72. Movable Object: A unit of equipment or furniture in the work area which can be removed from the work area.
73. Negative Air Pressure Equipment: A portable local exhaust system equipped with HEPA filtration. The system shall be capable of creating a negative pressure differential between the outside and inside of the work area.
74. 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.
75. Negative Pressure Ventilation System: A pressure differential and ventilation system.
76. Occupied Area: An area of the worksite where abatement is not taking place and where personnel or occupants normally function or where workers are not required to use personal protective equipment.
77. Outside Air: The air outside the work place.
78. Permissible Exposure Limit: The permitted exposure to a particular concentration of a substance as specified by OSHA. The current permissible exposure limit for asbestos is 0.1 f/cc for an eight-hour (8) time-weighted average.
79. Personal Air Monitoring: Sampling of the asbestos fiber concentrations within the breathing zone of an employee.
80. Personal Protective Equipment (PPE): Appropriate protective clothing, gloves, eye protection, footwear, head gear and approved respiratory protection.
81. Plasticize: To cover walls and floors with plastic sheeting as herein specified or by using approved spray plastics.
82. 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 re-circulated air or generates a constant air flow from adjacent areas into the Work Area.
83. 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.
84. Qualitative Fit Test: The individual test subject's responding (either voluntarily or involuntarily) to a chemical challenge outside the respirator facepiece. Three of the most popular methods include:
    a. Irritant smoke test.
    b. Odorous vapor test.
    c. Taste test.
85. Quantitative Fit Test: Exposing the respirator wearer to a test atmosphere containing an easily detectable, nontoxic aerosol, vapor or gas as the test agent. Instrumentation, which

samples the test atmosphere and the air inside the facepiece of the respirator, is used to measure quantitatively the leakage into the respirator. There are a number of test atmospheres, test agents, and exercises to perform during the tests.

86. Removal: The stripping of any asbestos-containing materials from surfaces or components of a facility or taking out structural components in accordance with 40 CFR 61 Subparts A and M.
87. Replacement Material: Any material used to replace ACM that contains less than .01% asbestos by weight.
88. Repair: Returning damaged ACBM to an undamaged condition or to an intact state so as to prevent fiber release.
89. Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres.
90. Shift: A worker's, or simultaneous group of worker's, complete daily term of work.
91. Shower Room: A room between the clean room and the equipment room in the worker decontamination enclosure with hot and cold running water controllable at the tap and arranged for complete showering during decontamination.
92. Small Asbestos Project: The removal, enclosure or encapsulation within one year of more than 25 and less than 160 square feet of asbestos-containing material used on an equipment, wall or ceiling area; or involves the removal or encapsulation, using a liquid material applied by a pressurized spray within one year of more than 10 and less than 260 linear feet of asbestos-containing material on covered piping.
93. Staging Area: The work area near the Waste Decontamination Chamber where containerized asbestos waste has been placed prior to removal from work area.
94. Strip: To remove friable Asbestos materials from any part of the facility.
95. Structural Member: Any load-supporting member of a facility, such as beams and load-supporting walls, or any non-load supporting member, such as ceiling and non-load supporting walls.
96. Surface Barriers: The plasticizing of walls, floors, and fixed objects within the work area to prevent contamination from subsequent work.
97. Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.
98. Time Weighted Average (TWA): The average concentration of a contaminant in air during a specific time period.
99. 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.
100. 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.
101. Wet Methods: The use of amended water or removal encapsulants to minimize the generation of fibers during ACM disturbance.
102. 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.
103. Worker: Certified asbestos handler and/or asbestos handler supervisor.
104. Work Place: The work area and the decontamination enclosure system(s).

105. Work Site: Premises where asbestos abatement activity is taking place, and may be composed of one or more work areas.

1.5 SPECIFICATION FORMAT AND CONTENT EXPLANATION:

A. This Article is provided to help the user of these Specifications understand the format, language, implied requirements, and similar conventions. None of the explanations shall be interpreted to modify the substance of Contract requirements.

B. Specification Format: These Specifications are organized into Divisions, Sections or Trade Headings based on the Construction Specifications Institute's 16-Division format and the MASTERFORMAT numbering system. This organization conforms generally to recognized construction industry practice.

C. Specification Content: This Specification has been produced employing conventions in the use of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:

1. Language used in the Specifications and other Contract Documents is the abbreviated type. Implied words and meanings will be appropriately interpreted. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and where the full context of the Contract Documents so indicates.
2. Imperative Language is used generally in the Specifications. Requirements expressed imperatively are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities which must be fulfilled indirectly by the Contractor, or by others when so noted.

D. Assignment of Specialists: The Specification requires that certain specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and the assignments are requirements over which the Contractor has no choice or option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.

1. This requirement should not be interpreted to conflict with enforcement of building codes or regulations governing the work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.

E. Trades: Use of titles such as "carpentry" is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.

1.6 DRAWING SYMBOLS:

A. Graphic symbols used on the Drawings are those recognized in the construction industry for purposes indicated. Where not otherwise noted, symbols are defined by "Architectural Graphic Standards", published by John Wiley & Sons, Inc., seventh edition.

B. Mechanical/Electrical Drawings: Graphic symbols used on mechanical and electrical Drawings are generally aligned with symbols recommended by ASHRAE. Where appropriate, they are supplemented by more specific symbols recommended by technical associations including ASME, ASPE, IEEE and similar organizations. Refer instances of uncertainty to the Owner's Representative for clarification before proceeding.

1.7 INDUSTRY STANDARDS:

A. 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.

1. Referenced industry standards take precedence over standards that are not referenced but recognized in the construction industry as applicable.
2. 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.

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

C. 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.

D. 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.

E. 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.

F. 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.

1. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.
2. 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.

G. 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:

1. AIHA - American Industrial Hygiene Association 475 Wolf Ledges Parkway Akron, OH 44311 216/762-7294.

2. AIA - American Institute of Architects 1735 New York Ave. NW Washington, DC 20006 202/626-7474.
3. ANSI - American National Standards Institute 143O Broadway New York, NY 10018 212/354-3300.
4. ASHRAE - American Society for Heating, Refrigerating, and Air Conditioning Engineers 1791 Tullie Circle NE Atlanta, GA 30329 404/636-8400.
5. ASME - American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017 212/705-7722.
6. ASPE - American Society of Plumbing Engineers 3716 Thousand Oaks Boulevard, Suite 210,Westlake, CA 91362 805/495-7120.
7. ASTM - American Society for Testing and Materials 1916 Race St. Philadelphia, PA 19103 215/299-5400.
8. AWCI - Association of the Wall and Ceiling Industries- International 25 K Street, NW Washington, DC 20002 202/783-2924.
9. CFR - Code of Federal Regulations Available from Government Printing Office; Washington, DC 20402 (usually first published in Federal Register) 202/783-3238.
10. CGA - Compressed Gas Association 1235 Jefferson Davis Highway Arlington, VA 22202 703/979-0900.
11. CS - Commercial Standard of NBS (U.S. Dept. of Commerce) Government Printing Office Washington, DC 20402 202/377-2000.
12. DOT - Department of Transportation 400 Seventh St., SW Washington, DC 20590 202/426-4000.
13. EPA - Environmental Protection Agency 401 M St.,SW Washington, DC 20460 202/382-3949.
14. FS - Federal Specification (General Services Admin.) Obtain from your Regional GSA Office, or purchase from GSA Specifications Unit (WFSIS) 7th and D Streets, S.W. Washington, DC 20406 202/472-2205 or 2140.
15. GA - Gypsum Association 1603 Orrington Ave. Evanston; IL 60201 312/491-1744.
16. GSA - General Services Administration F St. and 18th St., NW Washington, DC 20405 202/655-4000.
17. IEEE - Institute of Electrical and Electronic Engineers 345 E. 47th Street New York, NY 10017 212/705-7900.
18. MIL - Military Standardization Documents (U.S. Dept. of Defense) Naval Publications and Forms Center, 5801 Tabor Ave. Philadelphia, PA 19120.
19. MSHA - Mine Safety and Health Administration, Approval and Certification Center, P.O. Box 251, Route 1, Triadelphia, WV 26059.
20. NBS - National Bureau of Standards (U.S. Dept. of Commerce) Gaithersburg, MD 20234 301/921-1000.
21. NEC - National Electrical Code (by NFPA).
22. NESHAP - National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61).
23. NIOSH - National Institute for Occupational Safety and Health CDC - NIOSH, 4676 Columbia Parkway, Cincinnati, OH 45226
24. NFPA - National Fire Protection Association Batterymarch Park Quincy, MA 02269 617/770-3000.
25. NRCA - National Roofing Contractors Association 6250 River Road Rosemont, IL 60018 312/318-6722.
26. OSHA - Occupational Safety & Health Administration (U.S. Dept. of Labor) Government Printing Office Washington, DC 20402 202/783-3238.

