



June 23, 2022

Board of County Commissioners  
Clackamas County

**Approval of Early Work Amendment #1 with P&C Construction Co for abatement and demolition at the future site for the new Gladstone Library. Total contract value is \$358,834. General funds will be used for 50% of the cost of the amendment.**

<b>Purpose/Outcome</b>	The purpose of this amendment is to add additional construction services required for abatement and demolition of old Gladstone City Hall building.
<b>Dollar Amount and Fiscal Impact</b>	The original contract amount was \$88,780.00. Amendment #1 increases Scope of Work for an additional \$270,054.00 for a total not to exceed amount of \$358,834.00.
<b>Funding Source</b>	50% of the cost of the amendment will be funded with revenue from the City of Gladstone; the other 50% will be funded with general fund. A supplemental budget is in process that will transfer general funds to BCS to pay for a portion of the project.
<b>Duration</b>	Through December 31, 2024
<b>Previous Board Action/Review</b>	<ul style="list-style-type: none"> <li>• 06/24/21: Board, and the Board acting as the Board of Directors for NCPRD, Approval of Resolution for Bid Exemption and Authorization to use the CM/GC RFP Procurement Method for Oak Lodge and Gladstone Community Projects</li> <li>• 05/11/2022: Board approval of delay of construction of the Gladstone Library.</li> </ul>
<b>Strategic Plan Alignment</b>	<ul style="list-style-type: none"> <li>• Provide economic development, public spaces, and community enrichment services to residents, businesses, visitors, and partners so they can thrive and prosper in healthy and vibrant communities.</li> <li>• Designed with a lens of Equity, Diversity and Inclusion by engaging diverse audiences and maximizing access to a library that is near public transportation.</li> <li>• Promote Carbon Neutrality by providing higher quality natural areas and access by building near alternative modes of transportation, use of sustainable building materials and building sustainable projects by using photovoltaic panels for power to reduce future operation costs.</li> </ul>
<b>Counsel Review</b>	Date of Counsel review: 06/8/2022 Name of County Counsel performing review: Andrew Naylor
<b>Procurement Review</b>	(Please check yes or no for procurement review. If the answer is "no," please provide an explanation.) 1. Was the item processed through Procurement? yes <input checked="" type="checkbox"/> no <input type="checkbox"/>
<b>Contact Person</b>	Jason Varga, Project Manager 503-351-4012
<b>Contract No.</b>	4357

**BACKGROUND:** In October 2017, the County and City of Gladstone entered into a settlement agreement in which the County agreed to construct and manage a 6,000-square-foot facility in Gladstone for the Gladstone Library service area.

The Board of County Commissioners, at a 5/11/22 policy session, took the action to delay the construction of the new Gladstone Library by one year to allow time for the market to stabilize. This delay was also agreed to by the City of Gladstone. The Intergovernmental agreement between Clackamas County and the City of Gladstone will be amended to reflect this delay in construction.

As part of this amended intergovernmental agreement the County shall demolish the former Gladstone City Hall building by October 14, 2022.

P&C Construction is our CM/GC for this project. They are currently contracted for preconstruction services totaling \$88,780. The cost to abate and demolish the building is an additional \$270,054. This would put their total contract value at \$358,834. This scope was competitively bid and the cost of work for abatement and demolition falls within the allotted project budget for this scope. Also, per the settlement agreement, the County shall be reimbursed for 50% of the abatement and demolition cost of work by the City of Gladstone.

**PROCUREMENT PROCESS:**

This Amendment is in accordance with LCRB C-047-0800(a) for an anticipated amendment.

**RECOMMENDATION:** Business & Community Services respectfully request that the Board of County Commissioners approve and execute Amendment #1 with P&C Construction Co. for abatement and demolition of the former Gladstone City Hall building.

Respectfully submitted,



Sarah Eckman  
Interim Director, Business & Community Services

**EARLY WORK AMENDMENT #1  
TO THE CONTRACT DOCUMENTS WITH P. & C. CONSTRUCTION CO. FOR OAK LODGE  
AND GLADSTONE LIBRARY CMGC  
Contract #4357**

This Early Work Amendment #1 is entered into between **P. & C. Construction Co.** (“Contractor”) and Clackamas County (“Owner”) and shall become part of the Contract documents entered into between both parties on **September 30, 2021** (“Contract”).

Pursuant to Section 3. A of the Contract, Contractor and Owner may agree to execute one or more Early Work Amendments to be performed in advance of establishment of the GMP. By execution of this Early Work Amendment #1, the parties agree as follows:

**1. Contractor shall perform the following Early Work Amendment Construction Phase Services:**

Contractor shall perform abatement of the existing building, demolition of existing utilities, and demolition of the existing building (collectively the “Preconstruction Demolition Work”), as further described in **Exhibit F**, attached hereto and incorporated by this reference herein. Performance of the Preconstruction Demolition Work shall be in accordance with Exhibit F and the terms and conditions of the Contract.

Pursuant to Section 3. B of the Contract, prior to commencing the Preconstruction Demolition Work, Contractor shall provide Owner a performance bond and payment bond as required by Section G of the Clackamas County General Conditions for CM/GC Public Improvement Contracts. Each bond will be in the amount of \$270,054.00.

**2. ARTICLE 4 Consideration** is hereby amended as follows:

In consideration for Contractor performing the Preconstruction Demolition Work, County will pay Contractor an amount not to exceed \$270,054.00 (the “Early Work Price”). The Early Work Price is on a fixed fee basis. Payment of the Early Work Price, including withholding of retainage, will be in accordance with the terms of the Contract. The total Contract compensation will not exceed \$358,834.00.

