ADDENDUM NO. 2 - OUTLINE AND SUMMARY INFORMATION

Project Name: Reid Hall Rooms 401-402 Renovation  
PPA No.: 18-2170
Location: MSU Bozeman  
Date: 2/19/19

To: All Plan Holders of Record

The Plans and Specification prepared by Mosaic Architecture dated February 19, 2019, shall be clarified and added as follow. The bidder proposes to perform all the following clarifications or changes. It is understood that the Base Bid shall include any modification of Work or Additional Work that may be required by reason of the following change or clarifications.

The Bidders are to acknowledge the receipt of this Addendum by inserting its number and date on their bid envelope and to their Bid Forms. Failure to acknowledge may subject the Bidder to disqualification and rejection of the bid. This Addendum forms part of the Contract Documents as if bound therein and modifies them as follows:

I. GENERAL INFORMATION
A. ….. BID OPENING CHANGED TO THURSDAY, FEBRUARY 28, 2019, 2:00PM

ARCHITECTURAL AMENDMENTS:
Clarifications and Additions:
   a. Door Hardware: Each pair of doors to have hardware group #1. See attached.

SPECIFICATIONS
1. Section 011819 Asbestos Abatement
   a. Section Replaced with revisions to 1.03 General Contractor to include abatement in the base bid pricing on the Bid Proposal Form
   b. 1.04 revised to A. Upon award of contract, contractor shall submit:
   c. 1.05 Related Documents A. Requirement to attend Pre-Bid Conference is waived.
2. Section 08 1416 Doors
   a. Doors to be 20-minute rated, wood veneer doors as specified in 08 1416. Doors are NOT sound rated, disregard 08 1416 2.03.B.
3. Section 08 7100 – Door Hardware
   a. Add the attached hardware schedule to 08 7100.

DRAWINGS:
1. See addendum #1 for changes to sheets A003 DEMO PLANS – REID 401, 402 and A402 CEILING DETAILS – REID 401,201. Revised drawings are included in this addendum.
2. Sheet A500: disregard “HM” designation in DOOR SCHEDULE DESCRIPTION column. Doors are to be wood veneer with vision panel. Disregard “ALUM” designation in FRAME MATERIAL column. Frames to be hollow metal as shown in DOOR FRAME TYPES.

ATTACHMENTS
1. Section 011819 Asbestos Abatement (revised 021919)
2. Hardware Schedule
3. Sheet A003
4. Sheet A402
PART 1 – GENERAL

1.01 GENERAL

A. This document describes the requirements for the abatement, remediation and disposal of asbestos containing building materials for the Asbestos Abatement of Reid Hall Classrooms 401/402 Renovation Project on the campus of Montana State University-Bozeman. This section includes general requirements for abatement of the materials where necessary, work practices required and disposal for control or impact of the materials.

NOTE: Additional materials to be impacted by the project are the soffits and CMU wall between the two classrooms. Building materials associated with these items have NOT been inspected for asbestos containing materials. Prior to demolition impact and/or abatement, the IH shall inspect these materials and take samples if necessary. Based upon findings of the IH additional abatement may be required. IF, additional material is to be abated a change order will be issued to the abatement contractor at that time.

B. Known Asbestos Containing Materials are identified as: 12x12 Floor Tiles and Adhesive Used on Dry Erase Boards.

C. The Contractor shall furnish all labor, materials, equipment, testing, monitoring, insurance, and incidental items and services necessary to remove and dispose of all identified asbestos containing materials and general construction materials within the work areas as indicated in the project specifications and in accordance will all federal, state, and local regulations and in compliance with the entirety of this specification.

D. Compliance with regulations: The Contractor is required to comply with and shall assume full responsibility and liability for compliance with all applicable federal, state and local asbestos regulations pertaining to work practices, air monitoring, transportation and disposal of waste, communication of hazards, notification and protection of workers, visitors to the site, and persons occupying areas adjacent to the site.

E. Upon commencement of the project all work is to be coordinated with the General Contractor (GC) until completion and the Owner(s) representative or IHC has inspected the work, clearances have been achieved and Certificate of Completion has been issued. The contractor will not be allowed to start an identified portion of the project and then leave for a period of time and return to finish the project at a later date unless specifically allowed in contract and schedule language provided by the General Contractor or Owner(s) representative. Failure to comply with this requirement will be considered nonconformance with this specification and will result in penalty.

F. The Owner(s), Project Manager or IHC may stop work at any time for failure to comply with this specification, or regulations, or due to visible dust generation, or poor/altered work practices, or compromised containment or equipment, or failure of negative pressure, or non-compliance with submittals and/or incomplete documentation. Abatement Contractor will NOT be monetarily compensated for additional time or materials incurred do to a stoppage in work for failure to comply with the above.
1.02 MATERIALS & ESTIMATED QUANTITIES

A. Estimated quantities and location of materials are provided below. Exact quantities, site conditions and condition of materials are to be verified by the Contractor prior to submission of bid and are the sole responsibility of the bidding contractor. Abatement diagrams attached at the end of this specification are representative to layout and approximate location but are not to scale, and site visits must be used to determine exact dimensions and quantities.

B. Estimated Quantities:

<table>
<thead>
<tr>
<th>Location</th>
<th>Material</th>
<th>Qty.</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 401</td>
<td>12x12 Floor Tile (*Mastic)</td>
<td>1,200 ft²</td>
<td>Material is considered RACM for this project. Floor Tile is to be removed by either hand or mechanical means. Mastic is to be hand scraped to a smooth surface. Air Clearance Required by Project IH.</td>
</tr>
<tr>
<td>Room 401</td>
<td>Adhesive/Glue</td>
<td>3</td>
<td>Material is considered Category I, Non-Friable for this project. Dry-Erase Boards to be removed from walls. Wall Material that contains Adhesive/Glue behind Dry-Erase boards to be removed. Work to be completed in containment with floor tile removal and cleared at the same time.</td>
</tr>
<tr>
<td>Room 402</td>
<td>12x12 Floor Tile (*Mastic)</td>
<td>1,200 ft²</td>
<td>Material is considered RACM for this project. Floor Tile is to be removed by either hand or mechanical means. Mastic is to be hand scraped to a smooth surface. Air Clearance Required by Project IH.</td>
</tr>
<tr>
<td>Room 402</td>
<td>Adhesive/Glue</td>
<td>3</td>
<td>Material is considered Category I, Non-Friable for this project. Dry-Erase Boards to be removed from walls. Wall Material that contains Adhesive/Glue behind Dry-Erase boards to be removed. Work to be completed in containment with floor tile removal and cleared at the same time.</td>
</tr>
</tbody>
</table>

NOTE: Material quantities in table are estimates all quantities are to be confirmed by bidder prior to bid. All identified materials within designated containments are to be abated completely within the scope of work.

1.03 BID BREAKDOWN

See Bid Form. General Contractor to include in the Base Bid pricing on the Bid Proposal Form.

