



General Building Permit Application

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted.

Location/Address of Construction: 180 Park Avenue, Portland		
Total Square Footage of Proposed Structure/Area 7,500 S.F. Interior renovation		Square Footage of Lot N/A
Tax Assessor's Chart, Block & Lot Chart# Block# Lot# 048 A001 001	Applicant * must be owner, Lessee or Buyer* Name Portland Community Health Clinic Address 180 Park Avenue, Portland ME, 04101 City, State & Zip	Telephone: Ann Tucker, Owner's Rep. 874-2141 ext.5023
Lessee/DBA (If Applicable) Portland Community Health Clinic	Owner (if different from Applicant) Name Address City, State & Zip	Cost Of Work: \$ <u>20,000</u> C of O Fee: \$ <u>Fee</u> Total Fee: \$ <u>waived</u>
Current legal use (i.e. single family) <u>Business Use- Health Clinic</u> If vacant, what was the previous use? _____ Proposed Specific use: <u>Same as current- no change of use</u> Is property part of a subdivision? <u>No</u> If yes, please name _____ Project description: <u>first floor interior renovation of existing tenant space</u>		
Contractor's name: <u>Elliot Mead, Carpenter Contractor, Inc.</u> Address: <u>P.O. Box 833</u> City, State & Zip <u>Bath, ME 04530</u> Telephone: _____ Who should we contact when the permit is ready: <u>Elliot Mead</u> Telephone: <u>443-3513</u> Mailing address: <u>Same as above</u> Cell: <u>751-2171</u>		

Please submit all of the information outlined on the applicable Checklist. Failure to do so will result in the automatic denial of your permit.

In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information or to download copies of this form and other applications visit the Inspections Division on-line at www.portlandmaine.gov, or stop by the Inspections Division office, room 315 City Hall or call 874-8703.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature: Date: 12-5-12

This is not a permit; you may not commence ANY work until the permit is issue



Certificate of Design Application

Winton Scott Architects

From Designer:

December 3, 2012

Date:

Portland Community Health Center - Interior Renovations

Job Name:

180 Park Avenue

Address of Construction:

2003 International Building Code

Construction project was designed to the building code criteria listed below:

Building Code & Year 2009 IBC Use Group Classification (s) Business Use

Type of Construction Type III (200)

Will the Structure have a Fire suppression system in Accordance with Section 903.3.1 of the 2003 IRC No

Is the Structure mixed use? No If yes, separated or non separated or non separated (section 302.3) _____

Supervisory alarm System? No Geotechnical/Soils report required? (See Section 1802.2) No

Structural Design Calculations

N/A Submitted for all structural members (106.1 – 106.11)

Design Loads on Construction Documents (1603)

Uniformly distributed floor live loads (7603.11, 1807)

Floor Area Use	Loads Shown
<u>Existing N/A</u>	
_____	_____
_____	_____
_____	_____
_____	_____

Wind loads (1603.1.4, 1609)

Existing N/A Design option utilized (1609.1.1, 1609.6)

_____ Basic wind speed (1809.3)

_____ Building category and wind importance Factor, w_b (Table 1604.5, 1609.5)

_____ Wind exposure category (1609.4)

_____ Internal pressure coefficient (ASCE 7)

_____ Component and cladding pressures (1609.1.1, 1609.6.2.2)

_____ Main force wind pressures (7603.1.1, 1609.6.2.1)

Earth design data (1603.1.5, 1614-1623)

Existing N/A Design option utilized (1614.1)

_____ Seismic use group ("Category")

_____ Spectral response coefficients, S_D s & S_D1 (1615.1)

_____ Site class (1615.1.5)

Existing N/A

_____ Live load reduction

_____ Roof *live* loads (1603.1.2, 1607.11)

_____ Roof snow loads (1603.7.3, 1608)

_____ Ground snow load, P_g (1608.2)

_____ If $P_g > 10$ psf, flat-roof snow load P_f

_____ If $P_g > 10$ psf, snow exposure factor, C_e

_____ If $P_g > 10$ psf, snow load importance factor, I_s

_____ Roof thermal factor, C_t (1608.4)

_____ Sloped roof snowload, P_s (1608.4)

_____ Seismic design category (1616.3)

_____ Basic seismic force resisting system (1617.6.2)

_____ Response modification coefficient, R_f and deflection amplification factor, C_d (1617.6.2)

_____ Analysis procedure (1616.6, 1617.5)

_____ Design base shear (1617.4, 1617.5.1)

Flood loads (1803.1.6, 1612)

Existing N/A Flood Hazard area (1612.3)

_____ Elevation of structure

Other loads

Existing N/A Concentrated loads (1607.4)

_____ Partition loads (1607.5)

_____ Misc. loads (Table 1607.8, 1607.6.1, 1607.7, 1607.12, 1607.13, 1610, 1611, 2404)



Commercial Interior & Change of Use Permit Application Checklist

All of the following information is required and must be submitted. Checking off each item as you prepare your application package will ensure your package is complete and will help to expedite the permitting process.

One (1) complete set of construction drawings must include:

Note: Construction documents for costs in excess of \$50,000.00 must be prepared by a Design Professional and bear their seal.

- Cross sections w/framing details
- Detail of any new walls or permanent partitions
- Floor plans and elevations
- Window and door schedules
- Complete electrical and plumbing layout.
- Mechanical drawings for any specialized equipment such as furnaces, chimneys, gas equipment, HVAC equipment or other types of work that may require special review
- Insulation R-factors of walls, ceilings, floors & U-factors of windows as per the IECC 2003
- Proof of ownership is required if it is inconsistent with the assessors records.
- Reduced plans or electronic files in PDF format are required if originals are larger than 11" x 17".
- Per State Fire Marshall, all new bathrooms must be ADA compliant.

Separate permits are required for internal and external plumbing, HVAC & electrical installations.

For additions less than 500 sq. ft. or that does not affect parking or traffic, a site plan exemption should be filed including:

- The shape and dimension of the lot, footprint of the existing and proposed structure and the distance from the actual property lines.
- Location and dimensions of parking areas and driveways, street spaces and building frontage.
- Dimensional floor plan of existing space and dimensional floor plan of proposed space.

A Minor Site Plan Review is required for any change of use between 5,000 and 10,000 sq. ft. (cumulatively within a 3-year period)

Fire Department requirements.

The following shall be submitted on a separate sheet:

- Name, address and phone number of applicant **and** the project architect.
- Proposed use of structure (NFPA and IBC classification)
- Square footage of proposed structure (total and per story)
- Existing and proposed fire protection of structure.
- Separate plans shall be submitted for
 - a) Suppression system
 - b) Detection System (separate permit is required)
- A separate Life Safety Plan must include:
 - a) Fire resistance ratings of all means of egress
 - b) Travel distance from most remote point to exit discharge
 - c) Location of any required fire extinguishers
 - d) Location of emergency lighting
 - e) Location of exit signs
 - f) NFPA 101 code summary
- Elevators shall be sized to fit an 80" x 24" stretcher.

For questions on Fire Department requirements call the Fire Prevention Officer at (207) 874-8405.

Please submit all of the information outlined in this application checklist. If the application is incomplete, the application may be refused.

In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information or to download copies of this form and other applications visit the Inspections Division on-line at www.portlandmaine.gov, or stop by the Inspections Division office, room 315 City Hall or call 874-8703.

Permit Fee: \$30.00 for the first \$1000.00 construction cost, \$10.00 per additional \$1000.00 cost

This is not a Permit; you may not commence any work until the Permit is issued.



Accessibility Building Code Certificate

Designer: Winton Scott Architects

Address of Project: 180 Park Avenue

Nature of Project: Interior renovation of existing tenant space

The technical submissions covering the proposed construction work as described above have been designed in compliance with applicable referenced standards found in the Maine Human Rights Law and Federal Americans with Disability Act. Residential Buildings with 4 units or more must conform to the Federal Fair Housing Accessibility Standards. Please provide proof of compliance if applicable.

Signature: 

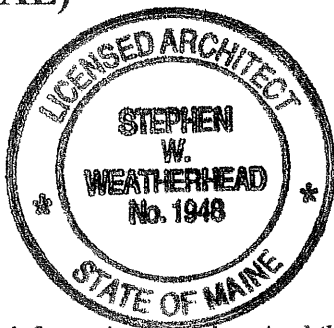
Title: Project Architect

Firm: Winton Scott Architects

Address: 5 Milk Street
Portland, ME 04101

Phone: 774-4811 ext. 3

(SEAL)



For more information or to download this form and other permit applications visit the Inspections Division on our website at www.portlandmaine.gov



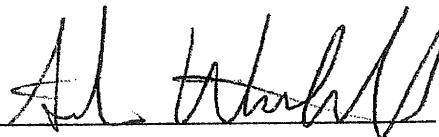
Certificate of Design

Date: 12/3/12

From: Steve Weatherhead, Winton Scott Architects

These plans and / or specifications covering construction work on:
Interior Renovations of Portland Community Health Clinic
180 Park Avenue

Have been designed and drawn up by the undersigned, a Maine registered Architect / Engineer according to the **2003 International Building Code** and local amendments.