ORIGINAL CONTRACT	\$ 88,780.00 (Preconstruction Fee)
<u>AMENDMENT #1</u>	<u>\$ 270,054.00 (Early Work Amendment)</u>
<b>TOTAL AMENDED CONTRACT</b>	<b>\$ 358,834.00</b>

Except as expressly amended above, all other terms and conditions of the Contract shall remain in full force and effect. By signature below, the parties agree to this Early Work Amendment #1, effective upon the date of the last signature below.

**Signature Page to Follow**

**P. & C. Construction Co.**



6/16/2022

Authorized Signature

Date

Brian Shoemaker

Printed Name

**Clackamas County**

Chair

Recording Secretary

Date

Approved as to Form:

  
County Counsel

06/21/2022

Date

**Exhibit F**  
**Early Work Authorization Scope of Work**



## Early Work Authorization

Issue Date: 03/23/22

To: Jason Varga

RE: Gladstone Library Construction (EWA 1- abatement and demolition)

### Description of Work:

This early work authorization request is for approval to begin work on Gladstone Library this spring or summer 2022 while design and the GMP continue past 100% DD. Approval of this early work allows P&C Construction to contract with trades listed below.

The work includes abatement of the existing building, demolition of existing utilities, and demolition of the existing building. The project will be left ready for the next stage of construction, structural excavation.

Building Demolition

Abatement

Contractor General Conditions, Contingency, & OH&P

**Total allowance for this Early Work Authorization is**

**\$ 270,054**

See next page for breakdown of cost

Submitted by

Parker Verhaeghe, Project Manager

**P&C Construction**



Date: 3.28.22  
 Project Name: Gladstone Library  
 P&C Job No: 21011  
 P&C Phase Code

P&C Change Order No.  
 Change Order Title:  
 Change Order Reference:

**SCOPE OF WORK**

EWA Break Down.

**COST BREAKDOWN**

Description	Qty	Unit	Unit Cost	Total	Comments
<b>Subcontractors</b>					
Demolition				\$133,000	
Abatement				\$57,581	
<b>P&amp;C Construction</b>					
Superintendent (2 months)	320		\$112	\$35,840	
Project Manager	40		\$107	\$4,280	
Safety Director	8		\$101	\$808	
Resource Manager	8		\$125	\$1,000	
Overtime	8		\$45	\$360	
Truck & Fuel	2		\$2,000	\$4,000	
Phone, tools, and misc. supplies	1		\$10,000	\$10,000	
Fencing and signage	1		\$5,000	\$5,000	
<b>Total</b>				<b>\$61,288</b>	
<b>Cost of Work Total</b>					
				<b>\$251,869</b>	
<b>Bond, Fee, and Insurance</b>			5.22%	\$13,148	
<b>Contingency</b>			2.00%	\$5,037	
<b>TOTAL COST</b>				<b>\$270,054</b>	







Gladstone Library

**BP-1 DEMOLITION COST PROPOSAL FORM**

DATE: 2/7/2022

FROM: Staton Companies (Firm Name) 541-726-9422 (Phone)  
P.O. box 7515 (Address) \_\_\_\_\_ (Fax)  
Springfield Oregon 97475 (City/St/Zip) mikep@statonco.com(email address)

P&C Clarifications Received #1,2,3,4 (list all Clarifications #'s received)

**COST PROPOSALS**

Having become familiar with the local conditions and legal requirements affecting the cost of work at the place where work is to be executed and having carefully reviewed design documents prepared by OPSIS Architecture, together with any P&C Clarifications issued during solicitation period, the undersigned hereby certifies that the figures outlined on this form are a true representation of the expected cost of work. PREVAILING WAGES APPLY TO ALL WORK BELOW.

**Scope Bidding (provide breakdown of major scopes of work):**

- Scope Demolition – Building thru foundations \$ 97,645.00
- Scope Demolition – Erosion control & tree protection \$ 5,000.00
- Scope Demolition – Decommission elevator/HVAC units \$ 3,000.00
- Scope Demolition – Decommission/remove UST \$ 15,000.00
- Scope Demolition – Regrade site \$ 5,000.00
- Scope Demolition – Site elements per plan \$ 2,000.00

**COST ALTERNATES** (If Applicable)

- Voluntary Alternate - \$ N/A
- Voluntary Alternate - \$ N/A

**LEAD TIME ISSUES/CONCERNS** (If Any) N/A

**SUBCONTRACTOR BONDING**

Gladstone Library

BP-1 ABATEMENT COST PROPOSAL FORM

DATE: 2/10/2022

FROM: IRS Environmental & Portland (Firm Name) 503.693.6388 (Phone)  
777 SW ARCO AVE (Address) \_\_\_\_\_ (Fax)  
HILLSBORO OR 97123 (City/State/Zip) patrick@irsenvironmental.com  
(email address)

P&C Clarifications Received 1-4 (list all Clarifications #'s received)

**COST PROPOSALS**

Having become familiar with the local conditions and legal requirements affecting the cost of work at the place where work is to be executed and having carefully reviewed design documents prepared by OPSIS Architecture, together with any P&C Clarifications issued during solicitation period, the undersigned hereby certifies that the figures outlined on this form are a true representation of the expected cost of work. PREVAILING WAGES APPLY TO ALL WORK BELOW.