1.04 SUBMITTALS (Required)

A. With Bid Submission Upon award of contract, contractor shall submit:
   1. Number of accredited workers available and planned for use if awarded project.
   2. Equipment list available and planned for use if awarded project
      i. NAM
ii. Fans/Air Movers
iii. Blasting or Grinding Equipment (include redundancy and backup)
iv. Decontamination Unit showers or facility plans
v. Manometer—logging full time during abatement

3. Supervisor/Competent Persons credentials

4. 2-References for similar mastic removal projects by blasting/grinding

5. Signed Statement with regulatory citation/infraction history for previous 3-years and current status of regulatory investigation or penalty. (Contractors with regulatory citations or pending citation in past 3-years may not be considered for award at the discretion of the project team)

B. The selected contractor must provide a work plan and project design to the contracted industrial hygienist (IHC) and project team for approval prior to submission to MDEQ for a Permit. Any and all requests for a variance to deviate from the bid specification or regulatory requirements are to be submitted in writing to the IHC and project team for prior approval. Failure to secure prior approval from the IHC or project team will result in an immediate shutdown of work until the issue can be corrected or resolved, No Exceptions. The submittal must be approved and returned prior to beginning work. Delays and costs associated with failure to comply with this requirement are the sole responsibility of the abatement contractor.

The work plan must comply with all applicable regulations and this specification. The plan is to detail specific work practices, prevent uncontrolled disturbance of asbestos containing materials, completely remove specified materials, clean all surfaces in proximity to work area, meet schedule and project requirements, address material disposal and ensure prevention of asbestos fiber release. Failure to meet project objectives will result in rejection of the work plan.

C. The IHC, Project Manager(s) or Owner(s) may deny a work plan and require revisions if the work plan is inadequate to meet regulatory and specification requirements or to achieve the goals and needs of the project. Specific containment requirements, staffing, ventilation design, and monitoring may be required to achieve the goals of the project and will be at the discretion of the IHC, Project Manager(s) or Owner(s) at no additional cost or impact to the schedule for the project.

D. Required Work Plan Content: (All Listed subjects must be addressed in plan)

1. Schedule of work and containments with shift times and number of shifts included
   i. Location of negative air machines
   ii. Ventilation routes
   iii. Negative pressure and air change calculation
   iv. Location of constant reading manometer
2. List of Equipment planned for use during this project, including manufacturer’s literature and certification if appropriate. (Redundant equipment is needed in case of breakdown)
3. Identification of encapsulates and chemicals to be used along with Material Safety Data Sheets (MSDS) for each.
4. Identification of Project on-site Supervisor and alternate—One must be present at all times work is being performed
5. Fire and Emergency Evacuation Plan
6. Plan for communication system between work area and outside
7. Telephone numbers, names, certificates for all workers
8. Containment Construction Design
9. Air Monitoring Plan (NEA for this project required if planning reduction of monitoring)
10. Identification of secured area for storage of Contractors equipment and waste
11. Methods to maintain security to prevent unauthorized entry into the work space
12. Emergency evacuation procedures for medical or safety reasons (i.e. fire and smoke) so that exposure to ACM shall be minimized.

13. Method for packaging, labeling, loading, transporting, and disposing contaminated material in a way that minimizes exposure and contamination.

14. Transportation Plan and Disposal Location—with date of disposal location confirmation.

15. Work Plan and Contingency Plan for maintaining schedule (CRITICAL PATH).

16. Plan for maintaining negative pressure regardless of external factors.

17. Standard operating procedures showing how workmen, visitors and Owner’s employees will be protected from exposure, how space outside the work areas will be protected from contamination through completion of work, work procedures utilized during the project and final clean-up/decontamination procedures to be implemented.

E. Documentation satisfactory to the IHC and project team that the Contractor’s employees, including foremen, supervisors, and any other company personnel or agents who may be exposed to airborne asbestos fibers or who may be responsible for any aspect of abatement activities, have received adequate training and are properly licensed by the appropriate agencies. This includes copies of all licenses for each employee working on the site.

F. Documentation of respirator fit testing for all Contractor’s employees and agents who must enter the work area. This fit testing shall be conducted in accordance with testing procedures as required by OSHA.

G. Physician’s Documentation that all employees or agents who may be exposed to airborne asbestos in excess of background level have been provided with an opportunity to be medically monitored to determine whether they are physically capable of working while wearing the respirator required without suffering adverse health effects. In addition submit documentation that personnel have received medical monitoring as required by OSHA regulations. The Contractor must be aware of and provide information to the examining physician regarding unusual conditions in the work place environment (e.g., high temperatures, humidity and chemical contaminants) that may impact on the employees’ ability to perform work activities.

H. A copy of the Contractor’s training program, safety manuals and policies, and written respiratory protection program.

I. Submit copies of all MSDS as required under the OSHA Hazard Communication Act OSHA 1900.1200.

J. The abatement contractor must submit a permit application and project design to the Montana Department of Environmental Quality, Asbestos Control Program (MDEQ) once approval is granted by the IHC and project team. The abatement contractor is responsible for all fees associated with the asbestos abatement work.

K. Upon completion the contractor must submit disposal manifests, all air monitoring data, and containment entry/exit logs for the project to the contracted Industrial Hygienist (IHC).

1.05 RELATED DOCUMENTS

A. The areas have been inspected for asbestos containing building materials by Montana accredited inspectors. Except for the soffits and CMU wall. A copy of the Asbestos Inspection Report can be obtained from the owner.

B. All bidders are required to attend the PRE-BID WALKTHROUGH February 11, 2019 at 3:30 pm and review
the building in person. The Pre-Bid Walkthrough is the only time the building will be available for inspection.

C. All drawings, specifications, and technical notes for the project must be reviewed by all abatement contractors for inclusion of abatement requirements.

D. All abatement of asbestos must be coordinated with the building owner, project manager and IHC. Abatement must occur prior to the disturbance of material by non-accredited individuals. Abatement schedule is critical and MUST be maintained. Failure to meet the schedule will be deemed nonconformance with this specification and result in application of liquidated damages at the discretion of the owner.

1.06 DEFINITIONS

A. Abatement: Procedures to control fiber release from ACM including removal, encapsulation, enclosure and repair.

B. Abatement Activities: all activities from the initiation of work area preparation through successful clearance air monitoring to be performed at the conclusion of an asbestos project or minor project.

C. ACM: Asbestos Containing Material

D. Aggressive Method: Removal or disturbance of building material by sanding, abrading, grinding, or other method that breaks, crumbles, or disintegrates intact asbestos containing material (ACM).

E. Aggressive Sampling: A sampling method in which the air sampling technician agitates and makes airborne any settled dust and residual asbestos fibers through the use of mechanical equipment to stir up settled dust during the sampling period, thus simulating activity in that area of the building.

F. AIHA: The American Industrial Hygiene Association

G. Air Lock: A system for permitting entrance and exit while restricting air movement between a contaminated area and an uncontaminated area. It consists of two (2) curtained doorways separated by a distance of at least three (3) feet such that one (1) passes through one doorway into the air lock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.

H. Air Sampling: The process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure utilized for asbestos follows the NIOSH Standard Analytical Method 7400 or the provisional method developed by the United States Environmental Protection Agency (USEPA), which are utilized for lower detectability and specific fiber identification.