27. PS - Product Standard of NBS (U.S. Dept. of Commerce) Government Printing Office Washington, DC 20402 202/783-3238.
28. RFCI - Resilient Floor Coverings Institute 966 Hungerford Drive, Suite 12-B Rockville, MD 20805 301/340-8580.
29. UL - Underwriters Laboratories 333 Pfingsten Rd. Northbrook, IL 60062 312/272-8800.

H. Trade Union Jurisdictions: The Contractor shall maintain, and require subcontractors to maintain, complete current information on jurisdictional matters, regulations and pending actions, as applicable to construction activities. The manner in which Contract Documents have been organized and subdivided is not intended to indicate trade union or jurisdictional agreements.

1. Discuss new developments at project meetings at the earliest feasible dates. Record relevant information and actions agreed upon.
2. Assign and subcontract construction activities, and employ tradesmen and laborers in a manner that will not unduly risk jurisdictional disputes that could result in conflicts, delays, claims and losses.

1.8 SUBMITTALS:

A. 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.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01092

CODES, REGULATIONS, AND STANDARDS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY:

A. 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.

1. Requirements include adherence to all work practices and procedures set forth in applicable codes, regulations and standards and this specification.
2. Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with codes, regulations, and standards.

1.3 CODES AND REGULATIONS:

A. 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.

B. 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.

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

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

1. 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
2. Respiratory Protection Title 29, Part 1910, Section 134 of the Code of Federal Regulations
3. Construction Industry Title 29, Part 1926, of the Code of Federal Regulations
4. Access to Employee Exposure and Medical Records Title 29, Part 1910, Section 2 of the Code of Federal Regulations
5. Hazard Communication Title 29, Part 1910, Section 1200 of the Code of Federal Regulations
6. Specifications for Accident Prevention Signs and Tags Title 29, Part 1910, Section 145 of the Code of Federal Regulations

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

F. EPA: U. S. Environmental Protection Agency (EPA), including but not limited to:
   1. Asbestos Abatement Projects; Worker Protection Rule Title 40 Part 763, Sub-part G of the Code of Federal Regulations
   2. 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
   3. 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.
   4. National Emission Standards for Hazardous Air Pollutants (NESHAP) 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

G. State Requirements: which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:
   1. Uniform Construction Code Act. (New Jersey S.A. 52-17D-119 et. seq., P.L. 1984)
   2. Asbestos Control and Licensing Act. (NJSA 34:5A-32 et. seq., P.L. 1984)
   3. Asbestos Hazard Abatement Subcode for Educational Facilities - Subchapter 8. N.J.A.C. 5:23-8 New Jersey Department of Community Affairs Division of Housing and Development Bureau of Construction Code Enforcement CN 805 Trenton, New Jersey 08625-0805
   4. Asbestos Licenses and Permits N.J.A.C. 12:120-1,2,3,4,5,7 and 8:60-1,2,3,4,5,7 New Jersey Department of Labor Division of Workplace Standards CN 504 Trenton, New Jersey 08625-0504
   5. Asbestos Training Courses N.J.A.C. 8:60-2 and 6, and 12:120-2 and 6 New Jersey Department of Health Asbestos Control Project, Training Unit CN 360 Trenton, NJ 08625-0360
   6. Solid Waste Management Act. (NJSA 13:1E-1, 13:109,et.seq.,as amended)
   7. Disposal Regulations N.J.A.C. 7:26 New Jersey Department of Environmental Protection Division of Waste Management Bureau of Field Operations CN 028 Trenton, NJ 08625-0805
   8. Control and Prohibition of Air Pollution by Toxic Substances, New Jersey Department of Environmental Protection, New Jersey Administrative Code. Title 7, Chapter 27, Subchapter 17, effective date: December 17, 1979.
   9. Asbestos Subchapter of the New Jersey Safety and Health Standards for Public Employees, NJAC 12:100 et. seq.

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

1.4 STANDARDS:

A. 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.

B. 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.

C. Standards: which apply to asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

1. American National Standards Institute (ANSI) 1430 Broadway New York, New York 10018 (212)354-3300E
    a. Fundamentals Governing the Design and Operation of Local Exhaust Systems Publication Z9.2-79
    b. Practices for Respiratory Protection Publication Z88.2-80
2. American Society for Testing and Materials (ASTM) 100 Bar Harbor Drive, Conshohocken, PA 19428 (610)832-9585
    a. Safety and Health Requirements Relating to Occupational Exposure to Asbestos E 849-82

1.5 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):

A. Asbestos-Containing Materials in School Buildings - A Guidance Document. Part 1 & 2. (Orange Books) EPA C00090 (out of print)

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

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

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

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

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

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

H. Asbestos Fact Book. EPA Office of Public Affairs. Asbestos in Buildings. Simplified Sampling Scheme for Friable Surfacing Materials

I. Commercial Laboratories with Polarized Light Microscopy Capabilities for bulk asbestos identification

J. A Guide to Respiratory Protection for the Asbestos Abatement Industry. EPA-560-OPTS-86-001

1.6 NOTICES:

A. U.S. ENVIRONMENTAL PROTECTION AGENCY

1. Send Written Notification as required by USEPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Asbestos Regulations (40 CFR 61, Subpart M) to the regional

Asbestos NESHAP Contact at least 10 days prior to beginning any work on asbestos-containing materials. Send notification to the following address:

a. REGION 2: Asbestos NESHAP Contact, Division of Enforcement & Compliance Assistance, Asbestos Removal – 21st Floor, 290 Broadway, New York, NY 10007.

2. Notification: Include the following information in the notification sent to the NESHAP contact:
   a. Name and address of owner or operator.
   b. Description of the facility being demolished or renovated, including the size, age, and prior use of the facility.
   c. 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 is less than 260 linear feet on pipes and less than 160 square feet on other facility components, explain techniques of estimation.
   d. Location of the facility being demolished or renovated.
   e. Scheduled starting and completion dates of demolition or renovation.
   f. Nature of planned demolition or renovation and method(s) to be used.
   g. Procedures to be used to comply with the requirements of USEPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Asbestos Regulations (40 CFR 61 Subpart M).
   h. Name and location of the waste disposal site where the friable asbestos waste material will be deposited.
   i. 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.

B. STATE AND LOCAL AGENCIES:

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

1.7 PERMITS:

A. The Contractor shall obtain all required Permits, and pay all Fees associated with his contract.

B. 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.

1.8 LICENSES:

A. 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.

1.9 POSTING AND FILING OF REGULATIONS:

A. 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 regulation and standard. Maintain one copy of each at job site. Keep on file in Contractor's office one copy of each.

1.10 SUBMITTALS:

A. 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.

B. 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:

1. State and Local Regulations: Submit copies of codes and regulations applicable to the work.
2. Notices: Submit notices required by federal, state and local regulations together with proof of timely transmittal to agency requiring the notice.
3. Permits: Submit copies of current valid permits required by state and local regulations.
4. Licenses: Submit copies of all State and local licenses and permits necessary to carry out the work of this contract.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01301

SUBMITTALS

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including:
   1. Contractor's construction schedule.
   2. Submittal schedule.
   3. Daily construction reports.
   4. Shop Drawings.
   5. Product Data.
   6. Miscellaneous Submittals.

B. 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:
   1. Permits.
   2. Applications for Payment.
   3. Performance and Payment Bonds.
   4. Insurance Certificates.
   5. List of Subcontractors.

1.3 SUBMITTAL PROCEDURES:

A. Coordination: Transmit each submittal sufficiently in advance of performance of related activities to avoid delay.

1.4 CONTRACTOR'S CONSTRUCTION SCHEDULE:

A. 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".
   1. Coordinate the Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests and other schedules.
   2. 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.

B. Phasing: Provide notations on the schedule to show how the sequence of the work is affected by requirements for phased completion.

C. Work Stages: Indicate important stages of construction for each major portion of the work, including testing and installation.