**Scope Bidding (provide breakdown of major scopes of work):**

- Scope Abatement – Pipe insulation/fittings \$ 12,141.00
- Scope Abatement – Sheet flooring/tile/mastics \$ 28,330.00
- Scope Abatement – Mercury containing lamps/hazardous ballasts \$ 960.00

**COST ALTERNATES (If Applicable)**

- Voluntary Alternate - \$ \_\_\_\_\_
- Voluntary Alternate - \$ \_\_\_\_\_

**LEAD TIME ISSUES/CONCERNS (If Any)**

\_\_\_\_\_  
\_\_\_\_\_

**SUBCONTRACTOR BONDING**

Provide your firm's rate (expressed as a single percentage of base bid amount) for performance and payment bonds. Identify the provider of bonds for your firm. NOTE: P&C reserves the right to consider in the evaluation the cost, ability of firm to provide said bonds, and the current financial strength of the firm.

Payment and Performance Bond %: 3% (express as a % based of Total Cost amount)

Name of Firm that would Provide Bonds RLI

**HOURLY LABOR RATES**

On a separate sheet, provide a list of all hourly rates for all individuals proposed for this project including, but not limited to, office management, project management, and field forces. Attach this sheet to Cost Proposal Form. NOTE: These rates must include all associated overheads and markups. Also, identify rates for premium or overtime work. P&C reserves the right to review proposed rates, how rates were calculated, and negotiate any mutually agreeable changes prior to entering into a subcontract for construction with selected firm.

**SUPPLIERS and LOWER TIER SUBCONTRACTORS**

On a separate sheet, identify lower tier subcontractors that you anticipate will provide materials and/or labor to Proposer for this project. Attach this sheet to Cost Proposal Form. NOTE: This is for informational purposes only. Successful proposer(s) will not be obligated to utilize suppliers and/or lower tier subcontractors listed here.

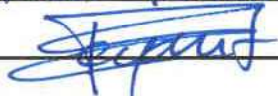
**BIDDER ACKNOWLEDGEMENTS**

By submitting this bid, Bidder understands and acknowledges the following requirements and has included such in lump sum bid amount.

1. Bidder has provided accurate and reliable pricing breakdown as identified in the "COST PROPOSAL" section and "COST OPTIONS (Alternates: Stated and Voluntary)" section. Furthermore, Bidder understand that P&C has the ability to review such pricing information in further detail with any and all bidders as part of the bid evaluation process.
2. Under no circumstances will Bidder's proposal, or any documents created by Bidder, be attached, made part of, or form any part of contractual agreement between P&C and Bidder.
3. Bidder has reviewed the sample P&C subcontract attached to this solicitation. Any exceptions noted by Bidder to such may cause Bidder's bid to be deemed non-responsive and rejected.
4. Bidder has reviewed Project Schedule and Site Logistics/phasing plan created by P&C and made part of this solicitation. Therefore, Bidder agrees to provide all labor and resources necessary to meet Substantial Completion dates identified on Schedule.
5. Bidder has reviewed existing site conditions and understands the logistics of the site.
6. Warranty period for this project, and that covered by all subcontractors, is one (1) year from date of Substantial Completion unless a longer period is specifically called for in Contract Documents for any material, component, or system.

**NOTE:** ALL information contained on this Cost Proposal Form must be accurately and completely filled in. Failure to do so will cause Bidder's response to be considered non-responsive and rejected by P&C.

**COST PROPOSAL SUBMITTED BY**

Firm Name: IRS Environmental of Portland  
Contact Person and Title: PATRICK FEYFANT, President  
Signature: 

END OF COST PROPOSAL FORM

## SECTION 02 82 13 ASBESTOS ABATEMENT

### PART 1 GENERAL

#### 1.1 SCOPE

- A. This section covers the removal and repair of materials that contain, or are presumed to contain, greater than one percent asbestos.
- B. The abatement contractor shall provide all labor, materials, equipment, services, permits, and insurance required to complete asbestos abatement procedures as indicated in these Specifications and the drawings.
- C. The following table lists asbestos-containing materials (ACM) to be removed. Abatement includes soft (non-structural) demolition, carpet removal, asbestos-containing materials removal, and disposal. Refer to drawings HA1 and HA2 for additional asbestos abatement information.

**Table 1. Asbestos-Containing Materials to be Removed**

<b>Asbestos-Containing Building Materials</b>	<b>Approximate Quantity</b>	<b>Note</b>
Asbestos Pipe Insulation and associated hard fittings	500 lf/150 ea	Trace all pipes to access concealed insulation
Vinyl Floor Tile and Associated Mastic	5,920 sf	Overlaid with carpet in most locations
Sheet Floor Covering	120 sf	

lf= Linear Feet, ea= Each, sf= Square feet

- D. The quantities and location of ACM indicated above, and on drawing HA1 and HA2, are only best estimates limited by the physical constraints imposed by the occupancy of the building. Accordingly, minor variations of plus or minus 10 percent of the estimated quantities of ACM within the limits of containment for each abatement stage are considered as having no impact on contract price and schedule of this contract. Locations of ACM different than indicated on drawings, but within the limits of building, are considered as having no impact on contract price and schedule of this contract.
- E. Asbestos-containing pipe insulation is shown on the drawings where it was observed. However, the quantities represent asbestos-containing pipe insulation that may also be concealed within walls and ceilings. The abatement contractor shall trace all pipes using soft demolition methods to ensure that all pipes are identified and removed.
- F. Refer to the Pre-Demolition Hazardous Building Materials Survey Report, PBS Engineering and Environmental, August 2019 for additional asbestos-containing building material information.

#### 1.2 DEFINITIONS

- A. Abatement: Procedures to control fiber release from asbestos-containing building materials, which include encapsulation, enclosure, removal, repair, and related activities.
- B. Aggressive Sampling: Air sampling method that assures that asbestos fibers remain airborne during sampling. All surfaces inside the work area will be agitated by the liberal use of compressed air, leaf blowers, or similar. Fans will then be run throughout the sampling period to keep all suspended fibers airborne.

