PROJECT MANUAL

ASBESTOS ABATEMENT

FOR

2ND AND 3RD FLOORS
MILLER BUILDING
301 NORTH 29TH STREET /
2823 3RD AVENUE NORTH
BILLINGS, MONTANA

PREPARED BY:

NORTHERN INDUSTRIAL HYGIENE, INC.
201 SOUTH 30TH STREET
BILLINGS, MONTANA 59101
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MT-3542 PD
EXPIRATION 12/18/2021

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NIH Project No. 182-057A Set No. _____

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GENERAL REQUIREMENTS

NOT USED

DIVISION ONE

SECTION 01010 - STATEMENT OF WORK

PART 1 - GENERAL

1.1 TITLE OF DRAWINGS AND SPECIFICATIONS

Specifications for Asbestos Abatement
2nd and 3rd Floors
Miller Building
301 N 29th Street / 2823 3rd Avenue North
Billings, Montana

1.2 OWNER AND CONSULTANT DEFINED

A. Owner:

Yellowstone County c/o
Board of County Commissioners
P.O. Box 35000
Billings, MT 59101
Contact: Mr. James Matteson
Telephone: (406) 256-2717
E-mail: jmatteson@yellowstonecountymt.gov

B. Consultant

Northern Industrial Hygiene, Inc.
201 South 30th Street
Billings, Montana 59101
Contact: Mr. Robert Brownell
Telephone: (406) 245-7766
E-mail: rbrownell@northernih.com

1.3 GENERAL DESCRIPTION OF THE PROJECT

A. Asbestos Removal: various floor finish materials, floor leveler, cove base adhesive, plaster walls and ceilings, acoustical ceiling surfacing, ceiling grid adhesive, reflective light fixture backing material, window glazing compound, vault door gasket and thermal system insulation (straight run pipe insulation and mudded joint/fitting insulation) from select areas on the second and third floors of the building.

In some areas the abatement contractor will be required to conduct soft demolition to access the thermal system insulation and the plaster walls and ceilings. Reference the drawings for locations of asbestos-containing materials scheduled for abatement.

The specific scope of this abatement project, including estimated quantity of ACM to be removed, is described below. The abatement work will consist of all work indicated in the Statement of Work and all work specified in the specifications. Briefly the work consists of the following:

1. Site Preparation: Includes construction of negative pressure containments, demarcation and isolation of the work areas, demolition as required to access materials to be abated, decontamination facility set-up, and other requirements as described in Section 02080 – Asbestos Abatement.

2. Air Monitoring: Conduct personnel air monitoring on the Contractor's employees throughout the removal process as outlined under Section 02080.

3. Asbestos Removal and Disposal: Asbestos Abatement of the following materials in accordance with the requirements of Section 02080 - Asbestos Abatement.

4. Proper decontamination of all asbestos abatement work areas and application of encapsulant.

Tables 1 and 2 indicate approximate quantities of asbestos-containing materials to be abated from the 2nd and 3rd floors of the building. The Owner is responsible for the removal and storage or disposal of furniture and other fixtures that must be removed in order to conduct the abatement work.

The Contractor is informed that the stated bid quantities encountered during the course of the work are assumed plus or minus 10% from actual field conditions. Change orders will not be considered within this stated variance.

1.4 ORDER OF PROCEDURE

A. The Owner's schedule for the hazardous materials abatement is presented below.

Upon receiving Notice to Proceed, Contractor shall amend (as necessary) the Owner's State of Montana Asbestos Abatement Annual Permit. Work on this project is scheduled to commence on **TBD** and be completed, including final clearance visual and air testing and containment tear down no later than **TBD**.

B. Scheduling Plan: Submit a detailed sequencing/scheduling plan of the work proposed in complying with this specification. The Owner or the Owner's Representative must approve the plan prior to commencement of work.

C. Work Activity Sequence: Proceed with all work according to the sequences established under 02080 - Part 3 - Execution. Asbestos removal and clearance visual and air testing shall be limited to the approved time period and shall be conducted in accordance with the project schedule submitted and approved by the Owner or the Owner's Representative.

D. Liquidated Damages: Contractor shall pay to the Owner the sum of $250 per day for each and every calendar day's delay in finishing the asbestos-related work under this contract beyond the stipulated contract time.

1.5 SCHEDULE OF DRAWINGS

A. Asbestos Abatement drawings indexed below are the drawings referred to in these specifications and the same are hereby made a part of the Contract.

H100 General Notes
H101 Asbestos Abatement Location Plan 2nd Floor
H102 Asbestos Abatement Location Plan 3rd Floor
H103 Asbestos Abatement Location Plan 3rd Floor – Reflective Ceiling

1.6 TABLE OF QUANTITIES OF ACBMs

TABLE 1 – SECOND FLOOR

MATERIAL DESCRIPTION	QUANTITY	UNIT
ACM Floor Tile & Mastic under Non-ACM Carpet	554	SF
ACM Black Mastic and ACM Contaminated Carpet	950	SF
ACM Ceiling Grid Adhesive	66	LF
ACM Reflective Light Fixture Backing (per light)	3	EA
ACM Straight/Joint/Fitting Pipe Insulation	500	LF
ACM Mudded Joints/Fittings on Non-ACM Insulated Piping	80	LF
ACM Vault Door Gasket	10	LF

TABLE 2 – THIRD FLOOR

MATERIAL DESCRIPTION	QUANTITY	UNIT
ACM Floor Tile & Mastic under Non-ACM Carpet	3,141	SF
ACM Floor Tile & Mastic	3,344	SF
ACM Black Mastic & ACM Contaminated Carpet	690	SF
ACM Floor Tile & Mastic under Non-ACM Floor Tile	375	SF
ACM Acoustic Surfacing on ACM Plaster Ceilings	7,857	SF
ACM Plaster Walls & Ceilings	11,376	SF
ACM Adhesive & ACM Contaminated Carpet Cove Base	70	LF
ACM Reflective Light Fixture Backing (per light)	3	EA
ACM Window Glazing Compound (per window)	2	EA
ACM Straight/Joint/Fitting Pipe Insulation	440	LF
ACM Mudded Joints/Fittings on Non-ACM Insulated Piping	120	LF

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

End of Section 01010 – Statement of Work

DIVISION TWO

SECTION 02080 - ASBESTOS ABATEMENT

1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and Asbestos Abatement Notes apply to this Section.

