

**02 00 00. EXISTING CONDITIONS****02 03 42 REMOVAL AND SALVAGE OF PERIOD CONSTRUCTION MATERIALS**

**SEE 08 00 80 DEMOLITION / REMODELING:** Lock and door hardware removals shall be coordinated with Facilities Operations and Development's Lock & Key Services. All cylinders and cores removed shall remain the property of The Ohio State University and are to be returned to FOD's Lock & Key Services.

**Wexner Medical Center:** All cylinders, and cores, and lock hardware removed shall remain the property of The Ohio State University and are to be returned to The Medical Center Lockshop.

**02 30 00. SUBSURFACE INVESTIGATION**

- .1 Architect/Engineer RESPONSIBILITIES: The Architect/Engineer shall direct and provide site or subsurface investigation judged necessary in accordance with the Architect/Engineer's Agreement for professional services. This will include contacting Environmental Health and Safety within Facilities Operations and Development for any university records of site hazards, investigative work and surveyor reports, testing laboratories (including test borings), soil analysis (including load bearing capabilities) and related site analysis. Submit two copies of any site investigative reports to the University Architect. Also see (33 40 00).
- .2 INFORMATION TO BE INCLUDED IN CONTRACT DOCUMENTS: Show all boring locations, cross sections and soil conditions. Also show all: existing conduits, drains, utility lines, sewers, tunnels, cables, trees, paving, walks, foundations and other objects or obstructions, whether in use or abandoned. State that information is for contractor's use and that in no way shall the University be held responsible for accuracy of the information.
- .3 PROTECTION OF EXISTING LANDSCAPING: Protect all trees, walks, and planted areas during subsurface investigations. All existing site elements shall be left in their original condition. See section (32 10 00) for minimum design standards for paved areas. Coordinate all work with Facilities Operations and Development.
- .4 PREPARATION OF PLANS FOR BORINGS: In the preparation of plans for boring locations, the Architect/Engineer shall study plans of existing underground utilities and shall locate borings to avoid these utilities. Maps showing underground installations are available for review upon request from Facilities Operations and Development.

**02 40 00. DEMOLITION AND STRUCTURE MOVING**



- .1 STRUCTURE (BUILDINGS, TUNNELS, VAULTS, UTILITY OR CRANE PADS, ETC) DEMOLITION: All foundations and slabs of structures must be fully removed and the resulting voids be filled per the project specifications.
  
- .2 PIPES AND CONDUITS DEMOLITION: Removal within the project limit is required. Pipes and conduits may be abandoned in place if the following conditions are met:
  - .2.1 Pipes and conduits above ground (inside or outside buildings):
    - a.) The project has notified and obtained approval from the University Engineer.
    - b.) The abandoned pipes and conduits are to be clearly marked with the word “abandoned”.
    - c.) The pipes and conduits are to be physically disconnected from the networks and capped at both ends.
  
  - 2.2 Pipes and conduits underground:
    - a.) The pipes and conduits are outside of the project limits or at least 10’ away from any planned excavations.
    - b.) The project has notified and obtained approval from the University Engineer.
    - c.) The pipes and conduits are to be physically disconnected from the networks and capped at both ends.
    - d.) The internal voids of pipes/conduits 4” exterior diameter or larger are to be filled per the project specifications.
    - e.) Locations of the pipes and conduits are to be surveyed by OSU surveyors prior to the backfill and recorded on the record drawings by the project.

Structures and apparatuses (manholes, vaults, valve covers, test stations, sampling locations, etc.) associated with the demolished/abandoned pipe and conduits are to be removed and/or filled within the project limits or as far on the abandoned line as is practical.
  
- .3 EQUIPMENT DEMOLITION: Removal of large equipment (chillers, cooling towers, air handlers, heat exchangers, tanks, antennas, etc.) is required. Equipment may be abandoned in place with coordination and documented approval of the University Engineer. Coordination and approval must be noted in the OPR at schematic design phase. A variance can be requested to leave some equipment in place after the schematic design phase or for value engineering.