1. Preparation of the Work Area.
2. Asbestos Removal.
3. Clearance Testing.
4. Substantial Completion.

D. 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.

E. 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.

F. 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.

1.5 SUBMITTAL SCHEDULE:

A. Listing: Below 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.

1.6 PRODUCT DATA:

A. 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.

B. 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:
   1. Manufacturer's printed recommendations.
   2. Compliance with recognized trade association standards.
   3. Compliance with recognized testing agency standards.
   4. Application for testing agency labels and seals.

C. Preliminary Submittal: Submit a preliminary single-copy of Product Data where selection of options is required.

D. Submittals: Submit 1 copy of each required submittal.

1.7 MISCELLANEOUS SUBMITTALS:

A. Material Safety Data Sheets: Process material safety and data sheets as “product data.”
B. Closeout Submittals: Refer to section "Project Closeout" and to individual sections of these specifications for specific submittal requirements of project closeout information.
C. Record Documents: Furnish set of original documents as maintained on the project site.

PART 2 PRODUCTS (Not Applicable).

PART 3 EXECUTION (Not Applicable).

END OF SECTION

SECTION 01410

AIR MONITORING

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

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

B. Air Monitoring: Work area clearance is described in Section 01714 Work Area Clearance.

1.2 DESCRIPTION OF THE WORK:

A. Not in Contract Sum: This section describes work being performed by the Asbestos Safety Control Monitoring Firm (ASCM). This work is not in the Contract Sum.

B. This section describes air monitoring carried out by the ASCM 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.

C. Air monitoring required by OSHA is work of the Contractor and is not covered in this Section. The Abatement Contractor is responsible for providing daily OSHA compliance monitoring as per 29 C.F.R. 1926.1101. OSHA monitoring shall be included in the Asbestos Contractor’s Contract Sum.

1.3 AIR MONITORING:

A. Work Area Isolation: The purpose of the ASCM's air monitoring is to detect faults in the work area isolation such as:
   1. Contamination of the building outside of the work area with airborne asbestos fibers.
   2. Failure of filtration or rupture in the differential pressure system.
   3. Contamination of air outside the building envelope with airborne asbestos fibers.

B. Should any of the above occur, immediately cease asbestos abatement activities until the fault has been corrected. Do not recommence work until authorized by the ASCM.

1.4 WORK AREA AIRBORNE FIBER COUNT:

A. The ASCM 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.

1.5 WORK AREA CLEARANCE:

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

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

1.6 STOP ACTION LEVELS:

A. Inside Work Area:

1. 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 the ASCM . After correcting cause of high fiber levels, do not recommence work for 24 hours unless otherwise authorized, in writing, by ASCM.

STOP ACTION LEVEL (f/cc)	IMMEDIATE STOP LEVEL (f/cc)	MINIMUM RESPIRATOR REQUIRED	PROTECTION FACTOR
0.5	1.0	Half-face Respirator	50

2. 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 the ASCM. 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 the ASCM.

B. Outside Work Area:

1. If any air sample taken outside of the Work Area exceeds the base line established below or is greater than 0.010 f/cc or if any sample collected inside the clean room of the decontamination unit exceeds 0.02 f/cc as determined by PCM analysis, immediately and automatically stop all work except corrective action. The ASCM shall inspect and determine the source of the high reading and so notify the Contractor in writing.
2. If the high reading was the result of a failure of Work Area isolation measures initiate the following actions:
    a. 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 (e.g. wall, ceiling, floor).
    b. Decontaminate the affected area in accordance with Section 01712 Cleaning & Decontamination Procedures.
    c. Require that respiratory protection as set forth in Section 01562 Respiratory Protection be worn in affected area until area is cleared for re-occupancy in accordance with Section 01714 Work Area Clearance.
    d. 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.
    e. 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 01563 Decontamination Units at entry point to affected area.
    f. 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.

3. If the high reading was the result of other causes initiate corrective action as determined by the ASCM.

C. 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 or negligence. The Contract Sum and schedule will be reviewed and may be adjusted for additional work caused by high airborne fiber counts beyond the Contractor's control.

1.7 ANALYTICAL METHODS:

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

1. Phase Contrast Microscopy (PCM) will be performed using the NIOSH 7400 methodology.
2. Transmission Electron Microscopy (TEM) will be performed using the AHERA guidelines found in 40 CFR Part 763 Appendix A sub part E.

1.8 SAMPLE VOLUMES:

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

1.9 SCHEDULE OF AIR SAMPLES:

A. Daily:
1. From start of work of Section 01526 Temporary Enclosures through the work of Section 01711 Project Decontamination, the ASCM may be taking the following samples on a daily basis. Sampling will begin at the start of work during each shift and will be analyzed within four (4) hours of the start of sampling. Additional sampling will be started every four (4) hours and will cover the work until the end of the shift:
    a. In the immediate area of the abatement work: Samples taken in this area should represent, with reasonable accuracy, the airborne concentration of asbestos fibers which may reach the breathing zone of removal personnel. One asbestos worker shall be required to wear a personal exposure sampling device or a proximity sample simulating the breathing zone of removal personnel. A low volume sampler shall be employed drawing a minimum sample volume of 180 liters. Two (2) samples shall be taken per work shift.
    b. Inside the Work Area: Two (2) samples shall be taken per work shift. A low volume sampler shall be employed, drawing a minimum sample volume of 180 liters.
    c. Outside the Work Area, but inside the building: Two (2) samples shall be taken per work shift. A high volume sampler shall be employed, drawing a sufficient sample volume to reach a detection limit of 0.010 f/cc. The sampling device shall be placed in locations where potential contamination could occur (e.g. outside entrances and exits to the Work Area) and shall be moved periodically to assess the potential for contamination of adjacent areas at all critical points in the containment system. Special attention shall be given to locations where exhaust ducts from air filtration devices run through occupied areas of the building.
    d. In the Clean Room of the Personnel/Waste Decontamination Unit: A minimum of one (1) sample shall be taken in the Decontamination Unit Clean Room per work shift. A high volume sampler shall be employed drawing a sufficient sample volume to reach a detection limit of 0.010 f/cc. The sample(s) shall be taken at a time when activity

levels are expected to be at their peak (e.g. shift breaks).

e. Downwind of Air Filtration Unit Exhaust: Where feasible due to on site conditions, one (1) sample shall be taken per work shift to evaluate potential fiber escape through the Air Filtration Device. A high volume sampler shall be employed drawing a sufficient sample volume to reach a detection limit of 0.010 f/cc.

f. Along waste route: A minimum of one (1) sample shall be taken during all waste removal activities. A low volume sampling device shall be placed in a location along the waste route drawing a minimum sample volume of 180 liters.

g. Occupied Space: A minimum of one (1) sample shall be taken per 10,000 square feet of occupied space. A low volume sampler shall be employed drawing a minimum sample volume of 180 liters. Samples shall be collected in areas most likely to be affected by failure of engineering controls.

h. The Analytical Method for all daily environmental monitoring shall be Phase Contrast Microscopy (PCM) (NIOSH 7400) and analyzed by an individual listed in good standing on the Asbestos Analyst Registry.

B. Additional samples may be taken at the ASCM's discretion. If airborne fiber counts exceed allowable limits, additional samples will be taken as necessary to monitor fiber levels.

1.10 LABORATORY TESTING:

A. The services of a testing laboratory may be employed by the ASCM to perform laboratory analyses of the air samples. A microscope and technician may be set up at the job site, or samples will be sent by courier so that verbal reports on air sample results can be obtained within 4 hours of the start time of the samples. The Contractor shall have access to all air monitoring tests and results.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 ADDITIONAL TESTING:

A. The Contractor may conduct his/her own air monitoring and laboratory testing. If he/she elects to do this, the cost of such air monitoring and laboratory testing shall be at no additional cost to the Owner.

3.2 PERSONAL MONITORING:

A. The ASCM shall not perform air monitoring to meet Contractor's OSHA requirements for personnel sampling or any other purpose.

END OF SECTION

SECTION 01503

TEMPORARY FACILITIES

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 DESCRIPTION OF REQUIREMENTS:

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

1.3 SUBMITTALS:

A. Before the Start of Work: Submit the following to the Owner's Representative for review. Begin no work until these submittals are approved by the Owner's Representative.
   1. 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.
   2. Hot water heater: Submit manufacturers name, model number, size in gallons, heating capacity, power requirements.
   3. Decontamination Unit Sub-panel: Submit product data.
   4. Ground Fault Circuit Interrupters (GFCI): Submit product data.
   5. Lamps and Light Fixtures: Submit product data.
   6. Self-Contained Toilet Units: Provide product data and name of subcontractor to be used for servicing self-contained toilets. Submit method to be used for servicing.
   7. First Aid Supplies: Provide list of contents of first aid kit. Submit in form of check list.
   8. Fire Extinguishers: Provide product data. Submit schedule indicating location at job site.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT:

A. 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.

2.2 SCAFFOLDING:

A. 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.

B. The rungs of all metal ladders, etc. shall be equipped with an abrasive non-slip surface.

C. All surfaces subject to foot traffic shall have a nonskid surface. Surfaces shall be cleaned as required to remove slippery materials.