B. The project work areas have been inspected by an independent consultant for the presence of asbestos-containing materials (ACM). The survey and test results are available for review.

1.2 DESCRIPTION OF THE WORK

A. This asbestos abatement project consists of removal and disposal as asbestos the following materials: various floor finish materials, cove base adhesive, plaster walls and ceilings, acoustical ceiling surfacing, ceiling grid adhesive, reflective light fixture backing materials, window glazing compound, vault door gasket and thermal system insulation (straight run pipe insulation and associated mudded joint/fitting insulation) from select areas on the second and third floors of the Miller Building located at 301 North 29th Street / 2823 3rd Avenue North in Billings, Montana.

In some areas the abatement contractor will be required to conduct soft demolition to access the specified asbestos-containing materials.

Total estimated quantities of the various materials to be removed are presented in Section 01010. For information concerning the locations of the materials to be removed, refer to drawings H100, H101, H102 and H103.

B. The work shall be conducted as one overall abatement project however the phasing (timing and order of each work area) will be determined by the Abatement Contractor with the approval of the Building Owner and/or the Owner's Representative The Abatement Contractor will have access to the abatement work areas based upon the best interests of the Building Owner however, it is anticipated the Abatement Contractor will have 24/7 access to those areas.

All asbestos abatement for this project is to be performed inside negative pressure containments as indicated on the drawings. Containments must be constructed to meet requirements to perform Class I or Class II abatement work as determined by the materials being removed.

Final clearance air sampling will be performed in all abatement areas. The clearance air samples will be analyzed using Phase Contrast Microscopy (PCM) aggressive methods, in accordance with State of Montana regulations.

C. The work shall be executed as follows:

1. The work included in this project is described in these specifications and the accompanying drawings and notes. Contractors must site verify material quantities and site conditions that will affect the bid prices. The Owner will provide electrical power and water as required by the Contractor in the completion of this work.
2. OSHA Class I and Class II asbestos removal must be accomplished using negative-pressure enclosures as specified herein utilizing standard removal

methods.

3. Contractor shall construct temporary walls where necessary to isolate individual work areas where asbestos removal is required. Where walls are constructed to isolate work areas, they are to be constructed of wood or metal stud framing as necessary to support the plastic and must be covered with 1 layer of 6-mil polyethylene sheeting secured to the studs. Floors shall consist of 6-mil-polyethylene. Install sufficient make-up air vents in the temporary walls to allow for proper air movement in the containment and equip each vent with a HEPA filter properly sealed in place.
4. Employ sufficient HEPA filtered local exhaust ventilation machinery to maintain a negative pressure gradient of minimum 0.02 inches water column vs. the outside of the containment and effect a minimum of four air exchanges per hour. The enclosed area must have critical barriers and containment liners as necessary, waste-water filtration devices and other temporary installations to comply with regulations for proper asbestos removal. Install make-up air vents with HEPA filters in temporary barrier wall as necessary to ensure adequate air movement within containment areas.
5. Class I work areas in must be equipped with a minimum three-stage decontamination unit including clean room, shower and equipment room. Shower wash water must be filtered down to 5-micron particle size prior to discharge. Equip points of entry/exit and barriers to occupied spaces with proper warning signs.
6. Class II work areas must be equipped with a minimum two-stage decontamination unit including a clean room an equipment room.
7. All soft demolition required to access thermal system insulation (pipe chases, etc.) must be conducted from within a negative pressure containment to avoid potential contamination during the demolition. The non-asbestos demolition materials may be disposed as general construction waste prior to the start of abatement work.
7. Remove the asbestos materials in accordance with standard industry methods; wet removal techniques must be used.
8. Bag or containerize all RACM, Category 1 and Category 2 asbestos waste in approved bags or containers. Removed asbestos material must not be allowed to accumulate in the work area but collected and contained on a continuous basis. Ensure the material is adequately wet at time of containerization.

D. Air Monitoring - General

1. Contractor’s Required Air Monitoring

   The asbestos-abatement contractor shall perform, throughout abatement work, monitoring of contractor personnel's exposure, review and testing inside the work area in accordance with OSHA requirements and these specifications. The contractor's accredited supervisor ("competent person") shall personally review conditions inside the work area to ensure compliance with these specifications. In addition, the Competent Person shall personally manage air sample collection, analysis and evaluation for personnel samples and work area samples to satisfy OSHA requirements. Additional inspection and testing requirements are specified in other parts of this section.

   The Competent Person is responsible for managing all personnel monitoring, inspection and testing required by these specifications, the OSHA regulation 29 CFR 1926.1101, and for continuous monitoring of all sub-systems and procedures affecting the safety of the contractor's employees. Safety of the contractor's

employees and providing safe conditions inside the work area for all persons entering is the exclusive responsibility of the contractor. The person performing the personnel and exterior perimeter monitoring of the work area (OSHA "Competent Person") shall be an accredited asbestos contractor/supervisor who shall be trained and shall have field experience in air sampling. Keep a daily log of personnel and area samples taken and analyzed and make such log available to the building owner. The log shall contain information on the persons breathing zone sampled, activities being performed, the date of sample collection, the time of sample start and finish, flow rate, sample volume and fibers/cc. The log shall also contain information on area samples showing location of sample, date sample was taken, activities being performed, start and finish times for sample, flow rate, volume and fibers/cc. Take and analyze personnel samples for at least one of the workers in each shift. In addition to the continuous monitoring required, the contractor's Competent Person will perform review and testing at the final stages of abatement for each work area or building as specified elsewhere in this section.

E. Air Monitoring - Clearance

1. Clearance air monitoring will be performed and air samples will be analyzed using the phase contrast microscopy (PCM) method, in accordance with Federal and State regulations.
2. The abatement will be determined to be complete, and the area cleared, when the abatement area has been cleaned, a visual inspection has been performed and passed, and the results of the PCM clearance air samples indicate that 0.01 fibers per cubic centimeter or less are present on each of the 5 clearance air samples.
4. The Owner will pay for the first clearance inspection and set of air sample analyses in each separate work area. If release criteria are not met, the contractor shall repeat final cleaning and continue the decontamination procedure from that point. Additional costs associated with inspection and testing, including analytical and shipping costs, will be at the expense of the contractor until release criteria are met.

F. Sequencing/Scheduling

1. Abatement of all scheduled materials shall be performed on a schedule as determined by the Abatement Contractor with the approval of the Building Owner and/or the Owner’s Representative.

