Environmental Consultants Inc.

PROJECT MANUAL

For Abatement of Asbestos-Containing Materials:

Building A
9910 Cash Rd.
Stafford, Texas

Project No: 0907202

Prepared for:

Kellogg, Brown & Root, Inc.
5050 Wright Road, Bldg. C
Houston, Texas 77032

Prepared by:

ERC Environmental Consultants
10801 Hammerly Boulevard, Suite 100
Houston, Texas 77043

Tel: (713) 290-9444 Fax: (713) 290-9441
www.erc-tx.com

October 2009

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PROJECT DIRECTORY **SECTION 00010**

PROJECT NAME: **Building A**
9910 Cash Road
Stafford, Texas

PROJECT NO: **0907202**

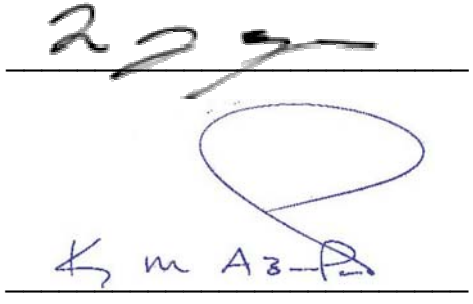
OWNER: **Kellogg, Brown & Root, Inc.**
5050 Wright Road, Bldg. C
Houston, Texas 77032

CONTACT: **Ms. Velma Rogers**
Business Manager

CONSULTANT:

ERC ENVIRONMENTAL CONSULTANTS INC
10801 Hammerly Boulevard, Suite 100
Houston, Texas 77043
TEL: (713) 290-9444 FAX: (713) 290-9441

Ronnie J. Morgan
Project Manager
TDSHS License #20-5644



Kommy M. Azarpour, PE
Principal
TDSHS Asbestos Consultant License #10-5238

SUPPLEMENTARY GENERAL CONDITIONS SECTION 00800

INSURANCE:

The **CONTRACTOR** shall maintain acceptable to the **OWNER** such insurance as will protect the **CONTRACTOR**, the **OWNER**, the **CONSULTANT**, their officers and employees, subsidiaries, affiliated companies and their officers and employees, as additional insureds, from claims resulting from any operations under the Contract during and after the Contract term including activities associated with asbestos abatement.

CONTRACTOR shall not commence work under this Contract until he has obtained all the insurance required hereunder and certificates of such insurance have been filed with and accepted by the **OWNER**. Insurance coverage shall provide for a thirty (30) day notice of cancellation or material change to the policy coverage and/or limits. Acceptance of the insurance certificates by the **OWNER** shall not relieve or decrease the liability of the **CONTRACTOR.**

TEXAS DEPARTMENT OF STATE HEALTH SERVICES (TDSHS) NOTIFICATION

The **CONTRACTOR** will be responsible for filing the ten (10) day notification and any required amendments on behalf of the **OWNER.** The **CONTRACTOR** will also be responsible for payment of Notification fees.

DATA AND REPORTS:

The **CONTRACTOR** agrees that Contract Documents, data and reports generated by the **OWNER** and **CONSULTANT** remains the property of the **OWNER** and shall not be released to other parties without the expressed written permission of the **OWNER**.

FURNISHING OF WATER AND ELECTRICITY:

The **OWNER** will provide a source of water; however, it shall be the responsibility of the **CONTRACTOR**, at his own expense, to provide temporary connections and route the water to its usage area.

The **OWNER** will provide the normal electrical supply and currently installed electrical system in the building for the use of the **CONTRACTOR**; however, it shall be the responsibility of the **CONTRACTOR**, at his own expense, to provide temporary connections

and route the power to its usage area. The **OWNER** provides no warranty as to the system's condition or capabilities. The **CONTRACTOR** shall assure himself that the electrical system is adequate for his requirements or supply additional temporary electrical power, at his own expense.

The **OWNER** will pay cost of the above utilities for the duration of the Project. Cost of excessive waste or abuse of provided utilities, as determined by the **CONSULTANT**, will be back charged to the **CONTRACTOR** and deducted from the Contract Amount.

Damage to the water or electrical systems or surrounding areas (floors, ceilings, walls, etc.) resulting from failure of **CONTRACTOR**'s materials (hoses, cabling, etc.) or misuse or abuse of the existing systems shall be repaired or replaced by the **CONTRACTOR** to the satisfaction of the **OWNER** at no additional expense to the **OWNER**.

At the completion of Work the **CONTRACTOR** shall remove temporary connections and restore systems and surrounding area to pre-abatement conditions.

STOP WORK ORDER:

The General Conditions are hereby amended to permit the **OWNER** or **CONSULTANT** to stop work with the issuance of a Stop Work Order.
If the **OWNER** or **CONSULTANT** presents a written or verbal Stop Work Order, immediately and thoroughly stop Work. Do not recommence Work until authorized in writing by the **CONSULTANT**.

WORK HOURS AND WORKER CONDUCT:

CONTRACTOR shall schedule his work so that the maximum number of work hours per man does not exceed ten (10) within any twenty-four (24) hour period, except as authorized by the **CONSULTANT**.

The **CONTRACTOR** shall employ orderly and competent workers, skilled in the performance of the work required under this Contract. Workers shall maintain professional demeanor, appear rested and physically able to complete a day's work. If, in the opinion of the **CONSULTANT**, a worker is concurrently employed on another project, exhibits fatigue, or for other reasons appears incompetent or disorderly, he may be expelled from the job site and not regain entry without the **CONSULTANT**'s written consent.

FIRE PROTECTION:

CONTRACTOR shall submit a detailed written fire plan in case of a fire enumerating procedures and specific personnel responsibilities concerning the following:

1. Chain of command
2. Call local fire department
3. Alert building occupants
4. Contact Owner and Engineer
5. Operate fire extinguishing equipment
6. Control of contamination after fire is extinguished.

CONTRACTOR shall conduct a safety meeting for Contractor's employees with emphasis on operation of fire extinguishers and emergency exits in case of fire.

CONTRACTOR shall have posted emergency phone numbers for the fire department and building security.

CONTRACTOR shall store a minimum of volatile substances on the job site and in fire-resistant containers only.

CONTRACTOR shall install smoke detectors, with audible and visual warning signals for every 1,000 sq. ft. of work area.

SECURITY:

Adequate warning signs shall be posted to warn persons approaching a Work Area of the dangers of asbestos. Post signage with initial opaque barrier stating "CONSTRUCTION AREA, KEEP OUT", which must be breached to encounter asbestos specific warning signage. Locate barriers and signage to provide warning to persons approaching a Work Area from any direction; post signage at such points so that persons approaching the Work Area will have time to take adequate safety precautions.

CONTRACTOR shall provide personnel to perform surveillance of work areas twenty-four (24) hours per day seven (7) days per week during operation of ventilation units. Personnel shall be qualified asbestos abatement workers. Duties include maintenance of pressure differential containment and regular inspection of work areas for fire prevention and other incidents which could cause contaminations outside of the work areas. Separate personnel are not required during Contractor normal work hours.

The **OWNER** may, on his own election, provide security on premises covered under this Agreement. The **OWNER** and the **CONSULTANT** will not be liable for damage, injury or

destruction to any personal property owned by the **CONTRACTOR** or any death, sickness, disease, or bodily injury incurred by an employee or agent of the **CONTRACTOR** as a result of the provision of such security.

The **CONTRACTOR**, its employees, agents and directors specifically and forever release, acquit and waive any claims, demands and obligations against the **OWNER** and **CONSULTANT** arising from, whether directly or consequentially, the provision of such security.

POTENTIAL ASBESTOS HAZARD:

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

Where in the performance of the Work, workers, supervisory personnel, or consultants may encounter, disturb, or otherwise function in the immediate vicinity of any identified **ACM**, take appropriate continuous measures as necessary to protect 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.

ASBESTOS-CONTAINING MATERIALS:

The **CONTRACTOR** shall always be mindful of the possible presence of asbestos-containing materials (in addition to the **ACM** to be abated under this contract) and shall carry out its work with due diligence in light of this possibility. The **CONTRACTOR** shall be and remain solely responsible for the safety of its employees in the performance of the Work and shall take precautions necessary to insure such safety.

The **CONTRACTOR** may discover suspected **ACM**, other than material to be abated under this Contract. Upon such discovery the **CONTRACTOR** shall take such action as is reasonably necessary and feasible to provide an interim safe and secure environment for its employees and third parties until the determination can be made of how next to proceed.

The **CONTRACTOR** shall promptly notify the **CONSULTANT** of such suspected material. The **CONSULTANT** will thereupon determine the proper course of action (sampling, testing, etc.), prepare his report and proceed with notification to the **OWNER**.

In no event shall the **CONTRACTOR** discuss such materials with parties other than the **CONSULTANT**.

The **CONSULTANT** will determine if the material is **ACM** and so inform the **CONTRACTOR**. The **CONTRACTOR** shall modify actions as necessary to continue a safe and secure environment. At the discretion of the **OWNER**, the **CONSULTANT** will convey detailed report results to the **CONTRACTOR**.

OWNER OCCUPANCY:

Cooperate fully with the **OWNER** during construction operations to minimize conflicts and to facilitate **OWNER** usage. Perform the work so as not to interfere with the **OWNER**'s operation.

ACCESS TO AFFECTED AREA:

The **CONTRACTOR** shall have access only to those areas designated as Work Areas, or as otherwise directed by the **OWNER**. Storage of materials, field mobilized activities, and personnel shall remain in designated areas.

USE OF THE SITE:

The **CONTRACTOR** shall limit his use of the premises to the work indicated, so as to allow for **OWNER** occupancy and use by the public, if required.

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

Keep existing driveways and entrances serving the premises clear and available to the **OWNER** and his employees. Do not use these areas for parking or storage of materials.

Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage sheds to areas designated. If additional storage is necessary, obtain and pay for such storage off site.

Lock 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.

CONTRACTOR'S USE OF THE EXISTING BUILDING:

Maintain existing building in a safe and weather tight condition throughout the construction period. Take precautions necessary to protect the building and its occupants during the construction period.

Keep public areas such as hallways, stairs, elevator lobbies and toilet rooms free from accumulation of waste, rubbish or construction debris.

Smoking or open fires will not be permitted within the building enclosure or on the premises, except where designated by the **OWNER**.

Except for Toilet Room(s) as may be designated by the **CONSULTANT** for use by the **CONTRACTOR**'s personnel, use of existing toilets within the building, by the **CONTRACTOR**'s personnel, will not be permitted.

PARTIAL **OWNER** OCCUPANCY:

The **OWNER** reserves the right to place and install equipment as necessary, or conduct other non-asbestos construction or remodel work, in areas of the building in which asbestos abatement and project decontamination procedures have been completed, and to occupy such completed areas prior to Substantial Completion, provided that such occupancy does not substantially interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the Work or any part of the Work.

AIR MONITORING SERVICES:

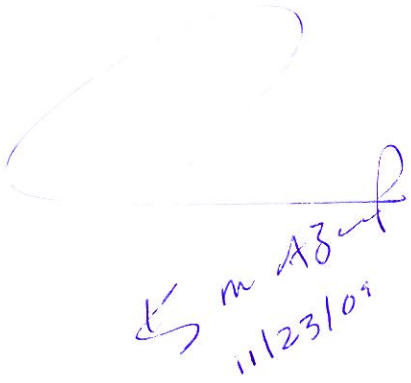
The **OWNER** will provide and pay for Inspection and Air Monitoring services through the **CONSULTANT** for the entirety of the Project.

Such services will be full-time, and there shall be no Abatement or Demolition Work conducted unless the **CONSULTANT** is on-site.

Notify the **CONSULTANT** five (5) days prior to any proposed Work schedule change to allow for rescheduling of personnel. Failure to give such notice may result in disallowance of schedule change.

INDEX TO DRAWINGS **SECTION 00900**

DESCRIPTION	DRAWING NO
FLOOR PLAN	A-01
FLOOR PLAN	A-02



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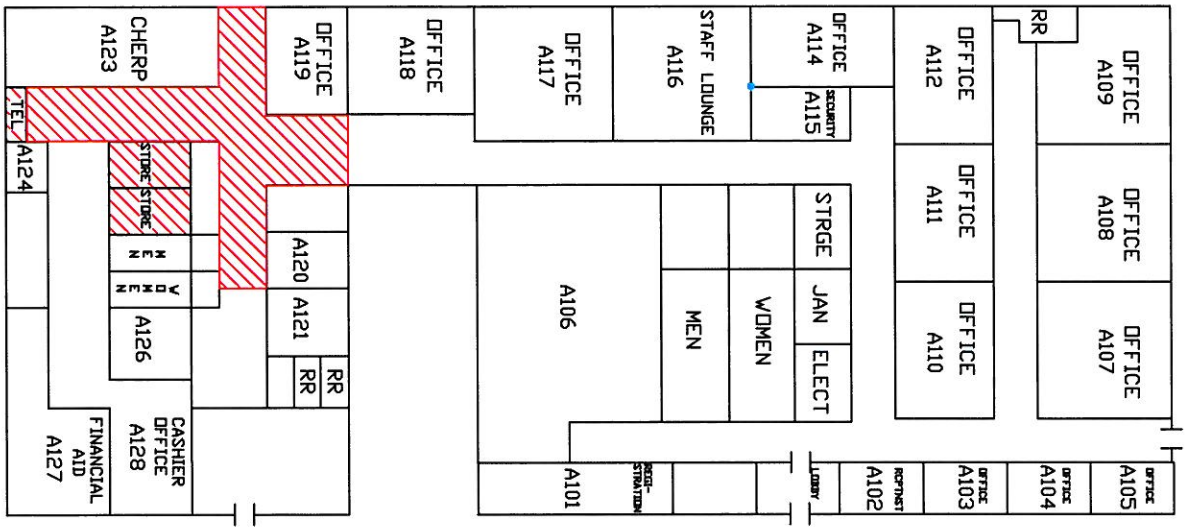
LEGEND

INDICATES SHEET FLOORING TO BE REMOVED



BUILDING A – 9910 KASH RD.
STAFFORD, TX
KELLOGG–BROWN & ROOT INC.
5050 WRIGHT ROAD BUILDING C, HOUSTON, TX 77032

DWG BY: MK	REV BY: RM	SCALE +/–: NTS	
DATE: 17SEP09	DATE: 17SEP09	FILE: 0907202	

ERC Environmental Consultants Inc.

