SECTION 02 4100
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of building elements for alteration purposes.

1.02 RELATED REQUIREMENTS

A. Section 01 5000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.

B. Section 01 7419 - Construction Waste Management and Disposal: Limitations on disposal of removed materials; requirements for recycling.

1.03 REFERENCE STANDARDS

A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.

PART 2 EXECUTION

2.01 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Provide, erect, and maintain temporary barriers and security devices.
   2. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
   3. Conduct operations to minimize effects on and interference with adjacent structures and occupants.

B. Do not begin removal until receipt of notification to proceed from Owner.

C. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

D. Hazardous Materials: Comply with 29 CFR 1926 and state and local regulations.

2.02 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Report discrepancies to Engineer before disturbing existing installation.
   2. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Separate areas in which demolition is being conducted from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction indicated on drawings in locations indicated on drawings.

C. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.

D. Services (Including but not limited to HVAC and Plumbing): Remove existing systems and equipment as indicated.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
   2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
   3. Verify that abandoned services serve only abandoned facilities before removal.
   4. Remove abandoned pipe, ducts, conduits, and equipment; remove back to source of supply or as shown in drawing.

E. Protect existing work to remain.

1. Prevent movement of structure; provide shoring and bracing if necessary.
2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
3. Repair adjacent construction and finishes damaged during removal work.
4. Patch as specified for patching new work.

2.03 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Remove from site all materials not to be reused on site; comply with requirements of Section 01 7419 - Waste Management.

C. Leave site in clean condition, ready for subsequent work.

D. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 02 8213
ASBESTOS ABATEMENT

PART 1 - GENERAL

1.1 PROJECT/WORK IDENTIFICATION

A. General: The abatement of asbestos containing materials (ACMs) specified herein shall be performed 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.

B. The contractor shall supply all labor, materials, equipment, testing, services, permits, notifications, insurance, and incidentals which are necessary and/or required to perform the work in accordance with applicable local, state, and federal regulations; as may be necessary for the abatement of asbestos containing materials and for other work as specified in this section or as indicated in associated drawings, sketches, or details of the work.

C. Scope of Work:

- Cut access holes (2 interior and 2 exterior) to access the crawlspaces in the Administration Building. Location of final access holes to be established once contract is award. Suggested locations and dimensions specified on the plans. Access holes to be patched/secured per plans
- Cut holes for fresh air intakes at maximum of 12" diameter, if required, per plans.
- Abate/remove approximately 6,850 linear feet of asbestos containing ~~pipe~~ insulation on heating water piping loop from the crawlspaces within the Administration Building (includes the crawlspaces under the administration, infirmary, emergency, and dialysis areas). "Wrap and cut" methods are permitted for this pipe and associated insulation. No demolition of piping or asbestos abatement shall take place in the mechanical room except areas specifically specified.
- Abate/remove asbestos-containing debris and other miscellaneous debris within the crawlspaces to obtain a fairly smooth surface. Leveling of rough areas of earth will likely be required to apply crawlspace liner.
- Abate/remove approximately 3500 linear feet of asbestos containing and fiberglass insulation from all domestic water pipes from the crawlspaces within the Administration Building (includes the crawlspaces under the administration, infirmary, emergency, and dialysis areas). It should be noted that these pipes will need to remain in place and energized. Notify maintenance personnel of any leaks or damage to pipes during the abatement process.
- Excavate sump pits within the crawlspaces of the Administration Building (includes the crawlspaces under the administration, infirmary, emergency, and dialysis areas). Approximate locations and dimensions specified on the plans.
- Install 20 Mil Vapor Barrier (SilverBack™ or approved equal) crawlspace liner and seal to all foundation walls, concrete columns, and around sump pits. The crawlspace liner should be installed in accordance with manufacturer recommendations.
- Abate/remove 545 linear feet of asbestos containing pipe insulation from the 1st and 2nd floors and penthouse of the Administration Building. Glovebag removal methods are required for this pipe insulation.
- Abate/remove 11 mudded pipe fittings from roof drains, located in the 11 different cells within Housing Unit 3. The locations of these cells are identified on the plans. These fittings must be removed using glove bag removal.
- Abate/remove asbestos containing thermal system insulation, and associated debris, from the first and second floor pipe chases within the "B" Wing of Housing Unit 3, as shown on the plans.
- The majority of standing water within the crawl spaces at the Administration Building will be

addressed by the Owner prior to Contractor mobilization. The Contractor will be responsible for water which enters the work area once they have mobilized to the site.