1.3 CONTRACTOR USE OF PREMISES

A. Limit use of the premises to the work areas indicated on the Drawings. Use of premises during abatement work will be restricted to those immediate areas/rooms where work is specified.
B. Maintain existing building in a safe and weathertight condition throughout the construction period. Repair all damage caused by construction activities during all work. Take all precautions necessary to protect the building and its occupants during the construction period.
C. Keep public areas such as hallways, stairs, and toilet rooms free from accumulation of waste, rubbish, or construction debris.
D. Smoking or open fires will not be permitted within the building enclosure or on the premises.
E. The Abatement Contractor shall provide a portable toilet for use by Contractor personnel.

F. Keep emergency access and egress routes open at all times during work. Containments are to be constructed so as to avoid blocking aisles, stairs, corridors, doors, etc.

1.4 WORKING HOURS

A. Submit work schedule to Owner. Work schedule shall be based upon the requirements of the Building Owner and the overall project.

1.5 APPLICABLE PUBLICATIONS

This section sets forth governmental regulations and industry standards that are included and incorporated herein by reference and made a part of the specifications. This section also sets forth those notices and permits that are known to the Owner and that either must be applied for and received, or which must be given to governmental agencies before start of work.

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, and standards 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. Publications shall be the current edition in effect.

Contractor Responsibility: The Contractor shall assume full responsibility and liability for the compliance with all applicable Federal, State, and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State, and local regulations. The Contractor shall hold the Owner and Owner's representative harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of himself, his employee, or his subcontractors.

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:

A. Code of Federal Regulations (CFR) Publications:

OSHA

29 CFR 1926.1101	Construction Industry Standard (1994)
29 CFR 1926.500	Guardrails, Handrails, and Covers
29 CFR 1910.134	Respiratory Protection
29 CFR 1910.145	Specifications for Accident Prevention Signs and Tags

EPA

40 CFR 61 Subpart A	General Provisions
40 CFR 61 Subpart M	National Emission Standard for Hazardous Air Pollutants
40 CFR 763.120, 121	Asbestos Abatement Projects
40 CFR 763 Subpart E	AHERA, Asbestos-containing Materials in Schools

B. American National Standard Institute (ANSI) Publications:

Z9.2-1979	Fundamentals Governing the Design and Operations of Local Exhaust Systems
Z88.2-1980	Practices for Respiratory Protection National Institute for Occupational Safety and Health (NIOSH) Revised Recommended Asbestos Standard

C. Environmental Protection Agency (EPA):

560/5-85-024	Guidance for Controlling Friable Asbestos-Containing Materials in Buildings

D. State Requirements:

Chapter 74	Administrative Rules of Montana

1.6 AUTHORITIES OF THE INDUSTRIAL HYGIENE CONSULTANT

A. The purpose of the work of the IHC is to: observe the contractor's work and performance of final review and testing to determine whether a space, containment, or a building has been adequately decontaminated. IHC may perform some or all of the following tasks:

1. Task 1: Collect and analyze pre-abatement air samples in areas where abatement work will be performed and clearance air samples will be required.
2. Task 2: Perform monitoring, inspection, and testing as necessary outside the work area during actual abatement work to detect any faults in the work area isolation and any adverse impact of surroundings from work area activities.
3. Task 3: Perform unannounced site visits to spot-check overall compliance of work with contract documents. These visits may include inspection, monitoring and testing inside and outside the work area and all aspects of operation except personnel monitoring.
4. Task 4: Provide support to the Owner such as evaluation of submittals from the Abatement contractor, resolution of unforeseen developments in abatement work, etc.
5. Task 5: Perform final review of a decontaminated area at the conclusion of the abatement and clean-up work.
6. Task 6: Collect and analyze clearance air samples in areas that will be re-occupied following the asbestos abatement.

B. Make available all data, review results and testing results generated by the IHC to the contractor for information and consideration. Contractor shall provide cooperation and support to the IHC for efficient and smooth performance of their work.

C. Monitoring and review results of the IHC will be used by the owner to issue any stop removal orders to the contractor during abatement work and to accept or reject areas as decontaminated. The IHC will, upon request, make available to the contractor the plan for sample collection and analysis for monitoring outside the work areas and the plan of final review for each space prior to executing each plan. Plan will include location of samples, name and qualification of person taking samples, whether on site analysis and/or lab analysis will be utilized, methodology of analysis, lab information and qualifications of on-site analyst.

D. Stop the abatement work at any time it is determined that conditions are not within the specifications and applicable regulations. The stoppage of work shall continue until conditions have been corrected and corrective steps have been taken to the satisfaction of the IHC. Standby time required to resolve violations shall be at the Contractor's expense.

1.7 CONTRACTOR ACCREDITATION AND EXPERIENCE

Proof of experience of the proposed Asbestos Abatement Contractor is required and will be based upon submission by Contractor of the following:

A. Experience:
Ability and proof of the contractor and his employees to perform asbestos abatement activities by submitting evidence of the successful completion of training courses covering asbestos removal as set forth by the appropriate Federal and State Codes and Regulations pertinent to asbestos abatement. Name and location of at least two asbestos abatement projects involving significant risks of fiber release with the name and telephone number of purchaser of abatement services.

B. Personnel:
1. General Superintendent

General Superintendent: Provide a full-time General Superintendent who is experienced in administration and supervision of asbestos abatement projects including work practices, protective measures for building and personnel, disposal procedures, etc. This person is the Contractor's Representative responsible for compliance with all applicable federal, state and local regulations, particularly those relating to asbestos-containing materials.

Experience and Training: The General Superintendent must have completed a course at an EPA-Approved Training Center or equivalent certificate course in asbestos abatement procedures and have had a minimum of two (2) years on-the-job training in asbestos abatement procedures and hold a State of Montana card in the proper discipline.

Accreditation: The General Superintendent is to be accredited as a competent person as required by OSHA, NESHAP and State of Montana regulations.

2. Workers

Accreditation: Submit copies of certificates of accreditation as required by OSHA and the State of Montana.

1.8 REMOVAL AND DISPOSAL GENERAL REQUIREMENTS

A. Description of Work:

The work covered by this section includes the removal and handling of friable materials and non-friable materials which may become friable by the actions of the removal work, and the incidental procedures and equipment required to protect workers and occupants of the area, or both, from contact with airborne asbestos fibers. The work also includes the disposal of the removed asbestos-containing materials.