I. Amended Water: Water containing a wetting agent or surfactant with a surface tension of at least 29 dynes/cm² when tested in accordance with ASTM D 1331.

J. Asbestos: Any hydrated mineral silicate separable into commercially usable fiber, including but not limited to Chrysotile (serpentine), Amosite (cummingtonite-grunerite), Crocidolite (riebeckite), Tremolite, Anthrophyllite, and Actinolite.

K. Asbestos Containing Material (ACM): Any material containing more than one percent (1%) asbestos when tested according to EPA NESHAP regulations.
L. Asbestos Fiber: A particulate form of asbestos, 5 micrometers or longer, with a length to width ratio of at least 3 to 1.

M. Authorized Person: Any person authorized by the contractor and required by work duties to be present in the regulated areas. They must have all proper training and PPE documentation.

N. Category I Non-Friable Asbestos-Containing Building Material: Asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the methods specified in appendix E, Subpart E, 40 CFR Part 763, Section 1, Polarized Light Microscopy.

O. Category II Non-Friable Asbestos-Containing Building Material: Any material excluding Category I Non-Friable ACM, containing more than 1% asbestos that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

P. Class II Asbestos Work: Activities defined by OSHA involving the removal of ACM, which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastic. Certain “incidental” roofing materials such as mastic, flashing and cements when they are still intact are excluded from Class II Asbestos work. Removal of small amounts of these materials, which would fit into a glove bag, may be classified as a class III job.

Q. Clean Room: An uncontaminated area or room that is part of the worker decontamination enclosure with provisions for storage of workers’ street clothes and protective equipment.

R. Clearance Air Monitoring: The employment of aggressive sampling techniques using the volume of air collected to determine the airborne concentrations of residual fibers. It is to be performed as the final abatement activity.

S. Competent Person: In addition to the definition in 29 CFT 1926, Section 32(f), a person who is capable of identifying existing asbestos hazards as defined in 29 CFR 1926 Section 1101, selecting the appropriate control strategy, has the authority to take prompt corrective measures to eliminate them and has EPA Model Accreditation Plan (MAP) “Contractor/Supervisor” training; accreditation required by 40 CFR 763, Subpart E, Appendix C. Additionally, this person must be accredited in accordance with MCA Title 75, Environmental Protection, Chapter 2, Air Quality, Part 5 Asbestos Control (75-2-511 State of Montana Accreditation requirements).

T. Contractor/Supervisor: Individual who supervises asbestos abatement work and has EPA Model Accreditation Plan “Contractor/Supervisor” training; accreditation required by 40 CFR 763, Subpart E, and Appendix C. Additionally, Contractors and/or Supervisors must be accredited in accordance with MCA Title 75, Environmental Protection, Chapter 2, Air Quality, Part 5 Asbestos Control (75-2-5111 State of Montana Accreditation Requirements).

U. Critical Barrier: One or more layers of plastic sealed over all openings into a regulated area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a regulated area from migrating to an adjacent area.
V. Decontamination Area: An enclosed area adjacent and connected to the regulated area and consisting of an equipment room shower area, and clean room which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

W. Encapsulant (sealant) or Encapsulating Agent: A liquid material which can be applied to an ACM and which temporarily controls the possible release of asbestos fibers from the material by creating a membrane over the surface (bridging encapsulation) or by penetrating into the material and binding its components together (penetrating encapsulant).

X. Encapsulation: The coating or spraying of asbestos materials with a sealant/encapsulating agent.

Y. Enclosure: The construction of air tight walls and a ceiling between the asbestos material and the facility environment, or around surfaces coated with asbestos materials, or any appropriate and approved procedure that prevents the release of asbestos materials.

Z. Equipment Room: A contaminated area or room that is part of the worker DES with provisions for the storage of contamination clothing and equipment.

AA. Friable Asbestos Containing Material: Any material containing more than 1% Asbestos that, when dry, can be crumbled, pulverized to powder by hand pressure.

BB. HEPA Filter: A high efficiency particulate air filter capable of trapping and retaining 99.97 percent of particles (asbestos fibers) greater than 0.3 micrometers mass median aerodynamic equivalent diameter.

CC. Industrial Hygienist: The professional contracted or employed by the Building Owner(s) and or Project Manager(s) to supervise and/or conduct air monitoring and analysis, perform inspections and act as the Owner(s) Representative.


EE. NIOSH: The National Institute for Occupational Safety and Health.

FF. Personal Air Monitoring: A method used to determine employee’s exposure to airborne fibers. Samples are collected outside the respirator in the workers’ breathing zone as OSHA asbestos standards (29 CFR 1926.58).

GG. Personal Protective Equipment (PPE): Appropriate clothing, headgear, eye protection, footwear and MSHA/NIOSH approved respiratory protection.

HH. Regulated Asbestos-Containing Material: Regulated asbestos-containing material (RACM) means:
   1. Friable asbestos material;
   2. Category I non-friable ACM that has become friable;
   3. Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; or
   4. Category I and 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 operations.

II. Removal: The stripping of any ACM from surfaces or asbestos components of a facility.
JJ. Respiratory Protection Standard: Respiratory protection provided to workers in accordance with Personal Protection Equipment Requirements (OSHA 20 CFR 1926.58).

KK. Shower Room: A room between the clean room and the equipment room in the worker decontamination enclosure with hot and cold running water controllable at a tap and arranged for complete showering during decontamination.

LL. Staging Area: The area near the waste transfer air lock where containerized asbestos waste had been placed prior to removal from the work area.

MM. Surfactant: A chemical wetting agent added to water to improve penetration.

NN. Visible Emissions: Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments.

OO. Work Area: Designated rooms, spaces, or areas of the project where asbestos abatement activities take place.

PP. Work Site: Premises where asbestos abatement activity is taking place and that may be comprised of one or more work areas.

1.07 APPLICABLE REGULATIONS

A. General: This section sets forth governmental regulations and industry standards, which are included and incorporated herein by reference and made a part of the specifications. Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable codes, regulations, and standards have the same force and effect. Any conflicts or overlap of these requirements shall be governed by the more stringent regulation or standard. Publications shall be the current edition in effect. Codes, standards and regulations which govern asbestos abatement work or hauling and disposal of asbestos waste materials include, but are not limited to, the following:

B. Code of Federal Regulations (CFR) Publications:

**OSHA**
- 29 CFR 1926.1101 Construction Industry Standard
- 29 CFR 1926.59 Hazard Communication
- 29 CFR 1910.134 Respiratory Protection
- 29 CFR 1910.145 Specifications for Accident Prevention Signs and Tags

**EPA**
- 40 CFR 763 Subpart G Worker Protection Rule
- 40 CFR 763 Subpart E AHERA, Asbestos-Containing Materials in Schools

Transportation 49 CFR Parts 171, 172 Transportation of Hazardous Materials
C. State Requirements:

MCA Title 75, Chapter 2, Parts 1-4  Air Quality
MCA Title 75, Chapter 10, Part 4  Hazardous Waste Management
MCA Title 75, Chapter 2, Part 5  Asbestos Control
ARM Title 17, Chapter 8  Air Quality
ARM Title 17, Chapter 53  Hazardous Waste Management
ARM Title 17, Chapter 74  Asbestos Control

Asbestos abatement work within the State of Montana, including removal, transportation and disposal of asbestos waste, is regulated by:

Waste and Underground Tank Bureau, Asbestos Control Program, Department of Environmental Quality, 1520 East 6th Avenue, P.O. Box 200901, Helena, MT 59620-0901, (406) 444-5300.

