

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including Construction Contractor Agreement and Terms & Agreement and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Related Sections include the following:
 - 1. Division 1 Section 001310 "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
 - 2. Division 1 Section 01400 "Quality Requirements" for submitting test and inspection reports and for mockup requirements, if any.
 - 3. Division 1 Section 01770 "Closeout Procedures" for submitting warranties.

1.3 SUBMITTALS PRIOR TO COMMENCING WORK

- A. Insurance: Written proof that the Contractor carries the insurance required.
- B. Written proof that all employees are AHERA certified and Oregon State certified Full-Scale Asbestos Workers. Proof shall include copies of both sides of each Workers' Oregon State Asbestos Removal and Supervisor cards. All cards must be current.
- C. The name and resume of experience of the assigned on-site Supervisor. At a minimum, the supervisor shall have completed a DEQ Asbestos Supervisor Course as approved by the State of Oregon. Other criteria, such as references and similar projects, shall be included for review. At the School District's option, the School District may arrange an oral interview with the Asbestos Supervisor. **The School District reserves the right to reject the Supervisor at any time during the project.** The Contractor shall then assign another on-site Supervisor for the District's approval as described above.
- D. Written 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 ORS 340, Division 23.
- E. A written emergency control and clean-up plan to be followed by the Contractor in the event that fiber counts are in excess of those specified in Section 02080.
- F. A written respiration program in compliance with all parts of OSHA Asbestos Regulations CPR Title 29, Part 1910, Section 1910.1001.
- G. Information pertaining to the proposed Air Monitoring Program for this Project. This information shall include name(s) of on-site Monitoring Technician(s), types of equipment sampling procedures, calibration record-keeping, and the Testing Laboratory to be used. Provide written proof that Testing Laboratory, laboratory personnel, analytical procedures, and quality control procedures are in compliance with CFR 29, Section 1926.58, including Appendices A and B.

- H. Manufacturer's certification that vacuums, ventilation equipment, and other equipment required to contain airborne fibers conform to ANSI Z9.2.
- I. Written medical exam program per OSHA Asbestos Regulations CFR Title 29, part 1926.58.
- J. Copy of Notice of Intent to Encapsulate or Remove Asbestos, submitted to Lane Regional Air Pollution Authority with evidence of payment of fees.
- K. Legible copies of MSDS sheets for all products the Contractor intends to use on this Project.
- L. Written proof that all required permits and arrangements for transport and dispose of asbestos-containing or contaminated materials have been obtained and materials will be disposed of at a site approved by EPA and other governmental agencies having jurisdiction.
- M. Schedule for asbestos abatement showing decontamination procedures, plans for construction and location of decontamination enclosure systems, negative pressure fans, etc., in compliance with these Specifications and all applicable regulations. Schedule shall show systematic flow of work throughout the facility on a day-by-day, room-by-room or area-by-area basis. Closely coordinate the work with the District.

1.4 SUBMITTALS FOLLOWING COMMENCEMENT OF WORK

- A. Information required above regarding any new asbestos workers hired by or subcontracted to, the Contractor before any new asbestos abatement workers begin work.
- B. Any amendments to the original LRAPA notification.
- C. Written identification to the District of any subcontractors or major suppliers.
- D. Air Monitoring test results for the previous day's work, submitted on a daily basis.
- E. On a Weekly basis:
 1. Copies of work-site entry logs.
 2. Logs documenting filter changes on respirators, HEPA vacuums, and air filtration machines.
 3. Daily logs filled out by the on-site Supervisor.

