ATTACHMENT E: Specifications

Summary of Work

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. General Requirements.
B. Work Covered by Contract Documents.
C. Contractor Use of Premises.
D. Related Work by College.
E. Services Provided by the College

1.02 WORK COVERED BY CONTRACT DOCUMENTS:

A. General:
   1. The Work shall be the providing of all supplies, tools, equipment, scaffolding, transportation, utilities, services, superintendents, and labor, and the furnishing of all materials, items, and accessories needed to accomplish Asbestos Abatement, Lead-Based Paint Handling, PCB's and other Hazardous material abatement in strict conformance with the Contract Documents.

B. Description:
   1. The Work consists of all on-site tasks associated with Abatement and removal of asbestos-containing materials, lead-based paint materials or other hazardous materials as necessary to accommodate the Facilities Improvement Program.

C. Provide for the Work as shown in the Contract Documents required to complete each Work Package or On-Call Work.

D. Prior to submitting a proposal for On-Call Work or a bid for a Work Package, the Contractor shall visit the site and fully inform himself of the areas in which work is to take place, including the limits of area allowed for working conditions, the areas limited for access to the work, and the areas available for the delivery and storage of supplies, equipment and material.

E. The Contractor represents that it has carefully examined prior to submitting a proposal for On-call Work or a bid for a Work Package, all Contract Documents, and site conditions, and understands the character, quality, and quantity of work called for and all conditions of the contract.

1.03 CONTRACTOR’S USE OF PREMISES:

A. Work Sequence:
   1. Perform Work in manner required to accommodate the College’s use of premises during the Contract Period. Coordinate Work schedules and operations with the College’s use requirements.
B. Limitations on Use:

1. Do not make use of any existing structures on College Property or any facilities therein, except Work areas and areas where permitted under Section 01500, “Temporary Construction Facilities and Temporary Controls”, unless otherwise approved.

2. College’s Notice: If the Contractor chooses to work during any weekend or on any holiday listed above, Contractor shall notify the College in writing at least 48 hours in advance of such intent, and obtain approval by the College or unless indicated in the requirements of the Work Package. The College shall pay the cost of the custodians’ time at the current overtime rate during such hours that the building(s) must remain open for use by the Contractor, plus administrative overhead at current rate.

No Work shall be performed on weekends or holidays without prior approval from the College.

3. There may be other days (Down Days) during the Contract Period when College buildings will be closed. Contractor shall request from the College a list of Down Days that may occur during the Contract Period. Contractor shall notify the College at least 48 hours in advance of Down Days during which time the Contractor intends to work. The College will pay for the custodians’ time during such Down Days when the building is required to be open for the Contractor's use.

C. Noninterference with College:

1. If the Work is to be performed upon or adjacent to an existing structure, execute the Work in such manner as will not interfere with the continued free and comfortable use of the structure, walks and grounds for College purposes.

2. During normal College hours, keep building exits clear of obstructions at all times. If closure of an exit is required by the Work, notify the principal and allow ample time for an alternate plan to be executed.

3. Coordinate Work schedule with the College Representative. Coordinate work with moving of classes out of construction areas and into newly completed classrooms.

4. Work shall not be performed in exit ways, classrooms, gymnasiums, auditorium, cafeterias, main office area, and similar spaces during normal College hours when such spaces are required for College purposes, or where construction activities obstruct exit ways. Such Work shall be performed outside normal College hours up to 10:00 p.m. if no nighttime College activities are planned, or during weekends and vacation periods when Colleges are normally closed. The building will be accessible from 6:00 a.m. to 10:00 p.m. Monday through Friday. Normal College hours are from 8:00 a.m. to 5:00 p.m. weekdays. All Work required in spaces being utilized for College purposes must be closely scheduled with the College so that such spaces may be safely reused when classes resume.

D. Noninterference with Serving Utilities:

1. Do not interrupt electric, gas, water, steam, or other services to existing structures without prior notice to the College and then only at a definite time and for a definite duration approved by the College.

2. Consult with public and private utility companies for location and extent of all utilities before commencing Work. Existing utility lines that are completely hidden, not clearly indicated in the Contract Documents, undiscernable by visual or electronic means, which are subsequently and accidentally cut or damaged by the Contractor, shall be restored to service as soon as possible. Contractor shall notify the College of changes in conditions.
3. Provide all services required. Protect and maintain existing utilities, active electrical conductors, sewers, pipes, and other active lines on College property or in street excavations.

E. **Protections:**

1. Protect sidewalks, asphalt paving, concrete, shrubs and lawn areas at all times from spillage of materials used in carrying out the Work. Exercise care to preclude materials from clogging catch basins and yard drains. Leave all draining items clean and in proper working condition.

2. Clean, repair, resurface or restore existing surfaces to their original condition, or completely replace such surfaces to match existing, where damaged by abatement operations.

3. Damage to property adjacent to College’s property shall be restored to the satisfaction of respective property owners.

F. **Removal of Equipment and Materials:**

1. Clear the site and surrounding street areas of all equipment, apparatus, appliances, tools, unused materials, and similar items as rapidly as they cease to be needed in carrying out the work.

1.04 **EXCESSIVE NOISE:**

A. Minimize noise during working hours. Notify the College Representative at least 24 hours prior to any necessary excessive noise. Comply with College’s instructions.

1.05 **OWNER OCCUPANCY:**

A. **Continued Occupancy:** College will occupy the premises during the entire Contract Period for normal College operations. Cooperate with the College in all Site operations to facilitate College’s use of buildings and grounds for College purposes and to insure the least inconvenience to College personnel and the general public.

B. **Partial Occupancy:** Schedule construction operations for completion of portions of the Work, as designated, for the College’s occupancy prior to Substantial Completion of the Work.

1.06 **RELATED WORK BY COLLEGE OR OTHERS:**

A. **Other Work Provided by College:** The College may utilize its own maintenance staff to perform abatement work in the building or elsewhere throughout the College. The College will retain up to five qualified abatement contractors to bid separate Work Packages. The College will retain an Environmental Consultant to perform design, inspections, and testing services for abatement work.

1.07 **WORKMANSHIP:**

A. Unless otherwise specified, all Work shall be performed by certified workers skilled in the type of Work involved.

B. No one shall be employed in connection with the Work who is not skilled in the particular work to which that person is assigned. Should the College Representative or the Environmental Consultant deem that anyone on the Work is without the skill necessary to perform the work assigned in a workmanlike manner, the Contractor, upon notification thereof, shall remove that person immediately from the Work and shall not assign that person to other College work without first obtaining written approval from the College.

C. The Contractor shall keep a written record of all observed deficiencies and faulty or unsatisfactory Work. Remedial action shall be taken promptly so that no deficiencies are forgotten or overlooked.
Unsatisfactory Work shall be corrected immediately and not allowed to remain and become part of
the Punch List at Completion of the Work

END OF SUMMARY OF WORK SECTION
ATTACHMENT E: Specifications

DEFINITIONS

PART 1 GENERAL

1.01 DEFINITIONS

A. Certain terms used generally throughout the specifications (and drawings) are hereby defined as follows:

1. Indicated: A cross reference to details, notes or schedules on the drawings, other paragraphs or schedules in the specifications, and similar means of recording requirements in the Contract Documents. Where terms such as “shown”, “noted”, “scheduled”, and “specified” are used in lieu of “indicated”, it is for the purpose of helping the reader accomplish the cross reference, and no limitation of location is intended except as specifically noted.

2. Directed, requested, etc.: Unless otherwise explained, terms such as “directed”, “requested”, “authorized”, “selected”, “approved”, “required, “accepted”, and “permitted” mean “directed by the Environmental Consultant”, “requested by the Environmental Consultant,” etc. However, no such implied meaning will be interpreted to extend the Environmental Consultant's responsibility into the Contractor's area of abatement supervision.

4. Approve: Where used in conjunction with the Environmental Consultant response to submittals, requests, applications, inquiries, reports, and claims by the Contractor, the meaning of the term "approved" will be held to the limitations of the Environmental Consultant's and duties as specified in the General and Supplementary Conditions. In no case will "approval" by the College Representative or Environmental Consultant be interpreted as an assurance to the Contractor that the requirements of the Contract Documents have been fulfilled.

6. Provide: Except to the extent further defined, the term "provide" means to furnish and install, complete and ready for the intended use.

1.02 DRAWINGS, DIMENSION, AND MEASUREMENTS

A. Where on any of the drawings a portion of the Work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to all other portions of the work.

B. Wherever a detail is referenced and developed for a specific condition, same or similar detail shall apply to identical or similar conditions elsewhere on project even though not specifically referenced.

C. Where the word "similar" occurs on the drawings, it shall be interpreted in its general sense and not as meaning identical, and all details shall be worked out in relation to their location and their connection with other parts of the work.

D. The figured dimensions on the drawings or noted indicating dimensions shall be used instead of measurements of the drawings by scale, and shall be strictly complied with.

E. No scale measurements shall be used as a dimension to work with except on "full size" drawings not dimensioned.
1.03 SPECIFICATION EXPLANATION

A. The specifications are divided into Divisions and Sections for the convenience of writing and using. The titles of these are not intended to imply a particular meaning or to fully describe the work of each division or section, and are not an integral part of the text, which specifies the requirements. The Environmental Consultant is not bound to define the limits of any subcontract, and will not enter into disputes between the Contractor and his employees.

B. These specifications are of the abbreviated, or "streamlined" type, and include incomplete sentences.

C. Omissions of words or phrases such as "the Contractor shall" "in conformity therewith", "shall be", "as noted on the drawings", "according to the plans", "a", "an", "the", and "all" are intentional.

D. Omitted words or phrases shall be supplied by inference in the same manner as they are when a "note" occurs on the drawings.

END OF DEFINITIONS SECTION
ATTACHMENT E: Specifications

Regulations

PART 1 GENERAL

1.01 WORK INCLUDED IN THIS SECTION

Perform all Work in full accordance and conformity with the current requirements of all applicable codes and regulatory agencies in accordance with Article 4 of the General Conditions. The following references are included for convenience only and are not intended to cover all requirements of the Contract Documents. Conform to additional codes and regulations referenced in these specification or required by law.

1.02 RELATED WORK SPECIFIED IN OTHER SECTIONS

Provisions of the Bidding Requirements and Conditions of the Contract apply to all Sections of the specifications. Refer to the Table of Contents for related work.

1.03 HAZARDOUS MATERIAL ABATEMENT WORK

State of Oregon Rule and Regulations of the State Board of Health.
Local Building and Fire Departments
Department of Environmental Quality, State of Oregon
OR-OSHA
Other agencies as applicable to the Project

1.04 SPECIFICATION OF HIGH STANDARDS

Drawings and Specifications govern whenever drawings and Specifications require higher standards than are required by referenced codes and regulations.

1.05 SPILL RESPONSIBILITY

Contractor will be held responsible for any and all releases of environmental pollution during performance of the Contract that occur as a result of, or are contributed to, by actions of its agent, personnel, or subcontractors. Contractor agrees to promptly dispose of such spills or leaks to satisfaction of the College and proper regulatory agencies in the manner that complies with applicable federal, state, and local laws and regulations. Cleanup shall be at no cost to the College.

Contractor shall obtain the College's written consent prior to bringing onto the work site any (i) environmental pollutants or (ii) hazardous substances or materials, as the same or reasonably similar terms are used in any applicable federal, state, or local statutes, rules or ordinances. Notwithstanding such written consent from the College, the Contractor, at all times, shall:

A. Properly handle, use, and dispose of all environmental pollutants and hazardous substances or materials brought onto the work site, in accordance with all applicable federal, state, or local statutes, rules, or ordinances;

B. Be responsible for any and all spills, releases, discharges, or leaks of (or from) environmental pollutants or hazardous substances or materials which Contractor has brought onto the work site; and

C. Promptly clean up, without cost to the College, such spills, releases, discharges, or leaks to the College's satisfaction and in compliance with all applicable federal, state, or local statutes, rules or ordinances.

Contractor shall be liable for any and all costs, expenses, damages, claims, and causes of action, or any of them, related to or arising out of a spill, release, discharge, or leak of (or from) any environmental pollutant or
hazardous substance or material, to the extent such spill, release, discharge, or leak was caused or contributed to by Contractor's (i) negligence or (ii) failure to perform in accordance with the Contract Documents. Nothing in this paragraph shall limit Contractor's liability or responsibility under Paragraph 4.19 of the General Conditions.

Contractor shall report all reportable quantity releases to applicable federal, state, and local regulatory and emergency response agencies. Reportable quantities are found in 40 CFR, Part 302, Table 302.4 for hazardous substances and in OAR 340-108 for petroleum products. Upon discovery, regardless of quantity, Contractor must telephonically report all releases to the College. A written follow-up report shall be submitted to College within forty-eight hours of the telephonic report. Such written report shall contain, as a minimum:

1. Description of items released (identity, quantity, manifest no., and all other documentation required by law).

2. Whether amount of items releases is EPA/DEQ reportable, and, if so, when it was reported.

3. Exact time and location of release, including a description of the area involved.

4. Containment procedures initiated.

5. Summary of communications about the release Contractor has had with members of the press or State officials other than College.

6. Description of cleanup procedures employed or to be employed at the site, including disposal location of spill residue.