D. At the completion of the removal work, all construction aids shall be cleaned within the work area (encapsulated for wood) and wrapped in one layer of six (6) mil polyethylene sheeting and sealed before removal from the work area.

2.3 WATER SERVICE:

A. Temporary Water Service Connection: All connections to the Owner's water system shall include backflow 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.

B. 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.

C. Hot Water Heater: Provide UL rated 30 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.

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

2.4 ELECTRICAL SERVICE:

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

B. 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.

C. 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.

D. 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 the panel exterior to Work Area.

E. 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.

F. 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. Use of building lighting fixtures is strictly prohibited.

2.5 TEMPORARY HEAT:

A. 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 radiation heat where available, and where not available use electric resistant fin radiation supplied from a branch circuit with ground fault circuit interrupter.

2.6 FIRST AID:

A. Comply with governing regulations and recognized recommendations within the construction industry.

2.7 FIRE EXTINGUISHERS:

A. 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. The fire extinguishers shall comply with the applicable recommendations of NFPA Standard 10 “Standard for Portable Fire Extinguishers”. Provide not less than one extinguisher in each work area in the equipment room of the decontamination unit and one outside the work area in the clean room. Distance between fire extinguishers within the work area shall not exceed seventy-five (75) feet.

PART 3 EXECUTION

3.1 SCAFFOLDING:

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

B. Clean as necessary, debris from non-slip surfaces.

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

3.2 INSTALLATION, GENERAL:

A. 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.

B. Require that tradesmen accomplishing this work be licensed as required by local authority for the work performed.

C. Relocate, modify and extend services and facilities as required during the course of work so as to accommodate the entire work of the project.

D. The Contractor shall coordinate with the Building Owner for connection to existing building utilities. No connections shall be executed without prior approval of the building owner.

3.3 WATER SERVICE:

A. Water connection (without charge) to Owner's existing potable water system is the responsibility of the Contractor. Install using vacuum breakers or other backflow preventer 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 01516. In addition, water shall be supplied for all worksite uses.

B. Maintain hose connections and outlet valves in leak proof condition. Where finish work below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize the possibility of water damage. Drain water promptly from pans as it accumulates.

3.4 ELECTRICAL SERVICE:

A. 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.

B. 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.

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

C. 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.

D. Upon request provide and bear all costs associated with off-hour or twenty-four (24) hour electrical service to the work area as required by the Building Owner for Air Monitoring services.

E. 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.

F. 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.

G. 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.

H. 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:

1. One Circuit for each HEPA filtered fan unit.
2. 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).
    a. One outlet in the work area for each 2500 square feet of work area
    b. One outlet at each decontamination unit, located in equipment room
3. 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:
    a. One in each work area
    b. One at clean side of each Decontamination Unit.
    c. One at each exhaust location for HEPA filtered fan units
4. 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:
    a. Five inside work area
    b. Two outside work area in location designated by Owner's Representative

3.5 TEMPORARY LIGHTING:

A. 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.

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

C. Provide lighting in areas where work is being preformed as required to supply a 100 foot candle minimum light level.
D. Provide lighting in any area being subjected to a visual inspection as required to supply a 100 foot candle minimum light level.
E. Provide lighting in the Decontamination Unit as required to supply a 50 foot candle minimum light level.
F. Provide sufficient lighting circuits as required by the work. All lighting circuits are to originate at temporary electrical panel.
G. Protect each circuit with a ground fault circuit interrupter (GFCI) of proper size located in the temporary panel.

3.6 TEMPORARY HEAT:

A. General: Provide temporary heat where indicated or needed for performance of work.

B. Maintain a minimum temperature of 70 degrees F where finished work has been installed.

C. Maintain a minimum temperature of 75 degrees F in the shower of the decontamination unit.

D. Maintain a minimum temperature of 70 degrees F in the Work Area at all times that work is being performed. At all other times and at the completion of removal work, but before the start of reconstruction work, maintain a minimum temperature of 50 degrees F.

E. Maintain a minimum temperature of 70 degrees F in the Work Area at all times during and after removal work.

3.8 FIRE EXTINGUISHERS:

A. 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 the Equipment Room and one outside Work Area in the Clean Room.

END OF SECTION

SECTION 01513

TEMPORARY PRESSURE DIFFERENTIAL & AIR FILTRATION SYSTEM

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 MONITORING:

A. The Contractor shall supply a digital manometer with a continuous printout (e.g. strip chart) and alarm for the purpose of continuously monitoring and recording the pressure differential between the Work Area and the building outside of the Work Area. The Contractor shall be solely responsible for providing competent individual(s), currently licensed by the New Jersey Department of Labor to perform asbestos work to observe and monitor the work area(s) and digital manometer readings during all non-working hours including nights, weekends and holidays. This individual shall be authorized and capable of investigating and remediating any drop in the pressure differential system between the work area(s) and the building outside the work area.

1.3 SUBMITTALS:

A. Before Start of Work: Submit design of pressure differential system to the ASCM for review. Do not begin work until the submittal is approved. Include in the submittal:

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

B. On a weekly basis: Submit the printout from the pressure differential monitoring equipment. Mark the printout with date and start 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 and other purposes, periods of stop work, and filter changes. Cut printout into segments by day, attach to 8 ½" by 11" paper. Label with project name, Contractor name and date.

1.4 QUALITY ASSURANCE:

A. Monitor pressure differential at Personnel and Equipment Decontamination Units with one or more digital manometers equipped with a continuous recorder. Manometers shall be equipped with a

warning buzzer which will sound if pressure differential drops below negative 0.03 inches of water column.

PART 2 PRODUCTS

2.1 HEPA-EQUIPPED AIR FILTRATION UNITS:

A. General: Supply the required number of HEPA-equipped air filtration units to the site in accordance with these specifications. A minimum of one additional unit shall be installed as a backup to be used during primary unit filter changing and upon unit failure. Use units that meet the following requirements:

1. 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:
    a. Factory-sealed to prevent asbestos-containing dust from being released during use, transport, or maintenance.
    b. Arranged to provide access to and replacement of all air filters from intake end.
    c. Mounted on casters or wheels.
2. Fans: Rate capacity of fan according to usable air-moving capacity under actual operating conditions.
3. 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.
    a. Provide units with a continuous rubber gasket located between the filter and the filter housing to form a tight seal.
    b. 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 µm 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.
    c. 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.
    d. Pre-filters, which protect the final filter by removing the larger particles, are required to prolong the operating life of the HEPA filter. Two stages of pre-filtration are required. Provide units with the following pre-filters:
        i. First-stage pre-filter: low-efficiency type (e.g., for particles 100 µm and larger).
        ii. Second-stage (or intermediate) filter: medium efficiency (e.g., effective for particles down to 5 µm).
    e. Provide units with pre-filters and intermediate filters installed either on or in the intake grid of the unit and held in place with special housings or clamps.
4. Instrumentation: Provide units equipped with:
    a. Magnehelic gauge or manometer to measure the pressure drop across filters and indicate when filters have become loaded and need to be changed.
    b. 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.
    c. Elapsed time meter to show the total accumulated hours of operation.

5. Safety and Warning Devices: Provide units with the following safety and warning devices:
    a. Electrical (or mechanical) lockout to prevent fan from operating without a HEPA filter.
    b. Automatic shutdown system to stop fan in the event of a rupture in the HEPA filter or blocked air discharge.
    c. 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).
    d. Audible alarm if unit shuts down due to operation of safety systems.