- C. AHERA: Asbestos Hazard Emergency Response Act, 40 CFR Part 763.
- 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 three feet apart.
- E. Air Monitoring: The process of measuring the asbestos fiber content of a specific volume of air in 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 asbestos as defined under NESHAPS CFR 40, Part 61, OAR Chapter 340, Division 248, OR-OSHA 437, 1926.1101, and OSHA 29 CFR Part 1926.1101.
- H. Authorized Visitor: The owner 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. Construction, Manager/General Contractor (CMGC): A construction delivery method in which the construction manager acts as the general contractor with schedule and cost risk. The CMGC provides design phase assistance in evaluating costs, schedule, and implications of systems and materials during design.
- K. Class I Asbestos Work: Activities involving the removal of TSI and surfacing ACM and PACM.
- L. Class II Asbestos Work: 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 mastics.
- M. Clean Room: An uncontaminated area or room that is part of the worker decontamination enclosure system, with provisions for storing workers' street clothes and clean protective equipment.
- N. Critical Barrier: Solid barrier constructed from minimum of 2- by 4-inch studs, 16-inch o.c.; 0.5-inch plywood or drywall sealed airtight and covered on both sides (where applicable) with two layers of 6-mil plastic.
- O. 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 three feet apart to form an air lock.
- P. Disposal: Procedures necessary to transport and deposit the asbestos-contaminated material in an approved waste disposal site in compliance with the Environmental Protection Agency (EPA) and other applicable regulations.
- Q. Enclosure: Procedures necessary to completely seal all asbestos-containing material behind airtight, impermeable, permanent barriers, including PVC jackets.
- R. Encapsulant (Sealant): A liquid material that can be applied to asbestos-containing material and that controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant), or by penetrating the material and binding its components together (penetrating encapsulant).

- S. Environmental Consultant: Environmental consultant specializing in asbestos abatement—PBS Engineering and Environmental Inc., 4412 SW Corbett Avenue, Portland, Oregon, 97239, 503.248.1939—or any subcontractor designated by PBS.
- T. Equipment Room: A contaminated area or room, which is part of the worker decontamination enclosure system, with provisions for storage of contaminated clothing and equipment.
- U. Fitting: With regard to pipe insulation, a fitting is any elbow, offset, reducer, tee, etc.
- V. Fixed Object: Fixtures that are attached to the building or too heavy or bulky to remove from the work area.
- W. Glovebag: A manufactured device consisting of a transparent plastic bag with inward projecting sleeves, an internal tool pouch, provisions for fastening and sealing at the top and sides, and a receptacle in the bottom to hold asbestos waste. The glovebag is installed to surround the material to be removed and contain all fibers released during the process. Glovebags are used to remove insulation from small sections of pipe and fittings.
- X. HEPA Filter: A high efficiency particulate air (absolute) filter capable of trapping and retaining 99.97 percent of asbestos fibers greater than 0.3 microns in length.
- Y. 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 percent efficiency for retaining fibers of 0.3 microns in length or larger shall be installed for filtering discharge air.
- Z. Independent Testing Laboratory: A laboratory financially independent from and hired by the owner, architect, or contractor that 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.
- AA. Industrial Hygienist: An employee of the Independent Testing Laboratory who is experienced and trained in asbestos sampling and analysis as specified.
- BB. Insulating Cement: Cementitious material applied to pipe reducers, manifolds, etc.
- CC. Isolated Work Area: A totally contained area of the facility where abatement activities are performed.
- DD. Movable Object: Furnishings not attached to the building structure that can be removed from the work area.
- EE. Negative-air Glovebag: 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 glovebag is installed 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.
- FF. Owner Representative: Designated by the Owner, and/or designated employee(s) of the Owner Representative.
- GG. PACM: Presumed asbestos-containing materials.
- HH. Pressure Differential Fan System: An air-purifying fan system located inside or outside the isolated work area that draws air out of the work area through a HEPA filter, keeping static air pressure in the work area lower than in adjacent areas, and preventing escape of contaminated air from work area to adjacent areas.

- II. Public Area: Any area outside the isolated work area. When work area isolation measures are removed, the work area becomes a public area.
- JJ. Removal: All operations where ACM and/or PACM are taken out or stripped from structures or substrates, and include demolition activities.
- KK. Shower Room: A room between the clean room and the equipment room in the worker decontamination enclosure system that is equipped with soap, shampoo, and hot and cold running water controllable at the faucet, and suitably arranged for complete showering during decontamination. The shower room must be separated from the clean room and equipment room by air locks.
- LL. Special Fitting: With regard to pipe insulation, a special fitting is any valve, union, strainer, thermometer, flange, etc.
- MM. Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.
- NN. Tack Coat: A coat of penetrating encapsulant applied to all surfaces from which asbestos-containing materials have been removed.
- OO. Thermal System Insulation (TSI): ACM applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain.
- PP. 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.
- QQ. 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.
- RR. 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.
- SS. Worksite Entry Logbook: A logbook kept in the clean room that 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.

### **1.3 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.
  - 1. US Environmental Protection Agency National Emissions Standards for Hazardous Air Pollutants (NESHAPS). (Code of Federal Regulations Title 40, Part 61, Subparts A and M.)
  - 2. US Environmental Protection Agency Office of Toxic Substances Guidance Document, "Guidance for Controlling Friable Asbestos-Containing Materials in Buildings." EPA Report Number 560/5-85-024 ("Purple Book").
  - 3. US Department of Labor Occupational Safety and Health Administration (OSHA):
    - a. Title 29 Code of Federal Regulations Section 1910.1001—General Industry Standard for Asbestos.