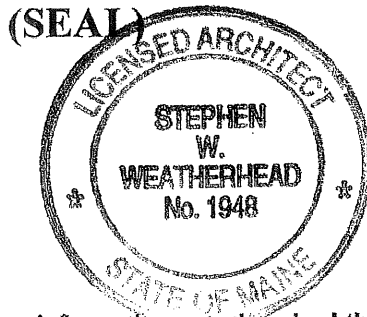
Signature: 

Title: Project Architect

Firm: Winton Scott Architects

Address: 5 Milk Street
Portland, ME 04101

Phone: 774-4811 ext.3



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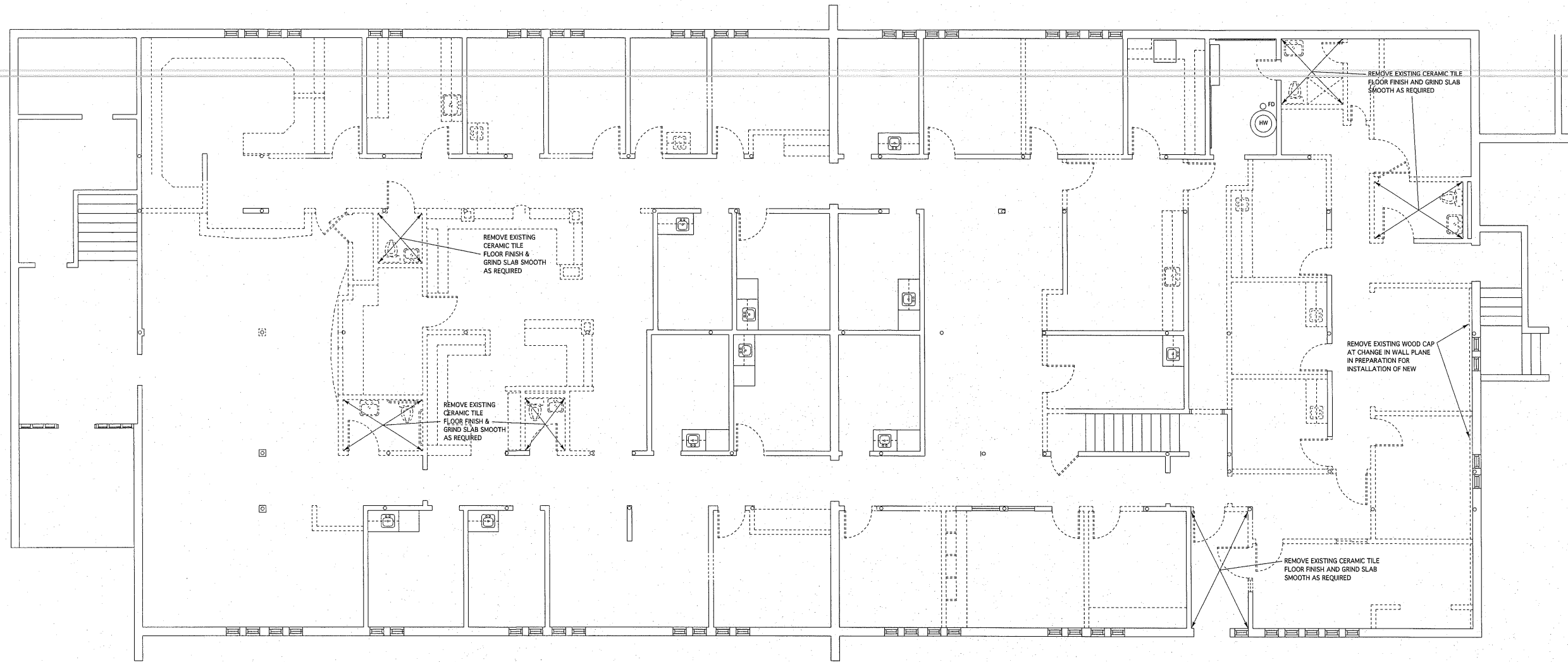


Winton Scott Architects
5 Milk Street
Portland, Maine 04101
207.774.4811
www.wintonsscott.com

Architecture / Planning
Preservation Architecture
Interior Architecture



Winton Scott



DEMOLITION PLAN

3/16"=1'-0"

Portland
Community
Health Center

180 Park Avenue
Portland, Maine

NOTES

1. EXISTING DOORS/FRAMES SCHEDULED TO REMAIN ARE NOT SHOWN ON DEMOLITION PLAN
2. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL REMOVALS.
3. SEE REFLECTED CEILING PLAN FOR EXTENT OF EXISTING CEILINGS TO REMAIN.
- 4.

CONSTRUCTION DOCUMENTS
August 31, 2012

Demolition Plan

Scale: As Noted

A 102

SECTION 01 35 46

INDOOR AIR QUALITY PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to work of this section.
- B. Contract Documents: Indicate the work of the Contract and related requirements and conditions that have an impact on the project. Related requirements and conditions that are indicated on the Contract Documents include, but are not necessarily limited to the following:
 - 1. Existing conditions and restrictions on the use of the floor.
 - 2. Requirements for partial Owner occupancy of portions of the work prior to substantial completion of the Contract Work.

1.02 SUMMARY OF DUST CONTROL MEASURES

- A. The work of this section can be summarized as follows:
 - 1. The purpose of this Section is to develop and implement actions required to be taken to compensate for hazards posed by dust which may be dislodged during construction.
 - 2. All temporary construction partitions shall be extended from the floor through the suspended ceiling, to the underside of the floor deck above. In areas where the presence of asbestos above the ceiling system prohibits the temporary partitions to be extended to the deck, the temporary partition shall be constructed to the ceiling system, and shall be taped against the ceiling system for a complete seal.
 - 3. The construction area shall be vacuumed prior to beginning construction, using a vacuum cleaner equipped with a HEPA filtering system.
 - 4. All penetrations into the construction area shall be sealed, windows closed, and all supply, exhaust / return air ducts capped when possible. Coordinate this work with the Owner.
 - 5. Temporary partitions to isolate the construction site shall have gasketed doors with self-closing latching hardware and dampened walk-off mats both inside and outside the construction area.
 - 6. Negative pressure shall be maintained within the construction site at all times by the use of negative air fans fitted with high-efficiency particulate air (HEPA) filters. Route ductwork from the negative-air fans to the exterior of the building, filtering the air in the duct prior to being discharged, by means of a standard furnace air filter.

7. Audible and/or visual alarms shall be installed so that any loss of negative pressure in the construction site can be known immediately to those outside the site.
8. Provide and install a magnehelic diaphragm-activated negative pressure gauge equal to Dwyer model 2000-0, with a water range of 0-.5", in each negative pressure construction area. Install the negative pressure gauge adjacent to the access door. Route a piece of plastic tubing from the gauge to a space not under construction, and not more than 20' away.
9. Debris removal from the construction site shall be completed by a predetermined route at times when staff are in their rooms with their doors closed, or during off hours. Debris shall be transported in clean containers with tight-fitting covers.
10. Any dust tracked out of the construction site shall be removed immediately. Cleaning in patient-occupied areas shall be with HEPA-filtered vacuum cleaners.
11. All air-handling ducts shall be shut down or covered whenever possible during demolition activities.
12. The negative air pressure system shall be activated prior to the commencement of work each day, and remain operating until one-half hour after the stop of work for each day.
13. All temporary partitions shall remain in place until all cleaning within the work areas has been completed.

PART 2 - PRODUCTS (Not applicable).

PART 3 - EXECUTION (Reserved).

END OF SECTION 01 85 00

SECTION 01 73 10

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
 - 1. Division 1 Section "Selective Demolition" for demolition of selected portions of the building for alterations.
 - 2. Division 7 Section "Through-Penetration Firestop Systems" for patching fire-rated construction.
 - 3. Divisions 2 through 16 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
 - a. Requirements in this Section apply to mechanical and electrical installations. Refer to Divisions 15 and 16 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

1.3 DEFINITIONS

- A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
 - 1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
 - 2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
 - 3. Products: List products to be used and firms or entities that will perform the Work.

4. Dates: Indicate when cutting and patching will be performed.
5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.5 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
 1. Primary operational systems and equipment.
 2. Air or smoke barriers.
 3. Fire-protection systems.
 4. Control systems.
 5. Communication systems.
 6. Conveying systems.
 7. Electrical wiring systems.
 8. Operating systems of special construction in Division 13 Sections.
- C. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
 1. Water, moisture, or vapor barriers.
 2. Membranes and flashings.
 3. Exterior curtain-wall construction.
 4. Equipment supports.
 5. Piping, ductwork, vessels, and equipment.
 6. Noise- and vibration-control elements and systems.
- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
 1. If possible, retain original Installer or fabricator to cut and patch exposed Work listed below. If it is impossible to engage original Installer or fabricator, engage another recognized, experienced, and specialized firm.
 - a. Processed concrete finishes.

- b. Stonework and stone masonry.
 - c. Ornamental metal.
 - d. Matched-veneer woodwork.
 - e. Preformed metal panels.
 - f. Roofing.
 - g. Firestopping.
 - h. Window wall system.
 - i. Stucco and ornamental plaster.
 - j. Terrazzo.
 - k. Finished wood flooring.
 - l. Fluid-applied flooring.
 - m. Aggregate wall coating.
 - n. Wall covering.
 - o. HVAC enclosures, cabinets, or covers.
- E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- F. Prevent movement or settlement of adjacent elements of construction. Provide and place bracing or shoring and be responsible for safety and support of structure. Be liable for any such movement or settlement and any damage or injury caused.

1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
- 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. **Compatibility:** Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. **Temporary Support:** Provide temporary support of Work to be cut.
- B. **Protection:** Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. **Adjoining Areas:** Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. **Existing Services:** Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to minimize interruption of services to occupied areas.

3.3 PERFORMANCE

- A. **General:** Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. **Cutting:** Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. **Existing Finished Surfaces:** Cut or drill from the exposed or finished side into concealed surfaces.
 3. **Concrete and Masonry:** Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. **Excavating and Backfilling:** Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
 5. **Mechanical and Electrical Services:** Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- C. **Patching:** Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as

possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Cease operations and notify the Architect immediately, if safety of structure appears to be endangered. Take all precautions to properly support structure. Do not resume operations until permission is granted by the Architect and authorities having jurisdiction.

END OF SECTION 01731

SECTION 02 41 19

SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:

- 1. Demolition and removal of selected portions of a building or structure.
- 2. Demolition and removal of selected site elements.
- 3. Repair procedures for selective demolition operations.