D. Air monitoring will be performed during ACM removal. Due to the friable nature of the work, final clearance air sampling will be performed after the work passes a visual final clearance. Third party air monitoring (TPAM) and Air Sampling Professional (ASP) oversight will be contracted and provided separately by the State of Missouri.

1.2 SUMMARY OF REQUIREMENTS:

A. All work performed on this project shall be done in the strictest accordance with applicable federal, state and local regulations, standards and codes governing asbestos abatement and any other trade work done in conjunction with the abatement. All applicable codes, regulations and standards are adopted into this specification and will have the same force and effect as this specification.

B. The most recent edition of any relevant regulation, standard, document or code shall be in effect. Where conflict among requirements or these specifications exists, the most stringent requirements shall be utilized.

C. Because asbestos exposure is a serious health hazard, construction work involving any asbestos-containing materials is regulated by the Occupational Safety and Health Administration Regulations. Compliance with OSHA regulations in the completion of this project is the **sole** responsibility of the contractor. OSHA regulations include, but are not limited to, conducting appropriate negative exposure assessments and/or daily personnel air monitoring. However, the following requirements will apply regardless of the removal methods to be employed:

a. Regardless of the removal methods employed, the contractor shall immediately stop work in the event of any of the following:

a. Visible Emissions (as defined in this document), or
b. Sanding, grinding, cutting abrading, removal by open flame, or
c. Breathing Zone air samples exceed the PEL or Excursion Limit; furthermore, the contractor shall implement corrective work practices, make re-notification to all regulatory agencies of the changes in work practices and material conditions, and comply with all referenced regulations in this document and the applicable sections of this specification as noted.

b. If any of the conditions in subparagraph c above are observed by the Owner's Construction Representative or by the Third Party Air Monitor (TPAM), then either of these parties has the right to issue a directive to stop work. The Contractor shall be obligated to implement corrective action. The contractor shall not be entitled to additional compensation.

D. FRIABLE ACM (CONSIDERED RACM). If the above scope of work does not include the removal of Friable ACM, skip Section C entirely.

1. Make notifications in compliance with Section 2.1 of this specification.
2. ACM Pipe insulation that is rendered friable if it is disturbed is considered friable asbestos. Remove and dispose of all friable asbestos containing materials complying with federal and state regulations as listed but not necessarily limited to those under section 1.4.E. of this specification.
3. Regardless of the removal methods employed, the contractor shall immediately stop work in the event of any of the following:

a. Containment has been breached.
b. Visible Asbestos Containing Waste Material (ACWM) is found outside the work area.
c. Fiber levels exceeding Permissible Exposure Level (PEL) inside the work area.

d. Any emergency.

Furthermore, the contractor shall implement corrective work practices upon the approval of the Asbestos Abatement Project Designer, make re-notification to all regulatory agencies of the changes in work practices and material conditions, and comply with all referenced regulations in this document and the applicable sections of this specification as noted.

1) If any of the conditions in subparagraph 2 above are observed by the Construction Administrator or by the TPAM, then either of these parties has the right to issue a directive to stop work. The contractor shall be obligated to implement corrective work, make re-notifications, et cetera, as outlined in subparagraph 2.
2) The contractor shall not be entitled to additional compensation in the event of the conditions of subparagraph 2 above.

E. Access Holes

1. Cut access holes into the crawlspaces to be used for entry, exit and load out of materials.
2. The locations and dimensions of the suggested access holes are noted on the plans. The location of the exterior access hole into the "emergency" crawlspace is required. Following award of the project, the contractor may propose alternate locations for approval by the owner.
3. All exterior access holes must be patched prior to completion of the project, in accordance with the project plans. Interior access holes into the crawlspaces can remain open. If an additional access hole is cut into the "administration" crawlspace, it must be secured prior to completion of the project.
4. Cut holes for fresh air intake, if necessary. These holes will need to be patched, in accordance with the project plans, prior to completion of the project.