6. 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.
7. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:
    a. Aerospace America, Inc. “Aero-Clean 2000” 900 Truman Parkway P.O. Box 189 Bay City, Michigan 48707A
    b. Asbestos Control Technology, Inc. “Micro-Trap” P.O. Box 183 Maple Shade, NJ 08052
    c. Control Resource Systems, Inc. “Hog” 2000 670 Mariner Drive Michigan City, Indiana 46360
    d. Global Consumer Services, Inc. “Red Baron” 1721 N. Highland Avenue Los Angeles, CA 90028
    e. Tri-Dim Filter Corporation “ACCU-2M” 1431 West Lake Street Chicago, Illinois 60607

PART 3 EXECUTION

3.1 PRESSURE DIFFERENTIAL ISOLATION:

A. 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.

B. 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 negative 0.05 inches of water, at a minimum.

C. 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:
    1. Establish required air circulation in the work area, personnel and equipment decontamination units.
    2. Establish isolation by increased pressure in adjacent areas or as part of seals where required.
    3. Exhaust a sufficient number of units from the work area to develop one complete air exchange every fifteen (15) minutes.

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

D. Vent HEPA filtered fan units to outside of building unless authorized in writing by ASCM.
   1. Mount units to exhaust directly or through disposable ductwork.
   2. Use only new ductwork except for sheet metal connections and elbows.
   3. Use ductwork and fittings of same diameter or larger than discharge connection on fan unit.
   4. Use spiral wire-reinforced flex duct in lengths not greater than 50 feet.
   5. 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.

3.2 AIR CIRCULATION IN THE WORK AREA:

A. 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.

B. 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.

C. Determining the Air Circulation Requirements: Provide a fully operational air circulation system supplying a minimum of four (4) air changes per hour.

D. Determine Number of Units needed to achieve required air circulation according to the following procedure:
   1. 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) =

      $$\frac{\text{Volume of work area(CF)}}{} \quad X \quad \frac{\text{Number of air changes per hour}}{\text{60 (minutes per hour)}}$$

   2. 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.

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

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

3.3 EXHAUST SYSTEM:

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

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

C. Location of HEPA-equipped air filtration 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.

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

E. Vent to Outside of Building, unless authorized in writing by the ASCM.

F. Decontamination Units: Arrange Work Area and decontamination units so that the majority of make-up air comes through the Decontamination Unit.

G. Supplemental Makeup Air Inlets: Provide where required for proper air flow through the Work Area in location approved by the ASCM 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.

3.4 AIR CIRCULATION IN DECONTAMINATION UNITS:

A. Pressure Differential Isolation: Continuously maintain the pressure differential required for the work area in the:
   1. Personnel Decontamination Unit: across the Shower Room with the Equipment Room at a lower pressure than the Clean room.
   2. Equipment Decontamination Unit: Across the Holding Room with the Wash Room at a lower pressure than the Clean Room.

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

C. 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.

3.5 USE OF THE PRESSURE DIFFERENTIAL AND AIR CIRCULATION SYSTEM:

A. 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.

B. 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 Asbestos Safety Technician.

C. Demonstrate Condition of Equipment for each HEPA filtered fan unit and pressure differential monitoring equipment including proper operation of the following:
   1. Squareness of HEPA Filter.
   2. Condition of seals.
   3. Proper operation of all lights.
   4. Proper operation of automatic shut down if exhaust is blocked.
   5. Proper operation of alarms.

6. Proper operation of magnehelic gauge.
7. Proper operation and calibration on pressure monitoring equipment.

D. Demonstrate Operation of the pressure differential system to the Asbestos Safety Technician will include, but not be limited to, the following:
   1. Plastic barriers and sheeting move lightly in toward Work Area.
   2. Curtain of decontamination units move lightly in toward Work Area.
   3. There is a noticeable movement of air through the Decontamination Unit.
   4. Use smoke tube to demonstrate air movement from Clean Room through Shower Room to Equipment Room.
   5. Use smoke tubes to demonstrate a definite motion of air across all areas in which work is to be performed.
   6. 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.

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

F. Use of System During Abatement Operations:
   1. 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.
   2. Do not shut down air pressure differential system during encapsulating procedures, unless authorized by the ASCM. Supply sufficient pre-filters to allow frequent changes.
   3. 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.
   4. At completion of abatement work, allow fan units to run as specified under Section 01711 - Project Decontamination, 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.

G. Dismantling the System:

   1. 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.

END OF SECTION

SECTION 01514

CONTINGENCY PLAN FOR OCCUPIED BUILDINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This section covers the responsibilities of the Owner, Contractor and Asbestos Safety Control Monitor for the safe performance of asbestos abatement activities conducted in occupied facilities. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this section.

1.2 NOTIFICATIONS

A. The building Owner shall notify building occupants in writing 20 business days prior to the commencement of an asbestos abatement project. The building owner shall outline in writing any procedures and/or precautions that are deemed necessary in order to protect the health, safety and welfare of the occupants. This notification shall include, but not be limited to: relocation plans, if any; entrances and exits that may temporarily be blocked and alternate routes to be used; the name and telephone number of the owner's representative for the occupant to call in case of an emergency or to answer any questions with regard to the project. This notification shall accompany the application for a construction permit for asbestos abatement and shall be filed with the enforcing agency.

B. This notification shall be posted seven days prior to the preparation of the work area, in visible locations, for the benefit of the affected occupants of the work place, and in areas immediately adjacent to the asbestos abatement project. It shall be the Owner’s responsibility to ensure that these postings are maintained throughout the project.

1.3 CONTINGENCY PLAN

Contingency plan during abatement shall be implemented as described below. These are the minimum requirements that shall be enforced by the Asbestos Safety Control Monitor (ASCM). These requirements shall not limit the ASCM from instituting additional requirements, if necessary, for the protection of the building occupants.

A. If the pressure differential drops below negative 0.05 inches w.c.; the following procedures shall be implemented:

1. The asbestos safety technician and the Contractor supervisor shall investigate and evaluate the engineering controls to determine the source of the pressure loss.

2. The Contractor shall institute corrective action such as: additional sealing, critical barrier maintenance and construction, changing of exhaust unit filters, adjustment of make-up air, operation of additional exhaust units or other necessary measures to re-establish an acceptable pressure differential.

B. If the pressure differential drops below negative 0.01 w.c., the following procedures shall be implemented:

1. The Contractor shall cease abatement activity in the work area.

2. The ASCM shall notify the building Owner to evacuate the pressurized space(s). The pressurized space(s) shall include all space outside the work area which is

pressurized to maintain the required pressure differential relative to the work area and is isolated from the rest of the building in terms of airflow. The pressurized space may include the entire building exclusive of the work area or any part of the building that is pressurized to isolate it from the work area.

3. The asbestos safety technician and the Contractor supervisor shall investigate and evaluate the engineering controls and determine the source of the pressure loss.

4. The Contractor shall institute corrective action such as: additional sealing, critical barrier maintenance and construction, changing of exhaust unit filters, adjustment of make-up air, operation of additional exhaust units or other necessary measures to re-establish an acceptable pressure differential.

5. Re-occupancy on any given day/shift shall not be permitted in any area unless a pressure differential of 0.05 w.c. or greater is re-established.

6. If a pressure differential of 0.05 w.c. or greater is not re-established within 24 hours of the first reading below 0.01 w.c., then the building shall be evacuated.

C. If air fiber concentrations exceed 0.010 f/cc; the following procedures shall be implemented:

1. The asbestos safety technician and the Contractor supervisor shall investigate and evaluate the engineering controls to determine the source of the high air level.

2. An additional/second PCM air sample shall be taken. The additional/second PCM sample may be split, and if the result of the air sample is less than or equal to 0.010 f/cc, the contingency plan is terminated. If the result of the air sample exceeds 0.010 f/cc, the Contractor, in consultation with the ASCM, shall choose the option of cleaning and retesting by PCM analysis or analyzing the split sample by TEM analysis. If the result of the TEM analysis exceeds 0.010 f/cc, then cleaning shall be undertaken.

3. The ASCM firm in consultation with the building Owner and the Contractor shall make the decision as to the timing of the cleaning activity.

4. Cleaning shall include, but not be limited to, wet wiping and misting the air. Cleaning the affected area shall be continued outside the containment and PCM sampling shall also be continued until the result in the area is equal to or less than 0.010 f/cc by either PCM or TEM analysis.

5. If laboratory analysis of air samples does not yield a reading less than or equal to 0.010 f/cc within 24 hours of receipt of the first test result above 0.010 f/cc, then the building shall be evacuated.

6. Re-occupancy shall not be permitted in any area where PCM analysis reveals results greater than 0.010 f/cc, unless TEM results indicate asbestos fibers are equal to or less than 0.010 f/cc. In the case of re-occupancy, an accredited laboratory shall analyze all air samples used to make the determination to allow reentry.