- B. Related Sections include the following:

- 1. Division 1 Section "Summary" for use of the premises and phasing requirements.
- 2. Division 1 Section "Work Restrictions" for restrictions on use of the premises due to Owner or tenant occupancy.
- 3. Division 1 Section "Construction Progress Documentation" for preconstruction photographs taken before selective demolition.
- 4. Division 1 Section "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for selective demolition operations.
- 5. Division 1 Section "Cutting and Patching" for cutting and patching procedures for selective demolition operations.
- 6. Division 1 Section "Dust Control Measures" for dust control measures in adjacent owner occupied areas.
- 7. Division 2 Section "Building Demolition" for demolition of entire buildings, structures, and site improvements.
- 8. Division 2 Section "Site Clearing" for site clearing and removal of above- and below-grade improvements.
- 9. Division 15 Sections for demolishing, cutting, patching, or relocating mechanical items.
- 10. Division 16 Sections for demolishing, cutting, patching, or relocating electrical items.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.
- B. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.
 - 1. Coordinate with Owner, who will establish special procedures for removal and salvage.

1.5 SUBMITTALS

- A. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- B. Proposed Dust-Control and Noise-Control Measures: Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Identify options if proposed measures are later determined to be inadequate.
- C. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
 - 2. Interruption of utility services.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Use of elevator and stairs.
 - 5. Locations of temporary partitions and means of egress, including for other departments affected by selective demolition operations.
 - 6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- D. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.
- E. Predemolition Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by selective demolition operations. Submit before Work begins.
- F. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.6 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Professional Engineer Qualifications: Comply with Division 1 Section "Quality Requirements."

- C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Standards: Comply with ANSI A10.6 and NFPA 241.
- E. Predemolition Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.7 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted. Provide not less than 5 days notice to Owner of activities that will affect Owner's operations.
- B. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
 - 1. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.
- C. Owner assumes no responsibility for condition of areas to be selectively demolished.
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
 - 2. Before selective demolition, Owner will remove the following items:
 - a. Exit Control System.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. Hazardous materials will be removed by Owner before start of the Work.
 - 2. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Storage or sale of removed items or materials on-site will not be permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

1.8 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.
 - 1. If possible, retain original Installer or fabricator to patch the exposed Work listed below that is damaged during selective demolition. If it is impossible to engage original Installer or fabricator, engage another recognized experienced and specialized firm.
 - a. Brick masonry.

- b. Window wall system.

PART 2 - PRODUCTS

2.1 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
 - 1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 2. Use materials whose installed performance equals or surpasses that of existing materials.
- B. Comply with material and installation requirements specified in individual Specification Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES

- A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
 - 1. Provide at least 72 hours' notice to Owner if shutdown of service is required during changeover.
- C. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated utilities when requested by Contractor.
 2. Arrange to shut off indicated utilities with utility companies.
 3. If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.
 4. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
- C. Utility Requirements: Refer to Division 15 and 16 Sections for shutting off, disconnecting, removing, and sealing or capping utilities. Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.3 PREPARATION

- A. Dangerous Materials: Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
 2. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
 3. Protect existing site improvements, appurtenances, and landscaping to remain.
 4. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
- C. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
- D. Temporary Enclosures: Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.

- E. Temporary Partitions: Erect and maintain dust proof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.
- G. Temporary Shoring: Provide and maintain interior and/or exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
 - 1. Strengthen or add new supports when required during progress of selective demolition.

3.4 POLLUTION CONTROLS

- A. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.
 - 1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
 - 2. Wet mop floors to eliminate trackable dirt and wipe down walls and doors of demolition enclosure. Vacuum carpeted areas.
- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- C. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.5 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
 - 5. Maintain adequate ventilation when using cutting torches.

6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 9. Dispose of demolished items and materials promptly.
 10. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- B. Existing Facilities: Comply with building manager's requirements for using and protecting elevators, stairs, walkways, loading docks, building entries, and other building facilities during selective demolition operations.
- C. Removed and Salvaged Items: Comply with the following:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to Owner's storage area on-site.
 5. Protect items from damage during transport and storage.
- D. Removed and Reinstalled Items: Comply with the following:
1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
- F. Concrete: Demolish in small sections. Cut concrete to a depth of at least 3/4 inch (19 mm) at junctures with construction to remain, using power-driven saw. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete indicated for selective demolition. Neatly trim openings to dimensions indicated.
- G. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals, using power-driven saw, then remove concrete between saw cuts.
- H. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
- I. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

- J. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI-WP and its Addendum.
 - 1. Remove residual adhesive and prepare substrate for new floor coverings by one of the methods recommended by RFCI.
- K. Roofing: Remove no more existing roofing than can be covered in one day by new roofing. Refer to applicable Division 7 Section for new roofing requirements.
- L. Air-Conditioning Equipment: Remove equipment without releasing refrigerants.

3.6 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Patching: Comply with Division 1 Section "Cutting and Patching."
- C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
 - 1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.
- D. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.
- E. Floors and Walls: Where walls or partitions that are demolished extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - 1. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
 - 2. Where patching occurs in a painted surface, apply primer and intermediate paint coats over patch and apply final paint coat over entire unbroken surface containing patch. Provide additional coats until patch blends with adjacent surfaces.
 - 3. Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
- F. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

- D. The Owner has right of first refusal for all salvageable items removed from the project, including but not limited to light fixtures, plumbing fixtures, doors, windows, equipment, artifacts, copper and other metals and the like.

3.8 SELECTIVE DEMOLITION SCHEDULE

- A. Existing Items to Be Removed shall be as shown on the drawings
- B. Existing Items to Be Removed and Salvaged shall be as shown on the drawings.

END OF SECTION 01732

SECTION 02 80 00
ENVIRONMENTAL DEMOLITION

PART 1 GENERAL

1.01 Description:

- A. Documents affecting work of this section include, but are not limited to General Conditions, Supplementary Conditions, Specifications, and Drawings.
- B. The 180 Park Avenue First Floor Renovations will include and require environmentally controlled demolition of lead lined X-Ray room walls and asbestos containing floor tile.
- C. The testing, identification and observations are outlined in a report developed by Abatement Professionals Corp. dated June 20th, 2012 and the project boundaries are identified on the drawing attached to the end of this section.

1.02 Quality Assurance:

- A. **Skilled Work Force:**
Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of the work of this section.

The work force will be required to have documentation and proof of current Asbestos Abatement Worker / Supervisor training as required by the State of Maine, Department of Environmental Protection, Chapter 425 Asbestos Management Regulations.

The work force will also be required to have documentation and proof of current Lead Awareness Training as required by the Occupational Health & Safety Administration, Lead in Construction Rules, 29 CFR 926.62.

1.03 Submittals:

- A. Provide to the Owner within 10 calendar days after the Contractor has received the Notice to Proceed, submit:
 - 1. Proof of certifications, notifications, and design in respect to the State of Maine, Department of Environmental Protection, Chapter 425 Asbestos Management Regulations.
 - 2. Proof or current Lead Awareness Training as required by the Occupational Health & Safety Administration, Lead in Construction Rules, 29 CFR 926.62.
 - 3. Proof of respiratory protection program use, fitting, instructions and limitations of respirators as required by 29 CFR 1910.134.
 - 4. Proof of required of medical surveillance program.
 - 5. Proof of training Hazard Communication in Construction 29 CFR Part 1926.59.

B. Potential Lead and Asbestos Hazard

1. The disturbance or dislocation of lead or asbestos materials may cause contaminants to be released into the building's atmosphere, thereby creating a potential health hazard to workers and building occupants. Apprise all workers, supervisory personnel, subcontractors and consultants who will be at the job site of the seriousness of the hazard and of proper work procedures which must be followed.
2. Where in the performance of the work, workers, supervisory personnel, supervisory personnel, subcontractors, or consultants may encounter, disturb, or otherwise function in the immediate vicinity of any identified lead or asbestos materials, take appropriate hazard of exposure to airborne contaminants. Such measures shall include the procedures and methods described herein, and compliance with regulations of applicable federal, state and logical agencies.

C. Respiratory Protection

1. Comply with OSHA regulations 29 CFR Part 19 10.134 latest revisions.
2. Perform personal air sampling for contaminants expected with environmental demolition asbestos / lead as required by OSHA.
3. Provide the appropriate level of respiratory protection depending upon the contaminants encountered or suspected as well as upon the levels encountered.
4. As a minimum, provide negative pressure, half-face respirators with combination
5. HEPA (or P100) and chemical cartridges that will protect against ammonia (e.g., Mine Safety Appliances [MSA] GME-type cartridges or equivalent). Provide greater respiratory protection as warranted or requested (e.g., workers may request and must be given PAPR' s if they provide adequate protection).
5. The above, in no way, precludes or exempts the contractor from performing the required exposure assessment for not only these, but also other suspected contaminants.
6. Provide an adequate supply of respirator cartridges so as to allow personnel to change their respirator cartridges each time they exit the contaminant and shower off in the decontamination facility.

1.04 Work Sequence:

1. Construct isolation and physical barriers isolating the project boundaries, install one layer of six mil. poly sheeting as to isolate the area from other areas in the building
2. Conduct OSHA electrical and mechanical make safe procedures.
3. Install temporary power and lighting as required.