1. Personnel injuries, if any, resulting from, or aggravated by, the release.

1.06 ENVIRONMENTAL CLEAN-UP

As part of the Final Completion Notice, or as a separate written notice submitted with or before the Notice of Final Completion, the Contractor shall notify the College that all environmental pollution clean-up which was performed as part of this Contract has been disposed of in accordance with all applicable rules, regulations, laws, and statutes of all agencies having jurisdictions over such environmental pollution. The notice shall indemnify and hold harmless the College from any claims resulting from the disposal of the environmental pollution including removal, encapsulation, transportation, handling, and disposal.

1.07 CAUSE FOR TERMINATION OF CONTRACT

Failure to observe above Health, Safety and Environmental regulations shall be cause for immediate termination of all Work and cancellation of this Contract without prior notice, unless remedial steps and precautionary measures satisfactory to the College are immediately accomplished.

All costs incurred by the College in meeting applicable regulations, in correcting any unhealthy or unsafe working conditions, or costs incurred by the College to complete any of the Contractor's Work, will be charged to the Contractor.

END OF REGULATORY REQUIREMENTS SECTION
ATTACHMENT E: Specifications

Air Monitoring

PART 1 - GENERAL

1.01 AIR MONITORING BY CONTRACTOR

A. An independent testing laboratory shall be retained by the Contractor. The person or firm performing the monitoring must be experienced and trained in asbestos sampling and analysis. At a minimum, documentation of prior asbestos sampling and analysis experience, plus satisfactory completion of the NIOSH 582 course or equivalent formal asbestos education, will be required. The laboratory must meet the requirements specified in Section 02075. An Industrial Hygienist or the Contractor’s foreman at the Contractor’s option may perform air sample collection. The College’s Environmental Consultant shall perform clearance air sample collection.

B. Documentation shall be kept for each filter sample procured as to worker sampled, work area location, date and time taken, volume of air drawn through filter, pump identification number and calibration. Documentation shall indicate in what areas tests were taken and shall clearly indicate the specified maximum allowable fiber levels for each area tested. Report all data on copies of "Asbestos Air Sampling Data Form" bound in these Specifications or similar form. Fill in all information on every form. Submit chain of custody records along with all samples.

C. The samples shall be collected on 25 mm filters and analyzed within 12 hours using the membrane filter method at 400x-500x magnification with phase contrast illumination NIOSH Analytical Method No. 7400 for laboratory and field analysis. The analyst shall sign and submit permanent records of all samples analyzed directly to the Environmental Consultant. The independent testing laboratory shall seal the unused portion of all filters in airtight containers so that individual samples can be reanalyzed at a later date if necessary. The containers shall be clearly labeled with Project Name and Sample Number and shall become property of the College upon completion at the College’s request.

D. The Contractor’s testing laboratory shall submit sample analysis results to the Environmental Consultant verbally within 18 hours from the time of collection and written within two (2) weeks including chain of custody and equipment calibration records.

E. Contractor’s Sampling During Abatement:

1. Air monitoring shall be performed to provide samples during the period of asbestos abatement in each work area. Begin sampling when asbestos removal commences. Samples are to be taken where Class II or I work is being conducted during each 8-hour work shift until abatement is complete in that work area or until a negative exposure assessment is established per 29 CFR 1926.1101.

2. The Contractor shall determine which worker(s) in each work area is probably experiencing the most severe exposure. This will be considered the "Most Contaminated Worker(s)". 8 hour TWA and 30 minute excursion samples shall be collected on this (these) worker(s). This worker shall wear a personal sampling pump and the sample shall be drawn from the breathing zone of this worker. All other samples are area samples.

3. The number of air samples collected shall be determined by the Contractor, and may be altered during the project based on work activity and results.

4. The maximum allowable fiber levels shall be as determined by the Asbestos Abatement Consultant based on the respiratory protection being utilized.
F. Contractor shall notify the Department of Environmental Quality of air monitoring clearance results as supplied by Environmental Consultant. Notification shall be within thirty (30) days after the monitoring procedures were performed in accordance to OAR 340-32-465.

1.02 AIR MONITORING BY COLLEGE

A. The College will retain an experienced Environmental Consultant to collect and analyze asbestos air samples. Documentation of sample results will be forwarded to the Contractor as in accordance with regulatory requirements.

B. Samples analyzed by Phase Contrast Microscopy will use NIOSH Analytical Method No. 7400. Samples analyzed by Transmission Electron Microscopy will use either the AHERA methodology, 40 CFR Part 763, or Yamate Level Two.

C. College's Air Sampling During and After Abatement:

1. Air sampling for post abatement work in isolated work areas will use the aggressive sampling method. Use of aggressive sampling in other areas shall be as directed by the Environmental Consultant. Aggressive sampling shall be conducted to assure that fibers remain airborne during sample collection.

2. The College reserves the right to monitor Contractor’s performance via air samples on abatement workers and in the work area in addition to the Contractor’s air monitoring.

1.03 QUALITY ASSURANCE

A. Maximum Allowable Fiber Counts (f/cc):

<table>
<thead>
<tr>
<th>Area</th>
<th>Maximum Fiber Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside Contained Work Area</td>
<td>0.01</td>
</tr>
<tr>
<td>Inside Contained Work Area</td>
<td>0.10</td>
</tr>
<tr>
<td>Clearance PCM</td>
<td>0.01</td>
</tr>
<tr>
<td>Clearance TEM</td>
<td>&lt;70 s/mm² (average)</td>
</tr>
</tbody>
</table>

B. If, at any time during the work, analysis of an air sample taken by the Contractor, College, or College’s representative, indicates a fiber count in excess of the allowable maximums specified, the Industrial Hygienist who analyzed the air sample shall immediately notify:

1. The General Contractor
2. The Environmental Consultant:
3. Other employers, workers, etc. in affected area(s).

C. Immediately upon being notified of fiber count exceeding the specified maximum allowable levels, the Contractor shall perform the following steps in the order presented, at no additional cost to the College:

1. Stop abatement work.
2. Identify source of high fiber counts.
3. Immediately correct any containment breaches, pressure differential changes, or other potential cause, and other concerns with the Environmental Consultant, and the College representative. The Environmental Consultant will determine the affected area and affected adjacent areas considered contaminated. The Environmental Consultant will determine the actions to be taken by the Contractor at no additional cost to the College.
a. Clean the affected area and the affected adjacent areas. Cleaning shall use wet methods and HEPA vacuuming.  

b. Resample air until fiber counts are determined to be below one half of the specified maximum levels.  

c. Secure and repair containment barriers and repair or add equipment.  

d. Modify work procedures, and make other changes determined to be the possible cause of high fiber counts.  

4. Carefully resume work under close air monitoring.  

5. The Contractor shall be responsible for cost of any testing, cleanup, repair, down time loss, etc. that is a result of the Contractor's negligence, poor maintenance of isolated areas or improper procedures.  

END OF AIR MONITORING SECTION
ATTACHMENT E - SPECIFICATIONS

SAFETY PROCEDURES

PART 1 - GENERAL

1.01 PRELIMINARY WORK

A. Prior to commencing Work and during the course of the Work (above and below ground) the Contractor shall make a thorough survey of the entire work site to determine all potential hazards. Workmen shall be made aware of those hazards and shall be instructed in procedures and the use of equipment for their protection. The Contractor shall verify the location and condition ("live" or "dead") of all utilities on and/or near the work site and take precautions to protect his employees, the general public, and the property.

1.02 SAFETY

A. The Contractor shall ensure that all employees, visitors, subcontractors' employees, and suppliers' employees, while on the work site, comply with the requirements of OSHA, these requirements and the safety precautions contained in the several Specifications Sections. The Contractor shall promptly and fully comply with, execute and, without separate charge thereof to the College, shall enforce compliance with the provisions of the Oregon State Employment Act Safety Requirements and Occupational Safety and Health Act requirements.

B. The Contractor shall immediately advise the College of inspections conducted by OSHA, at the work site, and shall transmit copies of citations and violations to the College Representative and Environmental Consultant.

1.03 SAFETY RESPONSIBILITIES

A. Contractor shall be responsible to:

1. Ensure compliance with these requirements, OSHA requirements, and other safety requirements.

2. Authorize immediate action to correct substandard safety conditions.

3. Review and act to ensure compliance with safety procedures with his supervisors, subcontractors, and suppliers.

4. Make thorough daily safety inspections of the work site and immediately act to eliminate unsafe acts and unsafe conditions.

5. Investigate workday accidents and recommend immediate corrective action.

6. Assist in the preparation of accident investigation and reporting procedures.

7. Be responsible for the control, availability, and use of safety equipment, including employee personal protective equipment.

1.04 REQUEST FOR VARIANCES

Requests for variances to deviate from OSHA requirements must follow the current established procedures by that Agency.

1.05 FAILURE TO COMPLY

If the project is shut down due to the Contractor's failure to comply with the requirements of OSHA or other applicable safety requirements, no part of the time loss due to any such suspension of operations or stop orders shall be made the subject of a claim for extension of time or for increased cost or damage by the Contractor.
ATTACHMENT E
Construction Facilities and Temporary Controls

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Temporary Utilities: Electricity, lighting, heat, ventilation, telephone service, water and sanitary facilities.

2. Temporary Controls: Barriers, enclosures and fencing, protection of the Work and water control.

1.02 TEMPORARY UTILITIES

A. General:

1. Provide and maintain temporary water, electric, gas, telephone and any other temporary utility required for all those employed about the Work, including means of conveying same to places on the Site where needed, until final completion.

B. Temporary Electrical Service:

1. The College will provide, without charge, electrical power from existing outlets up to their rated capacities. The Contractor shall provide all means of conveying it from existing outlets to required locations and shall pay for any damage to existing system resulting from misuse thereof. Contractor shall utilize standard outlets and shall return the power connections to their original state upon completion of the Project.

2. Contractor shall provide connections to existing facilities, sized to provide service required for power and lighting; College will pay costs of power used.

C. Temporary Lighting:

1. The College will allow the use of and pay for existing lighting.

2. Provide and maintain additional lighting for construction operations to achieve minimum lighting level of 2 watt/sq. ft. Provide additional lighting for finish work where and when needed, or as required by the Contract Documents.

3. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

4. Maintain lighting and provide routine repairs.

D. Temporary Water Service:

1. The College will provide, without charge, water from existing hose bibs Contractor shall make temporary connections to existing facilities and provide water for construction purposes; College will pay costs of water used. Contractor will return all temporary connections to their original state upon completion of the Project.
2. Contractor shall provide heavy-duty hoses and make water available throughout construction area. Protect hoses and fittings against freezing.

E. Temporary Heat and Ventilation:

1. Provide temporary heat and ventilation as required to maintain adequate environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for the installation of materials, and to protect materials and finishes from damage due to temperature or humidity.

2. Provide adequate forced ventilation of enclosed areas for curing of installed materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors, or gases.

3. Portable heaters shall be standard, approved units complete with controls.

4. Pay all costs of installation, maintenance, operation, and removal, and for fuel consumed.

5. Devices used for temporary heating shall be approved by the Fire Marshal of the City of Portland.

6. Provide not less than 60°F (15.5°C) minimum temperature from start of abatement until final completion.

7. After installation of temporary heating and ventilating systems, the Contractor may furnish a competent attendant and operate the permanent systems at his own expense, including costs of electric power consumed, provided Contractor assumes full responsibility for damage. Permanent ventilating system shall not be used until filters are in place. Maintain filters during construction, as necessary, to properly protect the Work and the system. Replace used filters with new filters upon final acceptance of the Work.

F. Temporary Sanitary Facilities:

1. Provide chemical or similar toilet facilities approved by governing sanitary authorities. Service, clean, and maintain such facilities as long as they are needed for the Work. Provide adequate number of toilet facilities for use of all persons employed on the Work. Facilities shall be enclosed, weatherproof, ventilated, and heated as required. Facilities shall also be weighted down or secured in place by means necessary to prevent turn-over or removal by vandals. Toilet facilities provided by the Contractor shall be cleaned and/or emptied on a regular basis and shall be maintained in a clean state. Facilities shall be locked during times when workmen are not on the job.

2. Designated toilet facilities in the existing building may be used by those employed under this Contract provided the Contractor assumes full responsibility for damage and cleanliness.

3. No other toilet facilities on College property shall be used by construction personnel.

G. Temporary First Aid Facilities:

The Contractor will provide adequate first aid facilities for construction personnel.

H. Temporary Fire Protection:

1. Take all precautions to prevent possibility of fire resulting from construction operations. Particularly avoid hazardous accumulations of rubbish and unsecured flammable materials. Daily housekeeping will be a must in order to prevent fire hazards.

2. Provide emergency fire extinguishing equipment of adequate type and quantity, readily available and properly maintained.

3. Whenever welding or cutting work is performed, the Contractor will be responsible for having a fire watch standing by or will have additional fire suppression equipment on hand to prevent the spread of fire and fire related damage.
4. All sprinkler systems will remain connected and in operation during any abatement procedures. Should a system require shut down, the area shut down will be maintained by either an alternate system or connection will be by-passed to continue service.

5. All work on existing sprinkler systems will be performed by a trained and certified technician in accordance with state and local regulations.

6. Keep local Fire Department’s telephone number prominently displayed near telephone.

I. Temporary Telephone Service:

1. For health/safety purposes, the Contractor shall provide his own temporary on-site telephone service. In addition to the telephone, a posted listing of emergency phone numbers will be posted nearby.