The material removal procedures and work locations are explained in this project

manual.

B. Definitions Relative to Asbestos Abatement

1. Aerosol: A system consisting of particles, solid or liquid, suspended in air.
2. ACGIH: American conference of Governmental Industrial Hygienists
3. Air Cell: Insulation normally used on pipes and duct work that is comprised of corrugated cardboard which is frequently comprised of asbestos combined with cellulose or refractory binders.
4. Airlock: A system for permitting ingress or egress without permitting air movement between a contaminated area and a non-contaminated area, typically consisting of two curtained doorways at least 6 feet (2 meters) apart.
5. Air Monitoring: The process of measuring the fiber content of a specific volume of air.
6. Amended Water: Water to which a wetting agent or surfactant has been added.
7. Area Monitoring: Sampling of fiber concentrations within the asbestos removal area which is representative of the airborne concentrations of asbestos fibers which may reach the breathing zone.
8. Asbestos: The asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite grunerite, anthophyllite, amosite and actinolite-tremolite. For purposes of determining respiratory and worker protection, both the asbestiform and non-asbestiform varieties of the above minerals and any of these materials that have been chemically treated and/or altered shall be considered as asbestos.
9. Asbestos Fibers: This expression refers to all fibers having an aspect ratio of 3:1 and longer than 5 micrometers.
10. Asbestos-Containing Waste Material: Any material which is or is suspected of being or any material contaminated with an asbestos-containing material which is to be removed from a work area for disposal.
11. Authorized Visitor: The Owner, the Owner's Representative, testing lab personnel, the Engineer, Industrial Hygiene Consultant, or representative of any Federal, State, and local regulatory or other agency having authority over the project.
12. Barrier: Any surface that seals off the work area to inhibit the movement of fibers.
13. Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.
14. Bridging Encapsulant: A liquid material which can be applied to asbestos-containing materials which controls the possible release of asbestos fibers by creating a membrane over the surface.
15. Ceiling Concentration: The concentration of an airborne substance that shall not be exceeded at any time during an 8-hour shift.
16. Certified Industrial Hygienist (CIH): An industrial hygienist certified in the comprehensive practice of industrial hygiene by the American Board of Industrial Hygiene.
17. Class I Removal: Class I asbestos work means activities involving the removal of TSI and surfacing ACM and PACM.
18. Class II Removal: Class II asbestos work means activities 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 mastics.
19. Class III Removal: Class III asbestos work means repair and maintenance operations, where ACM including thermal system insulation and surfacing material is likely to be disturbed.
20. Clean Room: An uncontaminated area or room which is part of the worker

decontamination enclosure system, with provisions for storage of workers' street clothes and protective equipment.

21. Curtained Doorway: A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms, typically constructed by placing two overlapping sheets of plastic sheet over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one vertical side of the doorway, and securing the vertical edge of the other sheet along the opposite vertical side of the doorway. Two curtained doorways spaced a minimum of 6 feet (2 meters) apart form an airlock.

22. Decontamination Enclosure System: A series of connected rooms with curtained doorways between any two adjacent rooms for the decontamination of workers or of materials and equipment. A decontamination enclosure system always contains at least one airlock.
23. Demolition: The wrecking or taking out of any building component, system, finish or assembly of a facility together with any related handling operations.
24. Disposal Bag: 6 mil thick leak-tight plastic bags used for transporting asbestos waste from work and to disposal site. Each is labeled as follows:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CUASES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

and shall also be labeled per NESHAP and DOT regulations.

25. Encapsulation: Treatment of asbestos-containing materials, with an encapsulant.
26. Enclosure: The construction of an air-tight, impermeable, permanent barrier around asbestos-containing material to control the release of asbestos fibers into the air.
27. Equipment Decontamination Enclosure System: A decontamination enclosure system for materials and equipment, typically consisting of a designated area of the work area, a washroom, a holding area and an uncontaminated area.
28. Equipment Room: A contaminated area or room which is part of the worker decontamination enclosure system, with provisions for storage of contaminated clothing and equipment.
29. Filter: A media component used in respirators to remove solid or liquid particles from the inspired air.
30. Friable Asbestos Material: Material that contains more than 1.0% asbestos by weight and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.
31. Glovebag: A sack (typically constructed of 6 mil transparent polyethylene or polyvinylchloride plastic) with two inward projecting long sleeve gloves, which is designed to enclose an object from which an asbestos-containing material is to be removed.
32. HEPA filter: A High Efficiency Particulate Absolute (HEPA) filter capable of trapping and retaining 99.97% of asbestos fibers greater than 0.3 microns in length.
33. HEPA Filter Vacuum Collection Equipment (or vacuum cleaner): High efficiency particulate air (absolute) filtered vacuum collection equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be of 99.97% efficiency for retaining fibers of 0.3 microns or larger.
34. High-Efficiency Filter: A filter which removes from air 99.97% or more of

monodisperse dioctyl phthalate (DOP) particles having a mean particle diameter of 0.3 micrometer.

35. Holding Area: A chamber between the washroom and an uncontaminated area in the equipment decontamination enclosure system. The holding area comprises an airlock.
36. MSHA: Mine Safety and Health Administration.
37. Negative Pressure: Air pressure lower than surrounding areas, generally caused by exhausting air from a sealed space (work area).
38. Negative Pressure Respirator: A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.
39. Negative Pressure Ventilation System: A local exhaust system, utilizing HEPA filtration capable of maintaining a negative pressure inside the work area and a constant air flow from adjacent areas into the work area and exhausting that air outside the work area.
40. NIOSH: National Institute for Occupational Safety and Health
41. Non-Friable Asbestos Materials: Material that contains asbestos in which the fibers have been locked in by a bonding agent, coating, binder, or other material so that the asbestos is well bound and will not release fibers in excess of the asbestos control limit during any appropriate use, handling, demolition, storage, transportation, processing, or disposal.
42. Personal Monitoring: Sampling of air in the breathing zone of individual workers to determine the concentration of fibers, longer than 5 micrometers, per cubic centimeter of air.
43. PACM: Presumed asbestos-containing material. Any surfacing or thermal system insulation that was installed in a buildings no later than 1980 and that has not been tested for asbestos, must be presumed to contain asbestos until tested.
44. Protection Factor: The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.
45. RACM: Regulated asbestos-containing material as defined by NESHAP. Any material that is friable or has become friable.
46. Regulated Area: Means an area established by the employer to demarcate areas where Class I, II and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit.
47. Removal: All herein specified procedures necessary to strip all asbestos-containing materials from the designated areas and to dispose of these materials at an acceptable site.
48. Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres.
49. Shower Room: A room between the clean room and the equipment room in the worker decontamination enclosure system, with hot and cold or warm running water and suitably arranged for complete showering during decontamination. The shower room comprises an airlock between contaminated and clean areas.
50. Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.
51. Time Weighted Average (TWA): The TWA is an 8-hour time weighted average airborne concentration of fibers, longer than 5 micrometers, per cubic centimeter of air, calculated using formulas found in 29 CFR 1910.1000.