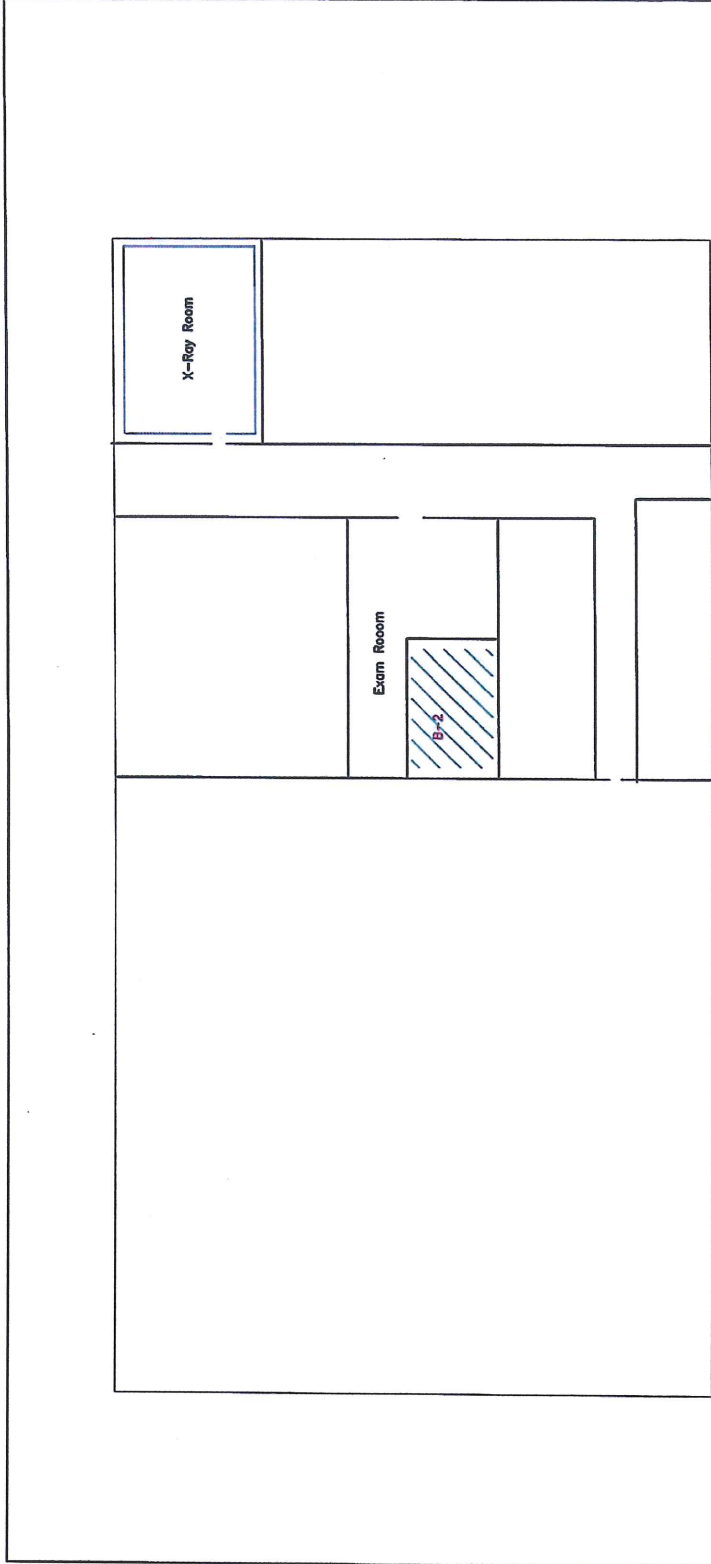
4. Install four (2) 2000 cfm HEPA equipped negative air machines and exhaust to outside of the of building.
5. Perform selective demolition of the asbestos containing tile.
6. Fine clean the area using HEPA vacuums and damp wipe methods.
7. Visually assess the pipe and mudded fittings, isolate the lines and conduct wrap and cut or glovebag removals in accordance with the MDEP Chapter 425 Asbestos Management Regulations.
8. Conduct a final visual evaluation and release the area back to general trades.

PART 2 REMOVAL MATERIAL DEMOLITION DISPOSAL

2.01 Abatement Methods:

- A. The lead and asbestos material shall be removed in such a manner as to prevent the emission of visible dust. Wet materials with water using equipment capable of providing a fine spray mist, in order to reduce airborne dust concentrations when the material is disturbed. Do not allow excessive water to accumulate in the work area.
- B. The lead and asbestos shall be removed in manageable amounts. Removed material should be containerized before moving on to a new location for continuance of work.
- C. Material shall be containerized at the source. Dropping the material is not allowed.
- D. After completion of all stripping work, surfaces from which hazardous materials have been removed shall be cleaned by some equivalent method to remove all visible residue.
- E. The asbestos shall be placed in appropriate sealed bags when full. Bags shall not be overfilled. They shall be securely sealed to prevent accidental opening and leakage by tying tops of bags in an overhand knot or by taping in gooseneck fashion.
- F. The asbestos waste shall be properly disposed and a waste shipment record must be provided to the Owner within 45 days of removal.
- G. The lead lining material shall be delivered to a metal recycling facility.

END OF SECTION 02 80 00



ABATEMENT PROFESSIONALS CORP
 Client: **Portland Community Health**
 Project: **180 Park Ave. Reno/Demo Impact Survey**
 Date: 7/25/18
 Drawn: [blank]
 Checked: [blank]
 Title: 100part.dwg

— Lead Lined Walls
 ▨ Exposed Vinyl Asbestos Floor Tile
 B-f Asbestos Sample Identification Number

SECTION 02 82 00
ASBESTOS ABATEMENT SPECIFICATIONS

PART 1 GENERAL

1.1 SUMMARY

The work shall be completed following the requirements of OSHA and the NESHAP's regulations and in compliance with other applicable State and Federal regulations.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

- | | |
|------------|---|
| ANSI Z9.2 | 1979 Fundamentals Governing the Design and Operation of Local Exhaust Systems |
| ANSI Z88.2 | 1980 Practices for Respiratory Protection |

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- | | |
|------------|--|
| ASTM D1331 | 1989 Surface and Interfacial Tension of Solutions of Surface-Active Agents |
|------------|--|

CODE OF FEDERAL REGULATIONS (CFR)

- | | |
|-----------------------|---|
| 29 CFR 1910.134 | Respiratory Protection |
| 29 CFR 1910.145 | Specifications for Accident Prevention Signs and Tags |
| 29 CFR 1926.1011 | Asbestos, Tremolite, Anthophyllite, |
| 40 CFR 61, Subpart A- | General Provisions |
| 40 CFR 61, Subpart M- | National Emission Standard for Asbestos |
| 40 CFR 763-Asbestos | Asbestos in Schools |

Guidance for Friable Asbestos Containing Materials in Buildings

A Guide to Respiratory Protection for the Asbestos Abatement Industry

U.S. DEPARTMENT OF TRANSPORTATION

- | |
|----------------|
| 49 CFR 171-177 |
| 51 CFR 42176 |

All other locally adopted codes and ordinances

UNDERWRITERS LABORATORIES INC. (UL)

UL 586 1985 (R 1988) High-Efficiency, Particulate, Air Filter Units

1.3 DEFINITIONS

Action Level

An airborne concentration of asbestos equaling 0.1 fibers per cubic centimeter of air calculated as an eight-hour time weighted average.

Amended Water

Water containing a wetting agent or surfactant with a surface tension of 29 dynes per square centimeter when tested in accordance with ASTM D1331.

Area Sampling

Sampling of asbestos fiber concentrations within the asbestos control area and outside the asbestos control area which approximates the concentrations of asbestos in the theoretical breathing zone but is not actually collected in the breathing zone of an employee.

Asbestos

The term asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite and any of these minerals that have been chemically treated or altered. Materials are considered to contain asbestos if the asbestos content is at least one percent of the material by area.

Asbestos Control Area

An area where asbestos removal operations are performed which is isolated by physical boundaries, which assist in the prevention of the uncontrolled release of asbestos dust, fibers, or debris. Two examples of an asbestos control area are a full containment and a "glovebag" removal area.

Asbestos Fibers

This expression refers to asbestos fibers having an aspect ratio of at least 3:1 and which are longer than 5 micrometers as determined by National Institute for Occupational Safety and Health (NIOSH) Method 7400.

Asbestos Permissible Exposure Limit

0.1 fibers per cubic centimeter of air as an 8-hour time weighted average as defined by 29 CFR 1926.1011.

Background

Ambient airborne asbestos concentrations in an area prior to any asbestos abatement activity.

Contractor

The Contractor is that individual, or entity employed by The Board of Education of Allegany County to perform the herein-listed work.

Friable Asbestos Material

Material which contains more than one percent asbestos by area and that can be broken, crumbled, pulverized, or reduced to powder by hand pressure when dry.

Glovebag Technique

Those asbestos removal and control techniques put forth in 29 CFR 1926.58 Appendix G, III-A, B, C, D and Figure G-1 and as described in section 3.2 of this specification.

HEPA Filter Equipment

High efficiency particulate air (HEPA) filtered vacuum and/or exhaust ventilation equipment with a filter system capable of collecting and retaining asbestos fibers. Filters shall be of 99.97 percent efficiency or greater for retaining fibers of 0.3 microns or larger.

Nonfriable Asbestos Material

Material that contains asbestos in which the fibers have been temporarily locked in by a bonding agent, coating, binder, or other material so that the asbestos is well bound and will not readily release asbestos fibers during normal use, handling, storage or transportation. It is understood that asbestos fibers may be released under other conditions such as demolition or removal.

Personal Sampling

Air sampling to determine asbestos fiber concentrations within the breathing zone of a specific employee, performed in accordance with 29 CFR 1926.58.

Time Weighted Average (TWA)

The TWA is an 8-hour time weighted average airborne concentration of asbestos fibers. At least three full shift samples per person are required to establish that person's TWA exposure.

Wetting Agent

A surfactant that allows better wetting of asbestos fibers so as to minimize fiber release and resultant airborne asbestos. An equivalent wetting agent must have a surface tension of at least 29 dynes per square centimeter as tested in accordance with ASTM D1331.

1.4 Requirements

Title to Materials

All materials resulting from demolition work, except as specified otherwise, shall become the property of the Contractor and shall be disposed of as specified in applicable local, State, and Federal regulations and herein.

Medical Requirements

Provide Medical Surveillance as required by 29 CFR 1926.58.