2. The Contractor will maintain an open communication line for construction related telephone communications.

1.03 TEMPORARY CONTROLS

A. Barriers

1. Provide barriers (i.e., fencing, barricades, solid barriers, etc.) to prevent unauthorized entry to abatement areas and to protect existing facilities and adjacent properties from damage due to abatement and construction operations.

2. Provide barricades and covered walkways required by governing authorities for public rights-of-way.

3. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

B. Pollution Control:

1. Burning or burying of rubbish and waste materials on Site is prohibited. Provide locked storage or dump boxes for collection of waste materials.

2. Hazardous waste removed from the site, strapping, deleterious materials and construction debris will be disposed of in accordance with all federal, state and local regulations.

END OF CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS SECTION
ATTACHMENT E
TECHNICAL SPECIFICATIONS

Asbestos Abatement

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The Work under this contract consists of asbestos abatement and related procedures to accommodate demolition and remodeling activities. Provide all material, labor, and equipment necessary to accomplish the work.

B. The Contract Sum shall not be affected by changes due to increases in equipment, transportation, training, labor or material costs, disposal costs and fees, or other similar events.

1.02 RELATED WORK BY OTHERS

A. The College may undertake remodeling and maintenance work in the building under separate contracts with others. Contractor will coordinate with and schedule work to accommodate College's separate contracts.

The College will retain an Environmental Consultant to perform the following:
1. Take and analyze air samples before, during, and after the work.
2. Observe the work of the Contractor.
3. Monitor the Contractor's compliance with the Specification requirements.

1.03 PERMITS AND FEES

A. After execution of the Contract, the Contractor shall obtain and pay for all permits, fees, and licenses necessary to execute and complete the work of each Work Package. Other permits and notifications may also be necessary. Obtain permits and notify the following agencies at least ten (10) days prior to beginning work.

B. The College will pay annual notification fees for all small-scale work performed by the Contractor.

1.04 DEFINITIONS

A. Abatement: Procedures to control fiber release from asbestos containing building materials. Work may include encapsulation, enclosure, removal, repair, and related activities.

B. Aggressive Sampling: A method of air sampling that assures that the asbestos fibers remain airborne during the sampling time. All surfaces inside the work area will be agitated by the liberal use of compressed air. Fans will then be placed so as to keep all suspended fibers airborne, and run throughout the sampling period.


D. Air Lock: A system for permitting ingress or egress without permitting air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways at least 3 feet apart.

E. Air Monitoring: The process of measuring the asbestos fiber content of a specific volume of air within a stated period of time.

F. Amended Water:
Water containing a surfactant additive.

G. **Asbestos-Containing Material (ACM):**
Any material containing more than one percent (1%) asbestos as defined under NESHAPS CFR 40, Part 61, and OSHA 29 CFR Part 1926.1101.

H. **Authorized Visitor:**
The College or designated representative, or a representative of any regulatory or other agency having jurisdiction over the project, and having required training, medical, fit test, etc.

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

J. **Class I Asbestos Work:**
Means activities involving the removal of TSI and surfacing ACM ad PACM.

K. **Class II Asbestos Work:**
Means activities involving the removal of ACM, which is not thermal system insulation, or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

L. **Clean Room:**
An uncontaminated area or room, which is part of the worker decontamination enclosure system, with provisions for storage of workers’ street clothes and clean protective equipment.

M. **Critical Barrier:**
Solid barrier constructed from minimum of 2” x 4” studs, 16” o.c.; ½” plywood or drywall sealed airtight and covered on both sides (where applicable) with 2 layers of 6-mil plastic.

N. **Curtained Doorway:**
A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms, typically constructed by placing three overlapping sheets of plastic over an existing or temporarily framed doorway, securing each along the top of the doorway in a pleated fashion and securing one vertical side of each sheet on alternating sides of consecutive sheets. Two curtained doorways spaced a minimum of 3 feet apart from an air lock.

O. **Disposal:**
Procedures necessary to transport and deposit the asbestos-contaminated material in an approved waste disposal site in compliance with EPA and other applicable regulations.

P. **Enclosure:**
Procedures necessary to completely seal all asbestos-containing material behind airtight, impermeable, permanent barriers, including PVC jackets.

Q. **Encapsulated (Sealant):**
A liquid material which can be applied to asbestos-containing material and which controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant), or by penetrating into the material and binding its components together (penetrating encapsulant).

R. **Environmental Consultant:**
Environmental Consultants.

S. **Equipment Room:**
A contaminated area or room that is part of the worker decontamination enclosure system, with provisions for storage of contaminated clothing and equipment.

T. **Fitting:**
With regard to pipe insulation, a fitting is considered any elbow, offset, reducer, tee, etc.
U. **Fixed Object:**
   Fixtures that are attached to the building or are too heavy or bulky to remove from the work area.

V. **Glove Bag:**
   A manufactured device consisting of a transparent plastic bag with inward projecting sleeves, and internal tool pouch, provisions for fastening and sealing at the top and sides, and a receptacle in the bottom to hold asbestos waste. The glove bag is installed so as to surround the material to be removed and contain all fibers released during the process. Glove bags are used to remove insulation from small sections of pipe and fittings.

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

X. **HEPA Vacuum Equipment:**
   High Efficiency Particulate Air (absolute) filtered vacuuming equipment with a filter system capable of collecting and retaining asbestos fibers. Filters of 99.97% efficiency for retaining fibers of 0.3 microns in length or larger shall be installed for filtering discharge air.

Y. **Independent Testing Laboratory:**
   A laboratory financially independent from and hired by the College or Contractor which is either AIHA accredited for asbestos with demonstrated proficiency via the AIHA PAT program, or has analysts proficient in the AIHA AAR program for air sample analysis.

Z. **Industrial Hygienist:**
   The College's representative assigned to perform area and clearance testing and visual inspections of work areas. The Industrial Hygienist will be experienced and trained in asbestos sampling and analysis as specified.

AA. **Isolated Work Area:**
   A totally contained area of the facility where abatement activities are performed.

BB. **Movable Object:**
   Furnishings that are not attached to the building structure and can be removed from the work area.

CC. **Negative-air Glove Bag:**
   A manufactured device consisting of a transparent plastic bag with inward projecting sleeves, an internal tool pouch, provisions for fastening and sealing it at the top and sides, and a receptacle in the bottom to hold asbestos waste. The glove bag is installed so as to surround the material to be removed and contain all fibers released through the process, with provisions for allowing continuous airflow through the bag while maintaining negative pressure inside.

DD. **College:**
   Representatives designated by the College, or designated employees of the College.

EE. **PACM:**
   Means "presumed asbestos-containing material.

FF. **Pressure Differential Fan System:**
   An air-purifying fan system located within or outside the isolated work area, which draws air out of the work area through a HEPA filter, thus keeping the static air pressure in the work area lower than in adjacent areas, and preventing escape of contaminated air from work area to adjacent areas.

GG. **Public Area:**
   Any area outside the isolated work area. When work area isolation measures are removed, the work area becomes a public area.

HH. **Removal:**
   Means all operations where ACM and/or PACM is taken out or stripped from structures or substrates, and includes demolition operations.

II. **Shower Room:**
A room between the clean room and the equipment room in the worker decontamination enclosure system, which is equipped with hot and cold running water controllable at the faucet and soap and shampoo, and which is suitably arranged for complete showering during decontamination. The shower room must be separated from the clean room and equipment room by air locks.

JJ. Special Fitting
With regard to pipe insulation, a special fitting is any valve, union, strainer, thermometer, flange, etc.

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

LL. Solvent:
A chemical agent applied to mastic products for removal.

MM. Tack Coat:
A coat of penetrating encapsulant applied to all surfaces from which asbestos-containing materials have been removed.

NN. Thermal System Insulation (TSI):
Means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

OO. Vacuum Loader Removal:
Wetting and pneumatic conveying of loose material through a vacuum hose to a sealed collection tank specially equipped to prevent escape of fibers.

PP. Wet Cleaning:
The process of eliminating asbestos from building surfaces and objects by using cloths, mops, or other cleaning tools that have been dampened with water.

QQ. Worker Decontamination Enclosure System:
A showering facility for workers, typically consisting of a clean room, a shower room, and an equipment room. Each of these rooms is separated from the others by air locks. The equipment room is separated from the work area by a curtained doorway. The clean room is separated from the public area by a curtained doorway.

RR. Worksite Entry Logbook:
A logbook kept in the clean room which must be signed by everyone entering or leaving the work area. All pages of the logbook must be the same as the sample page bound into these Specifications.
A.05 DOCUMENTS INCORPORATED BY REFERENCE:

A. The current issue of each document shall govern. Where conflict among requirements or with these Specifications exists, the most stringent requirements shall apply.
   3. U.S. Department of Labor Occupational Safety and Health Administration (OSHA):
      c. Title 29 Code of Federal Regulations Section 1910 et al.--Occupational Exposure to Asbestos; Final Rule.
      e. Title 29 Code of Federal Regulations Section 1910.2--Access to Employee Exposure and Medical Records.
   6. Oregon Administrative Rules Chapter 340, Division 32, Department of Environmental Quality; Chapter 340, Division 33, Licensing and Certification Requirements.
   7. Oregon Administrative Rules Chapter 437, Divisions 2 and 3.
   8. Oregon Revised Statutes (ORS), Chapters 279, Certified Asbestos Contractors and Prevailing Wage; 656, Workers Compensation; and 701, Construction Contractors Board Registration.
   10. All related electrical work shall be performed in accordance with the National Electrical Code.
   11. All local ordinances, regulations, or rules pertaining to asbestos, including its storage, transportation, and disposal.

1.06 SUBMITTALS AND NOTICES

A. Prior to commencing work on the project, the successful Contractor shall provide three (3) copies of the following submittals to the College:

1. **Contractor's License.**
   Submit proof that the Asbestos Abatement Contractor is currently and for the duration of the project licensed in the State of Oregon to perform asbestos abatement, per ORS Chapter 701, and OAR Chapter 340, Division 32.

2. **Asbestos Supervisor.**
   Submit the name and resume of experience of the assigned on-site foreman. At a minimum, the foreman shall have successfully completed the DEQ Asbestos Supervisor course as approved by the State of Oregon. Other criteria such as references and similar projects will also be reviewed. At the College's request, the Contractor shall arrange an oral interview with the assigned on site foreman. The College and the Environmental Consultant reserve the right to reject the foreman from the work at any time during the project. The Contractor shall then assign another on site foreman for College and Environmental Consultant approval as described above. If during the duration of the Contract, the Contractor reassigns the on-site foreman, the College will be provided copies of the above noted criteria and the approval process will remain the same as previously stated.
3. **Insurance Certificate.**
Submit a copy of the certificate of asbestos specific liability insurance policy, as specified herein.

4. **Worker Certification.**
Submit written documentation indicating that all employees impacting asbestos containing materials are Oregon State certified asbestos workers. Proof shall include a signature from the Contractor's Principal indicating that all employees assigned to this project have completed such a program, and photo copies of certificates for each employee.

5. **Respirator Program.**
Submit written respirator program that is in compliance with all parts of OSHA Asbestos Regulations CFR Title 29, Part 1926, Section 1926.58.

6. **Medical Program.**
Submit written proof medical exam program is in compliance with OSHA Asbestos Regulations CFR Title 29, Part 1926, Section 1926.1101.

7. **Emergency Plans.**
Submit a written emergency control and cleanup plan to be followed by the Contractor in the event of: an accidental breach in containment, power failure, or accidental disturbance of ACM's in non-isolated areas.

8. **Notification.**
Submit a copy of the written notification to the Department of Environmental Quality (DEQ); of the proposed asbestos work not fewer than (10) ten days before work commences on this project.

9. **Disposal Plan.**
Submit written documentation that all required permits and arrangements for transport and disposal of asbestos containing or contaminated materials, supplies, and the like have been obtained at a site approved by EPA and other responsible agencies.

10. **Confined Space Entry Plan.**
Submit procedures for performing work in confined areas (e.g. tunnels and attic spaces) including a description and plan showing primary access points, material removal routes, newly created access locations and worker protection. The approved plan shall be posted in the Contractor's equipment area. All abatement workers entering confined areas shall review it.

11. **Work Plan.**
Submit a written "work plan" satisfactory to the College describing the schedule for asbestos abatement, decontamination procedures, and plans for construction and location of decontamination enclosure systems, pressure differential exhaust fans, etc. in compliance with these Specifications and applicable regulations, including calculations for determining required number of negative-air filtration units. The plan shall schedule the systematic flow of work throughout the facility per Specifications outlining area-by-area procedures and planned alternative control measures. The Contractor shall keep close coordination of his work with the Project Manager and Environmental Consultant.

12. **VAT & Mastic Removal.**
Include in the work plan the exact method to be utilized for the VAT, mastic and leveling compound removal. Indicate the method of isolation and proposed method for mastic removal. Only "Low Odor" mastic removers will be acceptable.

13. **Air Monitoring.**
Submit information pertaining to the proposed Air Monitoring Program for this project if appropriate. This information shall include the name(s) of the Certified Industrial Hygienist appointed, the name of the onsite Industrial Hygiene Technician working under his supervision, types of equipment, and sampling schedule, sampling procedures, calibration record keeping, and testing laboratory proposed.

14. **Product Information.**
Submit complete product information, specifications, and Material Safety Data Sheets (MSDS) for any materials and products for which the Contractor requests approval for use on this job (other than those specified).

15. **Emergency Phone Number.**
Submit a local phone number at which the Contractor or on site foreman can be reached on a twenty-four hour basis during the course of the work.
B. Contractor shall not commence work until submittals have been reviewed and accepted by College and the Environmental Consultant.