ENVIRONMENTAL CONSULTANTS INC.
10801 HAMMERLY BLVD.
SUITE 100, HOUSTON, TX 77043
PHONE: 713-290-9444 FAX: 713-290-9441

ERC PROJECT NUMBER: 0907202

DRAWING NUMBER: A-01

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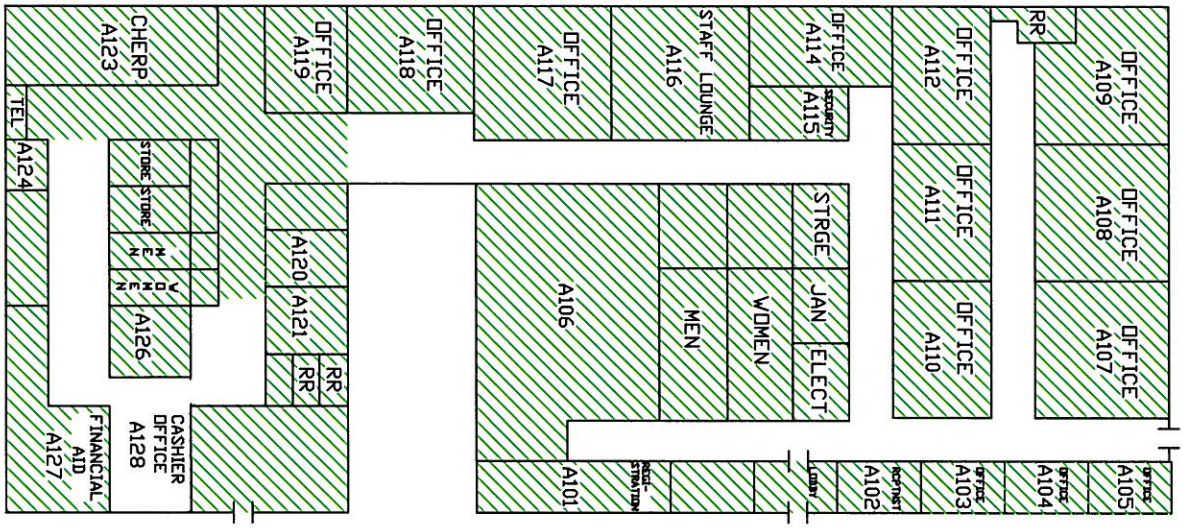
11/23/09

LEGEND

INDICATES CEILING AND WALLS TO BE REMOVED



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DWG BY: MK	REV BY: RM	SCALE +/-: NTS
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ERC PROJECT NUMBER: 0907202
DRAWING NUMBER: A-02
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ERC Environmental Consultants Inc.
ENVIRONMENTAL CONSULTANTS INC.
10801 HAMMERLY BLVD.
SUITE 100, HOUSTON, TX 77043
PHONE: 713-290-9444 FAX: 713-290-9441

SUMMARY OF WORK **SECTION 01000**

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

CONTRACT DOCUMENTS:

The Contract Documents, as prepared by the **CONSULTANT**, indicate the Work of the Contract and related requirements and conditions that have an impact on the Project. Related requirements and conditions include, but are not necessarily limited to the following:

- Applicable codes and regulations.
- Notices, permits, license fees, taxes.
- Existing site conditions and restrictions on use of site.
- Work performed prior to work under this Contract.
- Alterations and coordination with existing work.
- Work to be performed concurrently by the **OWNER**.
- Work to be performed concurrently by separate contractors.
- Work to be performed subsequent to work under this Contract.
- Requirements for partial **OWNER** occupancy prior to substantial completion of the Contract Work.

PROJECT DURATION:

PROJECT DURATION:

Base Bid: The Project Duration for the Base Bid shall be as follows:

Maximum consecutive calendar days.....To be determined

Maximum work hours .....Ten (10) hours per day

ABBREVIATED WRITTEN SUMMARY:

Briefly and without force and effect upon the Contract Documents, the Work of the Contract can be summarized as including removal and disposal of asbestos-containing materials associated with:

- Wallboard with joint compound and / or texture
- asbestos-backed resilient sheet flooring

in the following approximate quantities*:

* Quantities listed are estimates only. The **CONTRACTOR** is responsible for verifying quantity estimates prior to submission of bid. The **CONTRACTOR** shall perform work for materials and locations indicated, regardless of actual quantities, and no increase in Contract amount will be allowed for quantity adjustment.

SHEET ROCK WALLS AND CEILINGS WITH JOINT COMPOUND AND TEXTURE:

These areas shall be removed and disposed of as asbestos-containing materials utilizing guidelines as set forth in these specifications.

Throughout Area -31,100 Sq. Ft.

Note 1: **Minimum requirement:** Full containment under negative pressure, protective clothing, and PAPR respirator.

ASBESTOS-BACKED RESILIENT SHEET FLOORING:

These areas shall be removed and disposed of as asbestos-containing materials utilizing guidelines as set forth in these specifications.

Hallway and Storage Closets -830 Sq. Ft.

Note 1: Minimum containment requirements shall be critical barriers, splashguards, and three staged decontamination facilities.

Note 2: Minimum PPE will be disposable suits, gloves and half face respirators and eye protection.

GENERAL NOTES FOR ASBESTOS WORK:

1. Only DSHS Licensed workers and supervisors are allowed to be utilized for these projects.

2. Final Clearance air samples will be aggressive PCM with the release criteria of ≤0.01 Fib/cc.

3. There will be no smoking inside the buildings.

4. Abatement **CONTRACTOR** is responsible to verify all quantities.

5. Negative air machine exhaust(s) shall be vented to the outside of building as applicable.

6. Abatement **CONTRACTOR** shall utilize attached three (3) staged wet decontamination facilities for personnel.

7. Abatement **CONTRACTOR** shall critical the openings on the ceiling.

8. Abatement **CONTRACTOR** shall achieve pressure differential of 0.020 inches of water prior to start of the abatement and during the abatement operations.

9. OSHA air monitoring is the responsibility of the abatement **CONTRACTOR.**

10. Abatement **CONTRACTOR** shall properly decontaminate the ACM waste bags prior to leaving the containment area.

11. Abatement **CONTRACTOR** shall utilize state & federal required asbestos signs and warning tapes around the work perimeter.

12. The **OWNER** shall provide sources of water and electricity.

13. The abatement **CONTRACTOR** shall provide separate, fully enclosed metal container or vehicle for ACM waste storage on site.

GENERAL NOTES FOR DEMOLITION ACTIVITIES:

1. Provide labor and materials necessary to accomplish demolition work in complete accordance with the requirement of these specification and all the applicable state & federal regulations.

2. Make detailed inspection of each work area prior to beginning.

3. Protect items and materials not indicated for demolition.

4. Replace, or repair to the satisfaction of the owner, elements that become damaged prior to final acceptance.

5. KBR will coordinate disconnection of utilities with owner and utility companies. Licensed electrician shall disconnect electricity. Licensed plumber shall disconnect water and sewer. Disconnected utilities will be properly capped at five (5) feet minimum from building line.

6. Owner will remove telecommunication connections.

7. Maintain materials in a wet condition during the demolition to minimize construction dust.

8. The **CONTRACTOR** shall remove the slab, paving, footing, pier, and beams to a minimum of twenty-four (24) inches below existing grade. Fill holes caused by the removal of underground utilities, slab, paving, footing, pier, sidewalks, and beams with select grade topsoil compacted to 95% proctor.

9. Remove side walks from East side of building. Seating area and trees on the East side of the building to remain. Parking lot on South side of building is to remain.

10. Wheelchair ramp on North side of building to be demolished.

11. Security fencing on West side of building around A/C unit to be demolished.

SUMMARY BY SPECIFICATION SECTION:

The Work includes removal of asbestos-containing materials (**ACM**) according to the requirements of the following specification sections:

PROJECT INFORMATION:

Section 00010 – Directory

Section 00800 – Supplementary General Conditions

Section 00900 – Project Drawings

Section 01000 – Summary of the Work

ADMINISTRATIVE PROCEDURES:

Section 01050 – Project Coordination

Section 01100 – Definitions and Standards

Section 01390 – Project Closeout

AIR MONITORING / INSPECTION / LABORATORY TESTING SERVICES:

Section 01400 – Air Monitoring and Inspection:
Testing Laboratory Services
describes air monitoring procedures that will be followed by the **CONSULTANT** for the purpose of maintaining building spaces beyond the Work Area in an uncontaminated condition.

Personal air monitoring to determine and maintain required respiratory protection is the responsibility of the **CONTRACTOR**.

Section 01410 – Final Clearance (Aggressive PCM)
Describes the analytical methods used to determine if the work area has been successfully cleaned of contamination.

REMOVAL PROCEDURES:

Section 01500 – Temporary Containment
Details the requirements for the sheet plastic barriers isolating the work area from the balance of the building.

Section 01510 – Pre-cleaning and Decontamination Procedures
Sets forth procedures to be used on contaminated objects and rooms prior to containment, and contaminated objects and rooms which are not part of an abatement containment area.

Section 01520 – Decontamination Units
Details the requirements for the setup and operation of the personnel and material decontamination units.

Section 01530 – Ventilation System
Sets forth the procedures to set up the ventilation machines and ventilation of the work area.

Section 01540 – Removal of Asbestos-Containing Materials

Section 01551 – Removal of Resilient Sheet Flooring

Section 01552 – Removal of Drywall

Section 01580 – Removal of Temporary Containment
Describes the sequence of cleaning and decontamination procedures to be followed during removal of the sheet plastic barriers isolating a Work Area.

Section 01590 – Disposal of Asbestos-Containing Waste Material

PERSONNEL PROTECTION (ASBESTOS ABATEMENT):

Section 01700 – Worker Protection: Asbestos Abatement
Describes the equipment and procedures for protecting workers against asbestos contamination and other workplace hazards, except for respiratory protection.

Section 01710 – Respiratory Protection
Sets forth the procedures and equipment required for adequate protection against inhalation of airborne asbestos fibers.

GENERAL CONSTRUCTION:

Section 02000 – Demolition Work (Non-ACM)

Section 02050 – Non-ACM Building Demolition

Section 02200 – Demolition of Roofing Material

PLAN OF ACTION:

Submit a detailed plan of the procedures proposed for use in complying with the requirements of this specification. Include in the plan the location and layout of decontamination areas and ventilation system, the sequencing of asbestos work, the name and description of mechanical equipment utilized for removal operations inside containments, the interface of trades involved in the performance of abatement work and other construction work that may be occurring on the site, methods to be used to assure the safety of building occupants and visitors to the site, fire action plan, disposal plan for removing ACM from the site. The plan must be approved by the CONSULTANT prior to commencement of work. In the event of time restraints, the CONSULTANT may approve verbal discussion of the plan of action. In such event, the CONTRACTOR shall submit written summary of the discussion as documentation.

Submit a written, updated Plan of Action, including Work Schedule, with each payment request. Update shall reflect changes made prior to the payment request and changes required to successfully complete the next phase of Work.

PROJECT COORDINATION **SECTION 01050**

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

SUMMARY:

Minimum administrative and supervisory requirements necessary for coordination of work on the project include but are not necessarily limited to the following:

Administrative and supervisory personnel
Special reports
Notifications to other entities at job site

EMERGENCY PHONE LIST:

CONTRACTOR shall submit an Emergency Phone List to **CONSULTANT** as part of the Pre-Construction Submittals. **CONTRACTOR** shall post Emergency Phone List inside clean room of decontamination unit.

ADMINISTRATIVE AND SUPERVISORY PERSONNEL:

Provide a full-time on-site General Superintendent who is familiar with and experienced in administration and supervision of asbestos abatement projects including work practices, regulations, protective measures for building and personnel, disposal procedures, and other applicable related asbestos abatement concerns.

This person is the Competent Person as required by OSHA in 29 CFR 1926 for the **CONTRACTOR** and is the **CONTRACTOR**'s representative responsible for compliance with applicable federal, state and local regulations, and in particular, those relating to asbestos-containing materials.

The General Superintendent must have completed and maintain current training requirements in supervision of asbestos abatement projects, have had a minimum of one (1) year on-the-job training and meet additional requirements set forth in 40 CFR Part 763 and 29 CFR 1926 for a Competent Person.
The General Superintendent shall be licensed in accordance with state law.

The General Superintendent shall be acceptable to the **OWNER** and shall remain acceptable throughout the Project. The **CONTRACTOR** shall immediately replace a General Superintendent who becomes unacceptable to the **OWNER**, and the Work shall not proceed until an acceptable General Superintendent is on-site.

SPECIAL REPORTS:

General: Except as otherwise indicated, submit special reports directly to **OWNER** within one day of occurrence requiring special report, with copy to **CONSULTANT** and others affected by occurrence.

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

Reporting Accidents: Report accidents immediately to the **CONSULTANT**. Prepare and submit reports, or daily log sheet, to the **OWNER** and **CONSULTANT** of significant accidents where work is in progress. Record and document data and actions; comply with industry standards. For this purpose, a significant accident is defined to include events where personal injury is sustained, or property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

DEFINITIONS AND STANDARDS **SECTION 01100**

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

GENERAL DEFINITIONS:

General Explanation: A substantial amount of specification language constitutes definitions for terms found in other Contract Documents, including Drawings. Certain terms used in Contract Documents are defined in this article. Definitions and explanations of this section are neither necessarily complete nor exclusive, but are general for the work to the extent they are not stated more explicitly in another element of Contract Documents. The **CONTRACTOR** is responsible for clarifying definitions and terms with the **CONSULTANT**. The **CONSULTANT**'s interpretation of the definitions will be final and binding.

General Requirements: The general provisions or requirements apply to the entire work of Contract and, where so indicated, to other elements which are included in project.

Indicated: The term "Indicated" is a cross-reference to graphic representations, notes or schedules on drawings, to other paragraphs or schedules in the specifications, and to similar means of recording requirements in Contract Documents.

Directed, Requested, etc.: Where not otherwise explained, terms such as "directed," "requested," "authorized," "selected," "approved," "required," "accepted," and "permitted" mean "directed by **CONSULTANT**," "requested by **CONSULTANT**," and similar phrases. However, no such implied meaning will be interpreted to extend **CONSULTANT**'s responsibility into **CONTRACTOR**'s responsibility for construction supervision.

Approve: Where used in conjunction with **CONSULTANT**'s response to submittals, requests, applications, inquiries, reports and claims by **CONTRACTOR**, the meaning of term "approved" will be held to limitations of **CONSULTANT**'s responsibilities and duties as specified in General and Supplementary Conditions. In no case will "approval" by **CONSULTANT** be interpreted as a release of **CONTRACTOR** from responsibilities to fulfill requirements of Contract Documents.

Project Site: The term "project site" is defined as the space available to **CONTRACTOR** for performance of the work, either exclusively or in conjunction with others performing other work as part of the project. The extent of project site may be shown on the drawings, and may or may not be identical with the actual area in which the project occurs.

Furnish: The term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.

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

Provide: The term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.