Medical Examinations

Before exposure to airborne asbestos fibers, provide workers with a comprehensive medical examination as required by 29 CFR 1926.58 or other pertinent state or local directives. This requirement must have been satisfied within the past year. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving asbestos and within 30 calendar days before or after the termination of employment in such occupation. Specifically identify x-ray films of asbestos workers to the consulting radiologist and mark medical record jackets with the word "ASBESTOS." Medical approvals must accompany workers to the work site.

Medical Records

Maintain complete and accurate records of employees' medical examinations, medical records, and exposure data for a period of 50 years after termination of employment and make records of the required medical examinations and exposure data available for inspection and copying to: The Assistant Secretary of Labor for Occupational Safety and Health (NIOSH), or authorized representatives of them, and an employee's physician upon the request of the employee or former employee.

Training

Within one year prior to assignment to asbestos work, each asbestos worker shall be instructed for a minimum of 40 hours or if applicable, have received an annual refresher from an EPA and State approved training provider with regard to the hazards of asbestos, safety and health precautions, the use and requirements for protective clothing, equipment, and respirators, and the association of cigarette smoking and asbestos-related disease, and all additional requirements of 29 CFR 1926.58. Furnish each employee with a respirator fit test at least every six months as required by 29 CFR 1910.134. Provide copies of fit testing to the project supervisor upon request. Fully cover engineering and other hazard control techniques and procedures. In addition, train all personnel involved in the asbestos removal in accordance with United States Environmental Protection Agency (USEPA) or state criteria whichever is more stringent. The Contractor shall document the training by providing: dates of training, training entity, course outline, names of instructors, and qualifications of instructors. All workers assigned to the project shall arrive with valid current training certificates.

Permits and Notifications

Obtain necessary permits in conjunction with asbestos removal, hauling, and disposal, and furnish timely notification of such actions required by federal, state, regional, and local authorities. Notify the Regional Office of the United States Environmental Protection Agency (USEPA) and the state at least ten days in advance of the project. If amount of asbestos to be removed changes by 20 percent or more, the EPA and state must be renotified.

Safety and Health Compliance

In addition to detailed requirements of this specification, comply with those applicable laws, ordinances, criteria, rules, and regulations of federal, state, regional, and local authorities regarding handling, storing, transporting, and disposing of asbestos waste materials. Comply with the applicable requirements of the current issue of 29 CFR 1926.58, 40 CFR 61, Subpart A, and 40 CFR 61, Subpart M. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting the work. Where the requirements of this specification, applicable laws, rules, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirement as defined by the designated representative shall apply. The following laws, ordinances, criteria, rules and regulations regarding removal, handling, storing, transporting and disposing of asbestos materials apply:

- A. NESHAPs Requirements 40 CFR, Part 61
- B. US DOT 49 CFR 171-177
- C. US OSHA 29 CFR 1926.1011

Emergency Precautions

- A. The Contractor shall establish emergency and fire exits from the work area. All emergency exits shall be equipped with two (2) full sets of protective clothing and respirators at all times.
- B. Local medical emergency personnel, both ambulance crews and hospital emergency room staff, shall be notified prior to commencement of abatement operations as to the possibility of having to handle contaminated or injured workmen, and shall submit copies of such notifications to the Engineer.
- C. If an injury occurs the Contractor shall stop work and implement fiber reduction techniques (e.g., water spraying) until the injured person has been removed from the work area.
- D. Before the Contractor starts actual removal of the asbestos material, the local police and fire departments shall be notified as to the danger of entering the work area and they shall be invited to attend an informal training program to be conducted by the Contractor and the Asbestos consultant which will provide information regarding abatement activities, decontamination practices, etc. The Contractor shall make every effort to help these agencies form plans of action should their personnel need to enter the contaminated area.

Respirator Program

Establish and implement a respirator program as required by ANSI Z88.2 and 29 CFR 1910.134 and 29 CFR 1926.58. Collect, analyze, and post daily air sample results of personal exposure monitoring. Provide a copy of the implemented respirator program to the owner's agent at the Pre-construction meeting.

Respiratory Systems

- A. Minimum respiratory protection required shall conform with OSHA, including all amendments. (NOTE: Half-masks and/or full-face masks can only be used by personnel who have passed a quantitative or qualitative fit test. Copies of those test results shall be provided by the Contractor for the Owners records). Single use, disposal respirators will not be permitted.

<u>Exposure Level</u>	<u>Respirator (Minimum)</u>
0 to <1.0 f/cc	Half Mask Air Purifying
0.1 to <5.0 f/cc	Full Face Air Purifying
0.5 to <10.0 f/cc	Powered Air Purifying Respirator (PAPR) or Supplied Air (SA)

- 1.0 to 100 f/cc Self Contained Breathing Apparatus (SCBA) or
 Supplied Air (SA) (pressure demand)
- B. Contractor may choose a respirator type that provides a greater protection factor than required for a given exposure level.
- C. Personnel that have not been fit tested or have failed the quantitative or qualitative fit test shall use powered air purifying respirators (PAPR) as minimum respiratory protection.
- D. Provide all workers and authorized visitors with NIOSH approved respirators complying with OSHA regulations and a sufficient quantity of disposal filters, so those workers can change filters during the workday. Store the respirator filters at the job site in the change room, and protect them from exposure to asbestos prior to their use.
1. Workers shall always wear respirator properly fitted on the face in the work area. Failure to comply with proper respirator use is sufficient grounds to remove a worker from the project.
 2. Instruct and train workers in proper respirator use.
 3. Perform fit testing prior to assignment to this project. Supply copy of fit test with training certificates.

Protective Clothing

- A. Provide to all workers, foremen, superintendents and authorized visitors and inspectors with protective disposable clothing consisting of full body coveralls, head covers, gloves and 18-inch high boot type covers or reusable footwear.
- B. Provide eye protection and hard hats as required by job conditions and safety regulations.
- C. Reusable footwear, hard hats and eye protection devices shall be left in the "Equipment Room" until the end of the asbestos abatement work.
- D. All disposable protective clothing shall be discarded and disposed of as asbestos waste every time the wearer exits from the workspace to the outside through the decontamination facilities.

Enclosures, Showers, and Toilets for Removal

- A. For each containment area provide a decontamination facility location in an area agreed upon with the Owner's Agent and Asbestos contractor. The decontamination facility shall include a Decontamination Enclosure System for workers and visitors and a separate Decontamination Enclosure System for cleaning off and double bagging of asbestos for transportation to the landfill.

- B. The Decontamination Enclosure System for workers and visitors shall consist of three rooms that serve as three air locks as follows: Clean Room at entrance followed by Shower Room followed by and Equipment Room leading to the Work Area. Showers shall not be offset, but be in line to require passing through shower to enter or exit containment.
- C. The Decontamination Enclosure System for cleaning and double bagging of asbestos, shall consist of an Air Lock from the Work Area leading into the Drum/Bag Wash and Wash Room, and another Air Lock leading to the Clean Room from which they will be loaded into a dumpster.
- D. An Airlock is a system permitting ingress and egress without permitting air movement. It consists of two curtained doorways at least eight feet apart. Each curtained doorway shall be constructed by placing three overlapping sheets of plastic over a framed doorway, securing each along the top of the doorway. The first and third sheet shall be secured on one side of the doorway and the middle sheet shall be secured on the other side of the doorway. Airlock Size - Where size of work area is prohibitive, distance between airlocks/doorways may be adjusted but must allow enough space for one airlock/doorway to be closed before the next airlock/doorway is opened.
- E. Provide hooks or lockers for storage of street clothes of workers in the clean room. Provide in the same room uncontaminated disposal protective clothing and gear prior to entering into the contaminated area and to dress into street clothing after they have showered and dried in the shower room as they exist from the contaminated area.
- F. Provide shower room facilities with hot and cold water so arranged as to provide complete showering of workers and visitors as they exit from the contaminated area. Make provisions to prevent any contaminated run-off from the shower room. The shower room facilities and size shall be adequate to allow decontamination and thorough washing of all the workers and visitors within the 15 minute escape time allowed under air compressor failure if Type C respiratory protection is used.
- G. Provide the Equipment Room with storage for contaminated clothing and equipment. In this room workers and visitors dispose of their disposable protective clothing except the respirator as they prepare to enter the shower room.
- H. The Drum/Bag Wash and Wipe Room shall be equipped with the facilities to wash and wipe the outside of the drum or bags prior to double bagging and loading into the dumpster for transportation to a landfill. Make provisions to collect the contaminated run-off from the Drum/Bag Wash Room.
- I. The Clean Drum/Bag Storage Room should remain clean since the contamination outside of the drum/bag has been washed and wiped thoroughly in the washroom.

J. Provide adequate toilet facilities, within the regulated work area but outside containment so that the workers do not have to go through unregulated parts of the building every time they need to use the bathroom.

K. Provide ventilation as required in the entire Decontamination System so that airflow will be from the outside towards the workspace.

L. The Contractor shall provide and properly connect Ground Fault Circuit Interrupters for electric service within the abatement area, and comply with OSHA lockout/tagout procedures.

Personnel Protection and Decontamination

A. Provide all personnel throughout the abatement process with the specified protective clothing and gear. Ensure that all personnel entering and leaving the workspace follow the following procedures:

1. Entering From the Outside: Change from street clothes into protective clothing and wear clean protective gear. Go through room into Equipment Room, pick up equipment and tools and enter the work area.

2. Exiting From the Work Area: Dispose of all protective clothing into labeled plastic bags for asbestos waste. Do not take off the respirator, but still wearing the respirator enter the shower and shower thoroughly. Remove respirator and wash and wipe thoroughly to decontaminate the respirator. After drying, enter the Clean Room; store the decontaminated respirator in the assigned space and dress into street clothes.

3. Post written procedures in the workplace and train all personnel on the procedures for the evacuation of the injured and the handling of potential fires. Provide aid to a seriously injured worker without delay for decontamination. Make provisions to minimize exposure of rescue workers and to minimize spreading of contamination during evacuations and fire procedures. Exceptions to normal, routine exiting procedures shall be made for emergencies such as, but not limited to, serious personal injury and fires. The waste/debris airlock system may be used for emergencies.