1.08 ACCREDITATION AND EXPERIENCE

A. General: Submit documentation to verify that all contractor/supervisors and workers involved in asbestos abatement are currently licensed by the Montana State Department of Environmental Quality to perform asbestos abatement. For extended projects the Contractor must maintain credentials for all workers requiring refresher training.

B. Personnel: Provide certificates of accreditation for each employee who will be participating in, or working in a close proximity to, asbestos abatement operations within the work plan submittal.

1. Competent Person

a. The designated Competent Persons shall be on-site at all times asbestos work is under way. These persons shall be experienced in administration and supervision of asbestos abatement projects including work practices, protective measures for building and personnel, disposal procedures, etc. These persons are the Contractor’s Representative responsible for compliance with all applicable federal, state and local regulations, particularly those relating to asbestos-containing materials.

b. Accreditation: The Competent Persons shall be accredited by the State of Montana as an asbestos abatement contractor/supervisor, as required by OSHA, NESHAP, and State of Montana asbestos abatement regulations. Submit copies of certificates of accreditation with submittal of work plan.

c. If in the opinion of the IHC and Project team the designated Competent Person is not capable of making decisions, taking corrective actions, or demonstrates inability to oversee the abatement scope the Contractor will be required to replace the designated person with a New Competent Person at no cost to the project.

2. Workers

a. Accreditation: All asbestos abatement workers shall be accredited by the State of Montana to perform asbestos abatement work in the State of Montana as required by OSHA, NESHAP and State of Montana asbestos abatement regulations. Submit copies of certificates of accreditation with work plan submittal package.

1.09 CONTRACTOR CONDUCT
All contractor personnel must adhere to the Montana State University expectations for conduct while on campus. No smoking, possession or use of ANY tobacco product or weapons is allowed on the property and all posted signs must be complied with at all times.

Workers are to comply with all Site Safety Requirements and OSHA Safety Requirements. At minimum worker attire is to be standard construction attire with, at a minimum, a tee shirt with 4-inch sleeves, pants, and closed toe shoes. Workers entering/exiting decontamination must adhere to this standard. Contractor must ensure that Clean-Room stages of decontamination units are large enough to meet clothing changing needs and secure entry requirements.

Work areas must be kept clean and free of all dust and debris at all times. Cooperation with all MSU, Project Managers and IHC directives is required of all contractor personnel at all times.

### 1.10 RESPONSIBILITIES OF THE INDUSTRIAL HYGIENE CONSULTANT - (IHC)

The Industrial Hygiene Consultant (IHC) shall be hired by the Owner(s) and be independent of the Abatement Contractor on the job. The IHC shall assist the Owner(s) in the administration and enforcement of this specification and achievement of project goals. Services provided by the IHC are determined by the owner and may include but are not limited to:

a. Review of the Abatement Contractor work plan and variance requests for approval prior to submittal to MDEQ for a permit.

b. Monitoring of work practices, containments, security, decontamination, air monitoring and schedule. If the IHC determines a failure or based upon evaluation a possible failure to meet regulatory, specification, or schedule requirements: corrective action must be taken by the abatement contractor.

c. The IHC will make inspections after each stage of work is completed to assure proper completion before the next stage begins. Inspections will take place after containment has been completed (prior to removal) and at the end of abatement for Visual Inspections and Final Air Clearance Testing.

d. If any inspection fails, the IHC shall notify the Abatement Contractor stating the reason for the failure. The Abatement Contractor shall correct the problem and the IHC shall perform another inspection. This process shall be repeated until the Abatement Contractor’s work has passed inspection. The IHC determination is considered necessary for project goal achievement and as such is NOT subject to refusal by the contractor.

e. Visual monitoring of work practices, work area and smoke testing periodically at the discretion of the IHC.

f. Review of Personal and Area Monitoring performed by the Abatement Contractor.

g. Possible area air monitoring during abatement activities.

h. The IHC shall have the authority to stop work at any time when conditions are not within the Specification requirements or applicable regulations. The stoppage of work shall continue until
conditions have been corrected to the satisfaction of the IHC or other authorized representative. Standby time required to resolve violations shall be at the Abatement Contractor’s expense.

i. The IHC will perform all Visual Inspection and Final Air Sampling of individual containments.

j. The IHC will perform a Visual Inspection of all waste material prior to transport to the landfill.

k. The IHC will issue a written Certification of Completion for the project.

PART 2 – PRODUCTS

2.01 GENERAL

A. Provide all materials and equipment, suitable and in adequate quantity, required to accomplish the work as specified herein within the scheduled time frame. Isolation of the regulated area from adjacent workers and spaces must be achieved at all times. Adequate equipment must be on-site to meet negative pressure requirements and work schedule at all times. It is the contractor’s sole responsibility to maintain all equipment in adequate working order.

B. Ensure all MSDS information is on the job site and hazard communication requirements are met.

C. Ensure all chemical containers, waste containers, tools, and equipment are appropriately labeled and secured during all phases of work.

D. Ensure critical equipment is available on-site with redundant capacity to ensure continuation of work even with breakdown or equipment failure.

PART 3 – EXECUTION

3.01 GENERAL

A. It is the responsibility of the Abatement Contractor to familiarize themselves with the building(s) and scope of the project for bidding and abatement plan purposes.

Weather, wind, building characteristics, and some site conditions are subject to natural change and must be anticipated by the contractor. Abatement work areas are to be secured and isolated from other on-site areas and abatement is to be performed only in these secured areas.

B. ALL ABATEMENT tasks are to be performed in compliance with applicable regulations and with this specification. Where this specification creates conflict with regulatory documents the regulatory document will supersede this specification where the specification may result in non-compliance or where the regulatory requirement is more stringent. In no circumstance is the Contractor to violate regulatory requirements for handling and removal of asbestos containing building materials.

C. Negative pressure enclosure is required for all asbestos abatement activity. All dust, water, debris, and potential contamination must be controlled and maintained within the enclosure. Smoke testing and inspection must be performed by the abatement contractor each day prior to start of work and as needed during the work period. Containment must be monitored by a logging/printing electronic manometer measuring inches of water column. Containment must be maintained at a pressure differential of at least
0.020” of water column at all times from initiation of abatement through air clearance. Contractor is required to stop work and make necessary corrections to containments and/or work practice if pressure differential drops below the required 0.020” of water column at any time.