D. If a power outage occurs during active abatement work, the building occupants shall be evacuated until the air samples determine that the occupied spaces are safe, and power has been restored. If a power outage occurs when the building is unoccupied, occupancy will not be permitted until air samples determine that the spaces to be occupied are safe and power has been restored.

E. Security shall be required as follows: In high risk areas, the Owner shall provide a 24 hour security guard to ensure protection against damage or vandalism to separation barriers, engineering systems, monitoring devices, or other equipment.

F. The Owner shall provide continuous unlimited access for the asbestos safety technician in all occupied spaces for installation, maintenance, and data collection from monitoring equipment.

END OF SECTION

SECTION 01526

TEMPORARY ENCLOSURES & WORK AREA PREPARATION

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUBMITTALS:

A. Before Start of Work submit the following to the ASCM for review. Do not begin work until these submittals are approved by the ASCM.

B. For Spray Cement, submit the following:
   1. Product description including major components and solvents.
   2. Manufacturer's installation instructions. Indicate portions applicable to the project.
   3. 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 during the work. Include a separate attachment for each sheet indicating the specific worker protective equipment proposed for use with the material indicated.

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

D. Signs: Submit samples of signs to be used.

PART 2 PRODUCTS

2.1 SHEET PLASTIC:

A. Polyethylene Sheeting: Provide 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, 6 mil thick as indicated, frosted or black as indicated.

B. Provide materials that meet the following fire safety requirements:
   1. When wet or being installed:
      a. Do not create combustible vapors.
      b. Have no flash point.
      c. Are not noxious.
   2. 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.
      a. Flame Spread no greater than 20.
      b. Fuel Contributed 0.
      c. Smoke Developed no more than 110.
   3. Deliver materials to the job site in unopened, factory labeled containers.

2.2 MISCELLANEOUS MATERIALS:

A. Duct Tape: Provide duct tape in 2” or 3” widths as indicated, with an adhesive which is formulated to

stick aggressively to polyethylene sheeting.

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

PART 3 EXECUTION

3.1 SEQUENCE OF WORK:

A. Carry out work of this section sequentially. Complete each activity before proceeding to the next.
   1. The Work Area shall mean 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.
   2. The Contractor shall inspect each work location with the ASCM. The Contractor and ASCM shall agree on conditions of materials and worksite and select the appropriate abatement procedures. Should the ASCM and Contractor not be in agreement, the Building Owner and ASCM shall make the final decision.
   3. 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.
   4. Each work area location shall be pre-cleaned as per Section 01013. Respirators and protective equipment are required as per Sections 01560 and 01562.
   5. Place all tools, scaffolding, staging, etc. necessary for the work in the area to be isolated prior to completion of Work Area isolation.
   6. Stationary restroom equipment (toilets, sinks, etc.) shall be completely covered with two (2) layers of polyethylene sheeting, at least 6 mil in thickness, securely taped in place with duct tape and individually sealed. Such equipment shall be considered outside the work area unless covering plastic or seal is breached.
   7. 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.
   8. Lockout power to the Work Area by switching off all breakers serving power or lighting circuits in work area. Label breakers with tape over breaker with notation “DANGER circuit being worked on”. Lock panel and have all keys under control of the Owner's designated Representative.
   9. 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 the 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. Electrocution hazard”. Label circuits in hidden locations but which may be affected by the work in a similar manner.

3.2 EMERGENCY PRECAUTIONS:

A. The Contractor shall prepare a contingency plan for emergencies including fire, accident, power failure, negative air system failure, supplied air system failure, or any other event that may require modification or abridgment of 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.

B. The Contractor shall provide barricades and adequate protection to safely prevent accidental entrance to the abatement area by any building occupants. Signage shall be posted in visible locations a sufficient distance to allow an individual to take all necessary protective precautions prior to being exposed to airborne asbestos fiber concentrations.

C. Before the Contractor starts actual abatement of asbestos material, the local fire department and ambulance crews shall be notified, by the Contractor, as to the dangers of entering the work area. The Contractor shall make every effort to help these agencies and form plans of action should their personnel need to enter the contaminated area.

D. Local medical emergency personnel, both ambulance crews and hospital emergency room staff, shall be notified, by the Contractor, as to the possibility of having to handle injured work persons who are contaminated with asbestos dust. They shall be advised on safe decontamination procedures.

E. First aid shall comply with the governing regulations and all recognized recommendations within the construction industry.

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

3.3 EMERGENCY EXITS:

A. Provide emergency exits and emergency lighting as set forth below:
   1. Emergency Exits: At each existing exit door from the Work Area provide the following means for emergency exiting:
      a. Arrange exit door so that it is secure from outside the Work area but permits exiting from the Work Area.
      b. 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.
      c. Provide lighted, battery powered exit sign at each exit.

3.4 CONTROL ACCESS:

A. Isolate the Work Area to prevent entry by building occupants into Work Area or surrounding controlled areas. Accomplish isolation by the following:
   1. Coordinate with the Asbestos Safety Technician the doors and other openings that must be secured to isolate Work Area.
   2. After receiving authorization from the Asbestos Safety Technician, lock all doors into Work Area. If doors cannot be locked, chain shut. 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.
   3. After receiving authorization from the Asbestos Safety Technician, construct partitions or closures across any opening into Work Area. Partitions are to be a minimum of 8 feet high. All isolation barrier construction shall conform to the requirements set forth in NJAC 5:23-8.19.
   4. Fabricate partitions from 2 X 4 wood studs with ½” plywood on one face. Brace at 16” on

center.

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

C. Provide Warning Signs at each locked door leading to Work Area reading as follows: Print text in both English and Spanish:

LEGEND	NOTATION
KEEP OUT	3” Sans Serif Gothic or Block
BEYOND THIS POINT	1” Sans Serif Gothic or Block
ASBESTOS ABATEMENT WORK	1” Sans Serif Gothic or Block
IN PROGRESS	1” Sans Serif Gothic or Block
BREATHING ASBESTOS DUST MAY BE	14 Point Gothic
HAZARDOUS TO YOUR HEALTH	

D. Immediately inside doors 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:

3.5 LEGEND:

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

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

3.6 RESPIRATORY AND WORKER PROTECTION:

A. Before proceeding beyond this point in providing Temporary Enclosures:
   1. Provide Worker Protection per Section 01560
   2. Provide Respiratory Protection per Section 01562

B. Provide Personnel Decontamination Unit per Section 01563

3.7 CRITICAL BARRIERS:

A. Completely Separate the Work Area from other portions of the building, and the outside by closing all openings with two (2) layer sheet plastic barriers at least 6 mil in thickness each.

B. Individually seal all ventilation openings (supply and exhaust), lighting fixtures, clocks, doorways, windows, convectors and speakers, and other openings into the Work Area with two (2) layers of polyethylene sheeting at least 6 mil in thickness each, individually taped securely in place with duct tape. Maintain seal until all work including Project Decontamination is completed.

C. Provide two (2) layers of Sheet Plastic barriers at least 6 mil in thickness as required to seal openings completely from the Work Area into adjacent areas. Individually seal the perimeter of each sheet plastic barrier with duct tape and spray cement.

D. Mechanically Support sheet plastic independently of duct tape or spray cement seals so that seals do not support the weight of the plastic sheeting. Following are acceptable methods of supporting sheet plastic barriers. Alternative support methods may be used if approved in writing by the Owner's Representative:

1. Plywood squares 6” x 6” x 3/8” held in place with one 6d smooth masonry nail or electro-galvanized common nail driven through center of the plywood and duct tape on plastic so that plywood clamps plastic to the wall. Locate plywood squares at each end, corner and at maximum 4 feet on centers.
2. Nylon or polypropylene rope or wire with a maximum unsupported span of 10 feet, minimum ¼” in diameter suspended between supports securely fastened on either side of opening at maximum 1 foot below ceiling. Tighten rope so that it has 2” maximum dip. Drape plastic over rope from outside Work Area so that a two foot long flap of plastic extends over rope into Work Area. Staple or wire plastic to itself 1” below rope at maximum 6” on centers to form a sheath over rope. Lift flap and seal to ceiling with duct tape or spray cement. Seal loop at bottom of flap with duct tape. Erect entire assembly so that it hangs vertically without a “shelf” upon which debris could collect.