4. The Contractor shall instruct all employees and workers in the proper care of their personally issued respiratory equipment, including daily maintenance, sanitizing procedures, etc.

5. Contractor's personnel shall inspect all respiratory equipment at the beginning of each work period, including breaks and lunch periods.

Disposal Activities

A. It is the responsibility of the Contractor to determine current waste handling, transportation, and disposal regulations for the work site and for each waste disposal

the end of the work shift or when removal operations temporarily stop. If a power failure or other problem shuts off the units all asbestos removal must stop. Workers will wet and bag any down materials, seal the containment and then exit except to correct the problem.

G. Employees should start removing asbestos material at locations farthest from the exhaust unit and work towards them. If an electric power failure occurs, removal must stop and should not resume until power is restored and exhaust units are operating again.

H. The HEPA ventilation system shall operate on a 24 hour basis throughout the abatement process through clearance. The ventilation system shall be in accordance with EPA recommendations included in the "Guidance for Controlling Friable Asbestos-Containing Materials in Buildings". Negative air filtration units must be able to provide a minimum of four (4) air changes/hour.

I. In a multi-room abatement project provide a sufficient number of negative air filtration units to create a stream of air away from the faces of the workers in each room and in such a way as to not damage or compromise the integrity of the plastic isolation barriers.

J. Provide an automatic recording instrument to monitor the negative pressure differential in a representative location. The instrument shall continuously generate a permanent record.

Emergency Precautions

A. The Contractor shall establish emergency and fire exits from the work area. All emergency exits shall be equipped with two (2) full sets of protective clothing and respirators at all times.

B. Local medical emergency personnel, both ambulance crews and hospital emergency room staff, shall be notified prior to commencement of abatement operations as to the possibility of having to handle contaminated or injured workmen, and shall be advised on safe decontamination. The Contractor shall submit copies of such notifications to the Engineers.

C. If an injury occurs the Contractor shall stop work and implement fiber reduction techniques (e.g., water spraying) until the injured person has been removed from the work area.

D. Before the Contractor starts actual removal of the asbestos material, the local police and fire departments shall be notified as to the danger of entering the work area and they shall be invited to attend an informal training program to be conducted by the Contractor and the Asbestos contractor which will provide information regarding abatement activities, decontamination practices, etc. The Contractor shall make every effort to help these agencies form plans of action should their personnel need to enter the contaminated area.

landfill. The Contractor must comply fully with these regulations and all U.S. Department of Transportation, state, and EPA requirements.

B. The Contractor will document actual disposal of the waste at the designated landfill by completing a Waste Shipment Record and forwarding the completed original to the Owner.

Exposure Controls

A. Provide an air filtration system in the work area to maintain a negative pressure of 0.02 inches of water. If negative air pressure of 0.02 inches is lost, work shall be halted until negative air pressure is restored.

B. The Contractor shall provide local exhaust in the work area to maintain a negative pressure in the work area relative to the adjacent non-work areas. The exhaust units must be equipped with a High Efficiency Particulate Air (HEPA) filter capable of retaining 99.97% of the asbestos fibers. This filter must comply with ANSI Z9.2 standards. The fan for each unit should be sized to draw a desired airflow through the filters in the unit at a specified pressure drop. The unit should have an air-handling capacity of 1,000 to 2,000 ft./min. (under "Clean" filter conditions). The system should be capable of delivering a minimum of one air change every 15 minutes. Fifteen (15) minute air changes are mandatory for removal. All exhaust units shall be vented outside the building. Venting to the outside of the building is not always possible. If venting is done outside work area but not outside building, daily air sample(s) will be taken at the exhaust opening.

C. Additional makeup air may be necessary to avoid creating excessive pressure differential. Additional makeup air also may be necessary to move air most efficiently through the work area.

D. Auxiliary makeup air inlets should be as far as possible from the exhaust units and away from barriers that separate the work area from occupied clean areas. They should be resealed if the air filtration system malfunctions and fails once removal has started. Because the pressure differential (and ultimately the effectiveness of the system) is affected by the adequacy of makeup air, the number of auxiliary air inlets should be kept to a minimum to maintain negative pressure.

E. The air filtration system should be tested before any asbestos-containing material is wetted or removed. After the work area has been prepared, the decontamination facility set up, and the exhaust units installed, the units should be started (one at a time). Observe the barriers and plastic sheeting. The plastic curtains of the decontamination facility should move slightly in toward the work area. Smoke testing may be performed to test for "dead" air spaces.

F. The exhaust units should be started just before beginning removal (i.e., before any asbestos-containing material is disturbed). After removal has begun, the units should run continuously to maintain a constant negative pressure until decontamination of the work area is complete. The units shall not be turned off at

1.5 SUBMITTAL

The following items shall be submitted to and approved by the HRSA prior to commencing work involving asbestos materials.

Manufacturer's Catalog Data

- A. Local exhaust equipment
- B. Vacuum equipment
- C. Respirators and copy of the corporate written respirator program
- D. Pressure differential monitor
- E. Amended water
- F. Chemical encapsulant
- G. Glovebags
- H. MSDS sheets (include information on mastic remover if to be used)
- I. Supplied Air components and approvals (if applicable)
- J. Portable showers/water heating/water filtering system
- K. Equipment Inventory (number of negative air machines, vacuums, trucks, etc.)

Statements

- A. Asbestos hazard abatement plan
- B. Testing laboratory for personnel sampling
- C. State license to abate asbestos
- D. Employee training/Fit Testing/Medical Monitoring Data
- E. Landfill licensing and example of completed waste shipment record

Asbestos Hazard Abatement Plan

Submit a detailed plan of the safety precautions and the standard operating work procedures to be used in the removal and demolition of materials containing asbestos. Such plan shall include but not be limited to the scaffolding plan, the precise personal protective equipment to be used, the location of asbestos control areas including clean and dirty areas, buffer zones, showers, storage areas, change rooms, removal method, interface of trades involved in the construction, sequencing of asbestos related work, disposal plan, type of wetting agent and

asbestos sealer to be used, locations of local exhaust equipment, emergency exits, planned air monitoring strategies, and a detailed description of the method to be employed in order to control pollution. This plan must be approved in writing prior to the start of any asbestos work.

Testing Laboratory

Submit the name, address, and telephone number of the testing laboratory selected for the sampling, analysis, and reporting of personal exposure concentrations of asbestos fibers along with certification that persons counting the samples have been judged proficient by successful participation within the last year in the American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing (PAT) Program. Where analysis to determine asbestos content in bulk materials is required, submit evidence that the laboratory is accredited by the National Institute of Standards and Technology (NIST) for asbestos analysis.

Landfill

Submit written evidence that the landfill for disposal is approved for asbestos disposal by the USEPA and state regulatory agency(s). Submit detailed and completed waste shipment records, signed and dated by an agent of the landfill, certifying the amount of asbestos materials delivered to the landfill, within 3 days after delivery. Waste shipment records are required to be submitted to state within 10 days of disposal and to the EPA within 35 days.

Employee Training

Submit training certificates indicating that the employee has received training in the proper handling of materials that contain asbestos; understands the health implications and risks involved, including the illnesses possible from exposure to airborne asbestos fibers; understands the use and limits of the respiratory equipment to be used; and understands the results of monitoring of airborne quantities of asbestos as related to health and respiratory equipment as indicated in 29 CFR 1926.58 on an initial and annual basis. Copies of training shall be required as a condition of entering the work area and shall be kept at the job site for ready reference.

Certificates of Compliance

- A. Vacuums
- B. Water filtration equipment
- C. Ventilation equipment
- D. Other equipment required to contain airborne asbestos fibers

Show compliance with ANSI Z9.2 by providing manufacturers' certifications.

Field Test Reports

- A. Air sampling reports of personnel exposures

B. Pressure differential recordings local exhaust system

Pressure Differential Recordings Local Exhaust System

The local exhaust system shall create a negative pressure of at least 0.02 inches of water relative to the pressure external of the enclosure and, be operated continuously 24 hours a day until the enclosure of the asbestos control area is removed. Pressure differential recordings for each workday shall kept.

PART 2 PRODUCTS

2.01 MATERIALS

A. The list of required materials shall include, but is not necessarily limited to, the following:

1. Disposable Clothing Manufactured of "Tyvek" by DuPont, or approved equal. Clothing shall consist of coverall, head cover and foot cover. Enough personal protective equipment for workers and all authorized visitors.
2. Saturants Mixtures for material saturation and fiber control shall be prepared in the following ratios of water and surfactant, or a commercially prepared equivalent.
 - 1 fluid ounce of surfactant to 5 gallons of water.
 - Surfactant: 50% Polyoxyethylene Ester
50% Polyoxyethylene Ether
3. Polyethylene film for walls, floors, etc. Minimum thickness as specified.
 - (2 layers) 6 mil :Walls.
 - (2 layers) 6 mil :Painted concrete, hard surface floor.
 - (2 layers) 6 mil :Porous ceilings which are not asbestos containing, and will remain.
 - (2 layers) 12 mil: Hard wood floors that may be damaged by water leakage and contamination. Additional protection such as plywood over the flooring may be required to prevent damage.
4. Polyethylene bags (with caution labels) six mil (0.006" minimum for disposal. Special bag widths are available for pipe covering. Include state labels detailing license and date information.

5. Duct tape (minimum 2" width) shall be fabric type. Paper masking tape will not be permitted.
6. Half inch plywood and studs for critical barrier requirements.
7. Scaffolding information
8. Encapsulant rated acceptable in EPA encapsulant sealant test
9. as done by Battele.
10. Spray adhesive for sealing poly to poly.
11. Foam Sealant shall be expanding type urethane, Class 1 fire retardant, equal to Geocel Class 1.
12. Mastic remover.