D. Smoke testing by the IHC may be performed at any time to verify containment and negative pressure. **Containment must isolate the abatement work area from floor to hard ceiling in all directions.**

### 3.02 WORK AREA PREPARATION

#### A. Personnel Qualifications

All Abatement Contractor personnel involved with asbestos work must be trained and tested prior to any work, and shall be thoroughly familiar with the approved Abatement Contractor’s work plan for the abatement work on this project. All personnel shall undergo the specific medical examinations required by OSHA. The superintendent and the foreman shall be thoroughly familiar with all applicable regulations and practices for asbestos work and shall have participated in at least two abatement projects of similar size and scope within the past year. All personnel shall be in possession of valid respirator fit test paperwork. All personnel shall have a valid Montana Asbestos Abatement Contractor/Supervisor or Worker certification issued by the MDEQ. Anyone without the above qualifications shall not be allowed to work during the abatement phase at any time. It is the Abatement Contractor’s sole responsibility to comply with all worker protection and certification requirements.

There shall be a sufficient number of trained and qualified workers, foremen and superintendents to accomplish the work in accordance with the required schedules. Since general work cannot start prior to the successful abatement of the work area, it is imperative that a sufficient number of trained personnel be engaged throughout the abatement process. No untrained, unqualified or unapproved person shall be employed to hasten completion of the abatement work.

1. Superintendent and Forman Qualifications and Duties shall consist of but are not limited to:

   a. Training and knowledge of applicable regulations and expertise in safety and environmental protection.

   b. Fluency in English and the languages spoken by all employees, or a designated interpreter for each language shall be available on each shift. A list of designated interpreters and their work schedules shall be provided for the Owner(s).

   c. Assuring that the decontamination chambers are kept clean.

   d. Surveying the work area a minimum of two (2) times per shift for proper housekeeping, safety precautions, barrier integrity and integrity of negative air pressure. **All observations shall be recorded and made available to the owner’s representative and IHC.** Damage and defects in the enclosure system are to be repaired immediately upon discovery.

   e. Ensure that each worker is wearing proper personal protective equipment and is trained in its use, and shall instruct workers on evacuation procedures during hazards. **NO Facial hair (beards) shall be permitted to be worn when wearing respiratory protection that requires a mask to face seal.**
f. Ensure safe practices to prevent accidents in the work space, especially from electrical shocks, slippery surfaces and entanglements in loose hoses/cords and equipment.

g. Safe work practices including, provisions for inter-room communications and the exclusion of eating, drinking, smoking and any activity that may break a respiratory protection seal.

h. Ensure that all workers are certified and licensed.

i. Take precautions to prevent overstressing of workers.

j. Proper exit procedures from the work space to the outside through the decontamination facility.

B. Isolation of Work Area

1. Access to work areas shall be controlled through the use of signs, barricades, or other means as appropriate to prevent unauthorized personnel from entering the work area.

2. Post “Asbestos Danger Signs” prominently at all possible points of entry into the work area prior to the disturbance of any ACM. Signs should be in accordance with OSHA standard 29 CFR 1910.1001. The Asbestos Contractor shall provide all OSHA and NESHAP required labels for all plastic bags and all drums utilized to transport asbestos contaminated material to the landfill. The Asbestos Contractor shall provide any other signs, labels, warning and posted instructions that are necessary to protect, inform and warn people of the hazard from asbestos exposure. The signs shall be posted in a prominent and convenient place to warn of the hazard at a sufficient distance to avoid any possible exposure.

3. Deactivate electrical circuits in the enclosure unless equipped with ground-fault circuit interrupters or positive grounding is confirmed. Coordination with General Contractor for identification of electrical isolation is required.

C. Isolation of Heating/Ventilation/Air Conditioning (HVAC) Systems

1. Abatement Contractor shall coordinate with Owner(s) and project team for the proper shut-down and isolation of any and all HVAC systems prior to installation of critical barriers and start of abatement activities.

2. HVAC systems for this project may NOT be able to be shut down and thus the contractor must isolate these systems from work areas. Operational HVAC, heating, electrical, and plumbing systems are not a change of condition for this project and must be anticipated by the contractor.

D. Construction of Containments

1. Critical barriers shall be placed on all windows and all openings in the work area with not less than two (2) layers of 6-mil, fire retardant polyethylene sheeting. These barriers shall be sealed and remain in place until final air clearance testing has been completed.

2. Block any floor drains in the work area with critical barriers and do not allow any asbestos waste to
enter any drains.

3. Where determined by work plan or project design two (2) layers of 6-mil, fire retardant polyethylene sheeting shall be placed on floors, walls and used to cover building components within the work area. All ceilings are to be protected with a minimum of one (1) layer of 6-mil fire retardant polyethylene sheeting in order to provide protective barriers and to achieve negative air pressure inside the work area. Sheetings shall be sized to minimize seams. When seams are necessary they shall be staggered and separated at least 6 feet to reduce the potential for water to penetrate and have minimum overlap of 12 inches. All Floor sheeting shall extend at least 12 inches up the walls of the work area.

4. Walls, critical barriers, and ceilings of the Negative pressure enclosure must be sealed and actively inspected during work for integrity and isolation of the work space.

5. Should critical barrier erection disturb any ACM, the Abatement Contractor shall bring the issue to the IHC and project team for evaluation. Possible removal techniques may include the material to be removed by application of amended water and removal using tent procedures and HEPA vacuuming with a funnel attachment or possible glove-bag methods when applicable. These procedures are limited to only those materials absolutely necessary for proper construction of containment. Appropriate respiratory and protective equipment shall be worn during this operation.

6. All remaining non-removable items within in the work area shall be covered with two layers of 6-mil fire retardant polyethylene sheeting and taped securely.

7. Fire-Exits must be accessible at all times and each should be equipped with an emergency egress air lock to be utilized only in an emergency.

8. All entrances to the work area not used for worker entry or emergency exits shall be locked and sealed to prevent unauthorized entry.

E. Decontamination Unit Construction & Maintenance

1. In work areas where it is required, a three (3) stage decontamination (decon) chamber shall be constructed. This shall take place prior to any work being started in any area.

2. The decon unit shall be composed of a series of three (3) rooms/spaces set up in a consecutive arrangement from the abatement work area to the outside work area. If, required, a decontamination trailer shall be provided to the workers and placed in an isolated position in the uncontained environment.

3. The first, innermost room of the decon chamber shall be designated as the “Dirty Room”. It will be located at the closest proximity to the enclosed work area and separated by an airlock. This in turn shall be attached to a “Shower Room” by an air lock to prevent fiber release. This shower room, which the workers shall use to decontaminate themselves of all remaining asbestos fibers when exiting the work area, shall be attached to the “Clean Room”. The clean room shall be used as the entrance to the actual decon chamber. It is here where street clothes and uncontaminated personnel protective equipment shall be accessed.
4. All rooms of the decontamination unit must be of a size capable of meeting needs of crew size and work required. Failure to maintain clothing, equipment, and containment requirements will require correction by the contractor.

5. Air locks used to separate the rooms shall be composed of fire-retardant, plastic doors and weighted to prevent contaminated air from escaping into the environment.

6. A two (2) stage load-out/equipment access is to be used for the removal of material or the access of equipment. Proper decontamination is required and no-material or fiber release is to occur through this load out unit. Contractor work plan MUST address the use of this two (2) stage unit with worker restrictions and decontamination procedures for material and equipment.