C. During the Work the Contractor shall submit to the College on a periodic basis as agreed to by the College, Environmental Consultant, and Contractor:
   1. Waste shipment and disposal documentation.
   2. Air monitoring data.
   3. Notification updates.

D. Contractor shall submit in writing to the College Representative all information required above regarding any new asbestos workers hired by or subcontracted to the Contractor before these new asbestos abatement workers begin work.

E. Prior to removal of decontamination systems and isolation barriers, the Contractor shall obtain specific written permission from the Environmental Consultant.

G. The Contractor shall:
   1. Complete all work under this contract.
   2. Submit all required submittals including all Waste Shipment Records completely filled out and signed.
   3. Submit to the Environmental Consultant "as-abated" drawings indicating areas where asbestos has been removed and where inaccessible ACM's were enclosed or encapsulated, along with a signed affidavit stating that all asbestos containing materials have been removed as indicated on the Drawings.

F. See other sections of these Specifications and EPA, OSHA, and other standards referenced therein, for further information and requirements not included above.

1.07 ASBESTOS AIR MONITORING BY CONTRACTOR:

A. An independent testing laboratory shall be retained by the Abatement Contractor to perform all clearance testing and OSHA compliance air monitoring. An Industrial Hygienist shall perform all air monitoring analysis. The Hygienist must be experienced and trained in asbestos sampling and analysis. At a minimum, documentation of prior asbestos sampling and analysis experience, plus satisfactory completion of the NIOSH 582 course or equivalent formal asbestos education, will be required. An Industrial Hygienist shall perform clearance air sample collection.

B. Documentation shall be kept for each filter sample procured as to worker sampled, work area location, date and time taken, volume of air drawn through filter, pump identification number and calibration. Documentation shall indicate in what areas tests were taken and shall clearly indicate the specified maximum allowable fiber levels for each area tested. Submit chain-of-custody records along with all samples.

C. The samples shall be collected on 25 mm filters and analyzed within 12 hours using the membrane filter method at 400-500x magnification with phase contrast illumination NIOSH Analytical Method No. 7400 for laboratory and field analysis. The analyst shall sign and submit permanent records of all samples analyzed directly to the Environmental Consultant. The Independent Testing Laboratory shall seal the unused portion of all filters in airtight containers so that individual samples can be reanalyzed at a later date if necessary. The containers shall be clearly labeled with Project Name and Sample Number and shall become property of the College at work completion at the College's request.

D. The Contractor's testing laboratory shall submit sample analysis results to the Environmental Consultant verbally within 18 hours from the time of collection and written within two (2) weeks including chain of custody and equipment calibration records.
E. Contractor's Sampling During Abatement:

1. Air monitoring shall be performed to provide samples during the period of asbestos abatement in each work area. Begin sampling when asbestos removal commences. Samples are to be taken where Class I and Class II work is being conducted during each 8-hour work shift until abatement is complete in that work area or until a negative exposure assessment is established per 29 CFR 1926.1101.

2. The Contractor shall determine which worker(s) in each work area is probably experiencing the most severe exposure. This is the "Most Contaminated Worker(s)", eight hour TWA and 30 minute excursion samples shall be collected on this worker(s). This worker shall wear a personal sampling pump and the sample shall be drawn from the breathing zone of this worker. All other samples are area samples.

3. The number of air samples collected shall be determined by the Contractor, and may be altered during the project based on work activity and results.

4. The maximum allowable fiber levels shall be based on the engineering controls and respiratory protection being utilized.

F. Contractor shall notify the Department of Environmental Quality of air monitoring clearance results as supplied by Environmental Consultant. Notification shall be within 30 days after monitoring procedures were performed in accordance to OAR 340-32-465.
G. Air Sampling During and After Abatement:

1. Air Sampling Table is to be used as a guide. The Environmental Consultant shall make the modifications to the Maximum Allowable Fiber Count in writing.

<table>
<thead>
<tr>
<th>Type of Sample</th>
<th>Average Samples per 8-hour Work Shift</th>
<th>Sample Volume--L (Liters)</th>
<th>Approximate Flow Rate</th>
<th>Maximum Allowable Fiber Count (f/cc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEPA Fan Exhaust</td>
<td>0 or selected units</td>
<td>400-2000 L</td>
<td>2 to 10 LPM</td>
<td>0.01 s/cc</td>
</tr>
<tr>
<td>Outside of Work Area</td>
<td>0-5</td>
<td>400-2000 L</td>
<td>2 to 10 LPM</td>
<td>0.01 s/cc or &lt;pre-abatement</td>
</tr>
<tr>
<td>Clearance PCM</td>
<td>5/work area</td>
<td>800-3000 L</td>
<td>2 to 10 LPM</td>
<td>0.01 f/cc</td>
</tr>
<tr>
<td>Clearance TEM</td>
<td>5/work area</td>
<td>1200-1800 L</td>
<td>2 to 10 LPM</td>
<td>&lt;70 s/mm2 average</td>
</tr>
</tbody>
</table>

2. Air sampling for post-abatement work in isolated work areas will use the aggressive sampling method. Use of aggressive sampling in other areas shall be as directed by the Environmental Consultant. Aggressive sampling shall be conducted to assure that fibers remain airborne during sample collection.

3. Analysis of clearance samples shall be via Phase Contrast Microscopy (PCM) or Transmission Electron Microscopy (TEM).

4. The College reserves the right to monitor Contractor's performance via air samples on abatement workers and in the work area in addition to the Contractor's air monitoring.
1.08 QUALITY ASSURANCE

A. If, at any time during the work, analysis of an air sample taken by the Contractor, College, or College’s representative, indicates a fiber count in excess of the allowable maximums specified, the Contractor shall immediately notify:
   1. The General Contractor
   2. The Environmental Consultant
   3. Other employers, workers, etc. in affected area(s).

B. Immediately upon being notified of fiber count exceeding the specified maximum allowable levels, the Contractor shall be prepared to perform the following steps in the order presented, at no additional cost to the College:
   1. Stop abatement work.
   2. Identify source of high fiber counts.
   3. Immediately correct any containment breaches, pressure differential changes, or other potential cause, and other concerns with the Environmental Consultant, and the College if the College is available. The Environmental Consultant will determine the affected area and affected adjacent areas considered to be contaminated. The Environmental Consultant will determine the actions to be taken by the Contractor at no additional cost to the College.
      a. Clean the affected area and the affected adjacent areas. Cleaning shall use wet methods and HEPA vacuuming.
      b. Resample air until fiber counts are determined to be below one half of the specified maximum levels.
      c. Secure and repair containment barriers, or add equipment.
      d. Modify work procedures, and make other changes determined to be the possible cause of high fiber counts.
   4. Carefully resume work under close air monitoring.
   5. The Contractor shall be responsible for costs of any testing, cleanup, repair, down time loss, etc. that is a result of the Contractor’s negligence, poor maintenance of isolated areas or improper procedures.

1.09 PERSONNEL PROTECTION

A. Training:
   1. Prior to commencement of work, Contractor shall ensure all workers have been trained as specified.
   2. The Contractor shall provide and post, in the clean room(s) and the equipment room(s), the decontamination, respirator, and work procedures to be followed by the workers.
   3. For demolition of non-asbestos containing walls and ceilings in areas containing friable asbestos materials, the Contractor has the option to train qualified demolition workers. Such training shall be the sole responsibility of the Contractor and shall consist of a minimum of eight (8) hours, unless applicable regulatory agencies accept a lesser amount of classroom time. Topics shall include background of asbestos, health effects, personnel protection, use of worker decontamination, and other topics. Training shall be acceptable to OR-OSHA, Department of Environmental Quality, and other applicable agencies.

B. Personnel Protective Equipment for Asbestos Removal:
   1. Work clothes shall consist of disposable full-body coveralls and head and foot covers (“Tyvek” or approved), boots, or sneakers. Eye, hearing, fall protection and hard hats should be available as appropriate.
   2. At a minimum, respiratory protection shall be approved by NIOSH/MSHA (National Institute for Occupational Safety and Health/Mine Safety and Health Administration), United States Department of Labor, and U.S. Department of Health, Education and Welfare, Centers for Disease Control, and be as listed below. Respiratory protection shall provide workers with a maximum calculated fiber level inside the mask of 0.01 f/cc.
   3. Additional respiratory protection shall be as required by OAR Chapter 437, Division 2, Subdivision Z and Division 3.
4. As part of the Contractor’s Respiratory Protection Program, all workers shall be provided with a selection of brands and sizes of respirators to choose from. At a minimum, all workers shall be qualitatively fit tested at the time of respirator selection per OR-OSHA Worker's Compensation Department Rule 22-069 (4)(e)(5)(I), and semi-annually thereafter.

5. Contractor shall supply replacement filter cartridges as required. Cartridges that have become wet or clogged shall be replaced immediately.

C. Worker Decontamination Enclosure System:

1. The Contractor shall construct a personnel decontamination facility immediately outside of the isolated work area consisting of three chambers and two air locks as follows:
   a. The equipment room shall consist of an air lock to the shower room, and a curtained doorway to the work area.
   b. The shower room shall have two air locks, one to the equipment room and one to the clean room. All showers shall have hot and cold water controllable at the taps and shall be installed in this room. The Contractor shall supply and maintain soap, shampoo, and towels at all times in the shower area. Shower wastewater shall be filtered to remove all fibers larger than 5 microns or as required by local regulations, before disposal in the municipal sewer system, or shall be collected and disposed of as asbestos-contaminated material. Obtain any permits as required by local municipalities as to water discharge and comply with all regulations. Water filters shall be disposed of as asbestos-contaminated material.
   c. The clean room shall consist of an air lock to the shower room and a curtained doorway to the adjacent building area. The clean room shall contain a first aid kit, storage for workers and visitors' clothing and shoes, a place to sit down, and the Worksite Entry Logbook. Work, respirator and decontamination procedures, regulations, and Prevailing Wage Rates shall be conspicuously posted. There shall be a supply of clean protective clothing, respirators and cartridges in the clean room at all times.

2. Contractor shall not begin asbestos abatement work unless this system is functional, in good repair, and has been found acceptable for specification compliance by the Environmental Consultant.

D. Personnel Protection Procedures in Isolated Work Areas:

1. Each worker shall, upon entering the jobsite: Remove street clothes in the clean change room, put on and fit test his respirator, put on clean protective clothing and sign in on the Worksite Entry Logbook before entering the equipment room or the work area.

2. Each time they leave the work area, the workers shall: remove gross contamination from clothing before leaving the work area; proceed to the equipment room and remove and dispose of disposable work clothes; remove and store shoes, boots and other equipment except respirators; still wearing the respirator proceed to the showers; clean the outside of the respirator with soap and water while showering; remove the respirator; thoroughly shampoo and wash themselves; remove filters, dispose of filters in the container provided for the purpose; and wash and rinse the inside of the respirator.

3. Following showering and drying off, each worker shall proceed directly to the clean change room and dress in clean clothes at the end of each day's work, or before eating, smoking, or drinking. Before re-entering the work area from the clean change room, each worker shall put on his respirator with clean filters, dress in clean protective clothing, and sign in on the Worksite Entry Logbook.

4. Contaminated work footwear and other equipment shall be stored in the equipment room when not in use in the work area. Upon completion of asbestos abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from work area.

5. Workers shall not eat, drink, or chew gum at the worksite except in the established clean room. Smoking or using other tobacco products is prohibited on any College facility or worksite.

6. Workers shall be fully protected with respirators and protective clothing immediately prior to the first disturbance of asbestos-containing or contaminated material and until final cleanup is completed.
E. Access to Isolated Work Area by Others:
1. Except for emergency personnel, the Contractor shall limit access to the work area to authorized visitors.
2. The Contractor shall provide protective clothing, respirators, and equipment for all.
3. All authorized visitors shall be subject to the personnel protection provisions specified above, and shall sign in and out on the Worksite Entry Logbook.

F. Personnel Protection During Work in No isolated Work Areas:
1. Work clothes per 1.9 B.
2. Respiratory protection per 1.9 B.
3. Worker protection procedures will differ from 1.9 B, in that two layers of coveralls shall be worn after removal of street clothes. Worker decontamination through a Worker Decontamination Enclosure is required. The first layer of coveralls must be removed when exiting the glove bag work area. The worker shall immediately proceed to the Worker Decontamination Unit. The remaining requirements of 1.9 B still apply.
4. Contractor to submit to the Environmental Consultant for approval, an emergency control and cleanup plan to be followed in the event of asbestos contamination during glove bag use. Contractor shall ensure all workers are thoroughly familiar with approved plan.
5. Contractor shall promptly remove all bags as they are used to the bag-holding and decontamination enclosure system.

G. Emergency Precautions:
1. The Contractor shall establish emergency and fire exits from the work. Contractor shall ensure these exits are well marked and remain unobstructed.
2. The Contractor shall be prepared to administer first aid to injured personnel after decontamination. Seriously injured personnel shall be treated immediately or evacuated without delay for decontamination.
3. Contractor shall notify the local fire department of the asbestos abatement project prior to beginning work area preparation.