2.02 TOOLS AND EQUIPMENT

- A. Airless Sprayer: An airless sprayer, suitable for application of encapsulating material, shall be used.
- B. Negative Air Filtration Unit: Asbestos filtration devices shall utilize high efficiency particulate absolute (HEPA) filtration systems. 99.97% efficient to 0.3 microns particulate size. The negative air filtration unit shall be equipped with the following:
 1. Magnehelic gauge to monitor the units air pressure difference across the filters and be able to interpret MAGNEHELIC readings to cfm.
 2. Automatic shut off for filter failure or filter absence.
 3. Audible alarm with flashing red light for unit shut down.
 4. Amber flashing warning light for filter loading.Must have safety system that prevents unit from being operated with the HEPA filter in backwards.
- C. Automatic negative pressure recording device with paper record.
- D. Scaffolding: Scaffolding, as required to accomplish the specified work, shall meet all applicable safety regulations.
- E. Transportation Equipment: Transportation and storage equipment, as required, shall be suitable for loading, temporary storage, transportation, and unloading of contaminated waste without exposure to persons or property.

- F. Vacuum Equipment: All vacuum equipment utilized in the work area shall utilize HEPA filtration systems. 99.97% efficient to 0.3 microns particulate size.
- G. Water Sprayer: The water sprayer shall be an airless or other low pressure sprayer for amended water application.
- H. Other Tools and Equipment: The Contractor shall provide other suitable tools for the stripping, removal, and disposal activities including but not limited to: hand-held scrapers, sponges, rounded edge shovels, brooms, and carts.
- I. Ground fault circuit interrupters to protect employees and connections within the enclosed removal area.

PART 3 EXECUTION

The contractor is required to submit and have approved by HRSA an Asbestos Hazard Abatement Plan (see section 1.5.2.1) and schedule detailing asbestos removal methods, containment areas, safety precautions and many other details prior to the start of work. Where full containments are prescribed a three-stage decontamination chamber will be required.

3.1 PRE-ASBESTOS ABATEMENT PREPARATION FOR REMOVAL

- A. Establish a list of conditions of all existing equipment, furnishings, and finishes which are to remain and may be affected by the abatement work. The Asbestos Contractor shall agree to the condition of all listed items and/or the need to refinish or repair such items after the abatement. Agree as to security measures and precautions that will be adhered to.
- B. Prior to any abatement work in an area, seal off the entire area to anybody other than trained personnel and authorized visitors. The Contractor shall be responsible for isolation and blank off of all duct systems. Erect signs around the perimeter in accordance with EPA, OSHA and this specification. Provide 24 hour security against unauthorized entry during abatement process. Maintain a log of all people entering and exiting the workplace.
- C. The Contractor shall pre-clean areas with HEPA vacuums and wet methods as necessary to remove asbestos debris prior to area set-up.
- D. Secure the approval of the Owner's designated representative prior to the start of the work for the following: Enclosures, showers, personnel protection and decontamination and storage, sealing off and securing of the work area and equipment for inter-room communications and parking areas and dumpster locations.
- E. Post licenses, emergency telephone numbers, applicable Department of Labor postings.

- F. Keep on-site at all times a copy of this specification and applicable regulations.

3.2 UTILITIES

- A. Provide all necessary connections for temporary utilities in the workplace during abatement work. Shut down and disconnect all electric power to the work area so that there is no possibility of reactivation and electrical shock during the entire abatement process. The temporary electrical power shall be in accordance with OSHA Electrical Code for Wet Environment. The Abatement Contractor retains responsibility for temporary electrical connections and complete isolation of the work area.
- B. The Contractor shall have available at all times, qualified competent persons to perform mechanical, plumbing and electrical repairs as necessary.
- C. The Contractor shall have available at all times a 24-hour Contract person. Provide telephone and beeper numbers at the pre-construction meeting.
- D. Shut down and isolate all HVAC systems involved in the workspace. Coordinate isolation and shutdown with the Owner's representative seven days in advance.

3.3 EQUIPMENT

Make available to the Health Center representative, two complete sets of Tyvek suits, a PAPR, and other PPE as required herein for entry to the asbestos containment area at all times for inspection of areas within the asbestos containment area.

3.3.1 Respirators

Select respirators from those approved by the Mine Safety and Health Administration (MSHA), Department of Labor, or the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services that are sufficient to provide adequate protection for the fiber and oxygen levels anticipated or measured.

3.3.1.1 Respirators for Handling Asbestos

Provide personnel engaged in the removal and demolition of asbestos materials with PAPRs if requested and they offer sufficient protection. All respiratory protection shall comply with the spirit and letter of 29 CFR 1926.58 and 29 CFR 1910.134.

3.3.2 Special Clothing

3.3.2.1 Protective Clothing

Provide personnel exposed to asbestos with fire retardant disposable protective whole body clothing, head coverings, gloves, and foot coverings. Provide disposable plastic or rubber gloves to protect hands. Cloth gloves may be worn inside the plastic or rubber gloves for

comfort, but shall not be used alone. Make sleeves secure at the wrists and make foot coverings secure at the ankles by the use of approved tape.

3.3.2.2 Work Clothing

Provide disposable protective coveralls and foot coverings and dispose of them properly after use.

3.3.3 Decontamination Unit

Provide a temporary unit with a separate decontamination locker room and a clean locker room with a shower in between for personnel required to wear whole body protective clothing. Provide two separate lockers for each asbestos worker, one in each locker room. Keep street clothing and street shoes in the clean locker. Remove asbestos contaminated disposable protective clothing while still wearing respirators at the boundary of the asbestos work area and seal in impermeable bags or containers for disposal. Do not wear work clothing between home and work. Locate showers between the decontamination locker room and the clean locker room and require that all employees shower before changing into street clothes. Provide sufficient showers for the size and sex of the work crews. Collect and dispose of used shower water as asbestos waste. Shower water may be pumped through a series of filters, the final filter designed to capture particles down to 5 microns, and then disposed of into the sewer. Dispose of asbestos contaminated work clothing as asbestos contaminated waste. Decontamination units shall be physically attached to the asbestos control area. Showers must be constructed in line, such that all personnel must go through the shower.

3.3.4 Eye Protection

Provide goggles to personnel engaged in asbestos operations when the use of a full-face respirator is not required.

3.3.5 Caution Signs and Labels

Provide bilingual caution signs at all approaches to asbestos control areas containing concentrations of airborne asbestos fibers. Locate signs at such a distance that personnel may read the sign and take the necessary protective steps required before entering the area. Provide labels and affix to all asbestos materials, scrap, waste, debris, and other products contaminated with asbestos. All shift leaders must speak English and the predominant language of the crew.

3.3.5.1 Caution Sign

Vertical format conforming to 29 CFR 1910.145 (d)(4), minimum 20 by 14 inches displaying the following legend in the lower panel:

Legend	Notation
Danger	1-inch Sans Serif Gothic or Block
Asbestos	1-inch Sans Serif Gothic or Block

Cancer and Lung Disease Hazard	1/4-inch Sans Serif Gothic or Block
Authorized Personnel Only	1/4-inch Gothic
Respirators and Protective	1/4-inch Gothic

Clothing are Required in this Area

Spacing between lines shall be at least equal to the height of the upper of any two lines.

3.3.5.2 Caution Labels

Provide labels of sufficient size to be clearly legible, displaying the following legend:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
BREATHING ASBESTOS DUST MAY
CAUSE SERIOUS BODILY HARM

3.3.6 Local Exhaust System

Provide a local exhaust system in the asbestos control area in accordance with ANSI Z9.2 that will provide at least four air changes per hour inside of the containment. Local exhaust shall be leak proof to the filter and equipped with absolute (HEPA) filters. Local exhaust equipment shall be sufficient to maintain a minimum pressure differential of minus 0.02 inch of water column relative to adjacent, unsealed areas. Provide continuous 24-hour per day monitoring of the pressure differential with an automatic recording instrument. In no case shall the building ventilation system be used as the local exhaust system for the asbestos control area. Filters on exhaust equipment shall conform to ANSI Z9.2 and UL 586. Provide at least one backup HEPA unit per active removal area.

3.3.7 Tools

Vacuums shall be leak proof to the filter and equipped with absolute (HEPA) filters. Filters on vacuums shall conform to ANSI Z9.2 and UL 586. Do not use power tools to perform asbestos removal. Remove all residual asbestos from reusable tools prior to storage or reuse.

3.3.8 Rental Equipment

If rental equipment is to be used, furnish written notification to the rental agency concerning the intended use of the equipment and the possibility of asbestos contamination of the equipment.

3.4 WORK PROCEDURE

Perform asbestos related work in accordance with 29 CFR 1926.58 and as specified herein. Use wet removal procedures and approved removal techniques. Personnel shall wear and utilize protective clothing and equipment as specified herein. Eating, smoking, or drinking shall not be permitted in the asbestos work or control areas. Personnel of other trades not engaged in the removal and demolition of asbestos shall not be exposed at any time to airborne concentrations of asbestos unless all the personnel protection provisions of this specification are complied with by the trade personnel. Disconnect electrical service when wet removal is performed and provide temporary electrical service equipped with GFI prior to the use of any water. If an asbestos spill occurs outside of the asbestos control area, stop work immediately; correct the condition to the satisfaction of site supervisor including clearance sampling, prior to resumption of work. Loss of time shall be at the contractor's expense and materials.

3.4.1 Asbestos Handling Procedures

3.4.1.1 General Procedures

- A. Review area with Owner's Agent, Construction Manager and Asbestos Contractor.
- B. Review locations of clean areas, showers, ventilation needs, sensitive equipment protection requirements and asbestos removal procedures.
- C. Coordinate with the owner the sequence of the work and required furniture removal.
- D. Prepare area using required wall, ceiling and floor protection.
- E. Install temporary lighting, showers, supply and exhaust ventilation.
- F. Protect surfaces against damage from tape, glue, water and encapsulents.
- G. Covering non-movable items with polyethylene sheeting to protect it from contamination and damage.
- H. The Contractor shall provide and properly connect Ground Fault Circuit Interrupters for electric service within the abatement area, and comply with OSHA lockout/tagout procedures.
- I. Obtain approval for the enclosure by the Asbestos Contractor prior to removing the asbestos.