Testing Laboratory: is defined as an independent entity engaged to perform specific inspections or tests of the work, either at project site or elsewhere; and to report and (if required) interpret results of those inspections or tests. For this project the Testing Laboratory is the **CONSULTANT**.

CONSULTANT: The **CONSULTANT** will represent the **OWNER** during construction and until final payment is due. The **CONSULTANT** will advise and consult with the **OWNER**. The **OWNER**'s instructions to the **CONTRACTOR** will be forwarded through the **CONSULTANT**; the **CONTRACTOR**'s correspondence with the **OWNER** shall be forwarded through the **CONSULTANT**. The **CONSULTANT** is a full-time representative of the **OWNER** at the project site.

General Superintendent: the **CONTRACTOR**'s representative at the project site.

DEFINITIONS RELATIVE TO ASBESTOS ABATEMENT:

Abatement: Activities designed to control asbestos hazards, including preparatory work, removal operations, encapsulation, enclosure, and associated activities.

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

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

Amended Water: Water to which a surfactant has been added.

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

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

Asbestos-Containing Waste Material: Material which is contaminated with an asbestos-containing material.

Authorized Visitor: The **OWNER**, the **CONSULTANT**, testing lab personnel, or a representative of any federal, state and local regulatory or other agency having authority over the project. Any other visitor to the site who has been authorized by the **OWNER** prior to site access.

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

Breathing Zone: A hemisphere forward of and even with the shoulders having a radius of approximately six (6) to nine (9) inches.

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

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

Containment: (see Enclosure)

Critical Barriers: Barriers installed to seal openings to the work area such as vents, grilles, diffusers, electrical openings, etc.

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

Disposal Bag: Minimum 6 mil thick, manufactured, leak-tight plastic bags used for transporting asbestos waste from work areas a to disposal site.

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

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

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

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

Encapsulation: The coating of asbestos-containing materials with a bonding or sealing agent to prevent the release of airborne fibers.

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

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

Friable Asbestos-containing 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.

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

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

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

High-Efficiency Filter: A filter which removes from air 99.97% or more of monodisperse dioctyl phthalate (DOP) particles having a mean particle diameter of 0.3 microns.

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.

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

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.

Reduced Air Pressure: Air pressure lower than surrounding areas, generally caused by

exhausting air from a sealed space (work area).

Removal (Remove): The removal of visible or detectable asbestos-containing material or waste from the removal surface and work area as inspected and approved by the **CONSULTANT** followed by encapsulation of the cleaned removal surface. Removal of a material includes complete removal of over spray on vents, light fixture receptacles, adjacent surfaces, etc. Removal also includes clean up of asbestos-containing debris in the designated work area.

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

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

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

Ventilation System: A local exhaust system, utilizing HEPA filtration capable of maintaining a reduced air pressure inside the work area and a constant air flow from adjacent areas into the work area and exhausting that air outside the work area.

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

Visual Inspection (Final): The process of visual confirmation of completion of the removal and decontamination process prior to Final Clearance air testing. Visually clean means that visually detectable dust and debris has been removed from the work area as confirmed by visual inspection, wipe tests or other methods to detect optically visible particles as determined by the **CONSULTANT**.

Wet Cleaning (or Wet Wiping): The process of decontaminating building surfaces and objects by using cloths, mops, or other cleaning utensils, which have been dampened with amended water or diluted removal encapsulant.
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 to prevent entry by unauthorized personnel. Work area is a Regulated Area as defined by 29 CFR 1926 1101(b).

FORMAL AND SPECIFICATION EXPLANATIONS:

Imperative language is used generally in specifications. Except as otherwise indicated, requirements expressed imperatively are to be performed by the **CONTRACTOR**. For

clarity of reading at certain locations, contrasting subjective language is used to describe responsibilities, which must be fulfilled indirectly by **CONTRACTOR**, or when so noted, by others.

Section numbering is used to facilitate cross-references in the Contract Documents. Sections are placed in Project Manual in numeric sequence; however, numbering sequence is not complete, and listing of sections at the beginning of the Project Manual must be consulted to determine numbers and names of specification sections in Contract Documents.

Overlapping and Conflicting Requirements: Where compliance with two (2) or more industry standards or sets of requirements is specified, and overlapping of different standards or requirements establishes different or conflicting minimums or levels or quality, the most stringent requirement is intended and will be enforced, unless specifically detailed language written into Contract Documents clearly indicates that a less stringent requirement is to be fulfilled. Refer apparently-equal-but- different requirements, and uncertainties as to which level of quality is more stringent, to the **CONSULTANT** for interpretation before proceeding. Communications and instructions from the **CONSULTANT** to the **CONTRACTOR** must be in writing to be binding. Verbal communications must be confirmed in writing and acknowledged in writing by the **CONSULTANT** to be binding.

Abbreviations: The language of Contract Documents is of abbreviated type in certain instances, implying words and meanings, which will be appropriately interpreted. Actual work abbreviations of a self-explanatory nature have been included in the texts. Specific abbreviations have been established, principally for lengthy technical terminology and primarily in conjunction with coordination of specification requirements with notations on drawings and in schedules. These are frequently defined in the section at first instance of use. Trade association names and titles of general standards are frequently abbreviated. Singular words will be interpreted as plural and plural words will be interpreted as singular where applicable and where full context of the Contract Documents so indicates.

INDUSTRY STANDARDS:

General Applicability of Standards: Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, applicable standards of the construction industry have the same force and effect (and are made a part of Contract Documents by reference) as if copied directly into Contract Documents, or as if published copies were bound herewith. Refer to the other Contract Documents for resolution of overlapping and conflicting requirements, which result from the application of several different industry standards to the same unit of work.

Refer to individual unit of work sections for indications of which specialized codes and standards the **CONTRACTOR** must keep at the project site, available for reference.

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

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

AIA	American Institute of Architects 1735 New York Avenue, N. W. Washington, D.C. 20006 202/626-7474
ANSI	American National Standards Institute 1430 Broadway, New York, NY 10018 212/354-3300
ASHRAE	American Society for Heating, Refrigerating, and Air Conditioning Engineers 1791 Tullie Circle, N.E., Atlanta, GA 30329 404/636-8400
ASTM	American Society for Testing and Materials 1916 Race Street, Philadelphia, PA 19103 215/299-5400
CFR	Code of Federal Regulations Available from Government Printing Office, Washington, D.C. 20402 (usually first published in Federal Register)
CGA	Compressed Gas Association 1235 Jefferson Davis Highway Arlington, VA 22202 703/979-0900
CS	Commercial Standard of NBS (U.S. Dept. of Commerce) Government Printing Office Washington, D.C. 20402
EPA	Environmental Protection Agency 401 M. Street, S.W., Washington, D.C. 20460

202/382-3949

FS	Federal Specification (General Services Admin.) Obtain from your Regional GSA Office, or purchase from GSA Specifications Unit (SFSIS), Seventh and D Streets, S.W. Washington, D.C. 20406 202/472-2205 or 2140
GA	Gypsum Association 1603 Orrington Avenue, Evanston, IL 60201 312/491-1744
GSA	General Services Administration F St. and 18th Street, N.W. Washington, D.C. 20405 202/655/4000
MIL	Military Standardization Documents (U.S. Dept. of Defense) Naval Publications and Forms Center 5801 Tabor Avenue, Philadelphia, PA 19120
NIST	National Institute of Standards and Technology (U.S. Dept. of Commerce) Gaithersburg, MD 20234 301/921-1000
NEC	National Electrical Code (by NFPA)
NFPA	National Fire Protection Association Batterymarch Park, Quincy, MA 02269 617/770-3000
OSHA	Occupational Safety & Health Administration (U.S. Dept. of Labor) Government Printing Office Washington, D.C. 20402
PS	Product Standard of NBS (U.S. Dept. of Commerce) Government Printing Office Washington, D.C. 20402
UL	Underwriters Laboratories

333 Pfingsten Rd., Northbrook, IL 60062
312/272/8800

TRADE UNION JURISDICTIONS:

The manner in which Contract Documents have been organized and subdivided is not intended to be an indication of jurisdictional or trade union agreements.

Maintain complete current information on jurisdictional matters, regulations actions and pending actions, as applicable to the work. Assign the work, and employ tradesmen and laborers, in a manner, which will not unduly risk jurisdictional disputes of a kind that could result in conflicts, delays, claims and losses in the performance of the work.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

PROJECT CLOSEOUT **SECTION 01390**

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

DESCRIPTION OF REQUIREMENTS:

Project Closeout is the term used to describe certain collective Project requirements, indicating completion of the Work, that are to be fulfilled near the end of the Contract Time in preparation for final acceptance and occupancy of the Work by the **OWNER**, as well as final payment to the **CONTRACTOR** and the normal termination of the Contract.

Specific requirements for individual units of Work are included in appropriate Sections.

Time of Project Closeout is directly related to Substantial Completion; therefore, the time of closeout may be either a single time period for the entire Work or a series of time periods for individual elements of the Work that have been certified as substantially complete at different dates. This time variation, if any, shall be applicable to the other provisions of this Section.

PREREQUISITES TO SUBSTANTIAL COMPLETION:

General: Complete the following before requesting the **CONSULTANT** to inspect for substantial completion, either for the entire Work or for portions of the Work. Include list of known exceptions.

In the progress payment request that coincides with, or is the first request following, the date substantial completion is claimed, show either 100% completion for the portion of the Work claimed as "substantially complete" or list incomplete items, the value of incomplete Work, and reasons for the Work being incomplete.

Include supporting documentation for substantial completion.

Advise **OWNER** of pending insurance change-over requirements.

Obtain and submit releases enabling **OWNER**'s full, unrestricted use of the Work and access to services and utilities. Where required, include occupancy permits, operating

certificates and similar releases.
Complete Final Cleaning requirements.

Touch-up, repair, restore and/or replace marred finishes affected by the Work when such damaged or marred finishes are in excess of anticipated results of normal abatement operations. Degree of excessive damage and necessary repair procedures will be as determined by the **CONSULTANT**.

Inspection Procedures: Upon receipt of **CONTRACTOR**'s request for inspection, the **CONSULTANT** will either proceed with inspection or advise **CONTRACTOR** of unfulfilled prerequisites.

Results of the inspection will form the "punch-list" for final acceptance.

PREREQUISITES TO FINAL ACCEPTANCE:

General: Complete the following before requesting the **CONSULTANT**'s final inspection for final acceptance, and final payment as required by the General Conditions. List known exceptions, if any, in request.

Submit the final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required. **CONTRACTOR**'s Certificate of Completion is enclosed at the end of this section.

Submit evidence of final, continuing insurance coverage complying with insurance requirements.

Reinspection Procedure: The **CONSULTANT** will reinspect the Work upon receipt of the **CONTRACTOR**'s notice that the Work, including punch-list items resulting from earlier inspections, has been completed, except for these items whose completion has been delayed because of circumstances that are acceptable to the **CONSULTANT**. Upon completion of reinspection, the **CONSULTANT** will either prepare final acceptance documents, or will advise the **CONTRACTOR** of Work that is incomplete or of obligations that have not been fulfilled, but are required for final acceptance.

MODIFICATION OF PROCEDURES:

The **OWNER** and **CONSULTANT** may modify, waive, and/or combine procedures, submittals and requirements of the Project Documents as may be deemed in the **OWNER**'s best interest and as may be suitable to the size and scope of the Project.

PART 3 - EXECUTION

FINAL CLEANING:

General: Special cleaning requirements for specific units of Work are included in the appropriate Sections.

Cleaning: Provide Final Cleaning of the Work as indicated. Employ licensed asbestos workers for final cleaning. Clean each surface or unit of Work to the condition expected from a normal, commercial building cleaning and maintenance program. Comply with the manufacturer's instructions for cleaning operations.

Complete the following cleaning operations before requesting the **CONSULTANT** to inspect for certification of Substantial Completion:

- Remove exposed labels in finished spaces, which are not required as permanent labels on materials supplied as part of the Work, except for "Asbestos", "Asbestos Free", or Thermal Insulation Labels specified elsewhere.

- Clean transparent materials affected by the Work, including mirrors and window/door glass, to a polished condition, removing substances, which are noticeably vision-obscuring materials.

- Clean hard surfaced floors affected by the Work, using materials approved by the **OWNER**.

- Clean exposed hard-surfaced finishes affected by the Work to a dirt-free condition, free of dust, stains, films and similar distracting substances. Except as otherwise indicated, avoid disturbance of natural weathering of exterior surfaces.

- Restore reflective surfaces to original reflective condition prior to Work.

- HEPA vacuum carpeted surfaces and similar soft surfaces affected by the Work. Professionally clean to remove staining caused by the Work.

- Clean toilet areas and plumbing fixtures affected by the Work to a sanitary condition, free of stains including stains from water exposure.

- Replace disposable type HVAC Filters affected by the Work using materials supplied by the **OWNER**. Clean permanent type filters after minimum of eight (8) hours of operation of HVAC equipment after Final Clearance.

- Clean light fixtures and lamps, which have been affected by the Work.

- Clean Project site (yard and grounds), including landscaped areas, of litter and foreign substances accumulated during the course of the Work.

- Sweep paved areas, which have been affected by the Work to a broom-clean condition; remove stains, petrochemical spills and other foreign deposits left by the Work.

- Rake unplanted grounds, which have been disturbed by the Work, to a smooth, even-textured surface.

Removal of Protection: Except as otherwise indicated or requested by the **CONSULTANT**, remove temporary protection devices and facilities, which were installed during the course of the Work to protect previously, completed work.

Comply with safety standards and governing regulations for cleaning operations.

Do not burn waste materials on the **OWNER**'s property.

Do not bury debris or excess materials on the **OWNER**'s property.

Do not discharge volatile or other harmful or dangerous materials into drainage systems. Remove waste materials from the Project site and dispose in accordance with regulatory requirements.

Where extra materials of value remaining after completion of associated Work have become the **OWNER**'s property, store materials as directed by the **OWNER**.

Remove temporary facilities, equipment, materials, and debris from the Project site.

CONTRACTOR'S CERTIFICATE OF COMPLETION

TO:

OWNER/MANAGER:

PROJECT:

BUILDING NAME:

LOCATION WITHIN BUILDING:

The Work for the above referenced Project has been completed in accordance with applicable requirements of the United States Environmental Protection Agency, the Occupational Safety and Health Administration, the National Institute for Occupational Safety and Health, and state, county, and local agencies. The Work has also been performed in accordance with the Project Manual as prepared by the **CONSULTANT**.