**02 44 00. EQUIPMENT MOVING**

- .1 RELOCATED EQUIPMENT: Special concern shall be taken with equipment relocated from existing installations for reinstallation. Establish schedule for removal and reinstallation through the University Project Manager. Identify a



single contractor to be solely responsible for removal, disposal, re-installation and follow-up. Relocation of existing equipment shall include:

- .1.1 Disconnecting and moving to new location.
- .1.2 Restoration and capping of utilities at the old location.
- .1.3 Specify that the contractor record existing piping arrangements to facilitate reinstallation.
- 1.4 The contractor shall be required to replace unsalvageable piping, ductwork, and wiring, and furnish any new piping, ductwork, and wiring as required to complete reinstallation, without additional cost to the University.
- .1.5 The contractor is to provide a separate container for the recycling of paper, cardboard, and wood products.

## **02 82 00. HAZARDOUS MATERIALS AND ASBESTOS REMEDIATION**

- .1 HAZARDOUS MATERIALS AND ASBESTOS REMEDIATION: Federal and state regulations require that a thorough asbestos survey be completed for all renovation and demolition projects regardless of project size or age of the building. Ohio regulations require that these surveys be performed by person(s) certified by the Ohio EPA as an Asbestos Hazard Evaluation Specialist. For buildings which have a baseline asbestos survey report on file, the scope of work for the project shall be reviewed by an Asbestos Hazard Evaluation Specialist to determine whether or not the existing asbestos data adequately covers the project. The findings of this review shall be documented in writing. If the baseline asbestos survey report is determined to be insufficient for the project, a supplemental asbestos survey is required. Should asbestos-containing materials be disturbed during any renovation repair or demolition, the asbestos-containing materials must be properly removed and disposed of at an approved landfill by an Ohio-licensed Asbestos Hazard Abatement Contractor. All other hazardous materials to be impacted by renovations or demolitions shall be removed from the site and recycled or disposed of in accordance with applicable federal, state, and local regulations by properly trained and qualified contractors. Examples of hazardous materials in addition to asbestos include, but are not limited to: polychlorinated biphenyls (PCB) {Note: PCB building materials, such as exterior sealant shall not be tested for and assumed as PCB-containing when the date of installation is known to be between 1950's and 1970's.}, mercury containing components, tritium, and lead sheeting.
  - .1.1 The purpose of this building design standard is to provide the Architect/Engineer (A/E) with guidance in developing specifications to ensure that any asbestos or other hazardous materials testing documentation and abatement work is performed by a qualified and certified Environmental Consultant (EC) and licensed abatement



contractor in compliance with all applicable regulations. The University's Office of Environmental Health and Safety (EHS) is responsible for managing the University's asbestos and for compliance with federal and state regulations. EHS maintains a historical listing of sampling for asbestos in all University buildings throughout Ohio and must be contacted for direction with asbestos issues.

All repairs, renovations, or demolitions involving asbestos shall be performed in accordance with applicable federal, state and local regulations. In addition, Ohio State requires compliance with the following requirements:

- a. At a minimum, final visual and air clearance inspections are required for the following projects:
  - i. Removal, repair, encapsulation, or enclosure of 50 square feet/linear feet or greater of non-friable and/or friable asbestos materials. A variance may be requested from EHS for special circumstances.
  - ii. Removal of greater than 3 square feet/linear feet of non-friable or friable asbestos materials in sensitive areas (e.g. student housing/dorms, patient rooms, occupied spaces, etc.). A variance may be requested from EHS for special circumstances.
- b. The University requires EC to have a minimum of two (2) years of experience preparing abatement, drawings, designs and technical specifications and shall be certified by the Ohio EPA as an "Asbestos Hazard Abatement Project Designer". A project design shall be prepared for large and complex abatement projects such as those involving removal of greater than 160 linear feet or 260 linear feet of friable asbestos material, major fiber releases responses, multiple phases, special circumstances (elevator shafts, occupied areas, etc.). Please contact EHS for guidance.
- c. The University requires the EC performing hazard materials assessments to have a minimum of two (2) years of experience performing asbestos surveys or asbestos material sampling. The EC performing asbestos confirmation surveys, including but not limited to obtaining bulk samples and quantification of ACMs shall be certified by the Ohio EPA as an "Asbestos Hazard Evaluation Specialist". The EC shall provide an electronic copy of all Hazard Materials Assessment reports to EHS prior to the start of renovation or demolition activities.
- d. The University requires the EC shall act as the University's compliance agent and be responsible for confirmation of asbestos-containing materials (ACMs), preparation of asbestos abatement technical specifications and drawings. EC shall assist in the Bidding Phase, review of submittals and RFI's, provide periodic inspections or full-time oversight, final visual inspections and clearance air testing services and provide all close-out documents required for the abatement within renovation or demolition project areas. The EC shall also clarify the working relationship and expectations of the abatement contractor, (EHS), and all other participants. In order to prevent a potential



conflict of interest, Abatement Contractors shall not provide any EC services (e.g. bulk asbestos sampling, final air clearance, etc.) service to OSU, directly or indirectly, without prior written authorization from EHS.

- e. The University requires the EC performing monitoring, periodic observations or inspections, final visual inspections and clearance air testing to have a minimum of two (2) years of experience performing these tasks. The EC shall be certified by the Ohio EPA to perform each asbestos-related activity being performed. The EC shall have experience performing work with State Agencies; University settings and or City Municipalities and shall provide substantial documentation on at least three projects of similar scope and extent.
- f. The University requires of the EC the following when performing hazardous materials inspections or assessments:
  1. Daily Phase Contrast Microscopy (PCM) air sampling to be conducted during bulk sampling of building materials. All PCM air data results are to be included with inspection or assessment reports.
  2. For each homogeneous area of non-friable organically bound (NOB) floor tile, floor tile mastic, or ceiling tile (containing cellulose or other fibrous components that interfere with optical microscopy) installed prior to 1990, where PLM bulk analysis of all related samples did not detect asbestos, a minimum of one sample from the homogenous area shall be reanalyzed using Transmission Electron Microscopy (TEM). TEM analysis of other NOBs and NOBs with later installation dates shall be at the discretion of the EC.
  3. Prepare a report for each asbestos assessment performed in accordance with Ohio EPA regulations.
  4. In addition to the Ohio EPA report requirements, each report shall include a current copy of the applicable Ohio State building floor plan(s) with current space ID's used for all references to room(s) or spaces within the building.
  5. Materials confirmed to contain 1% or less asbestos by PLM point counting procedures, shall be treated as an asbestos-containing material and removed by an Ohio-licensed Asbestos Hazard Abatement Contractor as such; however, disposal of materials containing 1% or less asbestos may be disposed of in accordance with applicable federal and state regulations. The contractor shall notify the receiving landfill that the materials contain 1% or less asbestos.



6. Unless documented in a report fully compliant with OAC 3745-22-06, the EC shall not rely on historical Ohio State sampling data or sampling data collected by Ohio State or other consultants as a basis for classifying a suspect material as a non-asbestos-containing material. Regardless of previous sampling data, OSU recommends that the EC supports a materials non-asbestos containing material status with their own sampling data. Homogenous areas of building material which have been historically confirmed to be an asbestos-containing material shall not be refuted as non-asbestos containing material with additional sampling, unless:
    - a. Historical samples were not point counted when permitted under NESHAP or,
    - b. The EC uses their professional judgement to determine that a material is a non-asbestos containing material. The rationale and justification of this determination shall be clearly described in the written survey report.
  7. All suspect building materials (including but not limited to newly installed materials, ceiling tiles, gypsum board, etc.) shall be sampled and analyzed utilizing Polarized Light Microscopy (PLM).
  8. The EC shall utilize the current Ohio State report and database upload template when preparing baseline building survey reports. Include individual space IDs and quantities for all identified or assumed asbestos materials containing any amount of asbestos.
  9. The EC shall notify EHS electronically prior to commencement of any environmental-related survey or inspection work at Ohio State owned or leased buildings, regardless of client.
- g. The University requires of the EC the following when performing on-site monitoring:
- (1) Ensure that the environmental abatement contractor is performing all work in compliance with all applicable federal, state, and local regulations; including, but not limited to: EPA, OSHA, and the Ohio EPA. The EC shall immediately contact EHS for non-compliance issues that cannot be resolved between the EC and Abatement Contractor in a timely manner.
  - (2) Primary calibration source shall be calibrated on an annual basis.
  - (3) Secondary calibration sources shall be calibrated quarterly.
  - (4) Environmental, ambient, area, and clearance samples shall be analyzed on a daily basis. The microscopist needs to participate in