1.5 FINAL SUBMITTALS

- A. Submit a summary of all abatement activities, outlining any changes from the original Scope-of-Work or problems encountered in completing the Work. Include the start and completion dates along with copies of all required submittals. Submit copies of all amended LRAPA notifications, all Asbestos Waste Shipment Records, completely filled out and signed as required by LRAPA, along with tickets or receipts from the disposal site, worker certifications for all workers who were involved with the Project, and all air monitoring data. Summary of Abatement Activities with Submittals, Worker and Supervisor Certifications for all workers on the Project, Air Monitoring Data, Complete list of Contractor and all Subcontractors with address, phone numbers, and work numbers.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION 01330

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including Construction Contractor Agreement and Terms & Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.3 CONFLICTING REQUIREMENTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 AIR MONITORING BY CONTRACTOR

- A. An Independent Testing Laboratory shall be retained by the Contractor. All air monitoring analysis shall be performed by an Air Monitoring Technician. The Technician 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. Air sample collection may be

performed by an Air Monitoring Technician or the Contractor's foreman at the 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. 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 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 Project Designer. 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 School District at work completion at the School District's request.
- D. The Contractor's testing laboratory shall submit sample analysis results to the Project Designer verbally within 18 hours from the time of collection and written within two weeks including chain-of-custody and equipment calibration records.
- E. Contractor's Sampling During Abatement:
 - 1. Air monitoring shall be performed to provide the samples during the period of asbestos abatement in each work area. Sampling shall begin when asbestos removal commences, and performed during each 8-hour work shift until abatement is complete in that work area.
 - 2. The Contractor shall determine which worker(s) in each work area is likely to be experiencing the most severe exposure. This is the "Most Contaminated Worker(s)". 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.
 - 3. The number of air samples 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 Project Designer based on the respiratory protection being utilized.
- F. Contractor shall notify the Lane Regional Air Pollution Authority (LRAPA) of air monitoring clearance results as supplied by Air Monitoring Firm. Notification shall be within 30 days after monitoring procedures were performed in accordance to LRAPA 43-015-7.D.

1.5 AIR MONITORING BY OWNER

- A. The School District will retain an experienced Air Monitoring Firm to collect and analyze asbestos air samples. Documentation of sample results will be forwarded to the Contractor as appropriate to regulatory requirements.
- B. Samples analyzed by Phase Contrast Microscopy will use NIOSH Analytical Method No. 7400. Samples analyzed by Transmission Electron Microscopy will use the AHERA methodology, 40 CFR Part 763.
- C. School District's Air Sampling During and After Abatement:

1. Air Sampling Table is to be used as a guide. The School District's Project Designer may modify criteria. Modifications to the Maximum Allowable Fiber Count shall be made in writing by the School District.

Type of Sample	Samples per 8-Hour Work Shift	Average Sample Volume in Liters (L)	Approximate Flow Rate	Maximum Allowable Fiber Count (f/cc)
HEPA Fan Exhaust	1 or selected units	400-2000 L	2-10 LPM	0.005 f/cc 0.005 s/cc
Outside of Work Area	1-5	400-2000 L	1 to 10 LPM	0.01 f/cc 0.01 s/cc
Clearance PCM	5	800-3000 L	1 to 10 LPM	0.01 f/cc
Clearance TEM	5	1200-1800 L	2 to 10 LPM	Average of 70s/mm ²

2. To ensure the movement of air and the elevation of any remaining particulates within the work area enclosure while clearance sampling is occurring, the HEPA-filtered exhaust air machine(s) is to be in continuous operation.
3. Analysis of clearance samples shall be by Transmission Electron Microscopy (TEM).
4. If additional sampling is required due to unsatisfactory clearance results, breeches in containment, etc. the Contractor shall bear all associated additional costs, including analysis, air monitoring costs, and shipping costs.
5. The School District 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.

1.6 QUALITY ASSURANCE

- A. If, at any time during the work, analysis of an air sample taken by the Contractor, School District, or School District's representative, indicates a fiber count in excess of the allowable maximums specified, the Air Monitoring Technician who analyzed the air sample shall immediately notify:
 1. The Contractor's Foreman
 2. School District's Asbestos Project Designer
- B. 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 School District:
 1. Stop abatement work.
 2. Discuss the fiber count, containment breeches, pressure differential changes, or other potential cause, and the School District. The Project Designer will determine the affected area and affected adjacent areas considered to be contaminated. The Project Designer will determine the actions to be taken by the Contractor at no additional cost to the School District.
 - 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.