F. Sump Pit

1. Excavate sump pits within the crawlspaces. The locations and dimensions of these crawlspaces are noted on the plans.
2. The excavated soil will require off-site disposal by the contractor. This soil should be disposed of as an asbestos-contaminated special waste.

G. Crawlspace Liner

1. This project includes the installation of a 20 Mil Vapor Barrier (SilverBack™ or equivalent) crawlspace liner with the felt liner..
2. The crawlspace liner must be sealed to all foundation walls, concrete columns and around the sump pits.
3. Crawlspace liner shall be installed in accordance with manufacturer recommendations.

1.3 PROJECT COORDINATION

A. Contractor shall coordinate and schedule all phases of the work of the contract documents under his control with the Construction Administrator, Facility Representative, any subcontractors, materials suppliers, and other parties involved as necessary to ensure the smooth and orderly transition of separate phases, timely placement of items and materials, cooperation between parties, and proper execution of the work. **In addition, the Contractor must give the TPAM at least two business days notice prior to the start of work or any change in the work schedule. The Contractor will be required to reimburse the State of Missouri for TPAM travel/work hours and expenses, if the TPAM shows up and finds out that abatement work has been postponed for that day, without two business days prior notice.**

B. All coordination necessary with the facility will be made through the Facility Representative (name and phone number shown in Special Conditions) or their designated representative. The Construction Administrator and Facility Representative prior to the start of any work will approve scheduling and access to the work areas.

C. Normal working hours of the facility will be observed in performing the work unless the Facility Representative and Construction Administrator approve the modification as addressed in the Special Conditions.

D. Contractor shall coordinate any news media inquiries or releases with the Facilities Management Design and Construction Division at (573) 751-3339.

E. The contractor, project superintendent, subcontractors, and other appropriate parties shall attend meetings as scheduled and as otherwise necessary to accomplish the work in a timely and efficient manner. Meetings shall include but are not limited to the following:

1. Pre-Construction Meeting: the Construction Administrator will schedule the pre-construction meeting after the Notice of Award has been issued. The Construction Administrator will determine the date, time, and exact place of this meeting and all necessary parties will be notified. During the meeting, discussions will be held in regard to construction procedures, scheduling requirements, general conditions, special conditions, channels of communication, responsible persons, requirements for submittals, documentation requirements, payment applications, and other pertinent information necessary for completing the work. Specific requirements of the facility in regard to security, safety, utilities, access to buildings, and related matters will also be discussed.
2. Progress Meetings: Within one month after work has commenced and once a month thereafter, when applicable, a monthly progress meeting will be held. At this meeting, previous meeting minutes will be reviewed; progress of the work in comparison to the approved schedule, planned progress, payment applications, proposed changes, and problems and corrective measures will be discussed. The contractor shall be required to submit a revised schedule to reflect actual conditions as per Article 15 of the General Conditions at this meeting.
3. If, in the opinion of the Construction Administrator, additional meetings are required to maintain progress or scheduling requirements on the work, additional meetings will be scheduled.

F. All fees required for notifications, re-notifications, and/or inspections by the Department of Natural Resources shall be paid by the contractor. If necessary, bulk samples analysis information required in conjunction with the notification to the Missouri Department of Natural Resources, U. S. Environmental Protection Agency or city having jurisdiction shall be provided by the contractor unless provided within this specification.

1.4 TERMINOLOGY/DEFINITIONS/ABBREVIATIONS

A. Definitions:

1. Abatement: The Encapsulation, Enclosure and/or Removal of Asbestos Containing Materials (ACM). For Category I Non-friable ACM which will remain non-friable throughout disposal, abatement procedures will be modified and simplified as found within these and other applicable regulations.

