SECTION 020800

 FRIABLE AND NON-FRIABLE ASBESTOS REMOVAL

1. GENERAL

Provisions of the General Conditions and Special Conditions are part of this Division.

* 1. SCOPE OF WORK
		1. General: The work specified herein shall be the abatement of asbestos containing materials by certified and registered persons who are knowledgeable, qualified and trained in the abatement, handling, and disposal of asbestos containing material, and subsequent cleaning of the affected environment.
		2. The Contractor shall furnish all labor, material, equipment, testing, services, permits, insurance, notifications, necessary or required to perform the work in accordance with applicable local, state, and federal regulations for the abatement of asbestos containing materials and for other work as specified in this section or as indicated in associated drawings, sketches, or reports of the work.

All fees required for notification requirements, renotifications, and/or inspections by the regulatory agencies shall be paid by the Contractor. Bulk sample analysis information required by the Department of Natural Resources, U.S. Environmental Protection Agency or local authority having jurisdiction in conjunction with the notification shall also be provided by the Contractor unless provided within this section.

* + 1. The work shall include:
			1. The removal and disposal of friable asbestos**:**

(Consultant shall fill in project specific description of Work, including but not limited to: location and type of ACM to be removed, approximate quantities of material to be removed, Work area, etc. and any other relevant information necessary to accurately convey the scope of Work to prospective bidders.)

* + - 1. The removal and disposal of non-friable asbestos**:**

(Consultant shall fill in project specific description of Work, including but not limited to: location and type of ACM to be removed, approximate quantities of material to be removed, Work area, etc. and any other relevant information necessary to accurately convey the scope of Work to prospective bidders.)

* 1. DEFINITIONS
		1. Abatement - Procedures to decrease or eliminate the source of fiber release from asbestos containing building materials. Includes encapsulation, enclosure, and removal.
		2. Adequately Wet - To sufficiently mix or penetrate with liquid to prevent the release of particulate.
		3. Aggressive Air Sampling - Sweeping of floors, ceilings and walls and other surfaces with the exhaust of a minimum of one (1) horsepower leaf blower or equivalent immediately prior to air monitoring.
		4. Approved Waste Disposal Site - A solid waste disposal area that is authorized by the Department of Natural Resources to receive asbestos containing solid wastes.
		5. Asbestos - The asbestiform varieties of serpentine (chrysotile, antigorite), riebeckite (crocidolite), cummintonite-grumerite (amosite), anthophyllite, and actinolite-tremolite.
		6. Asbestos Abatement Supervisor - An individual who directs, controls, or supervises others in asbestos abatement projects.
		7. Asbestos Containing Building Material (ACBM) - Surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a building.
		8. Asbestos Containing Material (ACM) - Any material containing more than 1 percent asbestos by weight.
		9. Barrier - Any surface that seals off the work area to inhibit the movement of fibers.
		10. Category I Nonfriable ACM - Asbestos-containing packings, gaskets, resilient floor covering and asphalt roofing products containing more than one percent (1%) asbestos as determined using the method specified in 40 CFR part 763, subpart F, Appendix A, section 1, Polarized Light Microscopy.
		11. Category II Nonfriable ACM - Any material, excluding category I nonfriable ACM, containing more than one percent (1%) asbestos as determined using the methods specified in 40 CFR part 763, subpart F, Appendix A, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.
		12. Containment - Area where asbestos abatement project is conducted. Area must be enclosed either by a glove bag or plastic sheeting barrier.
		13. Contractor’s Competent Person (Qualified Person) - One who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32 (f); in addition, for Class I, II, III, and IV work, who is specially trained in training courses which meet the criteria of EPA's Model Accreditation Plan (40 CFR Part 763) for project designer or supervisor, or its equivalent.
		14. Decontamination Area - Enclosed area adjacent and connected to the regulated area which is used for decontamination of workers, materials, and equipment that are contaminated with asbestos.
		15. Demolition - the wrecking or taking out of any load bearing structural member of a facility together with any related handling operations.
		16. Disposal Bag - A properly labeled 6 mil. thick leak-tight plastic bag used for transporting asbestos waste from work area to disposal site.
		17. Encapsulant (Sealant) - A liquid material which can be applied to asbestos-containing material and which prevents the release of asbestos fibers from the material either by creating a membrane over the surface or by penetrating into the material and binding its components together.
		18. Encapsulation - Treatment of asbestos containing materials with an encapsulant.
		19. Enclosure - The construction of an airtight, impermeable, permanent barrier around asbestos containing material to control the release of asbestos fibers into the air.
		20. Friable Asbestos Material - Any material containing more than one percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763 section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.
		21. Glove Bag - A manufactured or fabricated device, typically constructed of six (6) mil transparent polyethylene or polyvinyl chloride plastic. This device consist of two (2) inward projecting long sleeves, an internal tool pouch and an attached, labeled receptacle for asbestos waste.
		22. Homogeneous Work Site - Continuous areas with the same type of ACM and in which one type of abatement process is performed.
		23. Negative Initial Exposure Assessment - An assessment by a “Competent Person” in which it is concluded that employee exposures during the job are likely to be consistently below the Permissible Exposure Levels.