3. Complete every part of the "Fiber Count Above Control Limit Data Form" bound into these Specifications.
4. Carefully resume work under close air monitoring.

1.7 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01400

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including Construction Contractor Agreement and Terms & Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
 - 1. Division 1 for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.3 DEFINITIONS

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

1.4 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a written request describing procedures prior to the time cutting and patching will be performed, requesting approval to proceed, for cutting or alteration which affects:
 - 1. Structural integrity of any element of Project.
 - 2. Integrity of weather-exposed or moisture-resistant element.
 - 3. Efficiency, maintenance, or safety of any operational element.
 - 4. Visual qualities of site-exposed elements.
 - 5. Work of Owner or separate contractor.
- B. Include the following information:
 - 1. Identification of Project and CIP number
 - 2. Location and description of the affected Work.
 - 3. Necessity for cutting or alteration.
 - 4. Description of proposed Work and Products to be used.
 - 5. Alternatives to cutting and patching.
 - 6. Effect on work of Owner or separate contractor.
 - 7. Written permission of affected separate contractor, if any.
 - 8. Date and time work will be executed.

1.5 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

1. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
 2. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
- B. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.6 WARRANTY

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

PART 2 - PRODUCTS

2.1 MATERIALS

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

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

3.3 PERFORMANCE

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

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 01731

ASBESTOS ABATEMENT PROCEDURES

PART 1 - GENERAL

1.01 SCOPE:

- A. This Section covers the removal, patching and/or encapsulation of materials that contain, or are suspected to contain asbestos.
- B. See other Sections of these Specifications and EPA, OSHA, and other standards referenced herein, for further information and requirements.

1.02 DEFINITIONS:

- A. Abatement: Procedures to control fiber release from asbestos-containing building materials. Includes encapsulation, enclosure, removal, repair and related activities.
- B. Air Monitoring: Process of measuring the asbestos fiber content of a specific volume of air in a stated period of time.
- C. Air Monitoring Technician: An employee of the independent testing laboratory who is experienced and trained in asbestos sampling and analysis as specified.
- D. Amended Water: Water to which a surfactant (wetting agent) has been added.
- E. Authorized Visitor: The District or its designated representative, or a representative of any regulatory or other agency having jurisdiction over the Project.
- F. Clean Room: 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.
- G. Curtained Doorway: A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms.
- H. 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.
- I. Enclosures: Procedures necessary to complete enclosure of all asbestos containing material behind airtight, impermeable, permanent barriers.
- J. Equipment Room: Contaminated area or room which is part of the worker decontamination enclosure system, with provisions for storage of contaminated clothing and equipment.
- K. Fitting: With regard to pipe insulation, fitting is defined to be any elbow, offset, reducer, valve, union, tee, thermometer, etc., insulated with a different material from the adjacent straight run of pipe.
- L. HEPA Filter: High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97% of asbestos fibers greater than 0.3 microns in length.

- M. HEPA Vacuum Equipment: High efficiency particulate air (HEPA) filtered vacuuming equipment with a filter system capable of collecting and retaining asbestos fibers. Filters shall be of 99.97% efficiency for retaining fibers of 0.3 microns or larger.
- N. Independent Testing Laboratory: An independent laboratory hired by the Contractor which is AIHA accredited for asbestos analysis and has demonstrated proficiency via the NIOSH PAT and EPA QA programs.
- O. Isolated Work Area: Isolated area of the facility where abatement activities are performed.
- P. Air Filtration Machine: 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 infiltration of contaminated air from work area to adjacent areas.
- Q. Public Area: Any area outside the isolated work area. When work area isolation measures are removed, the work area becomes a public area.
- R. Shower Room: A room between the clean room and the equipment room in the worker decontamination enclosure system, with hot and cold running water controllable at the faucet, equipped with water filtration as specified below, and suitably arranged for complete showering during decontamination. The shower room must be separated from the clean room and equipment room by curtained door ways.
- S. Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.
- T. Tack Coat: A coat of penetrating encapsulant applied to all surfaces from which asbestos-containing materials have been removed.
- U. Vacuum Tract Removal: Wetting and pneumatic conveying of loose material through a vacuum hose to a sealed, truck-mounted collection tank specially equipped to prevent escape of fibers.
- V. Wet Cleaning: Process of eliminating asbestos from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water.
- W. Worker Decontamination Enclosure System: A decontamination enclosure system 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 a curtain doorway. 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.
- X. Worksite Entry Log: A log kept in the clean room must be signed by everyone entering or leaving the work area.
- Y. Full Scale Supervisor: Per CFR Title 29, Section 1926.58, an employee of the Contractor trained in all aspects of asbestos abatement, whose duties include supervision of the enclosure, entry to and exit from the enclosure, employee exposure monitoring, engineering controls, and employee work practices, respirators, protective equipment, decontamination and hygiene practices.