52. TSI: Thermal system insulation.
53. Visible Emissions: Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.
54. Washroom: A room between the work area and the holding area in the equipment decontamination enclosure system. The washroom comprises an airlock.
55. Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils which have been dampened with amended water or diluted removal encapsulant and afterwards thoroughly decontaminated or disposed of as asbestos contaminated waste.
56. Work Area: The area where asbestos related work or removal operations are performed which is defined and/or isolated to prevent the spread of asbestos dust, fibers or debris, and entry by unauthorized personnel. Work area is a Regulated Area as defined by 29 CFR 1926.1101.
57. Worker Decontamination Enclosure System: A decontamination enclosure system for workers, typically consisting of a clean room, a shower room and an equipment room.

C. Medical Requirements: 29 CFR 1926.1101

1. Medical Examinations: Before exposure to airborne asbestos fibers, provide workers with a comprehensive medical examination as required by 29 CFR 1926.1101. This examination is not required if adequate records show the employee has been examined as required by 29 CFR 1926.1101 requirements within the past year.
2. Medical Records: Maintain complete and accurate records of employees' medical examinations for a period of 30 years after termination of employment and make records of the required medical examination available for inspection and copying to authorized representatives of: The Assistant Secretary of Labor for Occupational Safety and Health Administration (OSHA), and an employee's physician upon the request of the employee or former employee.

D. Permits and Notifications:

Secure necessary permits in conjunction with asbestos removal, hauling and disposition, and provide timely notification of such actions as may be required by Federal, State, regional and local authorities.

Send Written Notification as required by US EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Asbestos Regulations (40 CFR 61, Subpart M) to the regional Asbestos NESHAP Contact at least 10 days prior to beginning any work on asbestos-containing materials. The notification may be submitted online to:

deqacponline@mt.gov

or mailed to the following address:

Montana Department of Environmental Quality
Waste and Underground Tank Management Bureau
1520 East Sixth Avenue
P. O. Box 200901
Helena, Montana 59620-0901
(406) 444-5300

E. Safety Compliance:

In addition to detailed requirements of this specification, comply with laws, ordinances, rules and regulations of storing, transporting and disposing of asbestos waste materials. Comply with 40 CFR Part 61. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting the work. Where the requirements of this specification and referenced documents vary, the most stringent requirement shall apply.

F. Respirator Program:

Establish a written respirator program as required by 29 CFR 1910.134 and CFR 1926.1101. This program shall be posted in the clean room of the worker decontamination enclosure system.

1.9 SUBMITTALS

A. Make submittals required by the contract documents in a timely manner and at appropriate times in the execution of the work to allow for sufficient and prompt review by the Owner and Asbestos Consultant. Revise and resubmit as necessary to establish compliance with the specified requirements.
B. Submit two complete bound sets of the submittals as described in this section. Submit separate sets entitled "Qualification Submittals", "Pre-Work Submittals", "Project Submittals", and "Final Submittals".

1. Contractor Qualification Submittals shall be submitted by the low bidder within five (5) working days following the bid date.
2. Submit Pre-Work submittals at the pre-construction meetings. Work may not proceed until the complete Pre-work Submittal package has been reviewed and approved by the Industrial Hygiene Consultant.
3. Submit Job Submittals to the Owner or owner’s representative by 9:00 a.m. daily. Submit copies of the preceding week's daily submittals to the Industrial Hygiene Consultant at the weekly progress meeting.
4. Submit Final Submittals to the Industrial Hygiene Consultant following completion of the work. Requests for final payment will not be processed until the final submittal package has been reviewed and approved by the Owner and the Industrial Hygiene Consultant.

C. Contractor Qualification Submittals:

1. Name and location of at least 5 asbestos abatement projects performed by the Contractor, including name and telephone number of contract representative.
2. Name of and experience record of superintendent and foreman. Include evidence of knowledge of applicable regulations; evidence of participation and successful completion of EPA approved training course in asbestos removal and/or supervision of asbestos related work; and experience with asbestos related work in a supervisory position as evidenced through supervision of at least five asbestos abatement contracts.

3. Name and experience record of workers who will be assigned to this project. Include for each person the location of last two abatement projects, and evidence of successful completion of in-house training given by qualified superintendent or

foreman, or its equivalent.
4. Provide a copy of the Montana State Contractor's License and registration to perform asbestos abatement.