Outside Air - Air outside of the containment.

* + 1. Owner's Air Monitoring Firm - Air Monitoring conducted by a person who is not under the direct control of the person carrying out the asbestos abatement project and who has been selected by the Owner.
		2. Owner's Air Sampling Professional - An individual who holds a valid certification from the State of Missouri. The individual shall conduct, oversee, or be responsible for air monitoring of asbestos abatement projects before, during, and after the project has been completed. The air sampling professional must hold a 40 hour AHERA Asbestos Contractor/Supervisor Certificate, and supervised by the Owner’s Certified Industrial Hygienist (C.I.H.).
		3. Owner’s Air Sampling Technician - An individual who has been trained by and is under the supervision of an air sampling professional to do air monitoring before, during, and after the asbestos abatement project. The air sampling technician must hold a 40 hour AHERA Asbestos Contractor/Supervisor Certificate, and be supervised by the Owner’s Certified Industrial Hygienist (C.I.H.).
		4. Owner’s Certified Industrial Hygienist (C.I.H.) - an Industrial Hygienist, Certified in Comprehensive Practice by the American Board of Industrial Hygiene. The Owner's C.I.H. must also be certified by the Missouri Department of Natural Resources as an air sampling professional and hold a 40 hour AHERA Asbestos Contractor/Supervisor Certificate. The Owner will identify C.I.H. before application for permit.
		5. Personal Monitoring - Sampling of the asbestos fiber concentrations within the breathing zone.
		6. Regulated Asbestos Containing Material (RACM) - Friable asbestos material; Category I nonfriable ACM that has become friable; Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.
		7. Remove - To take out RACM or facility components that contain or are covered with RACM from any facility.
		8. Renovation - Altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component.
		9. Repair - The restoration of asbestos material that has been damaged. Repair consists of the application of rewettable glass cloth, canvas, cement or other suitable material. It may also involve filling damaged areas with non-asbestos substitutes and re-encapsulating or painting previously encapsulated materials.

* + 1. Strip - To take off RACM from any part of a facility or facility components.
		2. Waste Shipment Record - The shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos containing waste material.
		3. Work Area - A specific isolated area, other than the space enclosed within a glove bag, in which friable asbestos-containing materials is required to be handled. The area is designated as a work area from the time that the area is secured and access restrictions are in place. The area remains designated as a work area until the time that it has been cleaned in accordance with any requirements applicable to the operations conducted.
	1. CODES AND REGULATIONS
		1. General Applicability Of Codes, Regulations and Standards - All applicable codes, regulations, standards, statutes, laws, and rules have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith. Where conflicts arise, the most stringent specification shall apply.
		2. Contractor Responsibility - The Contractor shall assume full responsibility and liability for the compliance with all applicable federal, state, and local regulations pertaining to work practices, hauling, disposal and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable federal, state, and local regulations. The Contractor shall hold the owner harmless for failure to comply with any applicable work, hauling, disposal, safety, health, or other regulations on the part of the contractor, contractor’s employees, or contractor’s subcontractors.
		3. Federal and State requirements which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:
			1. U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) including but not limited to:
				1. Title 29, Part 1910, Section 1001 and Part 1926, Section 1101 of the Code of Federal Regulations.
				2. Respiratory Protection, Title 29, Part 1910, Section 134 of the Code of Federal Regulations.
				3. Construction Industry, Title 29. Part 1926, of the Code of Federal Regula­tions.
				4. Access to Employee Exposure and Medical Records, Title 29, Part 1910, Section 2 of the Code of Federal Regulations.
				5. Hazard Communication, Title 29, Part 1910, Section 1200 of the Code of Federal Regulations.
				6. Specifications for Accident Prevention Signs and Tags, Title 29, Part 1910, Section 145 of the Code of Federal Regulations.
			2. U.S. Environmental Protection Agency (EPA) including but not limited to:
				1. National Emission Standards for Hazardous Air Pollutants (NESHAPS) Title 40, Part 61, Subpart M, Code of Federal Regulations.
			3. U.S. Department of Transportation (DOT) including but not limited to:
				1. Title 49, Part 172, Section 101 of the Code of Federal Regulations.
			4. State of Missouri including but not limited to:
				1. H.B. 77, 85th General Assembly.
				2. Missouri Air Conservation Law Chapter 643.
				3. Missouri Department of Natural Resources, Division 10, Chapter 6 of the Code of State Regulations as follows:

10 CSR 10-6.020, Definitions

10 CSR 10-6.080, Emission Standards for Hazardous Air Pollutants

10 CSR 10-6.230, Administrative Penalties

Volume 18, Missouri Register, Page 44

10 CSR 10-6.250, Asbestos Abatement Projects - Certification, Accreditation, and Business Exemption Requirements

* 1. NOTIFICATIONS
		1. Notifications meeting the requirements of Volume 18, Missouri Register, page 44, shall be completed and sent by the Contractor not less than ten (10) days before the intended starting date of the project. Send notification to the following:
			1. Department of Natural Resources

Air Pollution Control Program (Asbestos)

P.O. Box 176

Jefferson City, Missouri 65102

* + - 1. U.S. Environmental Protection Agency

Region VII

Air & Toxic Division, Air Branch

ATTN: Air Compliance

726 Minnesota Avenue

Kansas City, Kansas 66101

* + - 1. Provide a copy to the Owner's Representative. Five (5) day notification to the Owner’s Representative is required on jobs less than the reportable quantity.
			2. If the project is under the jurisdiction of the Kansas City Air Quality Section, St. Louis County Air Pollution Control Branch, or the Springfield-Green County Air Pollution Control Authority, send notification directly to the appropriate agency.
	1. SUBMITTALS
		1. The following will be submitted by contractor prior to commencement of work for approval by the Owner’s Certified Industrial Hygienist (one copy for the Owner's Representa­tive). Owner's C.I.H. will return reviewed copies to contractor and Owner's Representative.
			1. One copy of material safety data sheets (MSDS) for products to be used by the Contractor in the performance of his work. Contractor will also maintain copies of MSDS on site per OSHA.
			2. One copy of the notifications to, or any correspondence with, the regulatory agencies. Submit a listing of all prior regulatory violations.
		2. Friable Abatement:
			1. Current Certificates of training and statement of qualifications for the project asbestos abatement supervisor and the Missouri Asbestos Occupational Certificates for all project personnel. List a summary of project personnel and contact phone numbers.
			2. Name, address, and contact person's name of testing laboratory or laboratories to be utilized analyzing samples for bulk analysis or air samples.
			3. Submit a detailed plan of the procedures proposed for use in complying with requirements of this specification and Volume 18, Missouri Register, page 44, and 29 CFR 1926.1101. Include in the plan the layout and location of barriers, decontamination units, route of ingress and egress for work area, methods used to assure safety of building occupants and visitors, methods used to isolate or closing out of HVAC system, personal air monitoring strategy, method of removal of material, and engineering controls utilized to prevent emissions from the work area.
			4. Provide a disposal plan to detail type of disposal container, method of transportation to disposal site, waste hauler, and disposal site.
			5. Copy of notifications required as part of the emergency notification plan.
		3. Non-Friable Abatement**:**
			1. Submit a detailed plan of the procedures proposed to minimize emissions and to prevent the material from becoming friable during removal.
			2. Copy of emergency protection plan to be used if the nonfriable material should become friable during removal.
			3. Current Certificates of training and statement of qualifications for the “Competent Person”.
			4. One copy of the Negative Initial Exposure Assessment.
		4. Upon completion of the abatement work, the following information shall be submitted to the Owner's Representative.
			1. Waste disposal receipts and waste shipment record on all asbestos waste removed from the project.
		5. Upon completion of the abatement work, the following information shall be submitted by the Owner’s C.I.H. to the Contractor.
			1. Air sampling test results for personal (non-OSHA) and final clearance air samples taken under the supervision of Owner’s Certified Industrial Hygienist. Results must be in writing in final report form.
			2. Written certification from the Owner’s Certified Industrial Hygienist.
1. PRODUCTS - NOT USED
2. EXECUTION
	1. SUPERVISION OF ABATEMENT
		1. The Contractor shall designate a competent supervisor subject to the approval of the Owner’s C.I.H. and the Owner’s Representative. The supervisor shall be the Contractor's representa­tive on the project and shall meet the requirements of all applicable regulations and perform the following minimum requirements.
			1. Be Certified by the State of Missouri as an Asbestos Abatement Supervisor, a minimum of one year prior full time experience in asbestos abatement work and a minimum of two years experience as a supervisor, and be qualified as a Competent Person in accordance with OSHA regulation 1926.1101.
			2. Be on site and supervise all abatement work in accordance with OSHA and Volume 18, Missouri Register, page 44.
			3. Conduct all OSHA required air monitoring.
			4. Maintain a daily log on the project documenting events, visitations, problems, equipment failures, accidents, and inspections.
			5. Be responsible for implementation of first aid, safety training, respiratory protection, and ensuring all workers are trained in emergency procedures.
			6. Be responsible for conducting a visual inspection of the work area prior to a visual inspection by the Owner’s Certified Industrial Hygienist. Inspection shall be documented.
	2. NEGATIVE INITIAL EXPOSURE ASSESSMENT
		1. The Contractor must conduct a Negative Initial Exposure Assessment (non-friable asbestos) prior to removal of the asbestos material. The Negative Initial Exposure Assessment shall be performed by a "Competent Person" to determine whether the material may be removed and maintained in a nonfriable condition. If the material cannot be removed without becoming friable then the contractor shall comply to the requirements in this specification at no additional cost to the Owner**.**
		2. The method of removal is the Contractor's option. However, in the event of any of the following:
			1. Visible emissions are observed
			2. Sanding, grinding, cutting, or abrading of the material
			3. Air samples exceed 0.1 f/cc