H. Building Security and Protection:
1. The Contractor shall post adequate warning signs at all potential entrances to work areas as required by EPA and OSHA.
2. Contractor shall protect all existing fixed equipment, existing building fixtures or finishes that are to remain, and existing systems and functions from damage during the abatement process. Extra precautions are to be taken in protecting existing electrical panels, light fixtures, etc. The Contractor at his expense shall remedy any damage to existing building, services, and/or equipment.
3. Contractor shall clean external surfaces of contaminated containers and equipment thoroughly by wet sponging and HEPA vacuum.
4. Contractor shall maintain access and use of existing fire lanes.

1.10 LIABILITY
A. The Contractor is an independent contractor and not an employee of the College, Program Manager, Architect, General Contractor or of the Environmental Consultant. The College, Architect, and the Environmental Consultant shall have no liability to the Contractor or any third persons for Contractor's failure to faithfully perform and follow the provisions of these Specifications and the requirements of the governing agencies. Notwithstanding the failure of the College, Program Manager, Architect, General Contractor, or the Environmental Consultant to discover a violation by the Contractor of any of the provisions of these Specifications, or to require the Contractor to fully perform and follow any of them, such failure shall not constitute a waiver of any of the requirements of these Specifications which shall remain fully binding upon the Contractor.

1.11 PROTECTION:
A. Damaged or deteriorating materials shall not be used and shall be removed from the premises by the Contractor. The Contractor shall dispose of materials that become contaminated with asbestos in accordance with the applicable regulations.

1.12 PROJECT STOPPAGEMENT:

A. At any time during the work, the College Representative or Environmental Consultant may stop the work if violations of the Specifications are observed or if the functioning of the College is jeopardized by the activities of the Contractor or his subcontractors. Work shall stop immediately upon verbal direction of College Representative or Environmental Consultant. Work may commence when violations are rectified or activities are altered and determined to be acceptable by the College Representative or Environmental Consultant.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Plastic Sheet:
Plastic sheet shall be flame retardant polyethylene material sized in lengths and widths to minimize the frequency of joints. The minimum thickness shall be 6-mil.

B. Plastic Bags:
Plastic bags shall be 6-mil polyethylene printed with warning labels per OSHA and EPA regulations.

C. Tape:
Tape shall be capable of sealing joints of adjacent sheets of plastic and for attachment of plastic sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under dry and wet conditions, including use of amended water. Minimum of 2" wide tape must be used.

D. Disposal Containers:
Disposal containers shall be suitable to receive and retain any asbestos-containing or contaminated materials until disposal at an approved site. The containers shall be labeled in accordance with OSHA and EPA regulations. Containers must be both air and watertight, and have hardtop, bottom and sides.

E. Warning Labels and Signs:
Warning labels and signs shall be posted as required by OR-OSHA, ODOT, and DEQ regulations.

F. Amended Water:
Clean potable water containing a surfactant additive. The surfactant additive shall be 50% polyoxyethylene ether and 50% polyethylene ester, or equivalent, and shall be mixed with water at a concentration of one ounce surfactant to 5 gallons of water, or as recommended by the manufacturer in the case of an equivalent.

G. Encapsulants (Sealants):
Encapsulants shall be of the bridging or penetrating variety and shall be listed as “satisfactory” by the EPA. Encapsulants shall provide a suitable substrate-bonding agent for application of new material where appropriate. Bridging Encapsulant: “Foster 32-32 Bridging Encapsulant”, as manufactured by Foster; “Foster Chil_Bridge CP-211-3 Encasement/Encapsulant” as manufactured by Foster; “A-B-C Asbestos Binding Compound”, as manufactured by Fiberlock; or approved. Penetrating Encapsulant: Decadex Fire check, manufacturer's standard color "Magnolia", as manufactured by Pentagon Plastics, Inc.; "Cable Coating 2-B", manufacturer's standard color gray, as manufactured by American Coatings Corp; “Foster 32-21 Protektor Sealant”, as manufactured by Foster; “Foster Chil-Abate CP-210”, as manufactured by Foster; “Fiberlock Lag-Kote”, as manufactured by Fiberlock; or approved. 

H. Lagging Cloth:
Fiberglass fabric lagging cloth coated with "Aeroball" adhesive or approved.

I. Enclosure:
Protective plastic jacketing systems, framed gypsum board enclosures, suspended ceilings or other materials as specified elsewhere.

J. Other Materials:
Provide all other materials such as lumber, nails and hardware, which may be required to construct and dismantle the decontamination area and the barriers that isolate the work area, and as required to complete the work as specified.

2.02 TOOLS AND EQUIPMENT:

A. Water Sprayer:
The water sprayer shall be an airless or other low-pressure sprayer for amended water application.

B. Air-Purifying Equipment:
Air purifying equipment shall consist of High efficiency Particulate Air (HEPA) filtration systems. No air movement system or air equipment shall discharge asbestos fibers outside the work area. Each unit shall be capable of variable volume from a minimum of 500 CFM to at least 1700 CFM under load and shall have at least two (2) stages of pre-filtration ahead of the HEPA final filter. Each unit shall be equipped with an elapsed time indicator (hour meter), static pressure gauge with low flow alarm, and be overload protected. At the Contractor's option, each unit shall be equipped with heat and smoke sensors that will visually and audibly warn workers and shut unit fan down within 30 seconds. The units shall be Micro-Trap Portable Air Filtration System manufactured by Asbestos Control Technology, Inc., "HOG 2000" Negative-air Protection System manufactured by Control Resource Systems, or approved.

C. Pressure Differential Monitoring Equipment:
A combination sensing, alarm and recording device shall be in operation at all times during use of the HEPA air purifying equipment. The unit shall be a "Neg-A-Master", manufactured by Control Resource Systems, Inc., or an approved.

D. Water-purifying Equipment:
Capable of removing all fibers longer than 5 microns or as required by local regulations from water used in abatement work and decontamination showers. Control Resource Systems, Inc. "AQUA HOG" or approved.

E. Airless Sprayer:
An airless sprayer, suitable for application of penetrating encapsulant material, shall be used.

F. Vacuum Equipment:
All vacuum equipment utilized in the work area shall be High efficiency Particulate Air (HEPA) equipment, and suitable for wet/dry usage.

G. Scaffolding:
Scaffolding, as required to accomplish the specified work, shall meet all applicable safety regulations. All special scaffolding shall have drawings and calculations stamped and signed by a civil or structural engineer registered in the state of Oregon.

H. Transportation Equipment:
Transportation equipment, as required, shall be suitable for loading, temporary storage, transit, and unloading of contaminated waste without exposure to persons or property. Equipment shall have a hard top, bottom, and sides. If equipment is rented, notify rental agency in advance, in writing, of intended use of equipment.
I. Electrical:
Electrical tools, equipment, and lighting shall meet all applicable codes and regulations. Ground fault protection as required by OSHA, shall be in effect at all times. Contractor shall take all additional precautions and measures necessary to insure a safe working environment during wet removal.

J. Glove Bags:
Bags shall be clean poly bags seamless at the bottom with preprinted asbestos warning labels, 6-mil PVC with attached TYVEK arms and latex gloves. Bags shall be Profo’ Bag manufactured by Asbestos Control Technology, Inc., or Asbest'O'Saf/SAC by Control Resource Systems, Inc., or approved.

K. Remote Filter Housing:
Stainless steel housing with pre-filters and HEPA filter sealed to cabinet flanges by Century Equipment “Advance Guard II” or approved equal.

L. Other Tools and Equipment:
Provide other suitable tools for the removal, enclosure, encapsulation, patching, and disposal activities including but not limited to: hand-held scrapers, wire brushes, sponges, and rounded edge shovels.

PART 3 - EXECUTION

3.01 FULL ISOLATION WORK AREA PREPARATION:

A. Contractor shall perform the following isolation procedures in the order in which they are presented. Any alternative control methods for Class I work shall be approved by the Environmental Consultant and performed in accordance with 29 CFR 1926.1011.

1. Shut down, remove filters and isolate HVAC systems to prevent contamination and fiber dispersal. Coordinate with the General Contractor, building users and College maintenance personnel prior to shutdown.

2. Coordinate all electrical, safety and other service connections, requirements and equipment with the General Contractor. Use a journeyman electrician at a minimum. It is the Contractor's responsibility to verify operation of systems that will be shut off during abatement. If any system is found to be defective or not operating satisfactorily, the Contractor shall notify the College.

3. Install critical barriers as follows. Seal off all openings, including but not limited to doorways, windows, and other penetrations of the work area, with solid critical barriers, except openings left for HEPA air purification system, which shall be properly HEPA filtered. Where doors exist, sealing may be done by closing door, sealing with tape on both sides, then covering both sides with two layers of plastic sheeting.

4. Pre-clean movable objects, such as furniture and equipment to be removed (and carpeting), within the proposed work areas using HEPA filtered vacuum equipment and/or wet cleaning methods as appropriate, and remove such objects from work areas to a temporary location, or consolidate such objects away from removal work and enclose with critical barriers.

5. Pre-clean fixed objects within the proposed work areas, using HEPA filtered vacuum equipment and/or wet cleaning methods as appropriate, and enclose with critical barriers. Equipment that must continue operating shall be enclosed and ventilated to avoid damage.

5. Set up the worker decontamination enclosure system (decon). Once this system is installed and abatement commences, it shall be utilized in the specified manner for the ingress and egress of all personnel and equipment, except in emergency situations. All personnel shall sign the Work-site Entry Logbook each time they pass in or out of the decontamination enclosure.

7. Install HEPA air-purifying equipment pressure differential fan system so as to ensure lower static pressure in the isolated work area than in surrounding areas, a flow of air through all parts of the isolated work area towards the air-purifying equipment, and minimum air contamination levels at abatement worker breathing zones. Discharge from air-purifying equipment shall be ducted outside the building. Use one or more units of capacity as
recommended by the manufacturer for the volume of the isolated work area, but in no case shall airflow be less than 6 air changes every 60 minutes with a minimum pressure differential of 0.02” wg between the work area and the decon clean room.

8. Cover floor and wall surfaces with plastic sheeting sealed with tape. Cover floors first so that plastic extends at least 12” up on walls, then cover walls with plastic sheeting to overlap floor plastic by a minimum of 24”, thus overlapping the horizontal floor material by a minimum of 12”. Install additional layer of plastic sheeting on floor and walls in similar manner. Contractor may use mechanical fastening techniques, such as tack strips, as necessary to secure wall plastic sheeting. Contractor shall repair any damage resulting from mechanical fasteners.

9. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to the local building or fire department officials. Ensure that all exits remain unobstructed and well marked.

10. Adequate portable fire extinguishing equipment shall be maintained within work area as defined by OSHA and/or local fire department officials.

B. No asbestos abatement work shall occur unless the Environmental Consultant has found the work area isolation acceptable for Specification compliance.

C. Isolated work area enclosure system maintenance. The Contractor shall be responsible for daily documentation of the following:

1. Prior to the first use and at the beginning of each shift during abatement work, containments shall be given a complete visual inspection by the Contractor’s shift foreman and the College’s Industrial Hygienist. This shall include inspection of the HEPA air-purification system and associated filters. A smoke tube test by the shift foreman shall then be made of the worker decontamination enclosure system and other critical areas to verify that the isolated area is under negative air pressure. Work shall not begin until all defects have been repaired.

2. Periodic inspections shall be made as required during each shift to assure continued proper functioning of the containment and HEPA system.

3.02 NON-ISOLATED WORK AREA PREPARATION:

A. Contractor shall perform the following procedures in the order in which they are presented and describe procedures for glove bag work and other work in non-isolated work areas. Any alternative control methods considered for Class II work shall be approved by the Environmental Consultant and performed in accordance with 29 CFR 1926.1011.

2. Shut down HVAC systems. Coordinate with building users and the College prior to shutdown.

2. Restrict access to work area and post warning signs. Do not perform glove bag work or any abatement work in an occupied area.

3. Completely pre-clean entire work area using HEPA vacuum equipment or wet cleaning methods.

4. Set up the worker decontamination enclosure system. Once this system is installed and abatement commences, it shall be utilized in the specified manner for the ingress and egress of all personnel, except in emergency situations. All personnel shall sign the Worksite Entry Logbook each time they pass in or out of the decontamination enclosure.

5. At the direction of the Environmental Consultant, install HEPA exhaust fan in work area. Duct fan intake to immediate area of work in such a manner that any fibers released will be drawn away from the worker and into intake duct.

6. Cover floor and other surfaces below work area with 6-mil plastic sheeting. Seal openings and install curtained doorways and air locks as directed by the Environmental Consultant.

7. Have emergency cleanup equipment and supplies, including HEPA vacuum, amended water, disposal bags, mop, buckets, towels and sponges, on hand prior to start of abatement work.

B. No asbestos abatement work shall occur unless the Environmental Consultant or Industrial Hygiene Technician has found the work area acceptable for Specification compliance.
3.03 REMOVAL OF ASBESTOS-CONTAINING MATERIALS IN FULL ISOLATION WORK AREAS:

A. Contractor shall isolate work area as specified.

B. Contractor shall remove all asbestos containing pipe insulation, surfacing material and other asbestos-containing materials as defined in the project specific scope of work.
   1. Contractor shall spray the asbestos material with amended water. A fine spray of this solution shall be applied to prevent fiber disturbance preceding the removal of the asbestos material. The asbestos shall be sufficiently saturated to prevent emission of airborne fibers in excess of specified fiber levels.
   2. Contractor shall remove asbestos material while damp and pack in sealable plastic bags (6-mil minimum thickness). Move plastic bags to bag load-out facility or equipment room in the worker decontamination system. Wash outside surface and place inside a second plastic bag (6-mil minimum thickness) bearing DEQ warning label and name of waste generator and location from which waste was generated.