2. Adequately Wet: To sufficiently mix or penetrate with liquid to prevent the release of particulates.

3. AHERA: Asbestos Hazard Emergency Response Act of 1966 (P.L. 99-519).

4. 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.

5. Air Sampling Professional: An individual, certified by the State of Missouri, who supervises air sampling activities during asbestos abatement projects.

6. Air Sampling Technician: An individual, under the supervision of an Air Sampling Professional, who performs air sampling during asbestos abatement projects.

7. Asbestos: The asbestiform varieties of serpentinite (chrysotile, antigorite), riebeckite (crocidolite), cummintonite-grumerite (amosite), anthophyllite, and actinolite-tremolite. For purposes of determining respiratory and worker protection both the asbestiform and non-asbestiform varieties of the above materials and any of these materials that have been chemically treated and/or altered shall be considered as asbestos.

8. Asbestos Abatement Project Designer: An individual, certified by the State of Missouri, who prepares plans and specifications for asbestos abatement projects.

9. Asbestos Abatement Supervisor: An individual, certified by the State of Missouri, who directs, controls, and/or supervises workers during an asbestos abatement project.

10. Asbestos Abatement Worker: An individual, certified by the State of Missouri, who performs asbestos abatement.

11. Asbestos-Containing Material (ACM): Any material or product which contains more than 1 percent asbestos by weight as determined by using the Polarized Light Microscopy method.

12. Asbestos-Containing Building Material (ACBM): Surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on building components.

13. Asbestos Containing Building Material (ACBM) Repair: The restoration of ACBM to an undamaged condition or to an intact state so as to prevent fiber release

14. Asbestos-Containing Waste Material (ACWM): Any material to be removed from a work area for disposal that is an asbestos containing material (ACM) or is suspected of being contaminated with ACM.

15. Barrier: Any surface that seals off the work area to inhibit the movement of asbestos fibers.

16. Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.

17. Category I Non-friable 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.

18. Category II Non-friable ACM: Any material, excluding category I non-friable ACM, containing more than one percent (1%) asbestos as determined using the methods specified in 40 CFR part 768, subpart F, Appendix A, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

19. Certified Industrial Hygienist (C.I.H.): An industrial hygienist, certified in Comprehensive Practice by the American Board of Industrial Hygiene.

20. Competent Person: An individual, capable of identifying existing asbestos hazards in the workplace and who has authority to take prompt corrective measures to eliminate them. His duties include: establishing the negative-pressure enclosure, ensuring its integrity, and controlling entry to and exit from the enclosure; supervising any employee exposure monitoring; ensuring that all employees working within such an enclosure wear the appropriate personal protective equipment, are trained in the use of appropriate methods of exposure control, and in the use of hygiene facilities and decontamination procedures; and ensuring that engineering controls in use are in proper operating condition and are functioning properly. An individual who has been certified by the State of Missouri as an Asbestos Abatement Supervisor is considered a "Competent Person".

21. Owner's Construction Representative: An employee of the Division of Design and Construction representing the Director during the construction phase of the contract commencing at Notice of Award.

22. Containment: Area where asbestos abatement project is conducted. Area must be enclosed either by a glove bag or plastic sheeting barriers.

23. Critical Barrier: Plastic sheeting or other material to be placed over Work Area openings (i.e., windows, HVAC supply and return vents, doors, electrical fixtures, etc.).

24. Decontamination Facility: The serial arrangement of rooms or spaces for the purpose of separating the work site from the building environment upon entering the Work Area and for the cleaning of persons, equipment and contained waste prior to returning to the clean environment.

25. Disposal Bag: A properly labeled 6 mil. thick leak-tight clear plastic bag used for transporting asbestos waste from work site and to the disposal site.

26. Encapsulant (Sealant): A liquid material which can be applied to asbestos-containing material and which prevents the release of asbestos fibers from the ACM either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the ACM and binding its components together (penetrating encapsulant) or is specifically designed to minimize fiber release during removal of ACM (removal encapsulant).