1.03 DOCUMENTS INCORPORATED BY REFERENCE:

- A. The current issue of each document shall govern. Where conflict among requirements, or with these Specifications, exists the more stringent requirements shall apply.
1. U.S. Environmental Protection Agency National Emissions Standards for Hazardous Air Pollutants (NESHAPS). (Code of Federal Regulations Title 40, Part 61, Subparts A and B.)
 2. U.S. Environmental Protection Agency Office of Toxic Substances Guidance Document, "Guidance for Controlling Asbestos-Containing Materials in Buildings" EPA Report Number 560/5-85-024 ("Purple Book").
 3. U.S. Environmental Protection Agency Asbestos Abatement Project. E.P.A. 40 C.F.R Part 763 - Subpart G.
 4. U.S. Environmental Protection Agency Asbestos Containing Materials In Schools Project. E.P.A. 40 C.F.R Part 763 - Subpart E.
 5. U.S. 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 Sections 1926.1101, Asbestos
 - d. Title 29 Code of Federal Regulations Section 1910.2, Access to Employee Exposure and Medical Records.
 - e. Title 29 Code of Federal Regulations Section 1910.1200, Hazard Communication.
 6. National Institute for Occupational Safety and Health (NIOSH), 30 CFR, Part II, Respirators.
 7. American National Standards Institute (ANSI) NY; ANSI Standard z 88.2-1980 "American National Standards Practice for Respiratory Protection," latest edition.
 8. Oregon Administrative Rules Chapter 340, Division 25 Department of Environmental Quality.
 9. Oregon Administrative Rules Chapter 437, Division 115, Asbestos and Division 22.
 10. Uniform Building Code (U.B.C.), latest edition, regulations as applicable.
 11. All related electrical work shall be performed in accordance with the National Electric Code.
 12. All Lane Regional Air Pollution Authorities regulations and rules pertaining to asbestos, including its storage, transportation, and disposal.

1.04 NOTICES

- A. Not less than ten (10) days before commencing work on each Project, notify the Lane Regional Air Pollution Authority (LRAPA) with copies to the District.

1.05 SUBMITTALS

- A. Submittals are specific in Section 01330. Do not begin work until submittals are complete and pre-abatement air sampling is complete.

1.06 PERSONNEL PROTECTION

A. Training

1. Prior to commencement of Work, all workers shall be trained as specified in Section 01330, Para. 1.3, B & C.
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 Protective Equipment for Asbestos Removal in Isolated Work Areas:

1. Work Clothes shall consist of disposable full body coveralls and head and foot covers ("Tyvek" or approved), boots. Eye, hearing, fall protection and hard hats should be available as appropriate.
2. At a minimum, respiratory protection shall consist of disposable cartridge type NIOSH/OSHA approved, full- face-mask, powered air-purifying positive pressure respirators equipped with HEPA filter cartridges (magenta/purple color code). Additional respiratory protection shall be as required by OSHA, and Oregon Occupational Safety and Health Code, OAR Chapter 437, Division 115, Asbestos. No negative pressure respirators will be allowed without District approval.
3. 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 Oregon OSHA Workers' Compensation Department Rule 22-069 (4) (e) (5) (i) and prior to each day's work.
4. Replacement filter cartridges shall be supplied as required. Cartridges which have become wet or clogged shall be replaced immediately.