7. The decontamination chamber doors shall be of sufficient height and width to enable a safe ease of access for workers.

8. All shower water is to be drained, collected and filtered through a system with the capability to collect particles 5.0 microns in size, at a minimum, and discharge into a sanitary sewer or other state or federally approved waste disposal system.

9. A decon unit shall be constructed in accordance with the applicable regulations and approved work plan. If work procedures create a change in material or work, or if the IHC determines that material may become friable that was not previously identified as such the decontamination unit construction may change at no additional cost to the project.

F. Establishment of Negative Pressure

1. HEPA (rated at 99.97% capture of 0.3um particles) air filtration equipment of sufficient quantity and capacity shall be determined on a per containment basis to achieve negative pressure. A minimum of -0.02 column inches of water pressure differential, relative to outside containment pressure, shall be achieved prior to the start of any abatement work and maintained for the duration of the containment. The capacity shall be enough to cause a complete air change or total air filtration within the work area four (4) times per hour. Air changes per hour are to be calculated by the contractor using 75% of the rated CFM of the negative air machine.

2. Negative pressure is to be maintained during ALL asbestos work from the initiation through final air clearance.

3. Negative pressure is to be evidenced by manometric measurement constantly monitored by a manometer equipped with a strip chart printout or data logging capability. Multiple locations of evaluation may be required by the IHC for demonstration of pressure differential.

4. Negative air exhaust is to be ducted outdoors, where possible, the shortest distance possible using self-supporting ridged flex duct for all distances in excess of 10-feet. “Lay-Flat” or non-self-supporting duct is not allowed for exhaust distances greater than 10-feet.

5. Abatement contractor must demonstrate air flow within the containment without spaces isolated from air exchange. Fans, additional interior Negative Air machines or other methods must be addressed in the work plan to ensure adequate air movement and worker protection.
6. Where outdoor ventilation of negative air exhaust is not possible (basement) a redundant system of HEPA filtration may be constructed to ensure NO asbestos or dust release from the work space. Where planned redundant HEPA filtration must be approved by the IHC prior to start of work and included in the submitted work plan.

G. Construction of Waste Handling Unit

1. The waste handling unit shall be equipped with the facilities to wash and wipe the outside of the asbestos bags or containers prior to removing them from the work area for transportation. Provisions must be made to prevent any contaminated water run-off and all captured water shall be disposed of as asbestos containing waste or sufficiently filtered through a system with the capability to collect particles 5.0 microns in size, at a minimum, and discharge into a sanitary sewer or other state or federally approved waste disposal system.

2. The waste “load out” unit shall be separated by an air locked room adjacent either to the decontamination unit or to the regulated work area. This unit is ONLY for the removal of clean waste bags entry/exit of equipment and is not to be used for worker access.

H. IHC Visual Sign-Off of Containment & Work Area

1. Prior to the start of abatement work the containment and work area is to be inspected and approved by the IHC. Documented approval will be posted at the entry to the regulated area by the IHC.

3.03 WORK PRACTICES

A. Respiratory Protection

1. Respiratory protection shall be worn by all individuals inside the work area from the initiation of the asbestos project until all areas have successfully passed visual clearance or air monitoring.

2. All respiratory protection shall be MSHA/NIOSH approved in accordance with the provisions of 29 CFP 1926.103 or 30 CFR Part 11. All respiratory protection shall be provided by the Abatement Contractor and used by the workers in conjunction with the written respiratory protection program.

B. Personal Protective Equipment

1. The Abatement Contractor shall provide to all workers, foremen, superintendents and authorized visitors and inspectors, protective disposable clothing consisting of full body coveralls and head covers.

2. The Abatement Contractor shall provide eye protection, hard hats and safety shoes as required by job conditions and safety regulations. Safety shoes and hard hats shall be approved in accordance with ANSI Z99.1 1969 and ANSI Z41.1 1967.

3. Reusable footwear, hard hats and eye protection shall be left in the “Dirty Room” until the end of the asbestos abatement work or until they have been acceptably decontaminated.

4. All disposable protective clothing shall be discarded and disposed of as asbestos waste every time
the wearer exits the work area to the outside area through the decon facilities. AT NO TIME ARE WORKERS TO EXIT WORK AREA IN CONTAMINATED PPE.

5. If it is absolutely necessary that non-disposable clothing be worn for the asbestos project, laundering services shall be conducted in accordance with 29 CFR 1926.58.

C. Work Place Entry and Exit Procedures

1. All workers and authorized personnel shall enter the work area through the decontamination unit.

2. All personnel shall proceed to the clean room, remove all street clothes and don appropriate respiratory protection and personal protection coveralls and other possible PPE (i.e. hard hats, eye protection, hearing protection etc.).

3. Personnel wearing designated PPE shall proceed from the clean room through the shower room and dirty room into the work area.

4. Before leaving the work area all personnel shall remove gross contamination from the outside of their respirators and protective clothing by brushing, vacuuming or wet wiping procedures.

5. Personnel shall proceed to the dirty room where they shall remove all PPE except respirators. All disposable PPE is to be discarded as ACM containing waste.

6. Reusable, contaminated footwear shall be stored in the equipment room when not in use in the work area.

7. While still wearing respirators personnel shall proceed to the shower area, clean the outside of the respirators and the exposed face area under running water prior to removal of respirator, then shower and shampoo to remove residual asbestos contamination. Filter cartridges must be replaced for each new entry into the work area. Used cartridges are to be discarded as ACM waste.

8. After showering and drying off, workers may proceed to the clean room and don street clothing.

D. Removal of Asbestos Containing Material

1. Material to be removed shall be sufficiently wetted with amended water prior to removal. Material that will not accept amended water (tile) must be managed to prevent dust generation.

2. Remove the saturated asbestos material in small sections. As it is removed, pack the material in sealable plastic bags. The ACM removal shall begin within areas closest to the decon unit and proceed towards the HEPA filtration units.

3. Wet ACM shall be disposed of in doubled 6-mil bags marked with warning labels. Soaked fallen ACM shall be collected and bagged while wet. Contaminated materials containing sharp edges shall be cut to size while still wet, placed in cardboard boxes of manageable size and double bagged or placed in a leak-tight container. Waste bags and containers shall be properly labeled.

4. Use abatement tools and techniques that will not damage containment or building components and are in accordance with the approved work plan. Any use of unauthorized equipment or tools
may result in immediate stoppage of work.

5. ACM shall not be dropped or thrown from heights exceeding ten (10) feet above the floor. At heights above 10 feet, ACM shall be placed into incline chutes, placed onto scaffolding, or containerized at that height for later disposal. At all times dust must be controlled where wetting of material is not possible (floor tile).

6. Materials will be bagged and removed at the end of each work shift. No ACM debris shall be left in the work area overnight.

7. Bagged Asbestos Containing Waste (ACW) will be removed from the work area double bagged in either the decontamination area or separate waste exit chamber, and stored in a stationary sealed container.