D. Pre-work Submittals

1. Project Schedule: Include information detailing sequencing and scheduling of asbestos work, and schedule coordination with the work of other trades.
2. Work Plan: Provide a detailed work plan, including sketches of intended work zones, layout of containment areas, and HEPA filtration setup. Delineate the portable HEPA ventilation system and procedures for isolation and close out of the building's HVAC system.
3. Decontamination Procedure: Provide location and layout of decontamination areas, and explanation of intended decontamination sequence.
4. Methods: Provide a description of all asbestos removal methods to be used and sequence of activities. Include information detailing schedule coordination with the General Contractor and with other trades.
5. Subcontractors: Provide a listing of subcontractors, and interface of trades involved in the performance of work.
6. Safety Plan: Delineate the methods to be used to assure the safety of workers, building occupants, and visitors to the site.
7. Personnel Protective Equipment: Provide a description of protective clothing, and approved respirators to be used.
8. Equipment: Provide manufacturer's specifications of all equipment, including respirators, to be used.
9. Vacuum Equipment: Submit specifications and product date for all vacuum equipment. Include evidence of approval and testing of HEPA exhaust filtration and wetting and packaging methods for waste collection.
10. Asbestos Disposal Plan: Include explanation of handling, transport, and disposal of asbestos-contaminated waste. Identify any disposal site at which any waste material generated during the project will be disposed and furnish evidence of all necessary government approvals to dispose of the waste.
11. Project Staffing: Provide identity of project site supervisor, project manager, and list of trained workers to be used on project. Include documentation of appropriate training and certification for each employee.
12. Medical Examinations: Provide evidence of medical examinations for workers to be used on this project as required by OSHA. Include most recent written physician’s opinion regarding employee’s fitness to work and utilization of mandatory protective equipment.
13. MSDS: Provide Material Safety Data Sheets for all chemicals (i.e., encapsulants, surfactants) to be used on the project.
14. Cleanup: Provide a description of final cleanup procedures to be used.
15. Emergency Procedures: Provide a description of emergency procedures to be followed in case of injury, fire, temporary utility failures, and breach of barriers. Include evacuation procedures, source of medical assistance (names and phone numbers for Owner's Representative, Asbestos Consultant, fire, police, emergency squad, local hospital, and Owner), and procedures to be used for access by medical personnel (for example, rescue squad and physician).
16. OSHA Requirements: Submit a notarized certification signed by an officer of the abatement contracting firm that exposure measurements, medical surveillance, and worker training records are being kept in accordance with OSHA.
17. Laboratory Qualification Information: Submit proof of qualifications of testing laboratory and personnel. Certification that persons analyzing the samples have

been judged proficient by successful participation in the National Institute for Occupational Safety and Health (NIOSH) Proficiency Analytical Testing (PAT) Program, shall be considered sufficient proof of compliance.

18. Certificates of Compliance: Submit certification that vacuums, ventilation equipment, and other equipment required to contain airborne asbestos fibers conform to ANSI Z9.2.
19. Notifications and Policies: Submit copies regulatory agency abatement permits and notifications, copies of all types of specified bonds and insurance, and notification of bonding and insurance companies indicating extent of coverage.

E. Job Submittals

1. Daily Logs: Submit copies of all personal air monitoring results and daily logs. Submit copies of the preceding week's daily logs to the Industrial Hygiene Consultant at each weekly progress meeting. Daily logs must indicate the date, time, identity, company or agency represented, and reason for entry for all people entering the work area.
2. Progress Schedule: Submit updated progress schedule to the Owner's Representative at each weekly progress meeting.
3. Disposal Manifests: Submit copies of preceding week's manifests and disposal site receipts to Asbestos Consultant at each weekly progress meeting.
4. Employee Documentation: Submit information as required under Pre-Work Submittals for each new employee hired during the course of the project prior to that person's first day of work on the project.

F. Final Submittals

1. Certification: Provide written certification that Contractor has fully completed work in strict accordance with the Specifications.
2. Air Monitoring: Submit documentation of all employee personal air monitoring results relative to the OSHA respiratory protection level compliance. Include copies of all air monitoring data and analysis reports conducted at the site.
3. Project Record Documents: Provide record drawings and specifications of abatement work with all contract changes clearly indicated, project photographs, security log, safety log, sign-in sheets, supervisor's daily field reports, and similar final record documentation.
4. Disposal Manifests: Submit copies of all asbestos waste disposal transportation and disposal manifests including signed receipts from the landfill.
5. Contract Revisions: Provide documentation of all Modification Proposals and Change Orders.

2 - PRODUCTS

2.1 EQUIPMENT

A. Compliance: Equipment, including protective clothing and respirators, used in the execution of this contract and provided to visitors to the site, shall comply with ASTM E 849 and with the applicable Federal, State, and local regulations. Respirators shall conform to the OSHA requirements in 29 CFR 1910.134. Use supplied air type (type "C") units during actual removal operations, except as approved by the Asbestos Consultant prior to the start of work.

B. Work Area Responsibility: It is the Contractor's responsibility to require that each person (worker or visitor) entering the work area wear an approved respirator and

protective clothing. There shall be no exceptions to this requirement.

C. Protective Clothing: Provide approved protective clothing to all workers and to all official representatives of the Owner, State, or other governmental entity, and the Asbestos Consultant who may inspect or visit the project.
D. Respirators: Respirators will be of a type approved by NIOSH and MSHA for use during asbestos removal operations. See Paragraph 2.2; "Respiratory Protection".
E. Miscellaneous Safety Equipment: Hardhats, protective eyewear, gloves, rubber boots or other footwear shall be provided as required for workers and authorized visitors. Safety shoes may be required for some activities. Protective equipment used in the removal of asbestos-contaminated items and demolition activities shall be of proper materials to adequately protect the individual conducting the work.
F. Disposal Bags: Polyethylene bags used for containing removed asbestos-containing materials shall be at least 6 mils thick and sufficiently large for their intended use. These bags should be printed with warning labels per OSHA regulations.
G. Vacuums: All vacuum cleaners must be equipped with HEPA filters.
H. Duct Tape: All tape shall be high quality duct tape. All spray-on adhesives, glue, and other barrier securing material shall be high quality products.
I. Inventory Maintenance: Provide and maintain sufficient inventory of protective clothing, respirators, filter cartridges, plastic sheeting of proper size and thickness, duct tape, glue, adhesives, disposable towels, and air filters for the work required and the numbers of workers, visitors, and inspection personnel entering the work areas.
J. Showers: Provide shower stalls constructed with opaque walls, and sufficient plumbing for these showers, including hot and cold running water and sufficient hose lengths and drain systems or an acceptable alternate such as a portable decontamination trailer with showers. Waste shower water shall be filtered through 5-um filters and disposed of in accordance with all Federal, State, and local regulations.
K. Demolition Equipment: Provide sufficient appropriate equipment for demolition of plaster, brick, and concrete walls, pipe chases and ceiling areas (if needed) such that the work can be performed without hindering the project schedule.
L. Local Exhaust System & HEPA Filtration: Provide air filtering equipment capable of filtering asbestos fibers to 0.3 um at 99.97 percent efficiency and of sufficient quantity and capacity to cause a complete air change or total air filtration within the work area once every 15 minutes. Air shall flow into the work site through all openings, including the decontamination chamber and waste exit ports, and any areas in the work site where air leakage may occur. Air should exhaust through the local exhaust air filtration units by means of a high quality flexible or solid duct leading outside the building. If air exhaust outside the building is not feasible, the Asbestos Consultant shall determine where the exhaust shall be emitted outside the work area. The air-filtering equipment should be positioned at a maximum distance from the decontamination chamber to maximize filtration of airborne fibers. Local exhaust air filtration units shall be in operation at all times. One additional air filtration unit will be inside the work area as a backup.
M. Electrical Equipment: All electrical appliances used in conjunction with the removal will be used with ground fault interruption units. Each electrical appliance will have its own electrical outlet.
N. Fire Extinguishers: Fire extinguishers in sufficient quantity to deal with any small fires shall be kept in containment, minimum one per each homogeneous work area. Ten-pound ABC rated fire extinguishers shall be used.
O. Encapsulants and Sealants: Encapsulant and sealant shall be commercially available and specifically designed for use as an asbestos sealant.