The contractor shall immediately stop work, implement corrective work practices, make any necessary notifications to all regulatory agencies of the changes in work practices and material conditions, and comply with the requirements as set forth in this specification.

* 1. WORKER PROTECTION & TRAINING
		1. The Contractor shall be responsible for providing his employees with proper respiratory protection, respiratory training, written respirator program, medical examinations, maintaining medical records, and protective clothing and equipment to comply with OSHA requirements.
		2. The Contractor shall be responsible for all testing and costs incurred for complying with requirements of OSHA regulations for Personal Air Sampling.
		3. All workers shall be trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and protective measures.
		4. All workers shall hold valid diplomas as accredited Asbestos Abatement Workers as required by 10 CSR 10-6.250.
	2. INDEPENDENT TESTING LABORATORY
		1. Testing Laboratories utilized by the Contractor for sample analysis during the project shall meet the following minimum requirements and be approved by the Owner’s C.I.H. This information shall be submitted to the Owner's Representative for review.
			1. All air monitoring samples shall be analyzed by a testing laboratory accredited by the American Industrial Hygiene Association (AIHA) or by an individual who is currently on the Asbestos Analyst Registry.
			2. All bulk samples shall be analyzed by a testing laboratory accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).
	3. OWNER’S AIR SAMPLING PROFESSIONAL & CERTIFIED INDUSTRIAL HYGIENIST
		1. It will be the Owner’s responsibility to hire anAir Sampling Professional & CertifiedIndustrial Hygienist. The Air Sampling Professional & Industrial Hygienist will also be required to perform the following duties as a minimum:
			1. Approval of the Contractor's work plan and methods of abatement to meet regulatory requirements and ensure the health and safety of University faculty, staff, and students.
			2. Verify that the contractor is satisfactorily performing personal air monitoring as directed by OSHA regulations.
			3. Visual inspection of the work area and final clearance air monitoring.
			4. Certify in writing that the Contractor's procedures, methods and practices were, to the best of my knowledge and belief, in compliance with current EPA, OSHA, State and/or applicable local regulations and that the work areas meet the requirements for final clearance testing and account of any known deviations.
			5. Issue final air clearance.
	4. EMERGENCY PROTECTION PLAN
		1. The contractor shall be responsible for developing a written Emergency Protection Plan and shall maintain this plan on site. The plan shall include considerations of asbestos leakage from the site, fire, explosion, toxic atmospheres, electrical hazards, slips, falls, and heat related injury. All employees shall be instructed and trained in the procedures.
		2. Emergency protection plan shall also include written notification of police, fire and medical personnel of the planned abatement activities, work schedule, and layout of work area, particularly barriers that may affect response capabilities.
	5. LOCAL AREA PROTECTION & SITE SECURITY
		1. The contractor shall be responsible for all areas of the building used by him and/or subcontractors in the performance of the work. Contractor shall exert full control over the actions of all employees and other persons with respect to the use and preservation of the existing building, except such controls as may be specifically reserved to the owner.
		2. Contractor has the right to exclude from the work area all persons who have no purpose related to the work or its inspection, and shall require all persons in the work area to observe the same regulations required of Contractor’s employees.
		3. The contractor shall have control of site security during abatement operations in order to protect work environment and equipment. Contractor shall have the owners assistance in notifying building occupants of impending activity and enforcement of restricted access by owners employees.