SIGNED: (Authorized Representative)

TITLE:

DATE:

AIR MONITORING AND INSPECTION
TESTING LABORATORY SERVICES **SECTION 01400**

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

DESCRIPTION OF THE WORK:

This Section describes air monitoring and inspection services to be carried out by the **CONSULTANT** to verify that the Work performed is in compliance and that the building areas beyond the Work Area and the outside environment remain uncontaminated. This section also sets forth airborne fiber levels both inside and outside the Work Area as action levels, and describes the action required by the **CONTRACTOR** if an action level is met or exceeded.

AIR MONITORING:

The **CONSULTANT** will be conducting air monitoring throughout the course of the Project.

Base Line Fiber Levels: The **CONSULTANT** will monitor airborne fiber levels prior to start of Work. A minimum of three (3) baseline air samples shall be collected from work area(s) with an air volume of no less than 1250 liters of air. The purpose of this air monitoring will be to establish prevailing airborne fiber levels prior to beginning abatement operations.

Work Area Isolation: The **CONSULTANT** will monitor airborne fiber levels outside the Work Area.

The purpose of this air monitoring will be to monitor integrity of the Work Area isolation relating to, but not limited to, prevention of contamination of building areas outside of the Work Area, prevention of failure of filtration or rupture in the ventilation system, and prevention of contamination of the exterior of the building.

Should indications of failure of integrity of any of the above systems occur, the **CONTRACTOR** shall immediately cease asbestos abatement activities until the discrepancy is corrected. Work shall not recommence until authorized by the **CONSULTANT**.

Work Area Airborne Fiber Levels: The **CONSULTANT** will monitor airborne fiber levels inside the Work Area.

The purpose of this air monitoring will be to monitor airborne fiber levels to verify appropriateness of the Work Area isolation procedures including respiratory protection.

Final Clearance: The **CONSULTANT** will conduct Final Clearance air sampling in accordance with the Final Clearance Section(s).

AIRBORNE FIBER LEVELS:

Inside Work Area: Maintain an average airborne fiber level in the Work Area of less than 0.1 fibers per cubic centimeter. If the fiber levels rise above this figure for any sample taken, revise work procedures to lower fiber levels. If the Time Weighted Average (TWA) fiber level for any Work shift or eight (8) hour period exceeds 0.2 fibers per cubic centimeter, stop Work and leave ventilation system in operation. Do not recommence Work until authorized in writing by the **CONSULTANT**.

Outside Work Area: Maintain an average airborne level outside the Work Area of less than or equal to Base Line as established below.

If any air sample taken outside the Work Area exceeds the Base Line, immediately and automatically stop Work until the CONSULTANT can determine the source of the excessive readings. If no outside non-asbestos source can be located by the **CONSULTANT** and if this air sample was taken inside the building and outside of Critical Barriers around the Work Area, immediately erect new Critical Barriers as set forth in Section 01500 to isolate the affected area from the balance of the building or as instructed by the **CONSULTANT**.

Erect Critical Barriers at the next existing structural isolation of the involved space (e.g. wall, ceiling, floor).

Decontaminate the affected area in accordance with Section 01510.

Respiratory protection as set forth in Section 01710 shall be worn in affected area until area is cleared for re-occupancy.

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

If the exit from the clean room of the personnel decontamination unit enters the affected area, establish a new decontamination facility.

After visual inspection by the **CONSULTANT** in the extended work area, remove Critical Barriers separating the Work Area from the affected area.

Include the affected area in the Work Area and proceed with the Work.

Fiber Type Disputes: The following procedure will be used to resolve disputes regarding fiber types when the Project has been stopped due to excessive airborne fiber levels:

Air samples will be secured in the disputed area by the **CONSULTANT** for analysis by Transmission Electron Microscopy and classified as retests and back-charged to the **CONTRACTOR** in accordance with the procedures in this specification.

ANALYTICAL METHODS:

The CONSULTANT in collecting and analyzing air samples will utilize the following analytical methods:

Phase Contrast Microscopy (NIOSH 7400 Method A, Revision No. 3).

Transmission Electron Microscopy (NIOSH 7402, Yamate, or 40 CFR Part 763).

SAMPLE PROTOCOLS:

General: The number and volume of air samples taken by the **CONSULTANT** will generally be in accordance with the following schedule. Locations and methodologies may vary depending upon the analytical method and project layout used and at the discretion of the **CONSULTANT**.

SCHEDULE OF AIR SAMPLES:

Base Line Sample Schedule: The **CONSULTANT** will secure the following air samples to establish Base Line Fiber Levels prior to start of Work.

LOCATION SAMPLED	MINIMUM NUMBER OF SAMPLES	PLANNED ANALYTICAL METHOD
Each Work Area	1	PCM
Outside Each Work Area	1	PCM
Outside Building	1	PCM

Base Line Fiber Level: is an action level expressed in fibers per cubic centimeter, which is the larger of the following:

Average of the samples collected outside each work area.

Minimum Base Line: 0.01 fibers per cubic centimeter.

Daily Sample Schedule (per 8-hour work period): From start of Work of Section 01500 through the Work of Section 01580, the **CONSULTANT** will take the following samples on a daily (8-hour work period) basis.

LOCATION SAMPLED PER 8 HR SHIFT	NUMBER OF SAMPLES	PLANNED ANALYTICAL METHOD
Each Work Area	2	PCM
Outside Each Work Area	3	PCM
Outside Building	1	PCM
Output Reduced Air Pressure System	1	PCM

If airborne fiber counts exceed baseline limits (except in Work Areas), additional samples will be taken (and classified as retests) as necessary to monitor fiber levels and confirm sources.

PRE-FINAL AIR SAMPLING (AGGRESSIVE PCM):

Aggressive PCM Pre-final Air Sampling will be performed by the **CONSULTANT** in the same manner as daily air sampling.

Release Criteria: Work prior to Pre-final Air Sampling is complete when every Work Area sample is below 0.01 fibers/cc or the Base Line outside the Work Area, whichever is greater. If any sample is above the limit indicated, then the Work is incomplete and re-cleaning by decontamination procedures and ventilation system cycling is required and containment barriers cannot be removed.

LABORATORY TESTING:

The **CONSULTANT** will perform laboratory analysis of the air samples. A microscope and technician will be set up at the Project site, at the option of the **CONSULTANT**, so that verbal reports on air samples can be obtained promptly after collection.

Daily reports to the **OWNER** by the **CONSULTANT** will include air monitoring data and pertinent information on work being conducted such as: work hours, number of workers, procedures used, contractor discrepancies and corrective measures, containment methods and construction, and amount of **ACM** removed.

INSPECTIONS:

The **CONSULTANT**, in addition to providing air-monitoring services, will provide full-time, on-site inspection of Work activities. Work shall not proceed without prior notice (forty-eight (48) hour minimum) to the **CONSULTANT** and presence of the **CONSULTANT** on the Project site.

The **CONSULTANT**'s inspections do not relieve the **CONTRACTOR** of his Contract obligations and are not designed to locate all discrepancies.

Inspections will require forty-eight (48) hours advance notice to the **CONSULTANT**.

The **CONSULTANT** will conduct the following key Project inspections and no work by the **CONTRACTOR** shall proceed beyond each inspection until discrepancies noted during the inspection have been corrected.

Prep Inspection:
The **CONSULTANT** will inspect Work Area and Containment prior to start of removal activities (gross removal). Removal operations shall not proceed until the **CONSULTANT** has completed inspection of the Work Area preparations and until discrepancies noted have been corrected.

Inspections during gross removal:
Inspection of the Work Area and Work practices will be conducted on an ongoing basis. Upon report of discrepancies the **CONTRACTOR** shall immediately take corrective actions, including discontinuing removal activities if appropriate.

Gross Removal Completion Inspection:
The **CONSULTANT** will inspect the Work Area after completion of gross removal Work, including detail cleaning of substrate. Upon completion of the inspection by the **CONSULTANT** and correction of discrepancies noted, the **CONTRACTOR** shall proceed with removal of all but one layer of Containment Barriers and cleaning of the remaining layer in preparation of lockdown encapsulation.

Pre-encapsulation Inspection:
The **CONSULTANT** will inspect the Work Area after completion of Containment Barrier cleaning. Lock-down encapsulation shall not proceed until discrepancies noted have been corrected.

Pre-final Inspection:
The **CONSULTANT** will inspect the Work Area after completion of encapsulation Work, but prior to removal of Containment Barriers. The **CONTRACTOR** shall correct discrepancies noted, and upon completion of corrections, the **CONSULTANT** will perform Pre-final Air Sampling.

Final Clearance Inspection:
The **CONSULTANT** will inspect the Work Area after completion of Pre-final Air Sampling, removal of Containment Barriers and clean-up, but prior to removal of Critical Barriers. The **CONTRACTOR** shall correct discrepancies noted, and upon completion of corrections, the **CONSULTANT** will perform Final Clearance Air Sampling.

Final Inspection:
The **CONSULTANT** will inspect the Project area after the **CONTRACTOR** has removed Critical Barriers, equipment, supplies, and performed final clean-up operations. Discrepancies, which are not or cannot be corrected expediently, will be assigned to a Project Punch List. Punch List items shall be resolved prior to Project Closeout.

Modifications: The above inspection schedule may be modified by the **CONSULTANT** to meet specific Project needs.

Failed inspections will be re-conducted and classified as retests.

PERSONAL MONITORING:

The **CONTRACTOR** shall perform air monitoring as required to meet OSHA Requirements for maintenance of Time Weighted Average (TWA) and excursion limit fiber counts for types of respiratory protection provided. The **OWNER** will not provide air-monitoring services to meet the **CONTRACTOR**'s OSHA requirements.

The **CONTRACTOR** shall post results of OSHA required air monitoring within forty-eight (48) hours of sample collection.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

FINAL CLEARANCE (AGGRESSIVE PCM) SECTION 01410

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

AIR MONITORING:

To determine if airborne fiber levels following abatement operations have been reduced to acceptable standards, the **CONSULTANT** will secure and analyze air samples in accordance with the following procedures.

AGGRESSIVE SAMPLING:

Air Samples from Work Areas will be collected using aggressive sampling techniques at locations determined by the **CONSULTANT** as follows:

Before sampling pumps are started, the exhaust from forced air equipment (leaf blower with electric motor) will be swept against walls, ceilings, floors, ledges and other surfaces in the Work Area.

Fans will be mounted in central locations directed toward ceilings and operated at low speed continuously for the period of sample collection to maintain fiber suspension as determined by the **CONSULTANT**.

SCHEDULE OF AIR SAMPLES:

General: The number and volume of air samples taken and analytical methods used by the **CONSULTANT** will generally be in accordance with the following schedule. Sample quantities, volumes, and analytical methodologies may vary and will be at the discretion of the **CONSULTANT**.

In each homogeneous Work Area or as determined by the **CONSULTANT**, samples will be collected and analyzed as follows:

LOCATION SAMPLED	SCHEDULED NUMBER OF SAMPLES	FILTER MEDIA
Each Work Area	5	Cellulose Ester
Outside of Work Area	5	Cellulose Ester

Analysis: Fibers on each filter will be measured using the NIOSH 7400 procedures.

Release Criteria: Final Clearance (Aggressive PCM) of the Work Area is complete when every Work Area sample is below 0.01 fibers per cubic centimeter.

Re-cleaning: If the results of analysis of the Work Area samples fails to meet the release criteria, Final Clearance is incomplete, re-cleaning per Section 01580 is required, and re-testing is required until release criteria is met.

LABORATORY TESTING:

The **CONSULTANT** will be employed by the **OWNER** to perform laboratory analysis of the air samples.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

TEMPORARY CONTAINMENT **SECTION 01500**

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

PART 2 - PRODUCTS

Plastic Sheeting: A single polyethylene film in the largest sheet size possible to minimize seams, 4 or 6 mils thick as indicated, translucent or opaque, as indicated.

Fire Retardant Plastic Sheeting: When working near hot equipment, in fire potential area, or otherwise required 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.

Reinforced Plastic Sheeting: Provide nylon-reinforced, laminated polyethylene film.

Spray Plastic: Provide spray plastic in aerosol cans or premixed for spray application which is formulated to adhere gently to surfaces and remove cleanly by peeling off at the completion of the Work. Use of spray plastic must be approved in advance by the **CONSULTANT**.

Adhesive Tape: Provide adhesive tape in 2" or 3" widths as indicated or required, with an adhesive which is formulated to aggressively stick to sheet polyethylene and other surfaces in a wet, humid, hot environment.

Spray Adhesive: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene, and other surfaces in a wet, humid, hot environment. Use only on surfaces not scheduled to be salvaged, or on surfaces which can be cleaned of the spray adhesive.

Window: Provide 1/4" thick, 18" x 24" minimum clear plastic window(s) to be located to provide view into each Containment Area at location as directed by the **CONSULTANT**.

Paint: Provide luminescent paint capable of adhering to sheet polyethylene in a wet, humid, hot environment.

PART 3 - EXECUTION

SEQUENCE OF WORK:

Carry out work of this section sequentially. Complete each activity before proceeding to the next, except as may be modified by the **CONSULTANT** to meet Project conditions.

ALTERNATE METHODS OF CONTAINMENT:

Alternate methods of containing the Work Area may be submitted to the **CONSULTANT** for review in accordance with procedures set forth in Section 01360. Do not proceed with any such method(s) without prior approval of the **CONSULTANT**.

WARNING SIGNAGE:

Provide Warning Signs in English and Spanish meeting regulatory requirements generally reading as follows:

Signage shall be placed at approaches to the Work Area at such positions that personnel will have adequate time to take precautions. Post signage so as to not be in view of the general public inside or outside of the building.

Post preliminary signs in public areas reading similar to "CAUTION - CONSTRUCTION AREA - KEEP OUT". Provide visual barriers between preliminary signs and required signage as necessary to prevent undue public view of required signage.

TEMPORARY FACILITIES:

Provide temporary facilities per Section 01380, including temporary disconnection or isolation of existing electrical systems within the abatement work areas.

WORKER PROTECTION:

Provide Worker Protection per Section 01700.

RESPIRATORY PROTECTION:

Provide Respiratory Protection per Section 01710.

VENTILATION SYSTEM:

Provide Ventilation System per Section 01530.

CRITICAL BARRIERS:

Decontaminate Surfaces in areas to receive Critical Barriers with a HEPA vacuum and by wet wiping (if surface can be wet wiped) per Section 01510 prior to installation of Critical Barriers.

Completely Separate the Work Area from other portions of the building and/or the exterior with plastic sheeting, 4 mil (min) thickness, sealing perimeter and seams with adhesive tape and/or spray adhesive.

Individually seal ventilation openings, wall mounted fixtures, doorways, windows, and other openings into the Work Area with adhesive tape or with plastic sheeting 6 mil (min) thickness secured in place with adhesive tape.