- b. Title 29 Code of Federal Regulations Section 1910.134—General Industry Standard for Respiratory Protection.
  - c. Title 29 Code of Federal Regulations Section 1910 et al.—Occupational Exposure to Asbestos; Final Rule.
  - d. Title 29 Code of Federal Regulations 1926.1101—Construction Standard for Asbestos.
  - e. Title 29 Code of Federal Regulations Section 1910.1020—Access to Employee Exposure and Medical Records.
  - f. Title 29 Code of Federal Regulations Section 1910.1200—Hazard Communication.
4. National Institute for Occupational Safety and Health (NIOSH), 42 CFR, Part 84, Respiratory Protective Devices.
  5. American National Standards Institute (ANSI) NY; ANSI Standard Z 88.2-1980 "American National Standards Practice for Respiratory Protection," latest edition.
  6. Oregon Administrative Rules Chapter 340, Division 248, 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 279C, Certified Asbestos Contractors and Prevailing Wage; 656, Workers Compensation; and 701, Construction Contractors and Contracts.
  9. All related electrical work shall be performed in accordance with the National Electrical Code.
  10. All local ordinances, regulations, or rules pertaining to asbestos, including its storage, transportation, and disposal.

#### **1.4 SUBMITTALS AND NOTICES**

- A. Contractors shall submit three bound indexed copies of each submittal package as indicated below.
- B. Contractors shall submit to the architect and environmental consultant the following information prior to beginning work on the project:
  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 248.
  2. ASBESTOS SUPERVISOR. Submit the name and resume of the assigned on-site foreman. At minimum, the foreman shall have successfully completed the Department of Environmental Quality (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 architect or environmental consultant's request, the contractor shall arrange an oral interview with the assigned on-site foreman. The owner, architect, 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 the owner, architect, and environmental consultant's approval as described above.
  3. INSURANCE CERTIFICATE. Submit a copy of the certificate of asbestos-specific liability insurance policy.
  4. WORKER CERTIFICATION. Submit written proof indicating that all employees impacting asbestos-containing materials are Oregon state certified asbestos workers. Proof shall include

- photocopies of certificates and a signature from the contractor's principal indicating that all employees assigned to this project have completed such a program.
5. RESPIRATOR PROGRAM. Submit written proof indicating respirator program complies with all parts of OSHA Asbestos Regulations CFR Title 29, Part 1910.134 and 1926.1101, OR-OSHA Chapter 437, 1910.134 and 1926.1101.
  6. MEDICAL PROGRAM. Submit written proof medical exam program complies with OSHA Asbestos Regulations CFR Title 29, Section 1926.1101 and OR-OSHA Chapter 437, 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, and accidental disturbance of ACMs in non-isolated areas.
  8. NOTIFICATION. Submit copy of written notification to DEQ of the proposed asbestos work not fewer than 10 days before work commences on this project.
  9. DISPOSAL PLAN. Submit written proof that all required permits and arrangements regarding the transportation and disposal of asbestos-containing or contaminated materials, supplies, etc. have been obtained. The disposal site must be approved by the EPA and/or DEQ and other responsible agencies.
  10. WORK PLAN. Submit a written "work plan" satisfactory to the architect and environmental consultant 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 on a day-by-day basis, outlining room-by-room, or area-by-area procedures and planned alternative control measures. The contractor shall keep close coordination of his work with the architect and environmental consultant.
  11. 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 on-site industrial hygiene technician working under his supervision, types of equipment, and sampling schedule, sampling procedures, calibration recordkeeping, and testing laboratory proposed.
  12. PRODUCT INFORMATION. Submit complete product information for any materials and products for which the contractor requests approval for use on this job (other than those specified).
  13. EMERGENCY PHONE NUMBER. Submit a local phone number at which the contractor or on-site foreman can be reached on a 24-hour basis during the course of the work.
- C. Contractor shall not begin work until submittals are reviewed and accepted by architect and the environmental consultant. Allow a ten-day review period.
- D. During the work, the contractor shall submit the following to the architect and environmental consultant, on a periodic basis as agreed to by the architect, environmental consultant, and contractor:
1. Waste shipment and disposal documentation.
  2. Air monitoring data.
  3. Notification updates.

- E. Contractor shall submit to the environmental consultant, in writing, all information required above regarding any new asbestos workers hired by, or subcontracted to, the contractor before these new asbestos abatement workers begin work.
- F. Prior to removal of decontamination systems and isolation barriers, the contractor shall obtain specific written permission from the environmental consultant.
- G. Prior to making final application for payment the contractor shall:
  - 1. Complete all work under this contract.
  - 2. Submit to the environmental consultant all required submittals, including all waste shipment records completely filled out and signed.
  - 3. Submit to the owner all payroll reports for work on this contract and other information as described elsewhere in the Specifications, if appropriate, under the contract.
  - 4. Submit to the environmental consultant "as-abated" drawings along with a signed affidavit stating that all asbestos-containing materials have been removed as indicated on the drawings.
- H. See other sections of these Specifications, and EPA, OSHA, and other standards referenced therein, for further information and requirements not included above.

## **1.5 BUILDING PROTECTION**

- A. 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. The contractor shall protect all existing fixed equipment, building 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. Any damage to existing building, services, and/or equipment shall be remedied by the contractor at their expense.
  - 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.