		4. The contractor shall keep a minimum of two 10 lbs. type ABC fire extinguishers on site. One shall be maintained outside the work area and one inside the work area. The employees shall be trained in the operation of extinguishers.
		5. Where areas cannot be isolated by existing walls and doors from employees, clients, or the public, barriers must be constructed of ½”plywood and 2"x4" framing 16" o.c. to isolate the area. The barriers must be installed in such a manner to prevent damage to existing walls, floors, or ceilings. Barrier may have a lockable door.
		6. The contractor shall maintain the work area free from rubbish, debris, and dirt and keep a clean, safe working area.
		7. The Contractor shall provide warning signage around the regulated area as required by OSHA.
		8. The Contractor shall isolate any and all air supply and returns to the abatement space as required by OSHA. Contractor shall coordinate with the Owner's Representative.
		9. The Contractor shall keep all areas where adhesive stripper is in use (such as mastic removal) under negative pressure and exhausted to the outside ambient air.
	6. FINAL CLEARANCE REQUIREMENTS (FRIABLE ASBESTOS)
		1. Upon completion of the abatement work, the supervisor shall perform a visual inspection of the work area. If satisfactory, the supervisor shall then request the Owner’s C.I.H. or the C.I.H.'s air sampling technician to perform a visual inspection. When the Owner’s C.I.H. feels the area is ready based on the results of their visual inspection, the Contractor shall apply a lockdown encapsulant. Following application of lockdown encapsulant, the Owner’s C.I.H. shall perform the final clearance sampling for airborne fiber concentrations.
		2. The Owner's C.I.H. or designee will perform final clearance testing per the following requirements:
			1. Aggressive sampling shall be required for all areas where removal has taken place with the exception of glove bag projects where nonaggressive sampling is permitted.
			2. P.C.M. samples analyzed on site shall be counted by an accredited registered microscopist.
			3. For areas specifically specified for clearance by Transmission Electron Microscopy, the method shall be NIOSH 7402.
		3. Any work areas failing to meet the clearance requirements of this section shall be recleaned and retested at the contractor's expense until satisfactory levels are obtained.
		4. The Owner's C.I.H. shall provide a written report of the air monitoring activities to the contractor within 7 days after the final clearance testing.
	7. REESTABLISHMENT OF THE WORK AREA AND SYSTEMS
		1. Reestablishment of the work area shall only occur after the contractor has received final clearance in writing from the Owner's C.I.H.
		2. All damage to finishes, equipment, and/or the area affected by the abatement shall be repaired by the contractor to equal or better condition as it was prior to the work, at no cost to the owner.
	8. WASTE DISPOSAL
		1. All asbestos containing waste and/or asbestos contaminated debris shall as a minimum be double bagged in approved 6 mil. disposal bags. Each bag shall be tagged to meet requirements of NESHAPS with an asbestos caution label and a source identification label.
		2. Transportation shall meet the requirements of all regulatory agencies for asbestos containing materials and shall be transported in an enclosed truck.
		3. The waste disposal site shall be approved by the Missouri Department of Natural Resources for asbestos disposal. A chain of custody letter/waste shipment record and disposal receipts shall be provided to the owner for all materials disposed of.
	9. DRAWINGS
		1. Drawings, when provided, are not intended to be used for anything but a "reference" to the work area. Information is not specific to quantities or to exact location of ACM unless explicitly noted. Contractor will be required to field verify the conditions and quantities.
	10. REPORTS
		1. Reports, when provided, are intended to be used as a basis for the type and composition of the asbestos present for both bidding purposes and for the information required for the notifications to the governing agencies.

 END OF SECTION