Maintain seal until Work, including Final Clearance, is completed. Exercise care in sealing active lighting and other fixtures to avoid melting or burning of plastic sheeting. Provide ventilation for equipment, such as electrical transformers, as necessary.

Provide plastic sheeting barriers at least 4 mil in thickness as required to completely seal openings from the Work Area into adjacent areas. Seal the perimeter and seams of plastic sheeting barriers with adhesive tape.

PRE-CLEANING (DECONTAMINATION):

Decontaminate wall, floor and ceiling surfaces, within the Work Area with a HEPA vacuum and by wet wiping (if surface can be wet wiped) per Section 01510.

Decontaminate furniture, carpeting, fixtures, equipment, and/or supplies within the Work Area with a HEPA vacuum and by wet wiping (if surface can be wet wiped) per Section 01510, prior to being moved or covered. Decontamination of interior surfaces of enclosed cabinets, drawers, equipment, etc, is not required, unless otherwise indicated.

ACCESS TO FUNGI (MOLD):

Remove built-in construction items, such as lighting fixtures, clocks, diffusers, registers, escutcheon plates, cabinets, casework, doors and window trim, moldings, etc., which cover surfaces involved with the Work.
Decontaminate with a HEPA vacuum and by wet wiping (if surface can be wet wiped) per Section 01510.

Reinstall removed items upon completion of Work with materials, finishes, and workmanship to match existing installations prior to start of Work to the satisfaction of the **CONSULTANT**.

CARPET:

Cover Carpeting (where occurs) with a minimum of one (1) additional layer of 6 mil plastic sheeting to protect carpeting as critical barrier if carpeting is to remain in place during Work.

DECONTAMINATION UNITS:

Provide Decontamination Units per Section 01520.

CONTAINMENT BARRIERS:

Provide Containment Barriers on surfaces that are not scheduled to be removed .

Provide two (2) layers of plastic sheeting Containment Barriers on floor areas to remain intact until removed.

Cover floor of Work Area with a minimum of two (2) individual layers of plastic sheeting, 6 mil (min) each, turned up walls at least twelve (12) inches. Form a sharp right angle bend at junction of floor and wall so that there is no radius which could be stepped on causing the wall attachment to be pulled loose. Seal seams using both spray adhesive and adhesive tape.

Locate seams in top layer at a minimum of six (6) feet from, or at right angles to, seams in bottom layer. Install plastic sheeting so that top layer can be removed independently of bottom layer.

Provide one (1) layer of plastic sheeting Containment Barriers on wall and ceiling areas to remain intact until removed.

Cover walls and ceilings in Work Area with a minimum of one (1) layer of plastic sheeting, 4 mil (min), supported as required to maintain barrier intact. Seal perimeters and seams, including the joining with the floor sheeting, with spray adhesive and adhesive tape.
Provide two (2) layers of plastic sheet containment barriers on walls for acoustical plaster or fireproofing removal.

Emergency Exits: At each existing door and opening from the Work Area, provide the following means for emergency exiting. Arrange exit door so that it is secure from outside the Work Area but permits exiting from the Work Area. Mark outline of door on Containment Barriers with luminescent paint or tape at least one inch (1") wide. Hang a razor knife suitable for cutting through the Containment Barriers on a string beside

outline. Tape or paint with luminescent paint the word "EXIT" inside the outline in letters at least six inches (6") high and one inch (1") wide.

View Windows: Provide a twelve (12) inch square by 1/8 inch thick (min) clear plastic view window or windows into Containment areas to allow view to full extent possible. Locate as directed by the **CONSULTANT**.

Drop Cloth: Provide on the floor and wall areas as a Drop Cloth a single layer of plastic sheeting (6 mil on floor, 4 mil on wall) in Work Areas during removal operations. Turn floor Drop Cloth up walls at least eighteen (18) inches. Form a sharp right angle bend at junction of floor and wall so that there is no radius which could be stepped on causing the wall attachment to be pulled loose. Overlap wall Drop Cloth twelve (12) inches at floor. Seal seams using both spray adhesive and adhesive tape.

Install Drop Cloth at the beginning of each work shift. Drop cloth need only to be sufficient coverage for work of that shift.

Remove Drop Cloth at end of each work shift or as work in an area is completed. Fold Drop Cloth toward center of sheet and dispose with fungi (mold) contaminated material.

Keep material on sheet continuously wet until bagged.

Install Walkways of 6 mil plastic sheeting between active removal areas and decontamination units to protect Containment Barriers from tracked material. Install walkways at the beginning of, and remove at the end of each work shift.

EXTENSION OF WORK AREA:
If the Containment Barrier is breached in any manner that could allow the passage of debris or airborne fibers, then add the affected area to the Work Area and provide Temporary Containment as required by this Section.

PRE-CLEANING AND DECONTAMINATION PROCEDURES SECTION 01510

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

DESCRIPTION OF THE WORK:

The Work includes decontamination of areas prior to construction of Temporary Containment.

PART 2 - PRODUCTS (not applicable)

PART 3 - EXECUTION

RESPIRATORY AND WORKER PROTECTION:

Provide Worker Protection per Section 01700.

Provide Respiratory Protection per Section 01710.

WET CLEANING (WET WIPING):

Accomplish wet cleaning during decontamination with **lint-free towels** (paper or disposable rags).

Wipe surface once and re-fold to a fresh face of cloth. Proceed in this manner until available faces of towel have been used.

Dispose of towel as contaminated waste.

HEPA VACUUM PROCEDURES:

Clean small areas of debris using the following procedures:

Remove small debris with the HEPA vacuum.

HEPA vacuum surfaces of pieces too large to be removed by the suction of the HEPA vacuum.

Pick up such pieces and place in the bottom of a Disposal Bag.

Place pieces in the bag without dropping and avoiding unnecessary disturbance of material.

Remove remaining visible debris with HEPA vacuum.

HEPA vacuum an area three (3) feet beyond the location in which visible debris was found. Vacuum in two directions each at right angles to the other.

Clean wall, ceiling, and floor surfaces using the following procedures:

HEPA vacuum surfaces in the room starting with the ceiling, then vacuum starting at the top of walls and working downward to the floor. Next begin at the corner of floor farthest from Work Area entrance and work towards entrance.

HEPA vacuum the floor using a floor attachment with rubber floor seals and adjustable floor to attachment height.

Adjust the height so that the rubber seals just touch the floor if carpeted and are within 1/16" of hard surface floors.

Vacuum the floor in parallel passes with each pass overlapping the previous by one half the width of the floor attachment. At the completion of one cleaning, vacuum the floor a second time at right angles to the first.

DECONTAMINATION UNITS **SECTION 01520**

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

DESCRIPTION OF WORK:

Provide personnel and equipment decontamination facilities.

PART 2 - PRODUCTS

Plastic Sheeting: A single polyethylene film in the largest sheet size possible to minimize seams, 4 or 6 mils thick as indicated, translucent or opaque, as indicated.

Fire Retardant Plastic Sheeting: When working near hot equipment, in fire potential area, or otherwise required 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.

Reinforced Plastic Sheeting: Provide nylon-reinforced, laminated polyethylene film.

Spray Plastic: Provide spray plastic in aerosol cans or premixed for spray application which is formulated to adhere gently to surfaces and remove cleanly by peeling off at the completion of the Work. Use of spray plastic must be approved in advance by the **CONSULTANT**.

Adhesive Tape: Provide adhesive tape in 2" or 3" widths as indicated or required, with an adhesive which is formulated to aggressively stick to sheet polyethylene and other surfaces in a wet, humid, hot environment.

Spray Adhesive: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene, and other surfaces in a wet, humid, hot environment. Use only on surfaces not scheduled to be salvaged, or on surfaces which can be cleaned of the spray adhesive.

Shower Pan: Provide one piece waterproof shower pan fabricated from seamless fiberglass, stainless steel with welded seams, or other system acceptable to the **CONSULTANT**.

Shower Walls and Roof: Provide walls and roof fabricated from impervious, waterproof material. Structurally support as necessary for stability.

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

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

Primary Filter - Pass particles 20 microns and smaller

Secondary Filter - Pass particles 5 microns and smaller

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

Sump Pump: Provide totally submersible waterproof sump pump with integral float switch. Provide unit sized to pump two (2) times the flow capacity of showers or hoses supplying water to the sump, through filters 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.

Disposable Decontamination Unit: The **CONTRACTOR** may provide, as an option, disposable Decontamination Units fabricated utilizing corrugated cardboard or other non-cleanable materials. Units shall be disposed with fungi (mold).

PART 3 - EXECUTION

CONSTRUCTION:

Walls and Ceiling: Construct airtight walls and ceiling using plastic sheeting, 6 mil (min) in thickness. Attach to existing building components or to a temporary framework.

Floors: Use a minimum of two (2) layers of plastic sheeting, 6 mil (min) in thickness, to cover floors (including under shower pan). Use only translucent or clear plastic sheeting to cover floors.

Curtained Doorways: Fabricate from two (2) overlapping layers of plastic sheeting with openings a minimum of three feet (3') wide. Configure so that sheeting overlaps adjacent surfaces. Weight sheets at bottom 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. Attach top and right side of outer sheet to doorway frame. Attach top and left side of inner sheet to doorway frame.

Ceiling: If the decontamination unit is located within an area with workers overhead, provide the top of the unit with a minimum 1/4 inch hardboard or ½ inch plywood "ceiling" with plastic sheeting, 6 mil (min) in thickness, covering the top of the "ceiling".

Visual Barrier: Where the decontamination unit is within view of occupied areas, provide a visual barriers of opaque plastic sheeting or other suitable material so that worker privacy is maintained and work procedures are not visible to building occupants.

Solid Barrier: Where the area adjacent to the decontamination unit is accessible to building occupants, construct a solid barrier on the public side of the sheeting to protect the sheeting. Construct barrier with wood or metal framing covered with minimum of 1/4 inch thick hardboard or ½ inch plywood. Where a solid barrier is provided, sheeting need not be opaque.

Alternate methods of providing decontamination facilities may be submitted to the **CONSULTANT** for review. Do not proceed with alternate method(s) without authorization of the **CONSULTANT**.

PERSONNEL DECONTAMINATION UNIT:

General: Provide a Personnel Decontamination Unit consisting of a serial arrangement of connected rooms or spaces, with a minimum of a Changing Room, Air Lock Space, Shower Room, Air Lock Space and Equipment Room.

Require persons, without exception, to pass through this Decontamination Unit for entry into and exiting from the Work Area.

Do not allow parallel routes for entry or exit.

Provide temporary lighting within Decontamination Units as necessary.

Electrical: Provide control panel at Changing Room or other outside location to accommodate **CONTRACTOR**'s equipment. Provide complete ground-fault circuit protection for electrical service from control panel, and in accordance with applicable regulations.

Emergency Numbers: Post clearly in Changing Room (Clean Room) the telephone numbers and locations of emergency services including, but not limited to, fire, ambulance, doctor, hospital, police, power company, telephone company.

Signs: Post an approximately twenty inch by fourteen inch (20" x 14") manufactured danger sign at each entrance to the Work Area displaying the following general legend, and as required by applicable regulations.

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

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

Separate Changing Room from other building areas by curtained doorway.

Require workers to remove street clothes in this room, dress in clean disposable coveralls, and don respiratory protection equipment.

Do not allow fungi (mold) contaminated items to enter this room.

An existing room may be utilized as the Changing Room if it is suitably located and of a configuration whereby workers may enter the Changing Room directly from the Shower Room. Protect surfaces of such Changing Room with plastic sheeting similar to Containment Barriers as set forth in Section 01500. Authorization for this configuration must be obtained from the **CONSULTANT** prior to start of Work.

Maintain floor of Changing Room dry and clean at all times.
Damp wipe surfaces after each shift change with a disinfectant solution.

Provide a continuously adequate supply of disposable bath towels.

Provide storage facilities per employee as required with additional facilities for **CONSULTANT** and anticipated visitors.

Shower Room: Provide a completely watertight operational shower to be used for transit by cleanly dressed workers heading for the Work Area from the Changing Room, or for showering by workers headed out of Work Area after undressing in the Equipment Room.

Construct room by providing a Shower Pan and Shower Walls in a configuration that will cause water running down walls to drip into pan.

Provide Shower Head and Controls at convenient location securely attached to shower wall.

Provide splash-proof entrances to Changing and Equipment Rooms with two (2) curtained doorways.

Provide hot and cold water and drainage, as necessary for a complete and operable shower. Provide adequate hot water supply for number of persons using shower facilities.

Provide a freely draining floor in shower pan at minimum one (1) inch from top of pan.

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

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

Provide Sump Pump to pump waste water through filters to drain.

Change filters as necessary to maintain efficiency.

Clean debris from shower pans on a daily basis.

Equipment Room (Dirty Room): This is a change and transit area for workers. Separate this room from the Work Area by a plastic sheeting curtained doorway. Require work equipment, footwear and additional contaminated work clothing to be left in Equipment Room.

Provide Drop Cloth per Section 01500 in Equipment Room for each shift. Remove and dispose of Drop cloth after each shift.

Wet wipe surfaces in Equipment Room after each shift change.

Disposable Decontamination Unit: Disposable units shall be utilized at one location per containment and then disposed with fungi (mold) contamination. Moving a disposable unit from one location to another is prohibited.

PERSONNEL DECONTAMINATION SEQUENCE:

Entering Work Area:

Worker shall enter Changing Room, remove street clothing, put on clean disposable overalls and respirator, and pass through the Shower Room into the Equipment Room.

Additional clothing and equipment left in Equipment Room needed by the worker shall be put on in the Equipment Room.

Worker shall then proceed to Work Area.

Exiting Work Area:
Before leaving the Work Area, require the worker to remove gross contamination and debris from overalls and feet. The worker shall then proceed to the Equipment Room and remove disposable clothing. Removed disposable clothing shall be placed in a disposal bag for disposal. Respiratory protection equipment shall not be removed.

Refer to Section 01700 for Shower Room decontamination procedures.

After showering, the worker shall proceed to the Changing Room and dress in either new coveralls for another entry or street clothes if leaving.

EQUIPMENT (BAG-OUT) DECONTAMINATION UNITS:

General: The **CONTRACTOR** may provide an Equipment and Bag-out Decontamination Unit consisting of a serial arrangement of rooms (Wash Down Station, Wash Room, Holding Room, Clean Room) for removal of equipment and material from Work Area. Personnel shall not enter or exit Work Area through Equipment Decontamination Unit.

Wash Down Station: Provide an enclosed completely watertight shower unit located in the Work Area just outside Wash Room as an equipment, bag and container cleaning station.

Construct shower by providing a Shower Pan and Shower Walls in a configuration that will cause water running down walls to drip into pan.

Provide suitable type of fixtures and controls for washing equipment, bags and containers.