27. Encapsulation: Treatment of asbestos-containing materials with an encapsulant.

28. Enclosure: The construction of an airtight, impact resistant barrier to isolate a surface coated with ACM.

29. Friable: Any material which when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

30. Glove Bag: A manufactured or fabricated device, typically constructed of six (6) mil transparent polyethylene or polyvinyl chloride plastic. This device consists of two (2) inward projecting long sleeves, an internal tool pouch and an attached, labeled receptacle for asbestos waste.

31. Initial Exposure Assessment: Is a required assessment to be performed by the Contractor's Competent Person (Asbestos Abatement Supervisor) concerning the exposure potential of a specific asbestos projects, or series of similar asbestos projects. If it is concluded that the

employee exposures during the project are likely to be consistently below the Permissible Exposure Limit, the Contractor establishes a Negative Initial Exposure Assessment.

32. Outside Air: Air outside containment.

33. Permissible Exposure Limit (PEL): Eight-hour time weighted average of 0.1 fibers/cubic centimeter.

34. Personal Monitoring: Sampling of the asbestos fiber concentrations within the Breathing Zone.

35. Regulated Asbestos-Containing Material (RACM): Friable asbestos material; Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; or Category II non-friable 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.

36. Removal: To take out or eliminate ACM from building components, materials, substrates.

37. Third Party Air Monitor (TPAM): The Air Sampling Professional who conducts air monitoring in who is not under the direct control of the abatement contractor and who has been selected by the owner.

38. Visible Emission: Any discharge of an air contaminant into the atmosphere that is visually detectable without the aid of instruments.

39. Work Area: A specific room or physically isolated portion of a room, other than the space enclosed within a glove bag, in which friable asbestos-containing material is required to be handled in accordance with current federal and state regulations. The area is designated as a work area from the time that the room, or portion of it, 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.

B. Abbreviations:

1. AIA: American Institute of Architects
2. AIHA: American Industrial Hygiene Association
3. MoDNR: Missouri Department of Natural Resources
4. DEQ: Division of Environmental Quality, MoDNR
5. DOT: U. S. Department of Transportation
6. EPA: U. S. Environmental Protection Agency
7. MDH: Missouri Department of Health
8. NIOSH: National Institute for Occupational Safety and Health
9. NVLAP: National Voluntary Laboratory Accreditation Program
10. OSHA: Occupational Safety and Health Administration, U. S. Department of Labor.

1.5 CODES AND REGULATIONS

A. This section sets forth governmental regulations and industry standards which are included and incorporated herein by reference and made a part of this specification.

B. Requirements include adherence to work practices and procedures set forth in applicable codes, regulations and standards.

C. General Applicability of Codes, Regulations and Standards: Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, 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. In the event of conflicting applicable codes, regulations, standards, statutes, laws, or rules, the more stringent shall apply to these specifications.

D. Contractor Responsibility: The contractor shall assume full responsibility and liability for 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, record keeping or other regulation on the part of himself, his employees, or his subcontractors.

E. 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:

    a. Title 20, Part 1910, Section 1001 and Part 1926, Section 58 of the Code of Federal Regulations.
    b. Respiratory Protection, Title 29, Part 1910, Section 134 of the Code of Federal Regulations.
    c. Construction Industry, Title 29, Part 1926, of the Code of Federal Regulations.
    d. Access to Employee Exposure and Medical Records, Title, 29, Part 1910, Section 2 of the Code of Federal Regulations.
    e. Hazard Communication, Title 29, Part 1910, Section 1200 of the Code of Federal Regulations.
    f. 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:

    a. National Emission Standards for Hazardous Air Pollutants (NESHAPS) Title 40, Part 61, Subpart M of the Code of Federal Regulations.
    b. Asbestos Hazard Emergency Response Act (AHERA), Public Law (99-519) applicable only on schools.
    c. Asbestos-Containing Materials in Schools: Title 40, Part 763 of the Code of Federal Regulations, applicable only on schools.

3. U. S. Department of Transportation (DOT)

    a. Title 49, Part 172, Section 101 of the Code of Federal Regulations.