E. Provide Pressure Differential System per Section 01513.

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

3.8 PREPARE AREA:

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

B. 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.

C. 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.

D. Clean all furniture, equipment, and or supplies with a HEPA filtered vacuum cleaner or by wet cleaning, as specified in Section 01712 Cleaning and Decontamination Procedures, prior to being moved or covered. All equipment, furniture, etc. is to be deemed contaminated unless specifically declared as uncontaminated on the drawings or in writing by ASCM.

E. Clean all surfaces in the Work Area with a HEPA filtered vacuum or by wet wiping prior to the installation of the primary barrier.

3.9 PRIMARY BARRIER:

A. 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.

B. Sheet Plastic: Protect floor surfaces in the Work Area with two (2) layers of six (6) mil plastic sheeting and wall surfaces with one (1) layer of six (6) mil. thick plastic sheeting, or as otherwise directed on the Contract Drawings.

1. Cover Floor of Work Area with 2 individual layers of polyethylene sheeting, each at least 6 mil in thickness. The first layer shall extend up the wall at least 12 inches. The second layer shall extend up the wall at least 24 inches. Form a sharp right angle bend at the junction of the

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. Sheeting shall be sized to minimize seams. Install sheeting so that top layer can be removed independently of bottom layer.

2. Cover carpeting with three (3) layers of polyethylene sheeting at least 6 mil in thickness. Place corrugated cardboard sheets between the top and middle layers of polyethylene floor sheeting.
3. Cover all walls in the 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 and spray-glue, so as to overlap floor sheeting by at least 18 inches in the same manner as “Critical Barrier” sheet plastic barriers. Tape all joints including the joining with the floor covering with duct tape.
4. All vertical and horizontal surfaces except those of asbestos-containing materials shall be sealed with polyethylene sheeting.
5. Stairs and Ramps: Do not cover stairs or ramps with unsecured sheet plastic. Where stairs or ramps are covered with plastic, provide ¾” exterior grade plywood treads securely held in place, over the plastic. Do not cover rungs or rails with any type of protective materials.
6. 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.

3.10 STOP WORK:

A. If the Critical or Primary barrier falls or is breached in any manner stop work immediately. Do not resume work until authorized in writing by the Asbestos Safety Technician.

3.11 EXTENSION OF WORK AREA:

A. Extension of Work Area: If a Critical Barrier is breached in any manner that could allow the passage of asbestos debris or airborne fibers, then add the 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.

3.12 SECONDARY BARRIER:

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

3.13 EXTERIOR ENCLOSURES:

A. Construct exterior enclosures utilizing rigid construction consisting of nominal 2x4 inch studs spaced 16 inches on center and covered with a minimum of one-half inch plywood or approved equal framing and board covering. The approved enclosure shall be covered with two (2) layers of 6 mil polyethylene sheeting.

END OF SECTION

SECTION 01560

WORKER PROTECTION

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 DESCRIPTION OF WORK:

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

1.3 RELATED WORK SPECIFIED ELSEWHERE:

A. Respiratory Protection is specified in Section 01562.

1.4 WORKER TRAINING:

A. 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.

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

C. 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:
   1. Methods of recognizing asbestos.
   2. Health effects associated with asbestos.
   3. Relationship between smoking and asbestos in producing lung cancer.
   4. Nature of operations that could result in exposure to asbestos.
   5. Importance of and instruction in the use of necessary protective controls, practices and procedures to minimize exposure including:
      a. Engineering controls.
      b. Work practices.
      c. Respirators.
      d. Housekeeping procedures.
      e. Hygiene facilities.
      f. Protective clothing.
      g. Decontamination procedures.
      h. Emergency procedures.
      i. Waste disposal procedures.
   6. Purpose, proper use, fitting, instructions, and limitations of respirators as required by 29 CFR 1910.134.
   7. Appropriate work practices for the work.

8. Requirements of medical surveillance program.
9. Review of 29 CFR 1926.
10. Pressure Differential Systems.
11. Work practices including hands on or on-job training.
12. Personal Decontamination procedures.
13. Air monitoring, personal and area.

1.5 MEDICAL EXAMINATIONS:

A. Provide medical examinations for all workers who may encounter an airborne fiber concentration level of 0.1 fibers per cubic centimeter (f/cc) or greater for an 8 hour Time Weighted Average. In the absence of specific airborne fiber concentration 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.

1.6 SUBMITTALS:

A. Before Start of Work: Submit the following to the Owner's Representative for review, if requested. Do not start work until these submittals are approved by the ASCM.

B. 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.

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

D. 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:
   1. Name and Social Security Number
   2. Physicians Written Opinion from examining physician including at a minimum the following:
      a. Whether worker has any detected medical conditions that would place the worker at an increased risk of material health impairment from exposure to asbestos.
      b. Any recommended limitations on the worker or on the use of personal protective equipment such as respirators.
      c. 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.
   3. Copy of information that was provided to physician in compliance with 29 CFR 1926
   4. 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.

E. 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

2.1 PROTECTIVE CLOTHING:

A. Provide fire-retardant “Tyvek” disposable protective clothing consisting of full-body coveralls, head covers, and boots as required by the most stringent OSHA standards applicable to the work and as manufactured by DuPont or approved equal. Eye protection, gloves, and safety shoes shall be worn. They shall be in accordance with ANSI Z89.1 (1969) and ANSI Z41.1 (1967).

B. 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.

C. Goggles: Provide eye protectives (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.

D. 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, dispose of as asbestos-contaminated waste at the end of the work.

2.2 ADDITIONAL PROTECTIVE EQUIPMENT:

A. Respirators, disposable coveralls, head covers, and footwear covers shall be provided by the Contractor for the Owner, Owner's Representative, Project Consultants, and other authorized representatives who may inspect the jobsite. Provide two (2) respirators and six (6) complete coveralls and where applicable provide six (6) respirator filter changes per day. Sufficient HEPA cartridges for powered air-purifying respirators shall be provided for the workers to change during the work shift. No HEPA cartridges shall be used longer than three (3) eight (8) hour work shifts. The respirators shall be worn at all times when in the contaminated area. There shall be no exceptions.

PART 3 EXECUTION

3.1 GENERAL:

A. 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.

B. 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.

3.2 DECONTAMINATION PROCEDURES:

A. Require all workers to adhere to the following personal decontamination procedures whenever they leave the Work Area:

1. Air-Purifying Respirators: Require that all workers use the following decontamination procedure as a minimum requirement whenever leaving the Work Area:
    a. When exiting area, remove disposable coveralls, disposable head covers, and disposable footwear covers or boots in the equipment room.
    b. 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:

1) Thoroughly wet body including hair and face. If using a Powered Air-Purifying Respirator (PAPR) hold blower unit above head to keep canisters dry.
2) 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.
3) 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.
4) Carefully wash face piece of respirator inside and out.
5) 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 may short out and destroy the battery.
6) Shower completely with soap and water.
7) Rinse thoroughly.
8) Rinse shower room walls and floor prior to exit.

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

B. 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.

C. Within the 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.

END OF SECTION

SECTION 01562

RESPIRATORY PROTECTION

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 DESCRIPTION OF WORK:

A. Instruct and train each worker involved in asbestos abatement or maintenance and repair of friable asbestos-containing materials in proper respiratory use and require that each worker always wear a respirator, properly fitted on the face in the Work Area from the start of any operation which may cause airborne asbestos fibers until the Work Area is completely decontaminated. Use respiratory protection appropriate for the fiber levels encountered in the work area or as required for other toxic or oxygen-deficient situations encountered.

1.3 STANDARDS:

A. 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.

1. OSHA - U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards 29 CFR 1910, Section 1101 and Section 1910.134. 29 CFR 1926.58
2. CGA - Compressed Gas Association, Inc., New York, Pamphlet G-7, “Compressed Air for Human Respiration”, and Specification G-7.1 “Commodity Specification for Air”
3. CSA - Canadian Standard Association, Rexdal, Ontario, Standard Z180.1-00, “Compressed Breathing Air”
4. ANSI - American National Standard Practices for Respiratory Protection, ANSI Z88.2-1992
5. NIOSH - National Institute for Occupational Safety and Health
6. MSHA - Mine Safety and Health Administration

1.4 SUBMITTALS:

A. Before Start of Work submit the following to the Owner's Representative for review. Do not begin work until these submittals are approved by the ASCM.

B. Product Data: Submit manufacturer's product information for each component used, including NIOSH and MSHA Certifications for each component in an assembly and/or for entire assembly.

C. 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.

D. 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.

E. Respiratory Protection Program: Submit Contractor's written respiratory protection program manual as required by OSHA 1926.58.