C. Removal of non-friable materials such as floor tiles shall be accomplished by such manner as to minimize breakage and to maintain a non-friable state. Do not drop, throw, saw, or scrape non-friable materials during removal, handling, or disposal. The use of spud bars to remove floor tiles is an acceptable practice.

D. Contractor shall maintain a safe and uncluttered work area, worker decontamination system, and remove bagged materials off-site or to a locked dumpster or storage facility on a daily basis.

3.04 REMOVAL OF ASBESTOS CONTAINING MATERIALS IN CONSOLIDATED AREAS:

A. Contractor shall apply spray coat of amended water to material to be removed. Keep material damp during entire removal process.

B. **Glove bag work shall be as follows:**
   All removal using the glove bag method shall be performed strictly according to regulations, manufacturer's printed instructions, and as demonstrated by the manufacturer's representative or as further specified in this section. Workers are not to smoke or wear hand or wrist jewelry while using glove bags.
   1. Contractor shall coordinate the shutoff of all sources of heat to objects to be worked on. Do no work on objects above 150°F.
   2. Contractor shall install port for hose of HEPA vacuum to create reduced pressure inside glove bag. Installing of fresh air intake and/or bridging to prevent collapse of bag are acceptable. Reduced pressure shall be maintained throughout entire abatement procedure.
   3. During the removal phase, Contractor shall utilize amended water to reduce potential for airborne fibers.
   4. After completion of insulation removal and cleaning, but prior to removal of glove bag, Contractor shall apply a single "tack" coat of penetrating encapsulant to surface of pipe and any remaining non-asbestos insulation, within the glove bag.
   5. After the pipe has been sealed, but prior to removal of glove bag, Contractor shall thoroughly wash the upper chamber of the glove bag and seal the contents of the bag in the lower chamber.
   6. Contractor shall seal flap if used and, utilizing a HEPA vacuum, remove all contaminated air in the upper chamber.
7. Follow procedures set forth in 1.8 in case of a spill or if air analysis indicates a fiber count in excess of limits.

8. Contractor shall promptly double bag the glove bag after removal is complete, place into a sealed container, and remove to the bag holding enclosure.

9. Contractor shall cover ends of remaining existing insulation with re-wettable lagging cloth. Extend lagging cloth a minimum of 12” back along existing insulation.

C. Wrap and Cut Method shall be as follows:
At intervals determined by the Contractor, glove bag-remove two to three feet of asbestos containing pipe insulation as specified. Seal remaining pipe, with asbestos containing pipe insulation intact, in two separate layers of 6-mil plastic sheeting. Cut pipe wrap sections at ends, taking care to not damage adjacent wrapped or unwrapped insulated sections. Label double-wrapped pipe as specified for disposal. Obtain approval of landfill prior to utilizing this method. Dispose as contaminated waste in accordance with Specifications and approved landfill requirements.

D. Removal of cement asbestos board and similar material shall be as follows:
Material shall be removed one sheet or piece at a time. Material shall be kept continuously wet. Cut or remove fasteners one at a time while running HEPA vacuum at the point where work is being done so as to collect all dislodged particles and fibers.

1. When all fasteners have been removed, carefully remove entire sheet or piece, and wrap in 6-mil plastic sheeting while still wet. Do not drop, throw, break, saw, or scrape cement asbestos board during removal, handling, or disposal.

2. Label, transport, and dispose of wrapped sheets as specified in the Disposal section.

3. Clean entire substrate with HEPA vacuum or wet cleaning methods and leave ready for application of replacement material.

3.05 CLEANUP IN FULL ISOLATION WORK AREAS:

A. At the conclusion of removal in the isolated work area, conduct cleanup in the sequence described below. Windows, doors, HVAC vents, etc. shall remain sealed and HEPA filtered pressure differential fan systems shall remain in service.

1. Remove Material and Equipment:
Contractor shall remove visible accumulations of material and debris (including filters removed from HVAC equipment and HEPA air-purification equipment). Contractor shall include all sealed containers and equipment used in the work area in the cleanup and remove them from work area, after decontamination of outer surfaces.

2. Clean Area:
Contractor shall clean all surfaces in the work area and any other contaminated areas with water and/or with HEPA filtered vacuum equipment. Wet-clean or clean with HEPA filtered vacuum equipment all surfaces in the work area. After completion of the cleaning operation, perform a complete visual inspection of the work area to ensure that the work area is free of visible debris.

3. Final Visual Inspection:
Prior to application of post-removal encapsulant, contact the Environmental Consultant for a visual observation of the work area. The work area shall be free of visible debris. Observation by the Consultant does not alleviate the Contractor of responsibility to provide work in compliance with Specifications.

4. Remove Plastic Sheeting:
After visual observation by the Consultant, Contractor shall apply a coat of approved encapsulant to all surfaces in the work area where asbestos has been removed and to disposable plastic sheeting as a post removal encapsulant. Encapsulant application shall follow all applicable manufacturers’ recommendations and shall provide a compatible bonding agent for application of new material.

6. Final Clean:
After the encapsulation is complete, the Contractor shall remove all non-critical plastic and clean all floors, walls, fixtures, and other surfaces within the work area with only critical barriers in place using wet methods or HEPA filtered vacuum equipment. Plastic sheeting over carpets may remain in place. Contact the Environmental Consultant for a visual observation of the work area. The work area shall be free of visible debris. Observation by the Consultant does not alleviate the Contractor of responsibility to provide work in compliance with Specifications.

6. Carpets and Teardown:
When the final observation by the Environmental Consultant and air sampling test results are satisfactory, remove the decontamination systems and remaining barriers.

7. **Disposal:**
Contractor shall properly dispose of all waste materials. All polyethylene material, tape, cleaning material, and contaminated clothing shall be double-bagged, sealed and labeled as described above for asbestos waste material. Disposal shall be in accordance with all federal, state, and local regulations.
3.06 CLEANUP IN NON-ISOLATED WORK AREAS:

A. First Clean:
Contractor shall remove visible accumulations of asbestos material and debris. Clean all surfaces within the affected work area. Cleaning shall be with amended water and/or HEPA filtered vacuum equipment. In a large open area, the affected work area shall include the immediate work area and an area that encompasses at least six feet in all directions or as defined by the Environmental Consultant. In small work areas, the affected work area shall include the entire room.

B. Affected Area:
The Environmental Consultant may further define the affected work area in the scope of work. During the work, high fiber levels as indicated by air monitoring results may increase the area to be cleaned. The increase in affected area due to high fiber levels or other indications of fiber dispersal will be defined by the College and Environmental Consultant, and the Contractor shall bear all costs of additional cleaning.

C. Final Visual Inspection:
After completion of the cleaning operation, the Environmental Consultant shall perform a visual observation of the affected work area to ensure that the affected work area is free of visible dust and debris. Observation by the Consultant does not alleviate the Contractor of responsibility to provide work in compliance with Specifications. Contractor shall contact Environmental Consultant at least twenty-four hours prior to desired inspection time.

D. Encapsulant:
After visual observation by the Environmental Consultant, Contractor shall spray apply encapsulant to the material substrate, all temporary plastic sheeting, and other temporary protective materials.

E. Clearance Sampling:
Post-abatement air sampling shall be at the discretion of the Environmental Consultant and will be determined by the ongoing sample results.

F. Teardown:
When the final observation by the Environmental Consultant and air sampling test results (if required) have been determined to be satisfactory, the temporary plastic sheeting and other temporary protective materials shall be removed by the Contractor.

G. Disposal:
Contractor shall properly dispose of all waste materials, all polyethylene material, tape, cleaning material, and contaminated clothing shall be double-bagged, sealed and labeled as described for asbestos waste material. Disposal shall be in accordance with all federal, state, and local regulations.

3.07 RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS:

A. When cleanup is complete, Contractor shall:
1. Relocate objects moved to temporary locations in the course of the work to their former positions.
2. Clean, repair and/or repaint all surfaces soiled, discolored or damaged by removal of tape, adhesive or other work of this contract to match existing surfaces. The Contractor shall bear all costs associated with damage incurred during the abatement, which includes but is not limited to gypsum board, windows, mullions, and elevator cars.
3. If the Contractor uses caulking to seal cracks in concrete floor the caulking must be removed to College's satisfaction at completion of project.
4. Return mechanical, electrical, sprinkler, and other systems shut down by the Contractor to complete and functional operation.
5. Re-secure objects removed in the course of work to their former positions, including air dampers in plenums, and adjust for proper operation.
6. Clean, repair and/or repaint all surfaces soiled, discolored or damaged by removal of tape, adhesive or other work of this contract to match adjacent surfaces.
3.08 DISPOSAL:

A. Contractor shall affix warning labels having waterproof print and permanent adhesive, to the lid and sides of all containers. Warning labels shall be conspicuous and legible, and contain the following words:

DANGER

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

B. The Contractor shall determine current waste handling, transportation, and disposal regulations for the work site and for each waste disposal landfill. The Contractor must comply with these regulations and all U.S. Department of Transportation, DEQ and EPA requirements. Double-bagged material in containers shall be delivered to the pre-designated disposal site for burial. Labels and all necessary signs shall be in accordance with DEQ and OSHA standards.

C. Contractor shall remove decontaminated containers from site as soon as possible. Notify disposal site in advance of delivery of material to assure immediate burial of containers.

D. If the bags are broken or damaged, or the container is contaminated, the Contractor shall clean and decontaminate the entire container for reuse.

E. Contractor shall submit three (s) copies of written proof of disposal at approved disposal site to the Environmental Consultant prior to completion of the abatement work specified in this Section. Use copies of the DEQ Waste Shipment Record ASN-4, completely filled out and signed, and accompanied by tickets and/or receipts from disposal site.

END OF ASBESTOS ABATEMENT SECTION
ATTACHMENT E
TECHNICAL SPECIFICATIONS

Lead Handling Procedures

1.01 SCOPE:

A. This Section covers all contractors performing any task such as; demolition, selective demolition, plaster removal, sanding, patching, paint preparation, on-site chemical stripping, torch burning, welding, abrasive blasting or any task performed on painted or varnished surfaces which may result in occupational exposures to lead. All contractors performing tasks as identified under OAR 437-03-001 (Lead for the Construction Industry Standard, Oregon) shall be required to perform work in accordance with the standard and these specifications.

B. Work Requirements under this Section include but are not limited to: initial testing and evaluation of work practices, development of a written lead compliance program, lead awareness training, employee monitoring, respiratory protection, engineering controls, containment, wash facilities and signage.

C. Lead-Based Paint and varnishes are located throughout the buildings. Unless noted otherwise on the plans, contractors are to assume painted or varnished surfaces to be lead containing.

D. Any contractor that is subject to these requirements shall provide all labor, materials, equipment, services, disposal, and the appropriate insurance as necessary to perform lead-handling procedures as required by the standard and as indicated in these specifications.

1.02 RELATED WORK:

A. The College will retain an Environmental Consultant to perform the following:
   1. Analyze air, surface wipe, and waste disposal samples before, during, and after lead handling activities.
   2. Observe work by the General Contractor and sub-contractors.
   3. Monitor the Contractor's compliance with regulatory and specification requirements.

B. Related Work Specified Elsewhere:

1.03 DEFINITIONS:

A. Action Level:
   Employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air averaged over an 8-hour period.

B. Air Lock:
   A system for permitting ingress or egress without permitting air movement between a contaminated area and an uncontaminated area, typically consisting of two (2) curtained doorways at least 3 feet apart

C. Air Monitoring:
The process of measuring the airborne concentrations of a specific volume of air in a stated period of time.

D. **Atomic Absorption:**
A method of measuring elements such as lead. The lead is vaporized at high temperature, usually several thousand degrees, and light of a very specific wavelength is shined through the vapor.

E. **Authorized Visitor:**
The College or designated representative, or a representative of any regulatory or other agency having jurisdiction over the project, and having required training, medical, fit test, etc.

F. **Biological Monitoring:**
The analysis of a person's blood and/or urine, to determine the level of lead contamination in the body.

G. **Clean Room:**
An uncontaminated area or room that is part of the worker decontamination enclosure system, with provisions for storage of workers' street clothes and clean protective equipment.

H. **Container:**
Any portable device, in which material is stored, transported, treated, disposed of, or otherwise handled.

I. **Containment:**
A process for protecting both workers and the environment by controlling exposures to lead dust and debris created during lead handling tasks.

J. **Contractor:**
The General Contractor, Subcontractor, Abatement Contractor or person performing lead handling procedures specified herein.

K. **Critical Barrier:**
Solid barrier constructed from minimum of 2” x 4” studs, 16” o.c.; 1/2” plywood or drywall sealed airtight and covered on both sides (where applicable) with two (2) layers of 6-mil plastic or as approved by the Environmental Consultant.

L. **Curtained Doorway:**
A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms.

M. **Disposal:**
Procedures necessary to transport and deposit the lead waste in an approved waste disposal site in compliance with EPA and other applicable regulations.

N. **Enclosure:**
Procedures necessary to completely seal all lead based paint behind, impermeable, permanent barriers.

O. **Engineering Controls:**
Measures implemented at the work site to contain, control and/or otherwise reduce exposure to lead dust and debris.

P. **Equipment Room:**
A contaminated area or room that is part of the worker decontamination enclosure system, with provisions for storage of contaminated clothing and equipment.