2.2 RESPIRATORY PROTECTION

Contractor shall select and provide respirators for all workers based on selection procedures outlined under current OSHA regulations. If contractor has properly documented historic personal exposures during abatement activities, respiratory protection may be based on this data. If adequate historic data is not available, all work shall commence utilizing Type C supplied air respirators. Respiratory protection may be downgraded upon documentation that lower levels of respiratory protection will maintain personal exposures below the Permissible Exposure Limit and the Excursion Limit as set forth under 29 CFR 1926.1101.

A. Air Purifying Respirators

1. Provide one-half-face or full-face type respirators. All respirators must be approved for the use intended by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH).
2. Provide, at a minimum, filter cartridges labeled with the NIOSH and MSHA certification for Radionuclides, Radon Daughters, Dust, Fumes, and Mists (P-100) and color coded in accordance with ANSI Z228.2. In addition, a chemical cartridge may be added, if required, for solvents, etc. In this case, provide a combination cartridge labeled with the appropriate color code and MSHA/NIOSH certification. All cartridges shall be manufactured by the same manufacturer as the facepiece.
3. Provide sufficient filters for replacement as necessary by workers.

4. Single-use, disposable, or quarter-face respirators are not permitted.

B. Supplied-Air (Type C) Respirator Systems

1. Provide equipment capable of producing a continuous sufficient supply of Grade D breathing air as described in the Compressed Gas Association Commodity Specifications G-7.1.
2. Provide monitors which will shut down compressor and sound audible alarms if any of the following occur:
   a. Carbon Monoxide (CO) concentrations exceed five parts per million per volume of air in the air line.
   b. Compressor temperature exceeds normal operating range.
3. Provide full facepiece and hose by the same manufacturer. Facepiece and hose must be certified by NIOSH as an approved Type C respirator assembly. Operate system in pressure demand mode with a positive pressure facepiece. Maximum hose length is 300 feet.

2.3 SPECIAL CLOTHING

A. Protective Clothing

Provide personnel exposed to airborne concentrations of asbestos fibers with fire retardant disposable protective whole body clothing, head coverings, gloves and foot coverings. One-piece clothing is acceptable and preferred. Provide disposable plastic or rubber gloves to protect hands. Cloth gloves may be worn inside the plastic or rubber gloves for comfort but shall not be used alone.

Make sleeves secure at the wrists and make foot coverings secure at the ankles by the use of tape. Reusable type protective clothing and footwear shall be left in the

contaminated equipment room until the end of the asbestos abatement work at which time such items shall be thoroughly cleaned of all asbestos-contaminated material or disposed as asbestos-contaminated waste.

B. Work Clothing:

Provide cloth work clothes for wear under the disposable protective coveralls and foot coverings.

2.4 WORKER DECONTAMINATION ENCLOSURE SYSTEM

A. Class I Work

Provide a decontamination unit consisting of a serial arrangement of rooms or spaces adjoining the work area, or a decontamination trailer if approved, for decontamination of workers conducting asbestos removal, and for any authorized visitor entering the work area. The decontamination unit or trailer shall conform to the following specifications:

1. Provide an adequate decontamination unit consisting of a serial arrangement of rooms or spaces adjoining the Work Area or a decontamination trailer. Each airlock shall be clearly identified and separated from the other by plastic sheet crossover doors, designed to minimize fiber and air transfer as people pass between areas. Decontamination chamber doors shall be of sufficient height and width to enable replacement of equipment that may fail and to safely stretcher and carry an injured worker from the site without destruction of the chamber or unnecessary risk to the integrity of the work area. At least two layers of 6 mil black plastic sheeting shall be required for walls and ceilings for on-site constructed decontamination units. Two layers of 6 mil clear plastic may be used for the floors. On-site constructed decontamination units must be able to withstand wind and rain if built outdoors. Construction must use 2" x 3" or 2" x 4" framing or equivalent and must be large enough to accommodate large individuals adequately.

   Required decontamination areas comprising the decontamination unit and their usage shall be as follows: (reference Section 3.3 for further information)

1. Clean Room: In this room persons remove and leave all street clothes and put on clean disposable coveralls. Approved respiratory protection equipment is also picked up in this area. No asbestos contaminated items are permitted in this room.

2. Shower room: In this room, personnel shower prior to exiting the containment.

3. Equipment Room: Work equipment, footwear, and all other contaminated work clothing are left here. This is also a change and transit room for people. All areas between Shower Room and Work Area shall be considered part of the Equipment Room. Plastic floor and wall covering is required. This is a contaminated area.

A. Class II Work

Provide a decontamination unit consisting of a serial arrangement of rooms or spaces adjoining the work area, or a decontamination trailer if approved, for decontamination of workers conducting asbestos removal, and for any authorized visitor entering the work area. The decontamination unit or trailer shall conform to the following

specifications:

1. Provide an adequate decontamination unit consisting of a serial arrangement of rooms or spaces adjoining the Work Area or a decontamination trailer. Each airlock shall be clearly identified and separated from the other by plastic sheet crossover doors, designed to minimize fiber and air transfer as people pass between areas. Decontamination chamber doors shall be of sufficient height and width to enable replacement of equipment that may fail and to safely stretcher and carry an injured worker from the site without destruction of the chamber or unnecessary risk to the integrity of the work area. At least two layers of 6 mil black plastic sheeting shall be required for walls and ceilings for on-site constructed decontamination units. Two layers of 6 mil clear plastic may be used for the floors. On-site constructed decontamination units must be able to withstand wind and rain if built outdoors. Construction must use 2" x 3" or 2" x 4" framing or equivalent and must be large enough to accommodate large individuals adequately.