Provide splash-proof entrance to Work Area with curtained doorway.

Provide a freely draining floor in shower pan at minimum one (1) inch from top of pan.

Provide Sump Pump to pump waste water through filters to drain. Change filters as necessary to maintain efficiency.

Clean debris from shower pans on a daily basis.

Wash Room (Dirty Room): Provide Wash Room for cleaning of equipment, bags and containers passed from the Work Area. Construct Wash Room of adequate size and located so that equipment, bags and containers, can be wiped clean and passed to the Holding Room. Separate this room from the Wash Down Station by a curtained doorway.

Holding Room: Provide Holding Room as a drop location for equipment, bags and containers passed from the Wash Room. Size and locate so that equipment, bags and containers cannot be passed directly from the Wash Room through the Holding Room to the Clean Room. Separate Holding Room from the adjacent rooms by curtained doorways.

Clean Room: Provide Clean Room to isolate the Holding Room from the building or exterior. Size and locate to provide access to the Holding Room. Separate Clean Room from the building or exterior by a curtained doorway.

EQUIPMENT (BAG-OUT) DECONTAMINATION SEQUENCE:

Remove equipment, bags and containers from the Work Area through the Equipment Decontamination Unit according to the following procedure:

At Wash Down Station, thoroughly wash equipment, bags and containers and pass items into Wash Room.

At Wash Room, wet clean equipment, bags and containers per Section 01510 and pass items into Holding Room. Workers shall not enter the Holding Room from the Wash Room.

Enter Holding Area from Clean Room and remove decontaminated items through the Clean Room. Workers shall not enter the Wash Room from the Holding Room.

CLEANING OF DECONTAMINATION UNITS:

Clean debris and residue from inside of Decontamination Units on a daily basis. Wet wipe or wash surfaces when necessary to maintain sanitary conditions.

If the Changing Room of the Personnel Decontamination Unit or the Clean Room or Holding Room becomes contaminated, abandon the Decontamination Unit and erect a new Decontamination Unit. The former Unit may be used as an inner section of the new "Dirty Room".

VENTILATION SYSTEM **SECTION 01530**

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

PART 2 - PRODUCTS

VENTILATION UNITS:

General: Supply adequate number of air filtration exhaust ventilation units. Each unit shall include the following:

Cabinet: Constructed of steel or other durable materials able to withstand damage from rough handling and transportation. Provide cabinet widths to accommodate doorways. Cabinet shall be factory sealed to prevent material from being released during use, transport, or maintenance. Access to and replacement of air filters shall be from intake end. Unit shall be mounted on casters or wheels.

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

HEPA Filters: The final filter shall be a HEPA type. Provide filter media folded into closely pleated panels. Completely seal the filter media edges with a structurally rigid frame. A continuous rubber gasket shall be located between the filter and the filter housing to form a tight seal.

Each filter shall be individually tested and certified by the manufacturer to have an efficiency of not less than 99.97 % when challenged with 0.3 um dioctyl phthalate (DOP) particles. Testing shall be in accordance with Military Standard Number 282 and Army Instruction Manual 136-300-175A. Each filter shall bear a UL586 label to indicate ability to perform under specified conditions.

Each filter shall be marked with the name of the manufacturer, serial number, air flow rating, efficiency and resistance, and the direction of the air flow.

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

Instrumentation: Each unit shall be 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.

A table indicating the usable air-handling capacity for various static pressure readings on the Magnehelic gauge shall be 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.

Provide units equipped with an elapsed time meter to show the total accumulated hours of operation.

Safety and Warning Devices: Each unit shall have an electrical (or mechanical) lockout to prevent fan from operating without a HEPA filter. Units shall be equipped with an automatic shutdown system to stop fan in the event of a major rupture in the HEPA filter or blocked air discharge.

Warning lights are required to indicate normal operation, excess pressure drop across the filters (i.e., filter overloading) and inadequate pressure drop (i.e., major rupture in HEPA filter or obstructed discharge).

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

PART 3 - EXECUTION

GENERAL:

The following is intended to provide a satisfactory reduced air pressure and ventilation rate in the Work Area.

PRESSURE DIFFERENTIAL:

Provide a fully operational ventilation system within the Work Area maintaining continuously a pressure differential across Work Area containment of 0.02 inches of H_2O.

PREPARATION OF THE WORK AREA:

Determining ventilation requirements: Provide a sufficient number of fully operational ventilation units to provide the equivalent of a minimum of one air change every twelve (12) minutes, within the contained Work Area. Determine total ventilation requirement in cubic feet per minute (cfm) for the Work Area by dividing area volume by the air change rate.

$$\text{Ventilation Requirement (CFM)} = \frac{\text{Volume of Work Area (cu.ft.)}}{12 \text{ (min)}}$$

Determining number of units needed by dividing the ventilation requirement (CFM) above by capacity of ventilation 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 at which loaded filter warning lights activate) indicated on the unit's labeled operating characteristics.

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

Location of Ventilation Units: Locate ventilation unit(s) so that makeup air enters Work Area primarily through decontamination facilities and traverses Work Area as much as possible. Position the ventilation unit(s) at a maximum distance from the worker access opening or other makeup air sources.

Place exhaust end of unit or exhaust duct through an opening in the containment barrier or wall. Thoroughly seal opening against unit or duct.

Vent to exterior of building, unless authorized otherwise by the **CONSULTANT**. As necessary, provide additional lengths of flexible or rigid duct connected to the exhaust end of unit and routed to the nearest exterior opening.

Auxiliary Makeup Air Inlets: Provide where required for proper air flow through the Work Area in locations approved by the **CONSULTANT** by making openings in the plastic sheeting that allows air from outside the Work Area into the Work Area.

Locate auxiliary makeup air inlets as far as possible from the ventilation unit(s), off the floor, preferably near the ceiling, and away from barriers that separate the Work Area from occupied areas. Cover with flaps to reseal automatically if the ventilation system should shut down for any reason. Spray flap and around opening with spray adhesive so that flap seals if closed.

If makeup air is coming from a contaminated or potentially contaminated source, provide a HEPA filter at intake before air enters Work Area. Provide supply air fans to overcome the resistance of the HEPA filter as necessary.

A ventilation unit may be used for this purpose. Calculations for air change requirements shall accommodate force makeup air to insure that Work Area remains under reduced air pressure.

OPERATION OF VENTILATION SYSTEM:

Electrical Service: Provide adequate electrical service to ventilation units. Provide separate overload protection devices to each unit such that an overload on one unit will not trip devices of other units in operation.

Testing the System: Test ventilation system prior to start of removal operations. Demonstrate successful operation of ventilation system to **CONSULTANT** during Prep Inspection per Section 01400.

Demonstration of the Operation of the ventilation system to the **CONSULTANT** shall include, but not to be limited to, the following:

Containment Barriers moving lightly in toward Work Area.

Curtained doorways of decontamination units moving lightly in toward Work Area.

Noticeable movement of air through the decontamination unit.

Measurement of the reduced air pressure.

Modify the Ventilation System as necessary to successfully demonstrate the above to the satisfaction of the **CONSULTANT**.

Operation of System during Abatement:

Operate system continuously to maintain a constant reduced air pressure 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. If failure of ventilation system occurs, immediately stop abatement work and do not resume until system is fully operating.
Operate system continuously during encapsulating procedures.

Start removal work at a location farthest from the ventilation units and proceed toward the units.

At completion of removal work, allow ventilation system to operate to purge the Work Area with clean makeup air and to remove airborne fibers that may have been generated during removal work.

Operate system continuously until **CONSULTANT** authorizes shut down after successful Final Clearance Air Testing.

Dismantling the System:

Before removal of units from the Work Area, remove and dispose of pre-filters as fungi (mold) contaminated, clean and seal unit intake and exhaust openings with 6 mil plastic sheeting, decontaminate exterior of units and seal entire unit, except rolling assembly, with 6 mil plastic sheeting.

REMOVAL OF ASBESTOS-CONTAINING MATERIALS SECTION 01540

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

SUBMITTALS:

Include manufacturer's data and disposal plan for proposed use of Over-sized Disposal Bags in the Plan of Action, Section 01000:

PART 2 - PRODUCTS

PLASTIC SHEETING, ADHESIVE TAPE, etc: Refer to Section 01500.

WETTING AGENTS:

Amended Water: Provide water to which a surfactant has been added. Use a mixture of surfactant and water which results in wetting of the ACM and retardation of fiber release during disturbance of the material equal to or greater than that provided by the use of one ounce of a surfactant consisting of 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with five gallons of water.

Removal Encapsulant: Provide a penetrating type encapsulant designed specifically for removal of ACM. Use a material which results in wetting of the ACM and retardation of fiber release during disturbance of the material equal to or greater than that provided by water amended with a surfactant consisting of 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with five gallons of water.

DISPOSAL BAGS: Provide single layer, 6 mil (min) thickness, leak-tight, manufactured polyethylene bags. Provide bags with DOT marking ARQ, ASBESTOS, NA 2212" and diamond shaped figure with black stripes on top half and A9" on the bottom half.

DISPOSAL CONTAINERS: Provide manufactured rigid plastic or coated cardboard drums or boxes, leak-tight, with mechanically sealed lids specifically intended for disposal of asbestos-containing waste materials. Containers manufactured to meet more stringent disposal requirements will be acceptable.

DISPOSAL BAG LABELS: Provide labels with **OWNER**'s name, Project site address and the following warning, and in accordance with regulatory requirements.

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

PART 3 - EXECUTION

TEMPORARY CONTAINMENT:

Provide Temporary Containment per Section 01500.

GENERAL REMOVAL CRITERIA (GROSS REMOVAL):

Apply wetting agents in strict accordance with manufacturer's instructions.

Thoroughly wet material to be removed prior to disturbance to reduce fiber dispersal into the air. Accomplish wetting by a fine spray (mist) of wetting agent (amended water or removal encapsulant) applied with airless spray equipment. Saturate material sufficiently to wet to the substrate without causing excess dripping. Allow adequate time for wetting agent to penetrate material thoroughly. Spray material repeatedly during the removal work to maintain a continuously wet condition.

Perforate outer covering of material which has been painted or jacketed in order to allow penetration of wetting agent, or where necessary, carefully strip away while simultaneously spraying amended water or removal encapsulant on the installation to minimize dispersal of asbestos fibers into the air.

Mist work area continuously with amended water as necessary to reduce airborne fiber levels. Apply mist with airless spray equipment.

The use of compressed air or other non-airless type equipment will not be permitted.

Remove saturated material in manageable quantities. Do not allow material to dry out.

Control the descent to staging or floor below. If over twenty (20) feet use drop chute to contain material through descent.

Thoroughly clean substrate, removing remaining residue using stiff bristled brush, pressure washer, or combination of methods to provide effective results.

PIPE INSULATION REMOVAL:

Wet and remove material as indicated above.

Cut bands holding preformed pipe insulation, slit jackets at seams, remove and hand-place in a disposal bag. Do not drop to floor.

Remove job molded fitting insulation in pieces as large as practical and hand place in a disposal bag. Do not drop to floor.

Where pipefitting insulation is removed from pipe with straight runs insulated with fibrous glass or other non-asbestos-containing fibrous material, remove fibrous material six (6) inches from the point of contact with the asbestos-containing insulation and seal exposed ends of remaining pipe insulation.

CEMENT FIBER BOARD REMOVAL:

Wet and remove material as indicated above.

Remove material in full panels, as practical, using care not to break panels.

Place panels in disposal bags, containers or wrap with two (2) layers of plastic sheeting, 6 mil (min) in thickness, and label as required.

DISPOSAL BAG PROCEDURE:

Place removed material while still in wet condition into disposal bags.

Evacuate air from disposal bags with a HEPA vacuum before sealing.

Twist neck of bags, bend over and seal with minimum three (3) wraps of adhesive tape.

Clean outside of bags and move to decontamination unit.

Place second bag around first immediately prior to moving through decontamination unit. Evacuate air, twist neck, and seal the second bag in the same manner as the first.

Wash bags in shower, wet clean, and pass cleaned bags to adjacent room.

Attach label to each disposal bag as indicated and in accordance with regulatory requirements.

Dispose of labeled bags per Section 01590.

DISPOSAL CONTAINER PROCEDURE:

Place removed material while still in wet condition into disposal containers. Seal containers securely.

Clean outside of containers and move to decontamination unit.

Wash containers in shower, wet clean, and pass cleaned containers to adjacent room.

Attach label to each container as indicated and in accordance with regulatory requirements.

Dispose of labeled containers per Section 01590.

REMOVAL OF RESILIENT SHEET FLOORING SECTION 01551

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

SUBMITTALS:

Include manufacturer's data and disposal plan for proposed use of Over-sized Disposal Bags in the Plan of Action, Section 01000.

PART 2 - PRODUCTS

PLASTIC SHEETING, ADHESIVE TAPE, ETC.:

Refer to Section 01500.

WETTING AGENTS:

Amended Water: Provide water to which a surfactant has been added. Use a mixture of surfactant and water which results in wetting of the ACM and retardation of fiber release during disturbance of the material equal to or greater than that provided by the use of one ounce of a surfactant consisting of 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with five (5) gallons of water.

Removal Encapsulant: Provide a penetrating type encapsulant designed specifically for removal of ACM. Use a material which results in wetting of the ACM and retardation of fiber release during disturbance of the material equal to or greater than that provided by water amended with a surfactant consisting of 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with five (5) gallons of water.

DISPOSAL BAGS:

Provide single layer, 6 mil (min) thickness, leak-tight, manufactured polyethylene bags. Provide bags with required DOT marking ARQ, ASBESTOS, NA 2212" and diamond shaped figure with black stripes on top half and A9" on the bottom half.

DISPOSAL CONTAINERS:

Provide manufactured rigid plastic or coated cardboard drums or boxes, leak-tight, with mechanically sealed lids specifically intended for disposal of asbestos-containing waste materials. Containers manufactured to meet more stringent disposal requirements with be acceptable.

DISPOSAL BAG LABELS:

Provide labels with OWNER's name, Project site address and the following warning, and in accordance with regulatory requirements.

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

PART 3 - EXECUTION

TEMPORARY CONTAINMENT:

Provide Temporary Containment per Section 01500. Do not place plastic sheeting on materials to be removed.

GENERAL REMOVAL CRITERIA (GROSS REMOVAL):

Apply wetting agents in strict accordance with manufacturer=s instructions.
Thoroughly wet material to be removed prior to disturbance to reduce fiber dispersal into the air. Accomplish wetting by a fine spray (mist) of wetting agent (amended water or removal encapsulant)) applied with airless spray equipment. Saturate material sufficiently to wet to the substrate without causing excess dripping. Allow adequate time for wetting agent to penetrate material thoroughly. Spray material repeated during the removal work to maintain a continuously wet condition.