C. Worker Decontamination Enclosure System at Isolated Work Areas:

1. The Contractor shall construct a personnel decontamination facility attached to the isolated work area consisting of three chambers and curtained doorways as follows:
 - a. The equipment room shall have a curtained doorway to the work area and to the shower area.

- b. The shower room shall have two curtained doorways, onto the equipment room and one to the clean room. At least one shower with hot and cold water controllable at the taps shall be installed in this room. The Contractor shall supply and maintain soap, shampoo, and towels at all times in the shower area. Shower waste water shall be filtered promptly to remove all fibers larger than five microns before disposal in the municipal sewer system, or shall be collected and disposed of as asbestos-contaminated material. Water filters shall be disposed of as asbestos-contaminated material. The Contractor shall not allow waste water to accumulate in the shower room.
 - c. The clean room shall consist of a curtained doorway to the shower room and a curtained doorway to the outside. 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 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. No asbestos abatement work shall occur unless this system is functional, and in good repair.

D. Worker Protection Procedures in Isolated Work Areas:

1. Each worker shall, upon entering the Job Site; 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. 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 store boots and other equipment except respirators; still wearing the respirator proceed naked to the showers; clean the outside of the respirator; tape filter openings, thoroughly shampoo and wash themselves; remove filters, dispose of filters if wet 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 and sign out on the worksite entry logbook 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, 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 or tobacco at the worksite except in the established clean room. Smoking 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 clean-up is completed.

E. Access to Isolated Work Area by Others:

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

2. Provide dress and equipment for all authorized visitors, as specified above, up to a maximum of 4 visitors per 24-hour day.
3. All authorized visitors shall be subject to the personal protection provisions specified above, and shall sign in and out on the worksite entry logbook.

F. Emergency Precautions;

1. Establish emergency and fire exits from the work area.
2. 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. Notify the local fire department if any fire exits are to be blocked or if sprinkler or fire alarm systems are to be turned off.

G. Building Security and Protection:

1. Post adequate warning signs at designated entrances to work areas as required by EPA and OSHA.
2. Protect all existing fixed equipment, existing building finishes that are to remain, and existing systems and functions from damage during the abatement process. Extra functions from damage during the abatement process. Extra precautions shall be taken in protecting existing electrical panels, light fixtures, etc. Any damage to existing building, services, and/or equipment shall be remedied at the Contractor's expense.
3. Maintain access and use of existing fire lanes

1.07 Safety

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

1.08 Delivery

- A. Deliver all materials in the original packages, containers or bundles bearing the name of the manufacturer and the brand name.

1.09 Storage

- A. Store all materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination.

1.10 Protection

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

1.11 Asbestos abatement subcontractors

- A. Subcontractors employed to do asbestos abatement work 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 the Work.

PART 2 - PRODUCTS:

2.01 MATERIALS

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

Application	Thickness
Door, Window & Opening Barriers	6 mil
Wall Barriers	2 layers of 4 mil
Floor Barriers	2 layers of 6 mil
All Others	2 layers of 4 mil