E. Containment Inspections, Safety and Hygiene

1. Supervisors must survey the work area a minimum of two (2) times per shift for proper housekeeping, safety precautions, barrier integrity and integrity of negative air pressure. All observations shall be recorded.

2. Damage and defects in the enclosure system are to be repaired immediately upon discovery.

3. Supervisors must ensure that each worker is wearing proper personal protective equipment.

4. Supervisors must ensure all entry and exit procedures are properly used. Assuring that the decontamination chambers are kept clean.

5. Safe work practices including, provisions for inter-room communications and the exclusion of eating, drinking, smoking and any activity that may break a respiratory protection seal.

6. Supervisors and workers must ensure safe practices to prevent accidents in the work space, especially from electrical shocks, slippery surfaces and entanglements in loose hoses/cords and equipment.

F. Waste Pass Out Procedures & Handling

1. Asbestos contaminated waste that has been containerized shall be transported out of the work area through the waste container enclosure system (or through the worker decon unit if a separate waste chamber has not been constructed).

2. Waste pass-out procedures shall utilize two teams of workers, an “inside team” and an “outside team”.

3. The inside team, wearing appropriate PPE shall clean the outside, including bottoms, of properly labeled containers (bags, drums, or wrapped components). Using HEPA vacuums and wet wiping techniques, they shall transport the containers into the waste container pass-out air lock. No worker form the inside team shall further exit the work area through the air lock of the enclosure system.
4. The outside team, wearing appropriate PPE shall enter the air lock from outside the work area, enclose the containers in clean, labeled, 6-mil polyethylene bags or sheeting as the items’ physical characteristics demand, and remove them from the air lock to the outside. No worker from the outside team shall further enter the work area through this air lock, which shall be secured to prevent unauthorized entry.


Note: Any penalties incurred for failure to comply with any of the above requirements, will be the sole responsibility of the Abatement Contractor. The Owner(s) claims no responsibility for fines imposed due to the negligence of the Abatement Contractor.

6. Keep all Asbestos Containing Waste (ACW) separate from any other waste.

7. Ensure that ACW has been sufficiently wet down and examine the integrity of the container’s leak-tight/airtight seals. Re-wet and re-package any damaged containers. Ensure no visible emissions of dust into the air.

8. Keep ACW in a secured, enclosed and lockable container.

G. Waste Transportation

1. The Abatement Contractor shall transport all packaged asbestos waste to a facility that handles asbestos waste and is registered with the applicable regulatory agencies that has been pre-approved by the IHC, Owner(s) and landfill personnel to accept ACW or RACM waste.

2. Prior to transport for disposal all waste may be visually inspected by the IHC.

3. Labels are required on containers of ACW materials indicating the material content, the name of the waste generator and the location where the waste was generated.

4. The Abatement Contractor shall be responsible for ensuring that all such sealed containers are not ruptured during processing, including packaging, handling, loading, transporting and unloading. Any containers that are found to be ruptured upon arrival at the landfill shall be re-containerized by the Abatement Contractor immediately.

5. Require all individuals who transport or handle asbestos waste to use proper PPE and be appropriately licensed and/or accredited to handle ACM.

6. Transport waste vehicles operated by or escorted by a MDEQ accredited asbestos project worker or asbestos project contractor/supervisor.

7. Upon completion of the project the Abatement Contractor shall provide a waste manifest dually executed by the Abatement Contractor, Transporter and Disposal Facility. The manifest shall be all-inclusive, describing volume of materials, dates of transport and date of disposal. A waste manifest shall be produced for each load. Waste manifest is to be forwarded to the IHC and Owner for completion of work.
H. Final Clean-up of Containment Area

1. After removal of all visible accumulations of ACM, HEPA vacuuming shall be performed on all surfaces.

2. All surfaces in the work area shall be cleaned using a fine spray of mist of amended water followed by wet wiping using disposable cloths. These cloths shall be disposed of or rinsed thoroughly and frequently to prevent visible accumulation of debris. Surfaces must be allowed to dry before proceeding to the next cleaning step.

3. Allow for surfaces to dry and repeat above procedures. The cleaned layer of surface barriers may be removed, plastic used to maintain critical barriers shall not be removed until final air clearance has been achieved.

4. After completion of clean-up operations, the Abatement Contractor shall notify the IHC that an inspection is required prior to air clearances testing to ensure that no visible asbestos remains. A fine mist of removal encapsulant may then be applied. After PCM air samples are found to have airborne fiber concentrations of less than 0.010 f/cc final area breakdown, encapsulation of abated surfaces and removal of critical barriers may begin. If results are found to be above the acceptance criteria, the clean-up shall be repeated until compliance is achieved. Only after acceptable levels are achieved may the critical barriers be removed. All repairs and refinishing shall be performed.

5. TEM evaluation of air samples for asbestos fiber concentration may be performed at the contractor’s expense. Clearance will be considered achieved if asbestos fiber concentration is equal to or less than background samples when evaluated by AHERA methods.

6. All microscopy review/analysis of filter cassettes is to be performed by an independent third party laboratory: EMSL Analytical Morrisville NC, AIHA PAT Proficient, NVLAP accredited. Air clearances must be STARTED BY 2:00PM to make last Federal Express drop-off on the day of sampling. Results of samples will be available the following day. CONTACTOR MUST TAKE THIS INTO CONSIDERATION FOR SCHEDULE!! FAILURE TO ACHIEVE CLEARANCE OR TO MEET DAILY DELIVERY TIME IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

I. Tear Down and Project Completion

1. Abatement Contractor shall remove all signs of containment including critical barriers unless otherwise instructed. All tape, tape or glue residue, all equipment and materials used to perform work, must be removed. Contractor is to remove all signage, barriers and debris from the work area. Make any and all necessary repairs to leave building materials in condition as before containment construction.

2. Upon satisfactory completion, application for the Certificate of Completion may be made.

3.04 AIR MONITORING & CLEARANCES

A. Environmental Conditions to be maintained and monitored by Abatement Contractor:

1. Outside Asbestos Work Area: Air concentrations of asbestos shall be maintained at a daily average
below 0.01 fibers per cubic centimeter of air when measured using industry standard PCM methods. If fibers exceed this level, all non-licensed workers will be barred from this area, work shall cease, the area shall be cleaned and any problem shall be corrected prior to re-commencement of work. This required cleaning and work stoppage is at the expense of the abatement contractor and will not result in a change request or an extension of schedule.

2. Inside Asbestos Regulated Area: Air concentrations of asbestos shall be maintained as low as reasonably possible and monitored by personal air monitoring in compliance with OSHA requirements.

B. The Abatement Contractor shall be responsible for conducting air monitoring required under OSHA standards (Area & personal monitoring). The initial testing results will determine the level of respiratory protection necessary during the preparation phase of the abatement project.

C. The Contractor’s approved means and methods of abatement will determine the need for and frequency of air clearance testing in accordance with federal, state and local regulations.

D. The IHC hired by the Owner(s) will be responsible for the following:

1. A Visual Clearance of individual containments with Contractor Supervisor prior to encapsulation and prior to Final Air Clearance testing is to be completed by the IHC. The Abatement Contractor shall have available ladders and/or scaffolds of sufficient dimension and quantity so that all work surfaces can be easily and safely reached by inspectors.