the American Industrial Hygiene Association (AIHA) Proficiency Analytical Program (PAT) program for fiber counting and analyze air samples via the National Institute of Occupational Safety and Health (NIOSH) 7400 method. In addition, the microscopist shall have completed the NIOSH 582 Equivalent course training.

- (5) Ensure that all air samples are collected within the breathing zone at an approximate 45-degree angle. All pumps shall be connected to electric via a Ground Fault Circuit Interrupter (GFCI), which should be directly connected to the electric source.
  - (6) Provide daily access to a daily logs / field notes, air data, and inspection forms.
  - (7) Contact Ohio State EHS immediately should any regulatory agencies visit the project site.
  - (8) A written report shall be prepared for each clearance inspection. The report shall include a written description of the clearance activities, details of the abatement contractors' scope of work, a completed Ohio State "Asbestos Activity Visual Clearance Form", copies of the laboratories and consultants' qualifications, a current Ohio State building floor plan depicting the locations of abatement work, sampling log(s), chain-of custody form(s), and a copy of the signed laboratory report(s).
  - (9) During final clearance inspection activities, the EC shall assess suspect building materials (e.g. floor filler, pipe insulation, etc.) located within the regulated area which were unknown to exist prior to commencement of the abatement activity. If suspect ACMs are discovered, the EC shall immediately notify their client and EHS of their existence. Suspect ACM shall be sampled or assumed to be an ACM. The existence and assessment of these materials shall be clearly documented in the final clearance report. The OSU Project Manager shall communicate the existence of all confirmed ACM and assumed ACM to all trades involved with the project.
- h. The University requires of the EC the following when preparing closeout documentation. Review all environmental contractor closeout documents, which at minimum should include the documents listed in paragraph 4.8.
- (1) Include the following documents within the closeout documents: a field report summarizing a description of the project and the hazardous materials abated, copy of the specifications / drawings, daily logs, inspection forms, and air data.

- (2) Combine contractor documents with environmental consultant documents and submit copies to EHS electronically. A hard copy of the original signed landfill receipt must be submitted to EHS. Submit closeout documents to Ohio State within a timely manner of receiving signed landfill receipt.
- .2 REGULATORY CONFORMANCE: When hazardous material work is involved, specifications must require conformance to all pertinent provisions of Federal, State of Ohio, and Local laws, codes, rules and regulations for removal or control of asbestos. These provisions include, but are not limited to:
  - .2.1 U.S. EPA National Emission Standards for Hazardous Air Pollutants (NESHAP); Asbestos: 40CFR (Code of Federal Regulations), Part 61, Subparts A and M).
  - .2.2 U.S. Department of Labor Occupational Safety and Health Administration (OSHA) Asbestos standards: 40 CFR Part 29, Section 1910.10001 (General Industry) and 1926.1101 (Construction).
  - .2.3 U.S. EPA, "Guidance for Controlling Asbestos-Containing Materials in Buildings" (the "Purple Book").
  - .2.4 ANSI Practices for Respiratory Protection (ANSI Z88-2-1969) and OSHA Personal Protection Equipment Standard: 29 CFR 1910 Subpart 1.
  - .2.5 U.S. EPA Comprehensive Environment Response, Compensation and Liability Act (CERCLA): 40 CFR 763.117 and .302.
  - .2.6 U.S. Department of Transportation: 49 CFR 171 and 172.
  - .2.7 Ohio EPA Asbestos Emission Control Rules: Ohio Administrative Code 3745-20.
  - .2.8 Ohio EPA Asbestos licensing Rules: Ohio Administrative Code 3745-22 and Ohio Revised Code Chapter 3710.
- .3 QUALIFICATIONS FOR ASBESTOS ABATEMENT CONTRACTORS: Prior to bidding, contractors and/or subcontractors involved in hazardous materials abatement work shall be required to meet the following minimum requirements: These requirements and the documentation specified in .3.3 will be reviewed by University staff in determining whether the Abatement Contractor is acceptable to work on University projects:
  - .3.1 Required Certifications and Licenses
    - .3.1.1 The Asbestos Abatement Contractor shall be licensed by the Ohio EPA to perform asbestos abatement activities as required by state regulations.