Perforate outer covering of material which has been painted or jacketed in order to allow penetration of wetting agent, or where necessary, carefully strip away while simultaneously spraying amended water or removal encapsulant on the installation to minimize dispersal of asbestos fibers into the air.

Mist work area continuously with amended water as necessary to reduce airborne fiber levels. Apply mist with airless spray equipment.

The use of compressed air or other non-airless type of equipment will not be permitted.

Remove saturated material in manageable quantities. Do not allow material to dry out.

Control the descent to staging floor below. If over twenty (20) feet use drop chute to contain material during descent.

Thoroughly clean substrate, removing remaining residue using stiff bristled brush, pressure washer or combination of methods to provide effective results.

DISPOSAL BAG PROCEDURE:

Place removed material while still in wet condition into disposal bags.

Evacuate air from disposal bags with a HEPA vacuum before sealing.

Twist neck of bags, bend over and seal with a minimum of three (3) wraps of adhesive tape.

Clean outside of bags and move to decontamination unit.

Place second bag around first immediately prior to moving through decontamination unit. Evacuate air, twist neck, and seal the second bag in the same manner as the first.

Wash bags in shower, wet clean, and pass cleaned bags to adjacent room.

Attach label to each disposal bag as indicated and in accordance with regulatory requirements.

Dispose of labeled bags per Section 01590.

DISPOSAL CONTAINER PROCEDURE:

Place removed material while still in wet condition into disposal containers. Seal containers securely.

Clean outside of containers and move to decontamination unit.

Wash containers in shower, wet clean, and pass cleaned containers to adjacent room.

Attach label to each container as indicated and in accordance with regulatory requirements.

Disposes of labeled containers per Section 01590.

REMOVAL OF DRYWALLS **SECTION 01552**

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

SUBMITTALS:

Include manufacturer's data and disposal plan for proposed use of Over-sized Disposal Bags in the Plan of Action, Section 01000:

PART 2 - PRODUCTS

PLASTIC SHEETING, ADHESIVE TAPE, ETC:

Refer to Section 01500.

WETTING AGENTS:

Amended Water: Provide water to which a surfactant has been added. Use a mixture of surfactant and water which results in wetting of the ACM and retardation of fiber release during disturbance of the material equal to or greater than that provided by the use of one ounce of a surfactant consisting of 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with five gallons of water.

Removal Encapsulant: Provide a penetrating type encapsulant designed specifically for removal of ACM. Use a material which results in wetting of the ACM and retardation of fiber release during disturbance of the material equal to or greater than that provided by water amended with a surfactant consisting of 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with five gallons of water.

DISPOSAL BAGS: Provide single layer, 6 mil (min) thickness, leak-tight, manufactured polyethylene bags. Provide bags with DOT marking ARQ, ASBESTOS, NA 2212" and diamond shaped figure with black stripes on top half and A9" on the bottom half.

DISPOSAL CONTAINERS: Provide manufactured rigid plastic or coated cardboard drums or boxes, leak-tight, with mechanically sealed lids specifically intended for disposal of asbestos-containing waste materials. Containers manufactured to meet more stringent

disposal requirements will be acceptable.

DISPOSAL BAG LABELS: Provide labels with **OWNER**'s name, Project site address and the following warning, and in accordance with regulatory requirements.

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

PART 3 - EXECUTION

TEMPORARY CONTAINMENT:

Provide Temporary Containment per Section 01500. Do not place plastic sheeting on materials to be removed.

GENERAL REMOVAL CRITERIA (GROSS REMOVAL):

Apply wetting agents in strict accordance with manufacturer's instructions.

Thoroughly wet material to be removed prior to disturbance to reduce fiber dispersal into the air. Accomplish wetting by a fine spray (mist) of wetting agent (amended water or removal encapsulant) applied with airless spray equipment. Saturate material sufficiently to wet to the substrate without causing excess dripping. Allow adequate time for wetting agent to penetrate material thoroughly. Spray material repeatedly during the removal work to maintain a continuously wet condition.

Perforate outer covering of material which has been painted or jacketed in order to allow penetration of wetting agent, or where necessary, carefully break away while simultaneously spraying amended water or removal encapsulant on the sheetrock to minimize dispersal of asbestos fibers into the air.

Mist work area continuously with amended water as necessary to reduce airborne fiber levels. Apply mist with airless spray equipment.

The use of compressed air or other non-airless type equipment will not be permitted.

Remove saturated material in manageable quantities. Do not allow material to dry out.

Control the descent to staging or floor below. If over twenty (20) feet use drop chute to contain material through descent.

Thoroughly clean substrate, removing remaining residue using stiff bristled brush or combination of methods to provide effective results.

DISPOSAL BAG PROCEDURE:

Place removed material while still in wet condition into disposal bags.

Evacuate air from disposal bags with a HEPA vacuum before sealing.

Twist neck of bags, bend over and seal with minimum three (3) wraps of adhesive tape.

Clean outside of bags and move to decontamination unit.

Place second bag around first immediately prior to moving through decontamination unit. Evacuate air, twist neck, and seal the second bag in the same manner as the first.

Wash bags in shower, wet clean, and pass cleaned bags to adjacent room.

Attach label to each disposal bag as indicated and in accordance with regulatory requirements.

Dispose of labeled bags per Section 01590.

DISPOSAL CONTAINER PROCEDURE:

Place removed material while still in wet condition into disposal containers. Seal containers securely.

Clean outside of containers and move to decontamination unit.

Wash containers in shower, wet clean, and pass cleaned containers to adjacent room.

Attach label to each container as indicated and in accordance with regulatory requirements.

Dispose of labeled containers per Section 01590.

REMOVAL OF TEMPORARY CONTAINMENT SECTION 01580

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

SUMMARY:

This section describes procedures following the removal of indicated **ACM** to the completion of abatement activities, including removal of temporary containment, equipment, supplies, and temporary facilities from the Project site.

SUBMITTALS:

Indicate clearly on submittals finishes or coatings (if any), which may be incompatible with proposed encapsulant.

PRODUCT DELIVERY:

Deliver products per section 01370, and include the following information: name or title of materials, manufacturer's stock number and date of manufacture, thinning instructions and application instructions.

Deliver products together with a copy of the OSHA Material Safety Data Sheet for the material.

PART 2 - PRODUCTS

ENCAPSULANTS (LOCK-DOWN):

Provide penetrating or bridging type encapsulants specifically designed for use with asbestos containing materials and for application to intended substrates.

Provide encapsulant suitable to receive painted or acoustical finishes.

Fire Safety: Use only materials that have a flame spread index of less than twenty-five (25), when dry, when tested in accordance with ASTM E-84.

PART 3 - EXECUTION

GROSS REMOVAL:

Work of this Section begins at completion of gross removal Work.

PRE-ENCAPSULATION PROCEDURES:

Remove all but the bottom most layer of the Containment Barriers.

Decontaminate surfaces of remaining Containment Barriers with a HEPA vacuum and by wet wiping per Section 13510.

LOCK-DOWN ENCAPSULATION:

Apply encapsulant in strict accordance with the manufacturer's instructions, including requirements for environmental conditions in the Work Area.

Utilize airless spray equipment with air pressure and nozzle orifice as recommended by the encapsulant manufacturer.

Do not apply excessive coating to cause drips, runs, or thickened build-up of material.

Do not apply encapsulant to mechanical and electrical equipment, moving parts, gauges, glass and similar surfaces.

Allow encapsulant to dry thoroughly, minimum of four (4) hours, before proceeding.

PRE-FINAL CLEARANCE PROCEDURES:

Remove Containment Barriers.

Decontaminate exposed surfaces of Work Area, which visually exhibit debris or water contamination with a HEPA vacuum and by wet wiping per Section 01510.

POST-FINAL CLEARANCE PROCEDURES:

Remove Critical Barriers.

Decontaminate exposed surfaces of Work Area, which visually exhibit debris or water contamination with a HEPA vacuum and by wet wiping per Section 01510.

Remove Ventilation System.

Remove Decontamination Units.

Decontaminate exposed surfaces at removed Decontamination Units, which visually exhibit debris or water contamination with a HEPA vacuum and by wet wiping per Section 01510.

DISPOSAL OF ASBESTOS-CONTAINING WASTE MATERIAL SECTION 01590

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

SUMMARY:

Asbestos-containing waste material shall be disposed as indicated and in accordance with Federal, State, and Local disposal regulations.

The **CONTRACTOR** shall provide for waste materials storage, loading, vehicles and equipment, transport, off-loading, and other necessary items of Work associated with disposal of asbestos-containing waste.

DISPOSAL FEES:

The **CONTRACTOR** shall pay disposal fees associated with the Work.

SUBMITTALS:

Submit proposed transporter and landfill prior to start of Work. Transporter and Landfill must be acceptable to the **CITY**. If either is unacceptable the **CONTRACTOR** shall provide an acceptable substitution.

Submit evidence of fee payment no later than initial payment request.

Submit waste manifests to the **CITY** for review and signature a minimum of twenty-four (24) hours in advance of proposed transport. Submit via hand delivery or courier.

Submit copies of waste manifests and landfill receipts to the **CONSULTANT** on a weekly basis.

PART 2 - PRODUCTS

STORAGE CONTAINER:

Provide fully enclosed, metal, lockable storage container (dumpster) for temporary storage of **ACM** waste material on the Project site, if at **CONTRACTOR**'s option, temporary storage is to be employed.

Line entire storage container with a single layer of plastic sheeting, 6 mil (min) in thickness. Install in a like manner to Containment Barriers per Section 01500.

Locate storage container in area designated by the **CITY**.

A vehicle meeting requirements of storage container may be use for temporary storage of **ACM** waste material.

TRANSPORT VEHICLE:

Provide fully enclosed, lockable storage section on transport vehicle used for transport of **ACM** waste material.

Line entire storage area of transport vehicle with a single layer of plastic sheeting, 6 mil (min) in thickness. Install in a like manner to Containment Barriers per Section 01500.

VEHICLE WARNING SIGN:

Provide a warning sign for each vehicle used to transport asbestos-containing waste materials in accordance with regulatory requirements and include the following legend:

DANGER
ASBESTOS DUST HAZARD
CANCER AND LUNG DISEASE HAZARD
Authorized Personnel Only

PART 3 - EXECUTION

BAG-OUT PROCEDURES:

Remove disposal bags or containers from the Decontamination Unit and carefully load directly into Storage Container or Transport Vehicle.

Provide visual barriers (minimum: opaque plastic sheeting) to obstruct the view of bag-out operations from areas outside the **CONTRACTOR**'s designated area.

Do not store **ACM** waste material outside of the Work Area except in Storage Container as indicated.

TRANSPORT:

Attach warning sign to vehicles during the loading and unloading of **ACM** waste material. Sign shall remain visible during loading and unloading activities.

Exercise care before and during transport, to insure that no unauthorized persons have access to the waste material.

Advise the **CITY** and **CONSULTANT**, a minimum of seventy-two (72) hours in advance, of intended transport and quantity of material involved.

Carefully off-load bags or containers by hand at the landfill site.

If bags or containers are broken or damaged, decontaminate intact bags or containers per Section 01510, place each damaged bag or container, including debris in two (2) new, clean undamaged bags or a container in the same manner as originally placed, and decontaminate vehicle storage area per Section 01510. Dispose of vehicle lining and cleaning materials and supplies as **ACM**. Retain receipts from landfill for disposed materials.

WORKER PROTECTION **SECTION 01700**

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

SUMMARY:

This Section describes clothing, equipment and procedures for protection of workers during asbestos abatement activities.

Refer to Section 01710 for Respiratory Protection.

WORKER TRAINING:

Provide worker training for workers on the Project in accordance with applicable regulations. Worker training shall be maintained current for the Project Duration.

MEDICAL EXAMINATIONS:

Provide medical examinations for workers on the Project in accordance with applicable regulations, including OSHA requirements as set forth in 29 CFR 1926 1001 (m). Worker medical examinations shall be maintained current for the Project Duration.

LICENSING\REGISTRATION:

Provide appropriate licensing\registration, including state photo identification, for workers on the Project in accordance with applicable regulations. Worker licensing\registration shall be maintained current for the Project Duration.

SUBMITTALS:

General: Submit the following documentation to the **CONSULTANT** for review. Submit in a timely fashion to allow completed review of documentation prior to start of Work. Workers whose documentation is unreviewed, incomplete, expired or otherwise unsatisfactory as determined by the **CONSULTANT** will not be permitted to engage in asbestos abatement activities on the Project. If a document expires during the course of the Project, the affected worker(s) will not be permitted to engage in asbestos abatement activities on the Project until a satisfactory current document has been submitted and reviewed by the **CONSULTANT**.

List of Workers: Submit a list of **CONTRACTOR**'s personnel (typewritten or neatly printed) for the Project. Only **CONTRACTOR**'s personnel on the list will be permitted on the Project site. Post a copy of the list at the entry to the Work Area. Update the list on a daily basis.

Certificate of Worker's Acknowledgment: Submit an original signed copy of the Certificate of Worker's Acknowledgment, found at the end of this section, for each person on the List of Workers.

Worker Training Certificate: Submit evidence of required Worker Training.

Medical Examination Results: Submit copy of required Medical Examination results.

Worker Registration Certificate: Submit evidence of required Worker Licensing and Registration.

Respiratory Fit Test Certificate: Submit evidence of Respiratory Fit Test for the type of respirator proposed for Work, and in accordance with applicable regulations.

PART 2 - PRODUCTS

PROTECTIVE CLOTHING AND EQUIPMENT:

General: Provide protective clothing and equipment as required by applicable regulations for anticipated type of Work.

Coveralls: Provide disposable full-body coveralls, foot covers, and disposable head covers of polyolefin or polypropylene. Require that the above be worn continuously by personnel in the Work Area. Provide a sufficient number for required changes for workers, the **CONSULTANT** and visitors in the Work Area. Non-disposable or cloth protectives will not be permitted.

Gloves: Provide durable waterproof work gloves to workers and require that gloves be worn continuously by personnel in the Work Area. Do not remove gloves from work area; dispose as contaminated waste.

Boots and Shoes: Provide waterproof boots or shoes to be used in the Work Area. Provide boots or shoes with non-skid soles and hard toes.

Hard Hats: Provide head protectives (hard hats) for workers as applicable for anticipated type of Work. Provide four (4) spare hard hats for use by the **CONSULTANT** and visitors. Label hats with same warning labels as used on disposal bags. Require hard hats to be worn when Work is in progress. Provide hard hats with plastic strap style of suspension. Require hats to remain in the Work Area throughout the Work. Decontaminate Prior to removing from Work Area or dispose of hard hats as contaminated waste.