## **1.6 PERSONAL 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.
- B. Personnel Personal 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 minimum, respiratory protection shall be approved by National Institute for Occupational Safety and Health/Mine Safety and Health Administration (NIOSH/MSHA); US Department of

Labor; US Department of Health, Education, and Welfare; Centers for Disease Control; and as listed below. Respiratory protection shall provide workers with a maximum calculated fiber level inside the mask of 0.01 f/cc.

- a. Glovebag or modified glovebag: full-face mask, powered air-purifying respirator with disposable HEPA filter cartridges (magenta/purple color code). Protection factor: 100.
  - b. Demolition of walls and ceilings that may impact friable asbestos-containing material: half-face mask, negative-pressure respirator with disposable HEPA filter cartridges (magenta/purple color code). Protection factor: 10.
  - c. Pre-abatement work in close proximity to friable asbestos-containing materials: half-face mask, negative-pressure respirator with disposable HEPA filter cartridges (magenta/purple color code). Protection factor: 10.
  - d. Abatement in isolated areas: full-face mask, powered air-purifying respirator with disposable HEPA filter cartridges (magenta/purple color code). Protection factor: 100.
  - e. HEPA vacuuming and wet cleaning of surfaces: half-face mask, negative-pressure respirator with disposable HEPA filter cartridges (magenta/purple color code). Protection factor: 10.
  - f. Vinyl asbestos floor tile removal: half-face mask, negative-pressure respirator with disposable HEPA filter cartridges (magenta/purple color code). Protection factor: 10.
  - g. Handling of double-bagged asbestos-contaminated waste: half-face mask, negative-pressure respirator with disposable HEPA filter cartridges (magenta/purple color code). Protection factor: 10.
3. Additional respiratory protection shall be as required by CFR 29 1910.134 and 1926.1101, OR-OSHA Chapter 437, 1910.134 and 1926.1101.
  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 semiannually 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 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 five 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. Permits shall be obtained and all water discharge regulations complied with, as

required by local municipalities. 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, a place to sit down, the Worksite Entry Logbook, and storage for workers' and visitors' clothing and shoes. Work, respirator, and decontamination procedures; regulations; and prevailing wage rates shall be conspicuously posted. There shall be a supply of clean, protective clothing, and respirators and cartridges in the clean room at all times.
  - d. A monometer measuring pressure differential within and outside the containment shall be installed and remain operable on any containment from the start of abatement work until work is complete, and satisfactory clearance results are obtained. Air pressure within the containment shall remain at or below -0.02 inches of water (compared to ambient air pressure) throughout.
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 their respirator, put on clean protective clothing, and sign in on the Worksite Entry Logbook before entering the equipment room or the work area.
2. Workers shall, each time they leave the work area, 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 and 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 that 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 reentering 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, footwear shall be disposed of as contaminated waste or cleaned 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.
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 authorized visitors, as specified above.
  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. Personal Protection during Work in Non-Isolated Work Areas:
1. Work clothes per Section 1.06 B.
  2. Respiratory protection per Section 1.06 B.
  3. Worker protection procedures will differ from Section 1.06 D, 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 glovebag work area. The worker shall immediately proceed to the worker decontamination unit. The remaining requirements of Section 1.06 D still apply.
  4. Contractor shall submit to the architect and environmental consultant for approval an emergency control and cleanup plan to be followed in the event of asbestos contamination during glovebag 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 area. 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.

## **1.7 SAFETY**

With regard to the work of this contract, the safety of the contractor's employees, the owner's employees, and the public is the sole responsibility of the contractor.

## **1.8 LIABILITY**

The contractor is an independent contractor and not an employee of the owner, architect, or the environmental consultant. The owner, architect, and 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 owner, 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, shall not constitute a waiver of any of the requirements of these Specifications, which shall remain fully binding upon the contractor.

### **1.9 DELIVERY**

Contractor shall deliver all materials to the worksite in the original packages, containers or bundles bearing the name of the manufacturer and the brand name.

### **1.10 STORAGE**

Contractor shall store all materials subject to damage off the ground, away from wet or damp surfaces, away from heat sources, and under cover sufficient to prevent damage, contamination, or fire.

### **1.11 PROTECTION**

Damaged or deteriorating materials shall not be used and shall be removed from the premises by the contractor. Materials that become contaminated with asbestos shall be disposed of in accordance with the applicable regulations by the contractor.

### **1.12 SUBCONTRACTORS**

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.

### **1.13 AIR MONITORING BY ABATEMENT CONTRACTOR**

- A. An Independent Testing Laboratory shall be retained by the Abatement Contractor. All air-monitoring analysis shall be performed by an Industrial Hygienist. The Industrial 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. The laboratory must meet the requirements specified in Section 02 82 13. Air sample collection may be performed by an Industrial Hygienist or the Abatement Contractor's foreman at the Abatement Contractor's option.
- 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 millimeter (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 Owner at work completion at the Owner's request.
- D. The Abatement 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 weeks including chain-of-custody and equipment calibration records.
- E. Abatement 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 or 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 Abatement 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 (8)-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 Abatement 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 Environmental Consultant based on the respiratory protection being utilized.
- F. Abatement 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.

**1.14 AIR MONITORING BY OWNER**

- A. The Owner will retain an experienced Industrial Hygienist/Environmental Consultant to collect and analyze asbestos air samples. Documentation of sample results will be forwarded to the Abatement Contractor as appropriate to regulatory requirements.
- B. Samples analyzed by phase contrast microscopy (PCM) will use NIOSH Analytical Method No. 7400.
- C. Owner's Air Sampling During and After Abatement:
  1. Air Sampling Table is to be used as a guide. The Owner's Industrial Hygienist/Environmental Consultant may modify criteria. Modifications to the Maximum Allowable Fiber Count shall be made in writing by the Owner.