4. State of Missouri

    a. H.B. 77, 85th General Assembly.
    b. Missouri Air Conservation Law, Chapter 643.
    c. Due to a recent court decision, the following Code of State Regulations do not apply to this specification:

        1. 10 CSR 10-6.020, Definitions

2. 10 CSR 10-6.080, Emission Standards for Hazardous Air Pollutants.
3. 10 CSR 10-6.230, Administrative Penalties
4. 10 CSR 10-6.240, Asbestos Abatement Projects-Registration, Notification and Performance Requirements.
5. 10 CSR 10-6.250, Asbestos Abatement Projects - Certification, Accreditation, and Business Exemption Requirements.

PART 2 - MATERIALS

2.1 NOTIFICATIONS

A. If material being removed amounts to more than 260 LF, 160 SF or 35 cubic feet or if abatement is being done prior to a demolition, Notification shall be completed and sent by the contractor not less than ten (10) days before the intended starting date of the project. For amounts less than the above, contractor shall send a courtesy Notification. Use EPA form "Notification of Demolition and Renovation", and the MoDNR form "Asbestos Project Notification", to the following:

1. Department of Natural Resources
   Air Pollution Control Program (ASBESTOS)
   P. O. Box 176
   Jefferson City, MO 65102
2. Provide copies of these notifications to the state's independent third party air monitoring (TPAM) oversight consultant, the Construction Administrator, and OA FMDC Hazardous Materials Manager.

B. A Post-Notification report shall be completed and sent by the Contractor to the agencies listed in 2.1A above within forty-five (45) days of the completion of the project. The MoDNR form "Asbestos Post Notification" is to be used for that purpose.

2.2 SUBMITTALS

A. The following submittals will be required of the contractor prior to commencement of work and are subject to approval by the Owner's Construction Representative. The contractor shall send one copy of the submittals for approval and then send approved copies of the submittals to the distribution list as discussed at the Pre-Construction Conference.

1. Copy of Material Safety Data Sheets (MSDS) for each product to be used by the contractor in the performance of his work. Contractor will also maintain copies of the MSDS on site, per OSHA.

2. A copy of the notifications to regulatory agencies as required in Section 2.1 of this specification.

3. Current training certificates and MoDNR licenses for project superintendent, asbestos abatement supervisor(s), and asbestos workers. Superintendent shall meet the qualifications established in Section 2.8 of these specifications.

4. Name, address, and contact person's name of testing laboratory or laboratories to be utilized by the contractor (this is not the TPAM) in analyzing samples for bulk analysis or air monitoring from taking personal air samples. Required by OSHA.

5. Provide a disposal plan to detail the types of disposal containers to be used, the methods of transportation to the disposal site, the waste hauler, and disposal site. Copies of notifications required as part of the emergency notification plan in Section 2.6 of

this specification.

B. Upon completion of the work and prior to final payment, the following information must be submitted to the Construction Administrator.

1. Waste disposal receipts and waste shipment record on all asbestos waste removed from the project. The enclosed Waste Shipment Record and Receipt form (or something similar) must be used for every load brought to the waste disposal site. The disposal and/or shipment record must include the following information:

   i. Work site name and address
   ii. Project Number
   iii. Owner's name and telephone
   iv. Operator's (Contractor's) name, address and telephone
   v. Waste Disposal Site name, address and telephone
   vi. Name and address of responsible agency
   vii. Type of materials and quantity in cubic yards
   viii. Name, address and phone number of transporter, and date of transport
   ix. Name, address and phone number of Waste Disposal Site representative and date material was received.

2. Air monitoring performed during abatement by the TPAM/ASP shall only include area and in progress samples due to the exterior nature of the work. Results must be submitted in written final report form.

3. Written certification from the TPAM as required in Section 2.7 of this specification. (Applies only to materials considered RACM.)

4. MoDNR "Asbestos Post Notification" form, within forty-five (45) days of the completion of the project.

5. Any other specific requirements spelled out in the General Conditions.

2.3 TESTING LABORATORY

A. Testing laboratories utilized by the contractor for **OSHA required** sample analysis during the project shall meet the following minimum requirements.

B. For bulk sample analysis the laboratory must be accredited by the National Voluntary Laboratory Accreditation Program for asbestos fiber analysis.