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

1.5 DELIVERY:

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

PART 2 EQUIPMENT

2.1 AIR PURIFYING RESPIRATORS:

A. 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.

B. 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 (1998). 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.

C. Non-permitted respirators: Do not use single use, disposable or quarter face respirators.

PART 3 EXECUTION

3.1 GENERAL:

A. Respiratory Protection Program: Comply with ANSI Z88.2 - 1992 “Practices for Respiratory Protection” and OSHA 29 CFR 1910 and 1926.

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

C. 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.

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

E. Do not allow the use of single-use, disposable, or quarter-face respirators for any purpose.

3.2 FIT TESTING:

A. 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 have been provided.

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

C. 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 (1992).

3.3 TYPE OF RESPIRATORY PROTECTION REQUIRED:

A. Provide respirator protection as follows:
   1. Negative pressure air-purifying respirators for all preparation, glove bag removal and Category I removal activities.
   2. Powered Air-Purifying Respirators: PAPR, positive pressure, full-face, or half-face respirators (if half-faced respirators are used, eye protection shall be provided by the Contractor).

3.4 PERMISSIBLE EXPOSURE LIMIT (PEL):

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

3.5 RESPIRATORY PROTECTION FACTOR:

A. Respirator Type Protection Factor
   1. Air purifying: PF=10 - Negative pressure respirator High Efficiency filter half face-piece
   2. Air purifying: PF=10 - Negative pressure respirator High Efficiency filter full face-piece
   3. Powered Air Purifying (PAPR): PF=50 - Positive pressure respirator High Efficiency filter Half or Full face-piece

3.6 AIR PURIFYING RESPIRATORS:

A. 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 body of respirator, including head straps be washed each time a worker leaves the Work Area.

B. Powered air purifying 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, and 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.

END OF SECTION

SECTION 01563

DECONTAMINATION UNITS

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 RELATED WORK SPECIFIED ELSEWHERE:

A. Refer to Section 01503 Temporary Facilities for electrical requirements and requirements relative to connection of decontamination facilities to building systems such as water and electrical.

1.3 SUBMITTALS:

A. Before the Start of Work: Submit the following to the ASCM for review. Do not begin work until these submittals are approved by the ASCM.

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

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

   c. Shower Pan: Provide shop drawing.

   d. Shower Walls: Provide product data.

   e. Shower Head and Controls: Provide product data.

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

   g. Hose Bib: Provide product data.

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

   i. Elastomeric membrane: Provide product data.

   j. Lumber: Provide product data on fire resistance treatment.

   k. Sump Pump: Provide product data.

   l. Signs: Submit samples of signs to be used.

PART 2 PRODUCTS

A. Polyethylene Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, 6-mil thick as indicated, clear, frosted, or black as indicated.

B. Polyethylene Sheet: Provide 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, 6-mil thick as indicated, frosted or black as indicated.

C. 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, 6 mil thick as indicated, frosted or black as indicated.

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

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

F. Shower Pan: Provide one piece stainless steel shower pan with a minimum 6” depth, or approved equal.

G. 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.

H. Shower Head and Controls: Provide a factory-made shower head producing a spray of water which can be adjusted for spray size and intensity. Supply 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.

I. 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.

1. Primary Filter - Passes particles 20 microns and smaller.
2. Secondary Filter - Passes particles 5 microns and smaller.

J. Hose Bib: Provide heavy bronze angle type with wheel handle, vacuum breaker, and ¾” National Standard male hose outlet.

K. 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.

L. 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.

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

N. 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.

PART 3 EXECUTION

3.1 PERSONNEL DECONTAMINATION UNIT:

A. Provide a Personnel Decontamination Unit consisting of a serial arrangement of connected rooms or spaces, Clean 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. Provide temporary heating and lighting within Decontamination Units as necessary to provide safe and comfortable conditions. Decontamination chamber doors shall be of sufficient height and width to enable replacement of equipment that may fail and to safely stretcher or carry an injured worker from the site without destruction of the chamber or unnecessary risk to the integrity of the work area. Such doors must be at least four (4) feet wide, and the distance between sets of flaps must be at least four (4) feet.

B. 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.
   1. Construct using two (2) layers of opaque polyethylene sheeting, at least 6-mil in thickness, to provide an airtight seal between the Clean Room and the rest of the building.
   2. Locate so that access to Work Area from Clean Room is through Shower Room.
   3. Separate Clean Room from the building utilizing three (3) overlapping sheets of 6-mil polyethylene sheeting, weighted at the bottom.
   4. 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.
   5. Maintain floor of clean room dry and clean at all times. Do not allow overflow water from shower to wet floor in clean room.
   6. Damp wipe all surfaces twice after each shift change with a disinfectant solution.
   7. Provide posted information for all emergency phone numbers and procedures.
   8. Provide 1 storage locker per employee.

C. Shower Room (contaminated area): Provide a completely watertight operational shower to be used for transit by cleanly dressed workers heading to the Work Area from the Clean Room, or for showering by workers headed out of the Work Area after undressing in the Equipment Room.
   1. 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.
   2. Separate this room from the rest of the building with airtight walls fabricated of two (2) layers of opaque 6-mil polyethylene.
   3. Separate this room from the Clean Room utilizing three (3) overlapping sheets of 6-mil polyethylene sheeting, weighted at the bottom.
   4. Provide splash proof entrances to Clean Room with doors of flapped polyethylene.
   5. Provide shower head and controls supplied with hot and cold water adjustable within the shower.
   6. Provide a continuously adequate supply of liquid bath soap and shampoo and maintain in sanitary condition.
   7. Provide a continuously adequate supply of disposable bath towels.
   8. Arrange so that water from showering does not splash into the Clean or Equipment Rooms.
   9. 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.
   10. Used filters shall be disposed of as asbestos-containing waste material.
   11. Provide hose bib.

D. 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.

1. Separate this room from the Shower Room and the Work Area utilizing three (3) overlapping sheets of 6-mil polyethylene sheeting, weighted at the bottom.
2. Separate this room from the rest of the building with airtight walls fabricated of two (2) layers of opaque 6-mil polyethylene.
3. Provide a drop cloth layer of sheet plastic on floor in the Equipment Room for every shift change expected. Roll the drop cloth layer of plastic from Equipment Room into Work Area after each shift change. Replace before next shift change with a clean drop cloth. Provide a minimum of two (2) layers of plastic at all times. Use only clear plastic to cover floors.

E. Decontamination Sequence: Require that all workers and authorized visitors adhere to the following sequence when entering or leaving the Work Area.
   1. All individuals that enter the work area shall sign the entry log, located in the clean room, upon each entry and exit.
   2. Entering Work Area: Worker enters Clean Room and removes street clothing, puts on clean disposable overalls and respirator, and passes through the Shower Room into the Equipment Room.
      a. Any additional clothing and equipment left in Equipment Room needed by the worker are put on in the Equipment Room.
      b. Worker proceeds to Work Area.
   3. Exiting Work Area:
      a. Before leaving the Work Area, require the worker to remove all gross contamination and debris from the outside of the respirator, and protective clothing by wet wiping and HEPA vacuuming.
      b. The worker then proceeds to the Equipment Room and removes all clothing except respiratory protection equipment.
      c. Extra work clothing such as boots, hard hats, goggles, gloves are to be stored in contaminated end of the Equipment Room.
      d. Disposable coveralls are placed in a bag for disposal with other material.
      e. Require that Decontamination procedures found in Section 01560 be followed by all individuals leaving the Work Area.
      f. After showering, the worker moves to the Clean Room and dresses in either new coveralls for another entry or street clothes if leaving.

3.2 CONSTRUCTION OF THE DECONTAMINATION UNITS:

A. Walls and Ceiling: Construct airtight walls and ceiling using two (2) layers of polyethylene sheeting, at least 6-mil in thickness. Attach to existing building components or a temporary framework.

B. Floors: Use two (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.

C. Flap Doors: Fabricated from three (3) overlapping sheets with openings a minimum of four feet (4') wide. Configure so that sheeting overlaps adjacent surfaces. Weigh sheets at bottoms so that they quickly close after being released. Put arrows on sheets to indicate direction of overlap and/or travel. Provide a minimum of four feet (4') between entrance and exit of any room. Provide a minimum of four feet (4') between doors to airlocks.

D. If the Decontamination area is located at the exterior of the building, adjacent to occupied areas of the building or within an area containing friable asbestos on overhead ceilings, ducts, piping, etc., provide the decontamination unit with a protective shell as follows.