Type of Sample	Average Samples per 8-hour Work Shift	Sample Volume--L (Liters [L])	Approximate Flow Rate	Maximum Allowable Fiber Count (f/cc)
HEPA Fan Exhaust	0 or selected units	400-2000 L	2 to 10 LPM	0.01 f/cc
Outside of Work Area	0-5	400-2000 L	2 to 10 LPM	0.01 f/cc or <pre-abatement
Clearance PCM	5/work area	800-3000 L	2 to 10 LPM	0.01 f/cc

LPM = liters per minute  
 f/cc = fibers per cubic centimeter



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 all clearance samples shall be via PCM.
4. The Abatement Contractor shall allow 48 hours for the collection and analysis of final PCM air clearance samples. In addition, the Abatement Contractor must provide at least 24 hours advance notice to the Environmental Consultant for final visual Inspection and clearance air monitoring.
5. The Owner reserves the right to monitor Abatement Contractor's performance via air samples on abatement workers and in the work area in addition to the Abatement Contractor's air monitoring.

### **1.15 QUALITY ASSURANCE**

- A. If, at any time during the work, analysis of an air sample taken by the Abatement Contractor, Owner, or Owner'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 Abatement Contractor's Foreman
  2. The Environmental Consultant: PBS Engineering and Environmental Inc.
  3. Other workers, employees, occupants, etc. in affected area(s).
- B. Immediately upon being notified of fiber count exceeding the specified maximum allowable levels, the Abatement Contractor shall perform the following steps in the order presented, at no additional cost to the Owner:
  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 Owner, if the Owner 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 Abatement Contractor at no additional cost to the Owner.
    - 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, 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 Abatement Contractor shall be responsible for costs of any testing, cleanup, repair, down time loss, etc. that is a result of the Abatement Contractor's negligence, poor maintenance of isolated areas or improper procedures.

## **PART 2 PRODUCTS**

### **2.1 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; attaching plastic sheet to finished or unfinished surfaces of dissimilar materials; and adhering under dry and wet conditions, including use of amended water. Minimum of 2-inch-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 airtight and watertight, and have hard top, 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 percent polyoxyethylene ether and 50 percent polyethylene ester, or equivalent, and shall be mixed with water at a concentration of one ounce surfactant to five 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. Penetrating Encapsulant: No. 207 Special Sealer #33775-27A as manufactured by Makus-Cincinnati, Inc.; "Asbestop 30B-2" as manufactured by Asbesco Corp.; "Cable Coating 22-P" as manufactured by American Coatings Corp., or approved. Bridging Encapsulant: Decadex Firecheck, 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.; or approved.
- H. Rewettable Lagging Cloth: Twelve ounce glass fabric lagging cloth saturated with dried lagging adhesive. "Dip-Lag" as manufactured by Claremont Co. 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.

### **2.2 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 cubic feet per minute (CFM) to at least 1700 CFM under load and shall have at least two stages of pre-filtration ahead of the HEPA final filter. Each unit shall be overload protected, and equipped with an elapsed time indicator (hour meter), static pressure gauge with low flow alarm, and heat and smoke sensors that 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 approved.
- D. Water-purifying Equipment: Water-purifying equipment shall be capable of removing all fibers longer than five 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 used 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 ensure a safe working environment during wet removal.
- J. Glovebags: Bags shall be clean poly bags seamless at the bottom, with pre-printed 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 shall have pre-filters and HEPA filter sealed to cabinet flanges by Century Equipment "Advance Guard II" or approved equal.
- L. Other Tools and Equipment: Other suitable tools shall be provided 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**

### **3.1 FULL ISOLATION WORK AREA PREPARATION**

- A. Contractor shall perform the following isolation procedures in the order in which they are presented. Any alternative control measures considered for Class I/II work shall be performed in accordance with 29 CFR 1926.1101.
1. Shut down, remove filters, and isolate HVAC systems to prevent contamination and fiber dispersal. Coordinate with building users and CMGC prior to shutdown.
  2. Coordinate all electrical, safety, and other service connections, requirements and equipment with the CMGC. 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 CMGC or environmental consultant in writing prior to shutoff.
  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, and 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.
  6. Set up the worker decontamination enclosure system (decon). Once this system is installed and abatement commences, it shall be used in the specified manner for the ingress and egress of all personnel and equipment, except in emergency situations. All personnel shall sign the Worksite 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 six air changes every 60 minutes with a minimum pressure differential of 0.02 inches 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 inches up on walls, then cover walls with plastic sheeting to overlap floor plastic by a minimum of 24 inches, thus overlapping the horizontal floor material by a minimum of 12 inches. 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 work area isolation has been found acceptable for Specification compliance by the environmental consultant.
- 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 industrial hygienist. Inspection shall include 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.

### **3.2 NON-ISOLATED WORK AREA PREPARATION**

- A. Contractor shall perform the following procedures in the order in which they are presented and describe procedures for glovebag work and other work in non-isolated work areas. Any alternative control measures considered for Class II work shall be performed in accordance with 29 CFR 1926.1101.
1. Shut down heating, ventilation, and air conditioning (HVAC) systems. Coordinate with building users and the CMGC prior to shutdown.
  2. Restrict access to work area and post warning signs. Do not perform glovebag 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 used 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 work area has been found acceptable for Specification compliance by the environmental consultant or industrial hygiene technician.