C. For air samples analyzed by Phase Contrast Microscopy, the laboratory must be accredited by the American Industrial Hygiene Association.

D. For air samples analyzed by Transmission Electron Microscopy, the laboratory must be accredited by the National Voluntary Laboratory Accreditation Program.

E. On-site analysis by Phase Contrast Microscopy, when applicable, shall be by an Air Sampling Technician or Air Sampling Professional.

F. Neither the contractor, nor any of his principals, officers, or directors may have any financial or business interests in any laboratory utilized on this contract.

2.4 LOCAL AREA PROTECTION/SITE SECURITY

A. The contractor shall be responsible for all areas of the building used by him and/or subcontractors in the performance of the work. He 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 by these specifications.

B. The 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 as he requires his employees.

C. The contractor shall have control of site security during abatement operations in order to protect his work and equipment. He will have the owner's assistance in notifying building occupants of impending activity and enforcement of restricted access by owner's employees.

D. The contractor shall keep, as a minimum, two 10 lbs. type ABC fire extinguishers on site at all times. One extinguisher will be maintained outside the work area and one inside the work area. The contractor's employees shall be trained in the use and operation of the extinguishers. **(Applies only to interior work.)**

E. As a minimum requirement, barriers must be constructed of regulatory specified layers of poly and 1/2" plywood and 2" x 4" framing 16" on center, with lockable door, to isolate any areas from employees, clients, and the public. (For outside work, where such barriers are impractical, other regulatory compliant poly containment methods can be considered/accepted on a case-by-case basis.

F. The contractor shall use as small an area as necessary for storage of supplies and equipment and shall keep such in a neat and orderly fashion. Trash must be removed daily and will not be allowed to accumulate.

G. The contractor shall maintain the work area free from rubbish, debris, and dirt and keep a clean safe work area. The contractor shall take measures to keep surfaces free from contamination or shall clean and lock down surfaces after work is done, protect with plastic sheeting and/or plywood during work, or remove from the work area.

2.5 WORKER PROTECTION/TRAINING (AS NOTED)

A. The contractor shall be responsible for providing his employees with proper respiratory protection, respiratory training, a written respirator program, medical examinations, protective clothing and equipment and for maintaining medical records to comply with OSHA requirements.

B. The contractor shall be responsible for all testing and costs incurred for complying with requirements OSHA regulations for Personal Monitoring.

C. All workers are to be trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and protective measures.

2.6 EMERGENCY PROTECTION PLAN

A. The contractor shall be responsible for developing a written site specific Emergency Protection Plan and shall maintain this plan on site. The plan shall include considerations for asbestos leakage from site, fire, explosion, toxic atmospheres, electrical hazards, slips, falls, and heat related injury. All employees shall be instructed and trained in the procedures.

B. Emergency protection planning shall also include written notification of police, fire, and medical personnel of the planned abatement activities, work schedule, and the layout of the work area, particularly barriers that may affect response capabilities.

2.7 THIRD PARTY AIR MONITORING (TPAM)

A. The Owner will contract with an Air Sampling Professional to perform the following minimum duties:

1. Review Contractor's work plan and provide recommendations.
2. As a minimum, during abatement operations, at least three samples daily shall be collected outside the work area at locations of barriers separating the work areas from other portions of the building. One sample shall be required at the decontamination entrance to the area. Samples shall be analyzed by PCM. Any result above the OSHA PEL of 0.1 f/cc 8 hr TWA, or EL of 1.0 f/cc 30 min TWA must be immediately reported to the Construction Administrator and cause operations to cease and corrective measures be taken.
3. Provide Construction Administrator with daily abatement reports describing amount and type of work done, regulatory concerns, notable air monitoring reports, etc.
4. A visual inspection of the work area will be conducted prior to clearance.
5. Certify that the contractor's procedures, methods, and practices were in full compliance with current federal or state regulations.