- .3.1.2 The Asbestos Abatement Contractor's Supervisor shall be certified by the Ohio EPA as an Asbestos Hazard Abatement Specialist.
- .3.1.3 Each of the Asbestos Abatement Contractor's employees, including full-time employees, temporary employees and contract labor, shall be certified by the Ohio EPA as either an Asbestos Hazard Abatement Worker or as an Asbestos Hazard Abatement Specialist.
- .3.2 Required Experience
  - .3.2.1 The Asbestos Abatement Contractor shall have a minimum of two (2) years of experience in asbestos and hazardous materials abatement projects.
  - .3.2.2 The Asbestos Abatement Contractor shall have experience performing work in similar settings and shall provide substantial documentation summarizing these projects including the project location, duration, scope of work, monitoring, documents, client contact information and any additional information requested.
  - .3.2.3 The Asbestos Abatement Contractor shall have experience on at least three projects of a similar scope and extent.
- .3.3 The Asbestos Abatement Contractor shall report any Public Health Emergency Violations issued by state regulatory agencies within the past two (2) years and not have any previous unresolved or pending Public Health Emergencies.
- .3.4 The Asbestos Abatement Contractor shall provide the following documents prior to the post-bid review meeting:
  - .3.4.1 References from previous projects:
    - a. Previous experience on at least three projects of a similar nature (such as pipe, ceiling, boiler insulation, etc.) and extent shall be documented.
    - b. Three to five references specific to the Contractor's proposed Supervisor for this project.
    - c. Each reference to include contact information and phone number for the Owner, Architect, Construction Manager, and Subcontractors.
    - d. Provide documentation of the project location, duration, scope of work, and client contact information.



- e. Verification of years of experience in asbestos abatement projects, both for the contractor and for the supervisor.
- f. Photocopies of Ohio EPA certifications for each of the Contractor's employees to be used on this project.
- g. Positive identification via photocopies of valid driver's license or by other means as specifically approved by the Environmental Consultant for each of the Contractor's employees to be used on this project.

.3.4.2 Resume of proposed Supervisor for the project.

.3.4.3 Summary of current abatement projects. Include contract value and completion dates.

.3.4.4 Summary and background of any EPA violations over the past 7 years; as well as a statement as to how the violations were resolved (if applicable).

.3.4.5 Summary and background of any Ohio EPA or ODH violations over the past 7 years; as well as a statement as to how the violations were resolved (if applicable).

.3.4.6 Summary and background of any OSHA violations over the past 7 years; as well as a statement as to how the violations were resolved (if applicable).

.3.4.7 Copy of license to conduct asbestos hazard abatement activities.