### **3.3 REMOVAL OF ASBESTOS-CONTAINING MATERIALS IN FULL ISOLATION WORK AREAS**

- A. Contractor shall isolate work area as specified.
- B. Remove all asbestos-containing vinyl floor tile as Class 1 friable asbestos removal.
  - 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 it in sealable containers. Containers shall be moved to bag load out facility or equipment room in the worker decontamination system.
  - 3. Contractor shall collect all water used in the removal and cleaning process and dispose of as contaminated waste or filter to remove all fibers more than five microns in length before disposal in the municipal sewer system, or as required by local regulations. Water filters shall be disposed of as asbestos-contaminated material.
- C. All wooden subfloor associated with asbestos-containing mastic shall be wholly removed and disposed of as asbestos waste in accordance with section 3.9, Disposal.
- D. Contractor shall maintain a safe and uncluttered work area, worker decontamination system, and bag load out facility on a daily basis.

### **3.4 REMOVAL OF ASBESTOS-CONTAINING MATERIALS IN NON-ISOLATED AREAS**

- A. Contractor shall apply spray coat of amended water to material to be removed; material shall be kept damp during entire removal process.
- B. Glovebag work shall be as follows. All removal using the glovebag 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 glovebags.
  - 1. Contractor shall install port for hose of HEPA vacuum to create reduced pressure inside glovebag. Installing of fresh air intake and/or bridging to prevent collapse of bag are acceptable. Reduced pressure shall be maintained throughout entire abatement procedure.
  - 2. During the removal phase, contractor shall use amended water to reduce potential for airborne fibers.
  - 3. Contractor shall seal flap if used and, using a HEPA vacuum, remove all contaminated air in the upper chamber.
  - 4. Contractor shall promptly double-bag the glovebag after removal is complete, place it into a sealed container, and remove to the bag holding enclosure.
- C. Exterior door and window caulking shall be removed using the following methods:
  - 1. Caulking shall be removed in a non-friable state. Caulking that is determined to be friable or which is rendered friable during the abatement process shall be removed using either containment or glovebag methods.
  - 2. The contractor shall utilize wet methods during removal and packaging for disposal.

3. The contractor may utilize a heat gun if at any time the caulking has the potential to become friable during removal.
4. The contractor shall have HEPA vacuums available and shall use them during removal.
5. The use of abrasive or mechanical methods to remove the caulking is prohibited.
6. Burning or blistering of the caulk with excessive heat by the heat gun is prohibited.
7. All asbestos-containing caulk and building components with residual asbestos caulk shall be disposed of as asbestos-containing waste as specified below.

### **3.5 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. FIRST CLEAN. Contractor shall clean all surfaces in the work area and any other contaminated areas with water and/or with HEPA-filtered vacuum equipment.
  3. WAIT 24 HOURS. After the first cleaning of the work area, wait 24 hours to allow for settlement of dust. During this settling period, no entry to the work area shall be allowed.
  4. SECOND CLEAN. Wet-clean or clean with HEPA-filtered vacuum equipment all surfaces in the work area. After completion of the second cleaning operation, perform a complete visual inspection of the work area to ensure that the work area is free of visible debris.
  5. 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. Contractor shall contact environmental consultant at least 24 hours prior to desired inspection time.
  6. 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 manufacturer's recommendations and shall provide a compatible bonding agent for application of new material.
  7. FINAL CLEAN. After the encapsulation is complete, the contractor shall remove all noncritical 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.
  8. CONTACT ENVIRONMENTAL CONSULTANT. 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. Contractor shall contact environmental consultant at least 24 hours prior to

desired inspection time. Consultant shall conduct final air monitoring as specified after work area has been allowed sufficient time to dry.

9. TEARDOWN. When the final observation by the environmental consultant and air sampling test results are satisfactory, the contractor shall then remove the decontamination systems and remaining barriers.
10. 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.

### **3.6 CLEANUP IN NON-ISOLATED WORK AREAS**

- A. FIRST CLEAN. Contractor shall remove visible accumulations of asbestos material and debris. All surfaces shall be cleaned 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 6 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 affected work area may be further defined in the scope of work by the environmental consultant. During the work, high fiber levels, as indicated by air monitoring results, may increase the area to be cleaned. The increase in the affected area due to high fiber levels or other indications of fiber dispersal will be defined by the environmental consultant, and the contractor shall bear all costs of additional cleaning.
- C. 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 24 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) are 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, and cleaning material, and contaminated clothing shall be double-bagged, sealed, and labeled as described for asbestos waste material.

### **3.7 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. Coordinate with the CMGC.



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, perimeter plaster walls, wall murals, windows, and mullions
3. If the contractor uses caulking to seal cracks in concrete floor, the caulking must be removed to architect's satisfaction at completion of project.
4. Return mechanical, electrical, and other systems shut down by the contractor to complete and functional operation.
5. Re-secure objects removed in the course of work in 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.

### **3.8 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 US 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 the 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 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 SECTION**









**EROSION CONTROL SHEET NOTES**

1. SPECIALTY EROSION CONTROL PRODUCTS ARE NOT TO BE USED WITHOUT THE APPROVAL OF OPSIS. ANY CHANGES TO THE EROSION CONTROL PLAN MUST BE APPROVED BY OPSIS PRIOR TO CONSTRUCTION.
2. THE INSTALLATION OF THESE EROSION CONTROL PRODUCTS IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL EROSION CONTROL PRODUCTS MUST BE INSTALLED AND MAINTAINED AS SHOWN ON THE PLAN AND AS APPROVED BY OPSIS.
3. THE EROSION CONTROL PRODUCTS MUST BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE EROSION CONTROL PRODUCTS THROUGHOUT THE CONSTRUCTION PERIOD.
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**SHEET LEGEND**