Goggles: Provide eye protectives (goggles) for workers involved in chipping, scraping, spraying, or other activity which may potentially cause eye injury.

PART 3 - EXECUTION

WORKER PROTECTION:

General: Provide for protection of workers and other authorized personnel on the Project site as required by applicable regulations for anticipated type of Work.

The following procedures are to be considered minimum regardless of air monitoring results within the Work Area.

Require that protective clothing and equipment be worn continuously in Work Area. Replace damaged or torn items immediately.

ENTERING WORK AREA:

Each time Work Area is entered, remove street clothes in the Changing Room of the Personnel Decontamination Unit and don new disposable coverall, head and foot covers and gloves. Tape gloves to the sleeves of coveralls.

Fit proper respiratory protection (respirator).

Proceed through Shower Room to Equipment Room. Don work boots or shoes, hard hat, goggles, etc in Equipment Room.
Proceed to Containment area.

WITHIN WORK AREA:

Workers shall not eat, drink, smoke, chew gum or tobacco in the Work Area.

Workers shall not remove protective clothing or equipment within the Work Area.

EXITING WORK AREA:

Decontamination Procedures: Require personnel to adhere to the following decontamination procedures when exiting the Work Area.

Remove disposable clothing and equipment (except respirator) in the Equipment Room.

Proceed to Shower Room still wearing respirator. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator to avoid asbestos contamination while showering.

Thoroughly wet body including hair and face.

If using PAPR, exercise care to prevent water from entering canisters, blower unit and battery pack.

If using half or full face cartridge type respirator (non-powered), exercise care to prevent water from entering cartridges at this point.

With respirator remaining in place, thoroughly wash body, hair, and parts of the respirator with soap/shampoo.

Carefully wash seal between face and respirator and under straps.

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

Carefully wash respirator inside and out. Dispose of wet filters as contaminated waste.

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. Use caution to prevent water entering the battery pack.
Rinse body and respirator thoroughly.

Rinse Shower Room walls and floor prior to exit.

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

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

PROJECT NAME

PROJECT ADDRESS

DATE _____

CONTRACTOR _____

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

Your employer's Contract with the OWNER for the above project requires that: You be supplied with the proper respirator and be trained in its use. You be trained in safe work practices and in the use of the equipment found on the job. You receive a medical examination. These things are to have been done at no cost to you. By signing this certification you are assuring the OWNER that your employer has met these obligations to you.

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

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

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

MEDICAL EXAMINATION: I have had a medical examination within the last 12 months which was paid for by my employer. This examination included: health history, pulmonary function tests and may have included an evaluation of a chest X-ray.

I further agree to hold the OWNER and the OWNER's Consultants harmless from any and all claims for asbestos or other claims I may have.

Signature _____

Printed Name _____

Social Security Number _____

Witness _____

CERTIFICADO DE CONOCIMIENTO DEL TRABAJADOR:(CERTIFICATE OF WORKER'S ACKNOWLEDGMENT: Spanish Version)

NOMBRE DEL PROJECTO _____ FECHA _____

DOMICILIO DEL PROJECTO _____

NOMBRE DEL CONTRATISTA _____

TRABAJAR CON ASBESTOS PUEDE SER PELIGROSO. EL RESPIRAR FIBRAS DE ASBESTOS A SIDO ASOCIADO CON VARIOS TIPOS DE CANCER. SI TU FUMAS Y RESPIRAS FIBRAS DE ASBESTOS, LAS POSIBILIDADES DE DESARROLLAR CANCER EN LOS PULMONES SON MAYORES QUE EN LAS PERSONAS QUE NO FUMAN.

El contrato de trabajo de tu patron con el dueño de este projecto requiere que: se te debe proporcionar un respirador apropiado y se te enseñe como usarlo. Tu debes ser entrenado para trabajar con medidas de seguridad y se te enseñe a usar el equipo y herramienta que se requiere para trabajar. Que seas examinado por un medico. Estas cosas deben ser hechas sin costo alguno para ti. Al firmar este certificado tu estas asegurando al dueño del projecto que tus patrones ya cumplieron con estas obligaciones (de proporcionarte equipo adecuado, entrenarte en practicas de seguridad y pasar por un chequeo medico). Por lo que se esta de acuerdo en mantener al dueño del projecto, sus consejeros, laboratorio de analisis y sus representantes fuera de responsabilidad en todas y cada una de las quejas que puedan resultar de, o relacionadas con este projecto.

PROTECCION RESPIRATORIA: Yo he sido entrenado en el use apropiado de respiradores, y he sido informado del tipo de respirador que debe ser usado en este projecto. Yo tengo una copia escrita del manual de proteccion respiratoria proporcionado por mis patrones. Yo he sido equipado sin costo alguno para me con el respirador que debe ser usado en este projecto.

CURSO DE ENTRENAMIENTO: Yo he sido entrenado en los peligros relacionados con el manejo de asbestos y con el respirar polvo de asbestos y he sido entrenado en los procedimientos de trabajo adecuados y medidas de proteccion personales en el area de trabajo. Los temas vistos en el curso incluyen los siguientes:

Caracteristicas fisicas de asbestos
Peligros de salud asociado con asbestos
Uso de equipo de proteccion
Sistemas de aire negativos
Practicas de trabajo mientras se trabaja o se entrena
Procedimientos de descontaminacion personal

Muestreo del aire, personal y del area

EXAMEN MEDICO: Yo he sido examinado dentro de los ultimos 12 meses el cual fue pagado por mis patrones. Esta examinacion incluye: historia de salud, pruebas de funcion pulmonares y podria tener incluida una evaluacion de rayos x del torax.

FIRMA _____

NOMBRE ESCRITO _____

NUMERO DEL SEGURO SOCIAL _____

TESTIGO _____

RESPIRATORY PROTECTION **SECTION 01710**

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to the Work of this section.

SUMMARY:

This Section describes respiratory protection during asbestos abatement activities.

STANDARDS:

Comply with the following as applicable:

OSHA	U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards 29 CFR 1910, Section 1001 and Section 1910.134, 29 CFR 1926.
CGA	Compressed Gas Association, Inc., New York, Pamphlet G-7, "Compressed Air for Human Respiration", and Specification G-7.1 "Commodity Specification for Air".
CSA	Canadian Standard Association, Rexdal, Ontario, Standard Z180.1-1978, "Compressed Breathing Air".
ANSI	American National Standard Practices for Respiratory Protection, ANSI Z88.2-1980.
NIOSH	National Institute for Occupational Safety and Health
MSHA	Mine Safety and Health Administration

PART 2 - PRODUCTS

AIR PURIFYING RESPIRATORS:

Respirator Bodies: Provide half-face or full-face type respirators; negative pressure or powered (PAPR). 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.

Provide an extra battery pack for each PAPR.

Filter Cartridges: Provide, at a minimum, HEPA type filters labeled with NIOSH and MSHA Certification for "Radionuclides, Radon Daughters, Dust, Fumes, Mists including Asbestos-Containing Dusts and Mists" and color coded in accordance with ANSI Z228.2 (1980).

In addition, a chemical cartridge section may be added, if required, for solvents, etc., in use. In such case, provide cartridges that have each section of the combination canister labeled with the appropriate color code and NIOSH/MSHA Certification.

Non-Permitted Respirators: Do not use single use, disposable or quarter face respirators.

SUPPLIED AIR RESPIRATOR SYSTEMS (TYPE "C"):

General: Provide equipment capable of producing air of quality and volume required as applied to the Project conditions and crew size.

Air Quality: Provide air used for breathing in Type "C" supplied air respiratory systems that meets or exceeds standards set for C.G.A. type 1 (Gaseous Air) Grade D.

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

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

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

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

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

Compressor shut-down or other fault requiring use of backup air supply,

Carbon Monoxide (CO) levels in excess of 10 PPM/V.

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

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

Carbon Monoxide (CO) concentrations exceed 10 PPM/V in the air line between the filter bank and backup air supply.

Compressor temperature exceeds normal operating range.

Compressor Motor: Provide a compressor driven by an electric motor. Insure that electrical supply available is adequate to energize motor.

If building power supply is inadequate or as other factors may necessitate, provide gasoline or diesel compressor motor as follows.

Compressor Location: Locate compressor outside of building in location that will not impede access to the building, and that will not cause a nuisance by virtue of noise or fumes to occupied portions of the building.

Air Intake: Locate air intake remotely from source or automobile exhaust or exhaust from motors, or buildings.

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

SELF-CONTAINED BREATHING APPARATUS (SCBA):

Configure system to permit the recharging of 2 hour 6220 PSI SCBA cylinders.

PART 3 - EXECUTION

GENERAL:

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

Instruct and train workers in proper care and use of respiratory protection equipment

Require that respiratory protection be used in the Work Area from the start of Work which may cause airborne asbestos fibers until the Work Area is completely decontaminated. Use respiratory protection appropriate for the fiber concentration encountered and anticipated or as required for other toxic or oxygen-deficient situations encountered.

Require that respiratory protection be used during the possibility of disturbance of asbestos-containing materials whether intentional or accidental.

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

RESPIRATORY PROTECTION FACTOR:

Use the following respiratory protection factors in determining the degree of protection offered by the indicated respirator type between air inside and outside the respirator.

RESPIRATOR TYPE	**PROTECTION FACTOR**
Air purifying: Negative pressure respirator High efficiency filter Half Face piece	10
Air purifying: Negative pressure respirator High efficiency filter Full Face piece	50
Powered-air purifying (PAPR): Positive pressure respirator High efficiency filter Half or Full Face piece	100
Type C supplied air: Positive pressure respirator Continuous-flow Half or Full Face piece	100
Type C supplied air: Positive pressure respirator Pressure demand Full Face piece	1000
Type C supplied air: Positive pressure respirator Pressure demand Full Face piece Equipped with an auxiliary positive pressure Self-contained breathing apparatus (SCBA)	Over 1000

Self-contained breathing apparatus(SCBA): Positive pressure respirator Pressure demand filter Full Face piece	Over 1000

MINIMUM TYPE OF RESPIRATORY PROTECTION REQUIRED:

Provide at a minimum the following respiratory protection unless otherwise indicated:

Preparatory, Pre-cleaning, Temporary Containment construction Work: Utilize half-face, negative pressure, air-purifying respirator with high efficiency filters.

Removal Work using Glove-Bag Method: Utilize half-face, negative pressure, air-purifying respirator with high efficiency filters.

Removal Work involving only Resilient Flooring and Mastic: Utilize half-face, negative pressure, air-purifying respirator with high efficiency filters.

Removal Work not in Temporary Containment (such as roofing materials): Utilize half-face, negative pressure, air-purifying respirator with high efficiency filters.

Other Removal Work: Utilize full-face, powered air-purifying respirator (PAPR) with high efficiency filters.

Repair and Maintenance Work: Utilize half-face, negative pressure, air-purifying respirator with high efficiency filters.

SUPPLIED AIR RESPIRATOR SYSTEMS (TYPE "C"):

General: Carefully set up and control supplied air respirator systems to prevent hazards for workers due to difficulty of handling the attached hoses, including on scaffolding and other equipment.

Air Systems Monitor: Monitor the air system operation including compressor operation, filter system operation, backup air capacity and warning and monitoring devices continuously during system operation.

AIR PURIFYING RESPIRATORS:

General: Store respirators and filters in the Changing Room. Store respirators in individual, clean plastic bags. Maintain a sufficient quantity of respirator filters for the Work.

Half or Full Face Negative Pressure Respirators: Require that filters be discarded and that new filters be installed each time a worker exits and re-enters the Work Area.

Powered Air Purifying Respirators (PAPR): Require that filters be discarded and that new filters be installed when flow through the face-piece decreases to the level at which the manufacturer recommends filter replacement. Require that regardless of flow, filters be replaced after forty (40) hours of use. Maintain one spare battery charged or being charged for each PAPR provided.

DEMOLITION WORK (NON-ACM) SECTION 02000

SUMMARY

Removal of Non-**ACM** materials (prior to beginning abatement activities) including:

drywall
carpet
doors and frames
millwork and equipment
wall finishes
curtains
electrical devices, conduit, and wiring in walls

PART 1 - GENERAL

SCOPE OF WORK

Provide labor and materials necessary to accomplish **DEMOLITION WORK** complete and in accordance with the General Conditions of the Contract.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

INSPECTION

Make detailed inspection of Work area prior to beginning.

Verify governing dimensions and other permissible dimensional tolerances.

Report in writing unsatisfactory conditions encountered; do not begin Work until conditions are correct. Beginning Work signifies acceptance of conditions.

PROTECTION

Protect items and materials designated to remain after completion of Project.

Do not disturb ceilings or other identified **ACM** materials in the course of the Work of this Section.

Replace, or repair to the satisfaction of the **OWNER**, elements that become damaged prior to Final Acceptance.

DEMOLITION

Remove existing construction as indicated.

Dampen materials to minimize dust.

Cut walls approximately 6" below ceilings to avoid disturbance of ceiling materials during Work of this Section. Carefully remove lower portion of wall and dispose of debris. Brace upper portions if require to maintain stability.

Materials which cannot be removed without disturbing **ACM** materials shall be removed as **ACM** in accordance with other parts of this Specification.

CLEANING

Maintain site and Work areas in broom clean condition daily.

Dispose of excess materials and debris away from site.

Comply with applicable codes and ordinances regarding waste transportation and disposal.

NON-ACM BUILDING DEMOLITION SECTION 02050

SUMMARY

Demolition of structure as Non-**ACM** after completion of abatement activities.

PART 1 - GENERAL

SCOPE OF WORK

Provide labor and materials necessary to accomplish **DEMOLITION WORK** complete and in accordance with the General Conditions of the Contract.

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION

INSPECTION

Make detailed inspection of Work Area prior to beginning.

Report in writing unsatisfactory conditions encountered; do not begin Work until conditions are correct. Beginning Work signifies acceptance of conditions.

Comply with applicable codes and ordinances regarding demolition, waste transportation and disposal. Obtain required permits as indicated in Section 01200, Codes and Regulations.

PROTECTION

Protect items and materials not indicated for demolition.

Replace, or repair to the satisfaction of the **OWNER**, elements that become damaged prior to Final Acceptance.

Protect active utilities within the Work Area. Coordinate disconnection of utilities with **OWNER** and utility companies. Provide for disconnecting of utilities from structure.

Cap disconnected utilities properly at five feet (5') minimum from building line.

DEMOLITION

Maintain materials in a condition (wet) to minimize construction dust.

Remove and dispose of existing construction including concrete slab foundation to two feet (2') below grade.

At completion of removal work, level excavated area to smooth grade.

Properly transport and dispose of excess materials and debris away from site.