- J. Except as noted herein and/or in drawings, spray with water containing a wetting agent all asbestos that is to be removed. The wetting agent shall be 50 percent polyoxyethylene ether and 50 percent polyoxyethylene ester, or the equivalent mixed one ounce to five gallons of water. Apply a low pressure fine spray of the amended water to minimize fiber release. Saturate sufficiently the material throughout the removal process so that there will be at no time of removal a release from dry asbestos. It may be necessary to presaturate asbestos materials the day prior to removal.
- K. Immediately following removal, the wetted asbestos shall be packed into labeled six mil plastic bags to prevent the material from drying. Thoroughly clean the exterior of the sealed bags prior to double bagging and loading onto the dumpster for transportation to the landfill. The dumpster shall be lined with six-mil polyethylene sheeting prior to loading.
- L. All used plastic, tapes, cleaning material and clothing shall be treated as asbestos waste material.
- M. The Contractor shall encapsulate all surfaces where asbestos has been removed, following visual inspections by the Asbestos Contractor for the removal of asbestos. Any deviations from encapsulation of surfaces must be approved by the Asbestos Contractor prior to implementation.
- N. Disposal shall be in a landfill meeting EPA requirements and other applicable regulations. Do not throw bags into landfills in a way that may cause the bags to burst open. Ensure that bags are not broken open in the process. Bags must be labeled following state Regulations. Bags must be labeled following state Regulations.
- O. Apply encapsulant to all areas where asbestos materials have been removed or any other surface within the area deemed by the Asbestos Contractor after visual inspection has determined the area free of all asbestos contamination.
- P. Keep a copy of this specification on site during asbestos set up and removal.

3.4.2 Asbestos Removal Containment Requirements

Block and seal openings in areas where the release of airborne asbestos fibers can be expected. Establish an asbestos containment with the use of enclosures in order to prevent the escape of asbestos fibers from the work area. Properly protected workers shall mist debris and then carefully remove all insulation debris without trampling other downed asbestos insulation. Containment development shall include protective covering of floors and walls with two layers of minimum 6 mil plastic sheeting sealed with duct or equivalent tape to facilitate clean up and to prevent water or other damage. All wastewater must be filtered using 5-micron filters as required for shower water. Seal all joints with tape. Provide local exhaust system equipped with HEPA filters. If necessary construct plywood boxes sealed against air leakage over the crawlspace openings to minimize efficiency losses in generating negative pressure in

the crawlspace. The decontamination unit(s) shall be constructed with a dirty room of sufficient size at an opening of the crawlspace to allow for tool

storage and ease of entry/exit. At least one negative air machine will be provided per containment under negative pressure to serve as a backup. Replace filters as required to maintain efficiency of the system.

3.4.3 Monitoring, Testing, and Inspection

The Contractor is responsible for personnel monitoring in compliance with OSHA 29 CFR 1926.58.

3.4.3.1 The Asbestos Contractor will closely monitor the performance and execution of the work, throughout the abatement process. The monitoring will be inside the work area and the surroundings to ensure full compliance with these specifications and all applicable regulations. The continuous monitoring and checking will include air samples in the workspace, personnel samples at breathing levels for 25% of the workers to be determined solely by the Asbestos Contractor, air samples in the areas surrounding the work area and the outside, checking of the Standard Operating Procedures, Engineering Control System, Respiratory Protection System, Labeling, Packaging, Transportation and Disposing of asbestos. Decontamination Facilities and Procedures and any other aspects of the abatement process that may impact the health and safety of the people and the pollution of the environment.

3.4.3.2 Air monitoring tests for baseline background levels will be made and analyzed prior to removal of any asbestos in the contract area. These tests will be made, documented and posted by Asbestos Contractor personnel at least 24 hours before any removal work begins. Sample volume selected shall be sufficient to meet detection limit.

3.4.3.3 Samples will be taken during the removal process immediately beyond all major openings to the sealed area, work area, and at exhaust port(s) of negative air filtration units exhausted inside building (outside weather permitting).

Samples will be taken during the removal process according to the following:

3.4.3.3.1 Volume of sample determined by detection limit, microscopic field, assuming 7 fibers/100 fields, filter area (effective collection area).

3.4.3.3.2 Baseline background sampling shall be done using NIOSH 7400 A Rules or equivalent outside but immediately adjacent to work barriers prior to start of removal work.

3.4.3.3.3 Background sample(s) shall be taken each day during removal work.

3.4.3.3.4 Subsequent background samples shall be high volume using NIOSH Method 7400 A Rules, or equivalent.

3.4.3.3.5 If subsequent ambient air fiber levels outside the work area are equal to or greater than 0.01 f/cc, work shall be halted (unless initial background exceeded 0.01 f/cc) until source of contamination is found and corrected. If determined by the Asbestos Contractor, removal work may continue.

3.4.3.3.6 Worker monitoring (removal work).

3.4.3.3.7 Work area monitoring (during removal).

Allowable limits:

Outside Work Area	0.01 f/cc ambient air
Inside Work Area	0.5 f/cc ambient air monitoring
Clearance Level (TEM)	<70 s/mm ²

Contractor is responsible for meeting OSHA requirements for his personnel, including but not limited to, monitoring requirements, safety compliance and record keeping. Personal monitoring results from the previous day shall be posted each day, and copies of the results forwarded to the Asbestos Contractor.

3.4.3.4 Laboratory Accreditation

All air monitoring samples must be analyzed by a laboratory participating in the NIOSH Proficiency Analytical Testing Program. To analyze bulk samples, the laboratory must be accredited through the National Voluntary Laboratory Accreditation Program (NVLAP). Air samples may be analyzed by methods described in NIOSH 7400 or transmission electron microscopy (TEM).

3.4.3.5 Sampling During Asbestos Work

The Asbestos Contractor shall provide area sampling during the work shift close to the work inside the containment, outside the clean room entrance to the containment, and at the exhaust opening of the local exhaust system. If sampling outside the containment, shows airborne levels have exceeded background or 0.1 fibers per cubic centimeter whichever is lesser, stop all work, correct the condition(s) causing the increase, and notify the Asbestos Contractor immediately. Perform personal and area air sampling at locations and frequencies that will accurately characterize the evolving airborne asbestos levels.

3.4.3.6 Sampling After Final Clean-Up (Clearance Sampling)

Provide area sampling of asbestos fibers using aggressive air sampling techniques and establish an airborne asbestos concentration of less than 70 structures per square centimeter after final clean-up but before removal of the containment or the asbestos work control area. After final cleanup and the asbestos control area is dry but prior to clearance sampling, the Asbestos Contractor shall perform a visual inspection to insure that the asbestos control and work area is free of any accumulations of dirt, dust, or debris. Perform at least five samples

using aggressive techniques. The asbestos fiber counts from these samples shall be less than 70 structures per square centimeter as defined in the AHERA regulation. Should the final samples indicate a higher value, the Contractor shall take appropriate actions to re-clean the area and shall repeat the sampling and TEM analysis at the Contractor's expense. Final testing results must be submitted to state.

Generally, 48-hour TEM turnaround will be performed. At the end of the project, 24-hour turnaround may be requested. The contractor's request for faster turnaround time will be granted if the project warrants it. The Board will review any requests.

3.4.3.7 Stop work orders may be issued for, but not limited to the following:

- 3.4.3.7.1 Breaks in barriers
- 3.4.3.7.2 Loss of negative air (0.02 inches of water - minimum negative pressure to be maintained).
- 3.4.3.7.3 Leakage to other areas.
- 3.4.3.7.4 Fiber concentration outside the work area which exceed 0.01 f/cc or background, for any one sample. Inside fiber levels above .5 fibers/cc.
- 3.4.3.7.5 Violations of regulatory or specification requirements.
- 3.4.3.7.6 Failure to provide measurement of negative pressure with an automatic recording device approved by the Asbestos Contractor

3.5 CLEAN-UP AND DISPOSAL

3.5.1 Housekeeping

Essential parts of asbestos dust control are housekeeping and clean-up procedures. Maintain surfaces of the asbestos containment area free of accumulations of asbestos fibers. Give meticulous attention to restricting the spread of dust and debris; keep waste from being distributed over the general area. Do not blow down the space with compressed air. When asbestos removal is complete, all asbestos waste is removed from the work-site, and final clean up is completed, the licensed inspector will certify the area as suitable for reoccupation before the signs can be removed. The licensed inspector will visually inspect all surfaces within the containment for residual material or accumulated dust or debris. The Contractor shall re-clean all areas showing dust or residual materials. If re-cleaning is required, air sample and establish an acceptable asbestos airborne concentration after re-cleaning at the Contractor's expense.

3.5.2 Removal of Asbestos Waste Containers

Store asbestos waste containers in the asbestos containment area until the cleanup is complete. Asbestos waste containers shall be removed through the decon area or the waste load out area. No asbestos removal may occur during waste load out. Thoroughly wash

outside of containers in shower, double-bag in clean area and move to an enclosed covered placarded truck.

3.5.3 Disposal of Asbestos

Dispose of waste asbestos material by burial under at least 6 inches of daily compacted cover of nonasbestos materials and by final cover of at least 2 feet of compacted earth at a state-approved sanitary landfill. Procedure for hauling and disposal shall comply with 40 CFR 61, Subpart M, and state, regional, and local standards. Sealed impermeable bags may be dumped from drums into the burial site unless bags have been broken or damaged. Damaged bags shall remain in the drum and the entire contaminated drum shall be buried. Uncontaminated drums may be recycled. Workers unloading sealed drums shall wear appropriate respirators and personal protective equipment when handling asbestos materials at the disposal site.

END OF SECTION 02 82 00