Q. **Exposure Monitoring:**
The personal air monitoring of an employee's breathing zone to determine the amount of contaminant (e.g. lead) to which he/she is exposed.

R. **Fixed Object:**
Fixtures that are attached to the building or are too heavy or bulky to remove from the work area.

S. **HEPA or High Efficiency Particulate Aerosol Filter:**
A filter capable of filtering out particles of 0.3 microns or greater from a body of air at 99.97% efficiency and greater.

T. **HEPA Vacuum Equipment:**
High Efficiency Particulate Air (absolute) filtered vacuuming equipment with a filter system capable of collecting and retaining lead particles. Filters of 99.97% efficiency for retaining lead particles of 0.3 microns in length or larger shall be installed for filtering discharge air.

U. **High Phosphate Detergent:**
Detergent that contains at least 5% tri-sodium phosphate (TSP).

V. **Independent Testing Laboratory:**
A qualified AIHA ELPAT laboratory financially independent from and hired by the College or Contractor.

W. **Industrial Hygienist:**
The College representative assigned to monitor work progress, perform sampling and visually inspect areas during and after lead handling procedures. The Industrial Hygienist will be certified by the American Board of Industrial Hygiene or an industrial hygienist in training, or an individual with appropriate education or experience.

X. **Isolated Work Area:**
A totally contained area of the facility where lead handling activities are performed.

Y. **Medical Removal:**
The temporary removal of workers due to elevated blood lead levels as defined in the OSHA Lead Standard.

Z. **Micrograms:**
One millionth of a gram: 1 μg. The prefix "micro" means "1/1,000,000 of" (one millionth of). Since there are 453 grams in one pound and 16 ounces in one pound, one gram equals 0.035 ounces. A microgram is equal to about 35/1,000,000,000 (thirty-five billionths) of an ounce.
AA. **Movable Object:**
*Furnishings that are not attached to the building structure and can be removed from the work area.*

BB. **Off-Site Paint Removal:**
The removal of paint or varnish at a site away from the project such as the stripping of lead paint from the surface of a component at the facilities of a commercial paint-stripping operation occurring in chemical tanks.

CC. **Paint Removal:**
Stripping or removal of lead paint from surfaces of components.

DD. **ppm:**
*Stands for “parts per million”, meaning the weight of one part per weight of the total amount of material. For example, a lead concentration of 1 ppm expresses the ratio of one gram of lead dissolved into one million (1,000,000) grams of water.*

EE. **Public Area:**
*Any area outside the isolated work area. When work area isolation measures are removed, the work area becomes a public area.*

FF. **Regulated Area:**
An area where the Permissible Exposure Limit has been or is expected to be exceeded and where only trained personnel with appropriate personal protective equipment are allowed.

GG. **Shower Room:**
A room between the clean room and the equipment room in the worker decontamination enclosure system, which is equipped with hot and cold running water controllable at the faucet.

HH. **TCLP:**
*Toxic Characteristic Leaching Procedure is one of the tests for the determinations of whether a solid waste is classified as a hazardous substance via EPA Method 1311.*

II. **Transporter:**
*Any person engaged in the off-site transportation of hazardous waste within the United States, by air, rail, highway, or water, if such transportation required a manifest under 40 CFR Part 262.*

JJ. **TSD:**
*Acronym for treatment, storage, or disposal hazardous waste facility.*

KK. **TSP:**
*Acronym for trisodium phosphate.*

LL. **Wash Water:**
*Water containing high phosphate additives.*

MM. **Wet Cleaning:**
The process of eliminating lead from building surfaces and objects by using a high phosphate wash (TSP) with cloths, mops, or other cleaning tools which have been dampened with water.

1.04 DOCUMENTS INCORPORATED BY REFERENCE:

A. The current issue of each document shall govern lead and paint removal work or hauling and disposal of hazardous waste materials. Where conflict among requirements or with these Specifications exists, the most stringent requirements shall apply.


5. U.S. Department of Labor Occupational Safety and Health Administration (OSHA):
   c. Title 29 Code of Federal Regulations Section 1926.62 OSHA's Interim Final Rule on Lead Exposure in Construction as adopted by OR-OSHA under OAR 437 Division 3.
   d. Title 29 Code of Federal Regulations Section 1910.2 Access to Employee Exposure and Medical Records.


7. All related electrical work shall be performed in accordance with the National Electrical Code (N.E.C.)

8. All local ordinances, regulations, or rules pertaining to lead, including its storage, transportation, and disposal.

1.05 SUBMITTALS AND NOTICES

A. The Contractor shall submit three (3) copies of the following information to the College prior to commencing work on the project.

1. **Worker Training Program:**
   Submit written proof indicating that all employees impacting lead-containing materials have received training per OAR 437-03-001.
2. **Respirator Program:**
Submit written proof indicating respirator program is in compliance with all parts of OSHA Lead Regulations 29 CFR 1910.134 and 1926.62.

3. **Medical Program:**
Submit written proof medical exam program is in compliance with OSHA Lead Regulations 29 CFR 1910.2 and 1926.62.

4. **Emergency Plans:**
Submit a written emergency control and cleanup plan to be followed by the Contractor in the event of: an accidental breach in containment, power failure, chemical release, or fire.

5. **Lead Waste Sampling and Disposal Plan:**
Submit waste sampling plan indicating representative items, components, and materials to be tested to characterize hazardous and non-hazardous waste. Indicate expected number of representative samples anticipated to be taken of each type of waste and methods of analysis. Waste categories requiring TCLP testing or hazardous waste profiling shall include but not be limited to concentrated waste streams such as: filtered wash water, paint chips, other solid debris, chemical waste, cleaning and filtration media, protective coverings, etc.. Samples of representative waste shall be taken and analyzed by an independent testing laboratory. Submit written proof that all required permits and arrangements for transport and disposal of lead containing and any associated hazardous materials have been obtained. The Contractor shall be responsible for the proper disposal of all hazardous and non-hazardous waste materials associated with lead handling procedures, including selective demolition involving materials with lead-based paints.

6. **Lead Compliance Plan:**
Submit a written “Compliance Plan” satisfactory to the College describing the methods for lead handling procedures, and plans for construction and location of decontamination enclosure systems, worker training and protection measures, engineering controls, dust control and collection techniques, etc. in compliance with OAR 437 Div. 3-001, these Specifications and applicable regulations. The Contractor shall update the Lead Compliance Plan as necessary while work progresses. The General Contractor may elect to incorporate affected subcontractors individual work plans into an overall project lead compliance program.

7. **Product Information and Material Safety Data Sheets:**
Submit complete product information for chemical removal agents and for any materials, products, and procedures for which the Contractor requests approval for use on this job. The Contractor shall identify any concerns with possible chemical reaction with new materials, coatings, etc. to be installed after chemical stripping.

C. Contractor shall not commence work until submittals are complete, reviewed and accepted by College and the Environmental Consultant. Allow a five (5) day review period.

D. **During the course of the Work the Contractor shall submit:**
1. All sampling and exposure monitoring data.
2. Waste sample analysis information.
3. Disposal documentation.

1.06 **LEAD EXPOSURE MONITORING AND TESTING REQUIREMENTS:**
A. Contractors shall perform employee exposure assessments as required under OAR 437-03-001 for any employees performing tasks that may result in exposures above the Action Level.

B. An independent testing laboratory shall be retained by the Contractor. All exposure monitoring analysis shall be performed in accordance with 29 CFR Part 1926.62 as adopted by OR-OSHA and shall be at the Contractor's expense.

C. Documentation shall be kept for each filter sample procured as to worker sampled, work area location, date and time taken, volume of air drawn through filter. Documentation shall indicate in what areas tests were taken.

D. The samples shall be collected on 37 mm filters and analyzed within 48 hours following the date/time of collection using NIOSH Analytical Method No. 7105 or 7082.

E. The Contractor's testing laboratory shall submit sample analysis results to the Contractor verbally within three (3) days from the date/time of collection. Written printed laboratory reports shall be submitted to the General Contractor within one (1) week including chain-of-custody and equipment calibration records.

F. The College reserves the right to monitor Contractor's performance via air, dust wipe, and TCLP samples during removal work, in addition to the Contractor's exposure monitoring and testing.

1.07 QUALITY ASSURANCE:

A. Periodic monitoring of air and surface dust may be analyzed by the Colleges Environmental Consultant in occupied spaces and containment areas. The following lead exposure limits shall apply to all areas where lead handling procedures are undertaken.

1. **Air Samples:**
   - 30 µg/m³ - OSHA Action Level (8-hour Time-Weighted Average)
   - 50 µg/m³ - OSHA Permissible Exposure Limit (8-hour Time-Weighted Average)

2. **Dust Samples:** *(Expected levels at completion of major demolition)*
   - 200 µg/ft² - Clearance for Stripped Surfaces, Components, etc.
   - 200 µg/ft² - Clearance Level for floors
   - 500 µg/ft² - Clearance Level for interior window sills
   - 800 µg/ft² - Clearance Level for rough surfaces

3. **Blood Lead Levels:**
   - 40 µg/dl - (OSHA) permissible blood level for worker
   - 50 µg/dl - (OSHA) blood level requiring medical removal of worker
4. **Dispose of as Hazardous Waste:**
   5 ppm Pb (analyzed as "leach-able" using Toxicity Characteristic Leachate Procedure - TCLP EPA Method 1311)

5. **Paint:**
   Painted surfaces with lead concentrations greater than the limits of detection as determined by atomic absorption, EPA Method 7420-3050.

6. **Soil:**
   500 - 1,000 ppm - EPA Superfund limit

7. **Waste Water:** (.7 mg/l Pb or less to dispose of in City of Portland sanitary sewer)
   Verify other local requirements.

B. If, at any time during the work, analysis of occupied area air or wipe samples taken by the Contractor, College, or College's representative, indicates a concentration in excess of the allowable maximums specified, the Contractor shall immediately notify:
   1. The General Contractor's Superintendent
   2. The Environmental Consultant

C. Immediately upon being notified of concentrations exceeding the specified maximum allowable levels, the Contractor shall perform the following steps in the order presented, at no additional cost to the College:
   1. Stop Lead related work.
   2. Identify source of high lead concentrations.
   3. Immediately correct any containment breaches, pressure differential changes, or other potential cause. The Environmental Consultant will determine the affected area and affected adjacent areas considered to be contaminated and will determine the actions to be taken by the Contractor at no additional cost to the College.
      a. Clean the affected area and the affected adjacent areas. Cleaning shall use a high phosphate wash method and HEPA vacuuming.
      b. Resample air and surfaces until concentrations are determined to be below the specified maximum levels.
      c. Secure and repair containment barriers repair or add equipment.
      d. Modify work procedures, and make other changes determined to be the possible cause of high lead concentrations.
   4. Carefully resume work under close supervision and monitoring.
   5. The Contractor shall be responsible for costs of any testing, cleanup, repair, down time loss, etc. that is a result of the Contractor's negligence, poor maintenance of containment areas or improper procedures.

**1.08 PERSONNEL PROTECTION:**

A. **Training**
   1. When demolition or lead handling activities result or are expected to exceed the Action Level, the Contractor shall follow personnel protection and work area isolation procedures outlined in this section.
   2. Prior to commencement of work, Contractor shall ensure all workers have been adequately trained as specified in 29 CFR 1926.62.
   3. The Contractor shall provide and post at hand wash locations, in the clean room(s) and/or the equipment room(s), the decontamination, respirator, and work
procedures to be followed by the workers as outlined in the written Lead Compliance Program.

4. Workers shall not eat, drink, chew gum or apply cosmetics except in the established clean room. Smoking or using other tobacco products is prohibited.

5. Workers shall be fully protected with respirators and protective clothing immediately prior to the first disturbance of lead-containing or contaminated material and until final cleanup is completed.

B. Access to Isolated Work Area by Others

1. Except for emergency personnel, the Contractor shall limit access to the work area to authorized visitors.

2. The Contractor shall provide protective clothing, respirators and equipment for all authorized visitors, as specified above.

C. Emergency Precautions

1. The Contractor shall establish emergency and fire exits from the work area. Contractor shall ensure these exits are well marked and remain unobstructed throughout the period of the Contract.

2. The Contractor shall be prepared to administer first aid to injured personnel after decontamination. Seriously injured personnel shall be treated immediately or evacuated without delay for decontamination.

D. Building Security and Protection

1. The Contractor shall post adequate warning signs at all potential entrances to work areas as required by EPA and OSHA.

2. Contractor shall protect all existing fixed equipment, existing building finishes that are to remain, and existing systems and functions from damage. Extra precautions are to be taken in protecting existing electrical panels, light fixtures, etc. The Contractor at his expense shall remedy any damage to existing building, services, and/or equipment.

3. Contractor shall clean external surfaces of contaminated containers and equipment thoroughly by wet sponging and HEPA vacuum.

4. Contractor shall maintain access and use of existing fire lanes.

1.09 SAFETY

A. With regard to the work of this Contract, the safety of the Contractor's employees, the College's employees, and the public is the sole responsibility of the Contractor.

1.10 LIABILITY

A. The Contractor is an independent contractor and not an employee of the College, Architect, Construction Program Manager, or Environmental Consultant. The College, Architect, Construction Program Manager, and the Environmental Consultant shall have no liability to the Contractor or any third persons for Contractor's failure to faithfully perform and follow the provisions of these Specifications and the requirements of the governing agencies. Notwithstanding the failure of the College, Architect, or the Environmental Consultant to discover a violation by the Contractor of any of the provisions of these Specifications, or to require the Contractor to fully perform and follow any of them, such failure shall not
constitute a waiver of any of the requirements of these Specifications which shall remain fully binding upon the Contractor.