B. The TPAM shall be independent from the abatement contractor.

2.8 SUPERINTENDENCE OF ABATEMENT

A. The contractor shall designate an abatement superintendent, subject to approval of the contractor's representative, who will serve as the contractor's representative on the project and will ensure that all work is performed in compliance with all applicable regulations and following minimum requirements:

1. The Abatement Superintendent must be certified as an Asbestos Abatement Supervisor, and must have at least one year full time experience in asbestos abatement work.
2. Shall be on site whenever work is going on.
3. Maintain a daily log documenting project events, visitations/inspections, problems, and

accidents.

4. Implement first aid, safety training, respiratory protection, and ensure workers are trained in emergency procedures.
5. Conduct visual inspection of the work area prior to TPAM's final clearance inspection. This inspection shall be documented on the form "Contractor's Superintendent Visual Inspection Report".
6. Supervise activities of any subcontractors of the contractor to ensure compliance with contract documents.
7. Duties shall include those for the "Competent Person" as defined in this specification.

2.9 FINAL CLEARANCE REQUIREMENTS

A. Following the completion of the abatement work, the abatement superintendent shall notify the Construction Administrator. The superintendent shall then perform a visual inspection of the work area.

B. Any work areas failing to meet the clearance requirements of this section shall be re-cleaned and re-tested at the contractor's expense until satisfactory levels are obtained. The owner will not reimburse the contractor for re-cleaning the work area. The TPAM will separate their costs for the re-testing from their already agreed upon services. The owner will deduct, by contract change, the cost of the TPAM's re-testing activities including any lab fees, travel and re-inspection and / or air monitoring fees from the contractor's contract amount.

2.10 RE-ESTABLISHMENT OF THE WORK AREA AND SYSTEMS

A. Re-establishment of the work area shall only occur after the contractor has complied with the clearance requirements of Section 2.9. Upon clearance, and prior to the removal of barriers, an encapsulant shall be applied by the contractor. All barriers, signs, trash, and equipment shall then be removed from the site. All electrical and HVAC systems shall be re-established.

B. 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 was prior to the work, at no cost to the owner.

2.11 WASTE DISPOSAL

A. All ACWM shall be disposed of in compliance with current federal and state regulations.

B. RACM and category II nonfriable ACM that is disposed of in Missouri shall be disposed of in a sanitary landfill having a state permit to operate. ACM shall be disposed of in a demolition landfill or a sanitary landfill having a state permit to operate. The landfill shall handle all ACWM so that it does not become friable. Demolition landfills shall cover category I nonfriable ACM with at least six (6) inches of so il or non-asbestos waste at the end of each operating day.

C. A chain of custody letter/waste shipment record and disposal receipts shall be provided to the owner for all materials disposed of. The attached Waste Shipment Re cord and Receipt form (or something similar) may be used.

C. The waste shipment record shall be origi nated and signed by the waste generator and shall be used to track and substantiate the disposition of ACWM.

2.12 DRAWINGS

A. For the purpose of this specification, all provided listings of ACMs requiring abatement and accompanying drawings, are intended to be used as a "reference" to the intended abatement scope-of-work and areas involved. Information provided is to the best of our knowledge, is approximate only, and should not be relied upon as being specific as to the exact quantities or exact locations of all ACMs. The contractor is required to field verify the locations, condition, and quantities of all ACMs requiring abatement prior to demolition.

2.13 QUALITY ASSURANCE

A. Abatement Contractor:

1. Certified by the Missouri Department of Natural Resources as Asbestos Abatement contractor.
2. The Asbestos Abatement Contractor must list similar asbestos abatement projects they have completed in the past on the enclosed Contractor's Qualifications Form.

2.14 LISTING OF ASBESTOS CONTAINING MATERIALS (ACMs)

See the Asbestos Survey Activities report "Appendix A". This report identifies the ACM's type/color/friability and % asbestos content, location, and approximate quantity. These tables are meant to assist the abatement contractor, by providing a listing of all available info used to develop the asbestos abatement specification and SOW. It is the responsibility of the Contractor to field verify all ACM locations, conditions, and quantities.

The plan set depicts the location of asbestos-containing materials to be removed, the locations and dimensions of access holes and sump pit locations.

END OF SECTION