2. A PCM aggressive Final Air Clearance test in each work area after removal, encapsulation and cleanup have been completed, but before the critical barriers and decontamination chambers are removed. Aggressive samples are conducted with the use of at least one (1) horsepower leaf blower and fans. Each room of the work area shall have at least one (1) final air test.

3. All PCM air samples shall be analyzed utilizing the NIOSH 7400 method using Counting Rules A. Clearance shall be deemed successful when all PCM results are less than 0.01 f/cc or subsequent TEM analysis by AHERA Counting rules result in equal to or less than background concentration levels of asbestos structures.

4. If any of the Final Air Clearance tests exceed 0.01 f/cc by PCM, at the expense and impact to the contractor samples may be analyzed by TEM for comparison to background. If greater than background or following PCM analysis the entire work area shall be re-cleaned immediately upon receipt of air test results. The area shall then be re-visualized and re-tested at no additional cost to the Owner(s). All costs associated with additional air clearance tests including but not limited to travel, labor and analytical costs shall be at the sole expense of the Abatement Contractor.

5. The Abatement Contractor is to notify the IHC 48-hours prior to the need for clearance evaluation.

3.05 PROJECT COMPLETION & CLOSE-OUT

The certification of final completion shall not be issued until the following conditions have been satisfied.

A. Final inspection by the Owner(s) and/or IHC reveals that no visible ACM exists in the designated work areas.

B. All inspections required by this Specification are complete and satisfactory.
C. A final Visual Clearance has been performed and Air Clearance tests indicate airborne fiber levels of less than 0.01 f/cc or less than background for TEM analysis for each area of containment have been met.

D. The Abatement Contractor submits copies of all daily OSHA personal monitoring results.

E. The Abatement Contractor submits all required disposal documentation.

F. The Abatement Contractor has removed all debris, tools, surplus materials, equipment, temporary buildings and materials from the work area.

G. The IHC shall issue a Certificate of Completion certifying that all conditions set forth in this Specification have been satisfactorily completed.

3.06 REID HALL – CLASSROOMS 401 & 402

Reid Hall abatement includes the removal of asbestos containing flooring, dry-erase boards and adhesive, hand scrape of mastic to a smooth surface. This specification provides the bidding contractor with site information, work practice requirements, and project goal clarification. ALL bidders are to carefully review all sections of this specification prior to bid in conjunction with the mandatory pre-bid site walkthrough in preparation of their submittal for consideration.

A. Power
Power needs by the abatement contractor must be coordinated with the general contractor prior to arrival immediately following award of bid. Where the general contractor and owner are not able to provide desired number of power locations, voltages, amperage needs, or service the Abatement contractor must provide generator to meet needs.

B. Heat
Work is to take place during the summer so heat should not be an issue. However, heat will be maintained in adjacent work areas. Additional heating units are the responsibility of the abatement contractor for the abatement containment. Heating units must be indirect fired to prevent introduction of air contaminants into the building. Damage due to failure to maintain the work space above freezing is the responsibility of the abatement contractor.

C. Water
Cold and Hot water sources are available in the building and will be identified prior to the start of work.

D. Access
Access to the classrooms work area for equipment will need to be coordinated with the General Contractor in conjunction with the owner.

E. Waste Egress
All waste will be transferred to designated waste containers provided by the Abatement Contractor in a specified route coordinated with the General and IHC.

F. Site Access
Abatement contractor is required to provide notification and schedule of work 72-hrs in advance of increase from standard. Abatement hours are to be coordinated with the GC.
G. Parking
MSU Campus parking permits are required for all vehicles. Limited site parking is available. Contractors are to figure this into the bid and to anticipate worker transport and equipment/material access from the site staging areas.

H. Staging
Staging area for equipment, trailers, waste storage, and materials is to be coordinated with the GC. Limited space is available immediately adjacent to the work site.

3.07 FLOORING & MASTIC REMOVAL

In identified work areas ALL floor tile is to be removed. Mastic is to be scraped to a smooth surface.

3.08 WORK PRACTICES

All impact, removal, and cleaning of asbestos containing material must be performed inside HEPA filtered negative pressure containments. Schedule requires the abatement contractor to be diligent and thorough in the work plan. All requirements of this specification, local, state, and federal regulations must be met by the abatement contractor.

ALL surfaces must be dust free and clean to achieve visual clearance requirements prior to air sample collection. Abatement contractor’s competent person must ensure a dust free work area prior to IHC review.

4.0 PHOTOGRAPHS
VIEW OF FLOORING MATERIALS

VIEW OF DRY-ERASE BOARDS AND WALL MATERIALS

5.0 BUILDING FLOOR PLANS (Attached)

End of Section 011819
SECTION 087100 - DOOR HARDWARE SCHEDULE

1.1 DOOR HARDWARE SCHEDULE

**MANUFACTURERS:**
(MK) McKINNEY MFG.
(SC) SCHLAGE LOCK CO.
(LOC) LOCKNETICS
(VO) VON DUPRIN
(LCN) LCN CLOSERS
(IV) IVES
(TR) TRIMCO
(PE) PEMKO MFG.
(ST) STANLEY
(GJ) GLYNN JOHNSON
(CR) CR LAURENCE
(FI) FIRST IMPRESSIONS INTERNATIONAL

**HARDWARE GROUP #01 –DOUBLE EXIT**

6 EA HINGES (MK) TA3786 – NRP – 4.5X4.5 US32D
2 EA CLOSER (LCN) 4040XP – CUSH-N-STOP ALUM
2 EA PANIC DEVICE (VO) 9827L-F, SURFACE MTD VERTICAL ROD, ANSI A156.3, GRADE 1 WITH LEVER TRIM (CLASSROOM FUNCTION)
4 EA FRAME AND FLOOR STRIKES FOR VERTICAL RODS
1 EA SEAL (PE) S88GR
1 EA ASTRAGAL (PE) 305CN FIRE RATED SPLIT ASTRAGAL
COORDINATE WITH ABATEMENT FOR REMOVAL OF FINISH FLOOR

CONTRACTOR TO COORDN WITH OWNER FOR TESTING OF WALL MATERIALS BEFORE DEMO. MSU WILL BEAR COST OF INVESTIGATION AND, IF REQD, ABATEMENT. TESTING TO BE DONE BY ENVIRONMENTAL SOLUTIONS.
**NOTE (1)**

- **Main Runner or Cross "T"**
  - Min. 3 tight turns in 1 1/2" wall angle
  - Attach at each stud w/ 1/4" long screws, provide blocking where cladding doesn’t terminate on a stud

**NOTE (2)**

- 1/4 of the length of the end runner, whichever is least
- Provide spacer at free end where the first runner is 12" or more from wall.

**A300**

1/2" type X GWB

**7/8" hat channel with 10 PSF span rating @ 24" O.C.**

See Note #1.

(F) Structure attachment to beam

See GA File No. FC 1110 for additional info on 1 hour fire rated ceiling assembly.

**Fire test:** UL R271-30, 6-12-64, UL Design G502