1.11 PROTECTION

A. Damaged or deteriorating materials shall not be used and shall be removed from the premises by the Contractor. The Contractor shall dispose of materials that become contaminated with lead in accordance with the applicable regulations.

1.12 SUBCONTRACTORS

A. Any Subcontractors employed by the Contractor shall be bound to all the work and safety standards specified elsewhere in this Specification. Subcontractor's personnel shall be fully trained and supervised by the Contractor during performance of this work.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Plastic Sheet:
   Plastic sheet shall be fire-retardant polyethylene material sized in lengths and widths to minimize the frequency of joints. The minimum thickness shall be 6-mil.

B. Plastic Bags:
   Plastic bags shall be 6-mil polyethylene printed with warning labels per OSHA and EPA regulations.

C. Tape:
   Tape shall be capable of sealing joints of adjacent sheets of plastic and for attachment of plastic sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under dry and wet conditions, including use of amended water.

D. Disposal Containers:
   Disposal containers for all listed hazardous waste shall be ODOT-approved #1-A2 55-gallon steel drums unless approved otherwise by the TSD and Environmental Consultant.

E. Warning Labels and Signs:
   Warning labels and signs shall be posted as required by OR-OSHA, ODOT, and DEQ regulations.

F. Chemical Strippers:
   Use of chemical strippers shall require review from the College, Architect, General Contractor, and Environmental Consultant.

2.02 TOOLS AND EQUIPMENT

A. Water Sprayer:
   The water sprayer shall be an airless or other low-pressure sprayer for high phosphate wash water application.

B. Air-purifying Equipment:
   Air-purifying equipment shall consist of High-efficiency Particulate Air (HEPA) filtration systems. No air movement system or air equipment shall discharge lead paint dust and particulates outside the work area. Each unit shall be capable of variable volume from a minimum of 500 CFM to at least 1700 CFM under load.
and shall have at least 2 stages of pre-filtration ahead of the HEPA final filter. Each unit shall be equipped with an elapsed time indicator (hour meter), static pressure gauge with low flow alarm, and be overload protected. At the Contractor’s option, each unit shall be equipped with heat and smoke sensors that will visually and audibly warn workers and shut unit fan down within 30 seconds.

C. Pressure Differential Monitoring Equipment:
A combination sensing, alarm and recording device shall be in operation at all times during use of the HEPA air-purifying equipment. The unit shall be a "Neg-A-Master", manufactured by Control Resource Systems, Inc., or an approved.

D. Water-purifying Equipment:
Capable of removing lead to 0.7 mg/liter or as required by local regulations.

E. Airless Sprayer:
An airless sprayer, suitable for application of wash water, shall be used.

F. Vacuum Equipment:
All vacuum equipment utilized in the work area shall be High-efficiency Particulate Air (HEPA) equipment, and suitable for wet/dry usage.

G. Scaffolding:
Scaffolding, as required to accomplish the specified work, shall meet all applicable safety regulations. All special scaffolding shall have drawings and calculations stamped and signed by a civil or structural engineer registered in the state of Oregon.

H. Transportation Equipment:
Transportation equipment, as required, shall be suitable for loading, temporary storage, transit, and unloading of contaminated waste without exposure to persons or property.

I. Electrical:
Electrical tools, equipment, and lighting shall meet all applicable codes and regulations. Ground fault protection as required by OSHA, shall be in effect at all times. Contractor shall take all additional precautions and measures necessary to insure a safe working environment during wet removal.

J. Other Tools and Equipment:
Provide other suitable tools for the removal, enclosure, encapsulation, patching, and disposal activities including but not limited to: hand-held scrapers, needle guns, abrasive blasters, heat guns, wire brushes and sponges, mops and shovels as may be necessary for the completion of the Work.
PART 3 - EXECUTION

3.01 WORK AREA CONTAINMENT PREPARATION:

A. The Contractor shall perform lead handling procedures under full or partial containment when work practices are expected to create exposures greater than the Permissible Exposure Limit (PEL) of 50 µg/m³. The following lead handling procedures shall always be performed under full containment: abrasive blasting, welding and torch cutting, grinding or dry sanding, heat gun removal, and chemical stripping of lead paints or varnishes with volatile and caustic chemicals. Partial containment will be acceptable for tasks such as selective demolition, spot chemical removal, and patching of surfaces.

B. Contractor shall perform the following containment procedures in the order in which they are presented. Alternative engineering control methods considered by the Contractor must be proven by historical data and approved by the Environmental Consultant. The liberal use of water spray, ventilation and HEPA air filtration devices are most effective for reducing airborne lead concentrations.

3.02 FULL CONTAINMENT AREA PREPARATION:

A. Shut down, remove filters and isolate HVAC systems to prevent contamination and dust migration.

B. Coordinate all electrical, safety and other service connections, requirements and equipment with the College. Use a journeyman electrician at a minimum. It is the Contractor's responsibility to verify operation of systems that will be shut off during work.

C. Install critical barriers wherever feasible.

D. Set up the worker decontamination enclosure system. Once this system is installed, it shall be utilized in the specified manner for the ingress and egress of all personnel and equipment, except in emergency situations.

E. Install HEPA air-purifying equipment pressure differential fan system whenever feasible. Discharge from air-purifying equipment shall be ducted outside the building. During activities that created large amounts of dust by dry removal, scraping, sanding, etc. airflow shall be no less than 4 air changes every 60 minutes with a minimum pressure differential of 0.02” wg between the work area and the decon clean room.

F. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to the local building or fire department officials. Ensure that all exits remain unobstructed and well marked.

G. Adequate portable fire extinguishing equipment shall be maintained within work area as defined by OSHA and/or local fire department officials.

H. Periodic inspections shall be made as required during each shift to assure continued proper functioning of the containment and HEPA system.
3.03 PARTIAL CONTAINMENT WORK AREA PREPARATION:

A. Tasks requiring partial containment include items such as: Selective demolition, exterior paint removal, patching and repair of painted components and other tasks where incidental exposures to airborne lead concentrations are likely to occur. Historical monitoring of similar procedures may alleviate partial containment requirements.

B. Contractor shall perform the following procedures in the order in which they are presented and describe procedures for exterior paint removal and other work in non-isolated work areas.
   1. Seal off airflow HVAC systems serving other building areas.
   2. Restrict access to work area and post warning signs.
   3. Install localized HEPA exhaust fan in work area. Locate fan intake to immediate area of work in such a manner that any lead dust released will be drawn away from the worker and into intake duct.
   4. Cover floor and other surfaces below work area with 6-mil plastic sheeting.
   5. Have emergency cleanup equipment and supplies, including HEPA vacuum, wash water, disposal bags, mop, buckets, towels and sponges, on hand prior to start of abatement work.

3.04 WASTE DISPOSAL

A. General: The Contractor shall assume that all general demolition waste is classified as solid waste based on representative TCLP tests performed. Other concentrated waste streams generated on-site shall be evaluated, tested, and properly disposed of in accordance with the specifications. Based on studies performed by the EPA on HUD projects, the generally non-hazardous categories of waste are: filtered wash-water, disposable work clothes and respirator filters, and rugs and carpets. The categories that may be mixed, with both hazardous and non-hazardous samples, are: paint chips, HEPA vacuum debris, dust from air filters, paint dust, sludge from stripping, unfiltered liquid waste, and rags, sponges, mops, HEPA-filters, air monitoring cartridges, scrapers and other materials used for testing, abatement and cleanup.

B. The Contractor shall pay for and make all waste disposal arrangements including all necessary testing for hazardous and solid waste transportation and disposal of all hazardous waste generated by the Contractor and associated with lead handling procedures. Copies of all documentation shall be submitted to the College.

C. Contractor shall affix warning labels having waterproof print and permanent adhesive, to the lid and sides of all containers. Warning labels shall be conspicuous and legible.

D. The Contractor shall determine appropriate current waste handling, transportation, and disposal regulations for the work site and for each waste disposal landfill. The Contractor must comply with these regulations and all U.S. and Oregon Department of Transportation, DEQ and EPA requirements. Labels and all necessary signs shall be in accordance with DEQ and OSHA standards.

E. Contractor shall remove decontaminated containers from site.

F. Provide at least one representative sample of each representative waste stream. Samples shall include TCLP analysis for lead and other hazardous materials that may be present or used in the removal process. Provide additional samples taken and analyzed by TSD or landfill.

END OF LEAD HANDLING PRECEDURES SECTION
ATTACHMENT E
TECHNICAL SPECIFICATIONS

Built Up Roofing

1.01 SCOPE OF WORK:

A. This Section covers removal of non-friable roofing materials such as; built-up roofing, or asphalt shingles that have been determined to be non-friable by the Colleges Environmental Consultant. The Contractor shall verify that planned removal methods are acceptable within OR-OSHA rules and the Department of Environmental Quality guidelines for maintaining exempt status of this material. The College’s Hazardous Materials Abatement Contractor under separate contract will remove all friable roofing material.

B. The Colleges Environmental Consultant shall assist in performing:
   1. A friability determination during the beginning of work and 2) initial air monitoring to support that the level of personnel protection is adequate during all roof removal activities. The Contractor shall contact the College’s Environmental Consultant at least two (2) days before beginning roof removal work. This testing performed by the College shall not alleviate the contractor from any responsibility for complying with OSHA or DEQ rules. The College or its Environmental Consultant cannot be held liable for any citations of non-compliance or injury as a result of the Work.

C. All penetrations into the built-up roof membrane that contain asbestos are to be performed using properly trained personnel.

D. Immediately notify the College if asbestos-containing roofing becomes friable during removal.

1.02 RELATED WORK:

A. See Section: Asbestos Abatement.

B. See Section: Lead Handling Procedures

1.03 REFERENCED STANDARDS TO BE INCORPORATED INTO THIS SECTION:


E. DOT Regulations 49 CFR 171 & 172.


1.04 ASBESTOS RELATED PROCEDURES:

A. Removal of the built-up roofing that contains asbestos and that is intact is to be performed in compliance with OSHA 1926.1101, the Johnson Roofing Co., Inc., /OSHA Agreement #94-41039 March 15, 1995, as a minimum.

B. The following procedure shall be followed at a minimum:
   1. Provide a competent person on the job-site at all times during roof removal. The competent person is defined in the Johnson Roofing Co., Inc. Assoc./OSHA Agreement #94-41039 March 15, 1995, as a minimum.
   2. The competent person shall determine the following:
      a. That the material is intact or is non-intact.
      b. That appropriate work practices for removal of roofing are utilized.
      c. That all workers engaged in the removal are properly trained.
      d. That air monitoring is performed.
   3. Contractor is to follow all procedures according to OSHA 1926.1101 and the OSHA Agreement #94-41039 March 15, 1995.
   4. The Contractor is responsible for DEQ notifications and associated fees.

1.05 ROOF REMOVAL PROCEDURES FOR ASBESTOS-CONTAINING BUILT-UP ROOFS:

A. Roofing shall be removed in an intact state to the extent feasible. If the roof becomes friable or non-intact immediately notify the College.

B. Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such wet methods are not feasible or will create safety hazards.

C. Cutting machines shall be continuously misted during use, unless a competent person determines that misting substantially decreases worker safety.

C. When removing built-up roofs using a power roof cutter, all dust resulting from the cutting operation shall be collected by a HEPA dust collector, or shall be HEPA vacuumed by vacuuming along the cut line, or by gently sweeping and then carefully and completely wiping up the still-wet dust and debris left along the cut line. The dust and debris shall be immediately bagged or placed in covered containers.

D. Roof material that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane, or hoist.

E. Any areas of asbestos-containing roofing material that is not intact shall be lowered to the ground as soon as practicable, but in any event, no later than the end of the work shift. While the material remains on the roof it shall be kept wet, placed in an impermeable water bag, or wrapped in plastic sheeting.
G. Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such manner so as to preclude the dispersion of dust.

H. Roof level heating and ventilation air intake sources shall be isolated and the ventilation system shall be shut down during demolition and roof system installation.

1.06 DISPOSAL OF ASBESTOS-CONTAINING ROOFING MATERIAL:

A. Provide the appropriate manifest, signed by the Contractor and landfill operator, to the Owner within ten (10) days from the time the material left the site.
ATTACHMENT F
TASK ORDER FORM

Distribution

- Portland Community College
- Environmental Consultant
- Contractor

Reference #: ____________________
Project: ________________________
College: _______________________

REQUEST FOR PROPOSAL

TASK DESCRIPTION:

THIS IS NOT A DIRECTIVE TO PROCEED WITH THE WORK DESCRIBED HEREIN, UNTIL SIGNED BY APPROVING PARTIES BELOW.
Signed: ________________________ Date: ________________________
Environmental Consultant

TASK ORDER
In response to the request above, the Contractor proposes to perform the changes described for an increase/decrease in the Contract Sum in the amount of: $ _________ and increase/decrease in the Contract Time of _______ calendar days. A detailed breakdown of labor and materials costs is attached hereto which includes all costs and time associated with the proposed change.

Signed: ________________________ Date: ________________________
Contractor:

REMARKS
Abatement contractor is to provide and attach a detailed cost breakdown for this work.

AUTHORIZATION TO PROCEED
Signed: ________________________ Date:

__________________________
PCC Representative