- B. Plastic Bags: Plastic bags shall be 6 mil polyethylene 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 1.5" wide tape must be used.
- D. Disposal Containers: Disposal containers shall be suitable to receive and retain any asbestos-containing or contaminated materials until. The containers shall be labeled in accordance with OSHA and EPA regulations. Containers must be both air and water tight and have hard top, bottom and sides.
- E. Warning Labels and Signs: Warning labels and signs shall be posted as required by OSHA and EPA regulations.
- F. Solvents: NEUGENIC or Chem Clear or approved. All solvents must be safe to human health and the environment and must have a mild odor approved by the District. The contractor will be responsible for the elimination of any lingering odors resulting from the use of solvents.
- G. Surfactant (Wetting Agent): Surfactant shall consist of 50% polyoxyethelene 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) to produce amended water.
- H. Encapsulant: Shall be of the bridging or penetrating variety and shall be listed as "satisfactory" by the EPA.
- I. Rewettable Lagging Cloth: 12 oz. glass fabric lagging cloth saturated with dried lagging adhesive. "Dip-Lag" as manufactured by Claremont Co. or approved.
- 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 Filtration Machines: Air Filtration Machines 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 at least 1500 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. All exhaust must be vented to the outside of building.
- C. Water Purifying Equipment: Capable of removing all fibers longer than five microns from water used in abatement work and decontamination showers.
- D. Airless Sprayer: An airless sprayer, suitable for application of penetrating encapsulant material, shall be used.
- E. Vacuum Equipment: All vacuum equipment utilized in the work area shall be high efficiency particulate air (HEPA) equipment, and suitable for wet/dry usage.
- F. Scaffolding: Scaffolding, as required to accomplish the specified work, shall comply with all applicable safety regulations.
- G. 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. If equipment is rented, notify rental agency in advance, in writing, of intended use of equipment.
- H. 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.
- I. Vacuum Truck: If the contractor chooses to use a vacuum truck on this project they must submit written authorization from LRAPA and the Land Fill indicating the vacuum truck meets all applicable standards and is approved for use on this project. The contractor must also submit written approval from the disposal site that the waste will be accepted.
- 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, wire brushes, sponges, and rounded-edge shovels.

PART 3 - EXECUTION:

3.01 ISOLATED WORK AREA ENCLOSURE:

- A. Work Area Preparation: The following isolation procedures shall be performed in the order in which they are presented.
 - 1. Shut down, remove filters and isolate HVAC systems to prevent further contamination and fiber dispersal as necessary. Coordinate with building users and the District prior to shut down.

2. Seal off openings, including but not limited to doorways, windows, and other penetrations of the work area with plastic sheeting sealed with tape. Seal all walls and ceilings, except openings left for HEPA air purification system, which shall be properly HEPA filtered.
3. Set up the worker decontamination enclosure system. Once these systems are installed, they 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 worksite entry logbook each time they pass in or out of the decontamination enclosure.
4. Coordinate the shut down, lock out and tag out of electrical and HVAC equipment with the District.
5. Install air filtration machines to insure lower static pressure in the isolated work area than in surrounding areas. 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 air flow be less than one air change every 15 minutes and the manometer reading is maintained at a minimum of 0.02. Column inches of water pressure differential. Air filtration machines shall remain in operation until final clearance samples have been received and containment has been removed.
6. Pre-clean movable objects, within the work area 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 cover with plastic sheeting and tape as specified for fixed objects in 8 below.
7. Pre-clean fixed objects within the proposed work areas, using HEPA filtered vacuum equipment and/or wet cleaning methods as appropriate, and enclose with minimum 4 mil plastic sheeting sealed with tape.
8. Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to the local building or fire department officials.
9. Adequate portable fire extinguishing equipment shall be maintained within work area as defined by OSHA and/or local fire department officials.

B. Work Area Maintenance: The Air Monitoring technician shall be responsible for daily reporting of the following to the District:

1. Prior to the first use and at the beginning of each shift during abatement work, enclosures shall be given a complete visual inspection by the shift foreman and Air Monitoring technician. This shall include inspection of the air filtration machines and associated filters. A smoke tube test shall then be made of the worker decontamination enclosure system and other critical areas to verify that the air filtration machines are working properly. 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 enclosure and air filtration machines.
3. The Contractor shall completely clean the decontamination enclosure system at the end of each shift, and the Air Monitoring technician shall verify that this is accomplished.