4 GENERAL REQUIREMENTS – In addition to complying with all applicable federal, state and local regulations, the contractor shall:

- .4.1 The contractor of a successfully bid project shall submit an asbestos abatement plan to EHS for review and to the EC for approval prior to commencing the work. The asbestos abatement plan shall have detailed written operating procedures describing control and removal techniques in accordance with applicable federal, state and local regulations.
- 4.2 Except for emergencies, the contractor shall electronically submit a notification form to EHS a minimum of five (5) business days prior to starting the abatement on-site. For emergency projects, the contractor shall electronically submit a notification form to EHS as soon as possible.
- 4.3 The contractor shall notify EHS immediately should any regulatory agencies visit the project site.



- 4.4 The contractor shall ensure that a competent person remain outside of the work area during abatement activities. A minimum of one person meeting the qualifications described above for supervisor shall be present on site at all times during any abatement work or activities and be able to communicate effectively with the workers and all governing authorities.

Except in the case of an emergency, anyone entering an asbestos abatement work area, which is an OSHA-defined “regulated area,” shall have received a minimum of 2-hour asbestos awareness training consistent with OSHA requirements. Anyone entering “regulated areas” shall wear appropriate personal protective equipment.

- 4.5 Except where materials have been assumed to be asbestos-containing, the contractor shall maintain a copy of the asbestos survey onsite at all times. The contractor shall also maintain a copy of their contracted scope of work. The EHS or EPA notifications do not satisfy this requirement.
- 4.6 The Abatement Contractor shall maintain onsite at all times, legible and valid Ohio EPA certifications, training certificates, medical clearance, and respirator fit tests for all workers and supervisors currently working on the project. Documents shall be provided to EHS for review upon request.
- 4.7 Each regulated area shall have a minimum of one twelve-inch by twelve-inch viewing port. Install viewing port at a safe location allowing for the greatest field of view of abatement activities.
- 4.8 During the course of abatement activities, the Abatement Contractor shall immediately notify their client and EHS for any suspect building materials encountered that were not previously known to exist within the work area (e.g. floor filler, pipe insulation, etc.). The suspect ACM shall be sampled or assumed to be an ACM. The OSU Project Manager must communicate to all trades working on the project the existence of all materials assumed or confirmed to contain asbestos.
- 4.9 The contractor shall ventilate all air-filtration devices (AFD) to the exterior of the building. The preferred procedure is to direct the exhaust to the outside atmosphere, where exhaust air is unlikely to reenter the building. Care should be utilized to exhaust air away from areas of pedestrian traffic or other occupied areas. If this is not feasible due to the project conditions, submit alternative procedure to EHS or EC if applicable for approval.
- Exhaust from AFDs shall not be directed into the airspace above a dropped ceiling or into existing laboratory hood ventilation.
- 4.10 The Asbestos Hazard Abatement Specialist (Supervisor) shall conduct a final visual inspection and ensure that all visible dust, specified asbestos and



suspect and confirmed asbestos debris has been successfully removed and disposed of properly upon completion of the project.

- 4.11 The contractor shall include the following as part of the closeout documents: Completed Ohio State “Asbestos Abatement Closeout Checklist Form”, Asbestos Abatement Project Field Report, daily logs, sign-in sheets, contractor license, BWC certificate, liability insurance certificate, supervisor and worker submittals (training certificate, Ohio EPA certification, medical (no social security information or HIPAA protected information), fit test) safety data sheets, personal air sample data, notifications (EPA and Ohio State EHS), third-party consultant final air clearance report (if performed), waste manifest and signed landfill disposal receipt, and original signed waste manifest. All documents must be legible and submitted in a professional manner consistent with industry standards.
- 4.12 A copy of the final closeout document shall be submitted to EHS for recordkeeping purposes.

## .5 ABATEMENT DESIGN SPECIFICATIONS

- .5.1 The EC should download and review the Abatement Design Checklist for use in preparing the Abatement Technical Specifications for each project.
  - 5.1.1 The Abatement Design Checklist can be downloaded from the EHS website. Go to <http://www.ehs.osu.edu> and click on the “Resources” tab and search “abatement design checklist” in the “Keyword” field.

END OF DIVISION 02 – EXISTING CONDITIONS