3.02 ASBESTOS ABATEMENT:

- A. Isolate and maintain work area as specified.
- B. Pre clean the work area as specified using HEPA filtered vacuum equipment and/or wet cleaning methods as appropriate, remove items through the decontamination enclosure system and store at another location on site as directed by the District.
- C. Remove asbestos containing materials using the following methods:
 - 1. The asbestos material shall be sprayed with water containing an additive to enhance penetration. 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 limit emission of airborne asbestos fibers
 - 2. Remove asbestos material while damp and pack in sealable plastic bags (6 mil minimum thickness). Wash outside surface and place inside a second plastic bag (6 mil minimum thickness) bearing EPA warning label. Place double bagged materials in labeled containers for transport. In lieu of 6mil. polyurethane bags, contractor may use lined cardboard, plastic, or metal drums or cubic yard boxes as allowed by Federal, State, and local regulatory agency.
 - 3. Removal of asbestos containing flooring shall be performed under full negative pressure containment with an attached decontamination facility and utilizing wet methods.
 - 4. After completion of stripping work, all surfaces from which asbestos has been removed shall be brushed and/or wet sponged or cleaned by an equivalent method to remove all visible material. During this work the surfaces being cleaned shall be kept wet.
- D. Vacuum all walls, ceilings, and floors in the work area to ensure complete removal of all dust and debris that may remain.
- E. Apply a clear penetrating encapsulant to all walls and ceilings following the final visual inspection and approval from the district. **Minimize the amount of encapsulant applied to the floor.**

3.03 AIR SAMPLES

- A. If, at any time during the Work, analysis of an air sample indicates a fiber count in excess of the allowable maximums specified above, the Air Monitoring Technician who analyzed the air sample shall immediately notify.
 - 1. The Contractor's foreman.
 - 2. 4J School District Safety Office Specialist, Doug Lemonds or other authorized district representative at 541-790-7432 or 541-915-9068.
- B. Immediately upon being notified of fiber count exceeding the specified maximum allowable levels, the Contractor shall:
 - 1. Stop removal work.

2. Clean the area in which the high fiber count air sample was taken. If air sample was taken outside the isolated work area, evacuate all non-abatement personnel.
3. Resample air until fiber counts are determined to be below specified maximum levels.
4. Recheck work procedures, barriers, equipment, etc., to discover possible cause of high fiber counts.
5. Carefully resume Work under close air monitoring.

3.04 FINAL AIR CLEARANCE TESTING

- A. When the contractor considers the work to be complete, Notify the District Representative in writing. The District Representative will review the work with the contractor and note those areas requiring corrective action. Upon completion, the contractor will again notify the District in writing of completion of work. The District Representative will arrange for final air clearance sampling by an independent air monitoring firm.
- B. Upon the District's receipt of written results indicating that level of airborne asbestos meet the AHERA clearance requirements, the District will provide the contractor with written authorization to remove containment, decontamination chambers, and air filtration machines.
- C. The cost of the first set of TEMs will be paid by the District. Should the TEM result indicate that additional work is required; the Contractor shall perform such work and call for retesting. All costs of second or subsequent TEM tests shall be paid by the Contractor.
- D. The District will make one review for completion. District personnel time required for additional reviews caused by incomplete work shall be paid by Contractor. Costs shall include fringe benefits.

3.05 RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS:

- A. When clean-up is complete and final clearance samples are at or below the required AHERA levels and authorized by the District the contractor will:
 1. Remove containment, decontamination chambers, and negative air machines.
 2. Relocate objects moved to temporary locations in the course of the Work to their former positions. Coordinate with the District.
 3. Re-secure objects removed in the course of Work in their former positions, including air dampers in plenums, and adjust for proper operations.
 4. 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.

3.06 DISPOSAL:

- A. Warning labels having waterproof print and permanent adhesive, shall be affixed 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

- B. The Contractor shall determine current waste handling, transportation, and disposal regulations for the Work Site and for each waste disposal landfill. The Contractor shall comply fully with these regulations and all U.S. Department of Transportation, DEQ, MSD EPA requirements. All material in containers shall be delivered to the pre-designated disposal site double bagged for burial. Labels and all necessary signs shall be in accordance with EPA, OSHA, State, and/or local standards.
- C. Decontaminated containers shall be removed from Site as soon as possible. Notify disposal site in advance of delivery of material to assure immediate burial of material.
- D. If bags are broken or damaged, or a container is contaminated, the entire container shall be cleaned and decontaminated, damaged bags shall be placed in undamaged bags before disposal.
- E. Written proof of disposal at approved disposal (waste Shipment records) site shall be submitted to the District prior to final payment.

END OF SECTION 02080