   Required decontamination areas comprising the decontamination unit and their usage shall be as follows: (reference Section 3.3 for further information)

1. Clean Room: In this room persons remove and leave all street clothes and put on clean disposable coveralls. Approved respiratory protection equipment is also picked up in this area. No asbestos contaminated items are permitted in this room.

2. Equipment Room: Work equipment, footwear, and all other contaminated work clothing are left here. This is also a change and transit room for people. Plastic floor and wall covering is required. This is a contaminated area.

2.5 SCAFFOLDING AND PLATFORMS

(This section is not expected to be applicable to this project.)

A. Installation: Design, provide, and construct the scaffolding necessary to access asbestos-containing materials to be removed, items to be cleaned, and to properly perform all asbestos abatement and related work. Upon completion of the Work, remove all scaffolding.
B. Safety: Construct all scaffolding, barriers, walkways, ladders, stairs, and other items of structural regard in a manner to ensure that they are safe, sound, and of adequate design to prevent failure during the course of this Work.
C. Regulatory Compliance: Design scaffolding to take into account all applicable local, state, and federal construction standards, including but not limited to, fire codes and requirements for overhead clearance protection.

2.6 EQUIPMENT DECONTAMINATION ENCLOSURE SYSTEM
Install separate equipment and contamination enclosure system where allowed by available space and practical site considerations.

2.7 EYE PROTECTION
Provide goggles to personnel engaged in asbestos operations when the use of a full-face respirator is not required.

2.8 WARNING SIGNS AND WARNING LABELS
Post warning signs conforming to the requirements of 29 CFR 1926.1101 and 40 CFR 763.120, 121, at all approaches to asbestos control areas. Locate signs at such a

distance that personnel may read the sign and take the necessary protective steps. Provide warning labels and affix to all asbestos products contaminated with asbestos. Sign and label formats to conform to 29 CFR 1910.145(d) (4).

Warning Signs:
Provide signs of sufficient size to be clearly legible, displaying the following legend:

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY
WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

Warning Labels:
Provide labels of sufficient size to be clearly legible, displaying the following legend:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CUASES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

2.9 PLASTIC SHEET
Plastic sheet, of 4 mil (0.10 mm) and 6 mil (0.15 mm) thickness in sizes to minimize the frequency of joints for isolation and sealing of designated work areas. Plastic sheet may be either clear or opaque. Black plastic may only be used in the construction of decontamination units.

2.10 TAPE
Tape - capable of sealing joints of adjacent sheets of plastic sheets and for attachment of plastic sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.

2.11 SURFACTANT (WETTING AGENT)
Surfactant (wetting agent) shall consist of 50% polyoxyethylene ether and 50% of polyoxyethylene or polyglycol ester, or equivalent, and shall be mixed with water to provide a concentration of one ounce surfactant to 5 gallons of water (for 32 ml/20 l of water).

2.12 IMPERMEABLE CONTAINERS
Impermeable containers shall be 6 mil plastic bags of size to fit within the drum listed hereafter and capable of being sealed and 55-gallon (200 l) capacity metal or fiber drums with tightly fitting lids. The containers shall be labeled in accordance with OSHA Regulation 29 CFR 1926.1101. Containers must be both air and watertight.

2.13 SEALABLE PLASTIC DISPOSAL BAGS
Sealable plastic bags of 6 mil minimum thickness for transportation and disposal of asbestos-contaminated material.

2.14 ENCAPSULANT PRODUCTS
Penetrating and bridging encapsulant and sealant (lock down) products shall be either those manufactured by Foster, Certified Technologies Corporation, or approved equal

materials. The Contractor shall submit product data for any materials proposed for use. Approval of "or equal" products will not include substitution of product lines where compatibility for successive applications may be violated.

2.15 REMOVAL GLOVEBAGS

Bags of heavy plastic construction designed to permit isolation of a section of pipe insulation and with integral gloves and fittings for a spray nozzle extending into the bag. Glovebags shall only be used under the direction of a qualified superintendent, and within a containment or partial containment with differential pressure and air filtration.

3 - EXECUTION

3.1 EXECUTION OF REMOVAL

Removal and disposal of all asbestos-containing materials is to be performed in accordance with the following procedures.

3.2 PROJECT SITE CONDITIONS

Means of Egress: Establish and maintain emergency and fire exits from the work area

A. Use of Existing Facilities

1. Water Supply: The Owner will provide access to water via a designated outlet in the building. The Contractor shall connect to the owner's system at locations as allowed by the Owner, after review of the work plan indicating desired locations of connection. Contractor is responsible for installation and maintenance of back flow prevention devices on all water connections. Contractor is responsible for any damage resulting from leaking hoses, connections, or from other water supply system components under the direct control of Contractor.
2. Electricity: Adequate electrical supply should be available in the building. If additional breaker panels or connections are necessary, Contractor shall provide them at Contractor’s expense and all connections must be made by a licensed electrician of at least journeyman level experience.
3. Toilets: The Owner will designate a toilet within the building for use by Contractor personnel. If the restrooms become unusable due to required abatement activities, the Contractor will provide temporary restroom facilities as required to complete the work.
4. Waste Storage: Asbestos waste must be either double bagged, double wrapped, or the bags must be in metal drums prior to their transport to the transport vehicle. All bags must be properly labeled. If not removed from the site each day, waste must be stored in a labeled, locked, plastic-lined dumpster in a location approved by the Owner.

B. Environmental Conditions to be Maintained. Outside Asbestos Work Area: Air concentrations of asbestos shall be maintained at 8-hour time weighted average below 0.01 fiber (longer than 5 microns) per cubic centimeter of air.

C. Access to Work Area: Access to work areas shall be controlled through the use of signs, barricades, or other means as appropriate. Whenever, possible, all access shall be through decontamination areas. The following shall have access to work area: EPA and OSHA inspectors; Owner's engineer and on-site representative (IHC). These persons shall be the only non-asbestos specialist personnel who shall be permitted access while work is in progress.

3.3 WORK PRACTICES

A. Preparation for Class I and Class II Containments:

1. Contractor shall post warning signs meeting the specifications of OSHA 1926.1101 at any location and approaches to the location of the asbestos removal area. Signs shall be posted at a distance sufficiently far enough away from the work area to permit an employee to read the sign and take the necessary protective measures to avoid exposure. Additional signs may need to be posted following construction of workplace enclosure barriers.
2. Contractor shall construct temporary walls as necessary to isolate work areas. Temporary walls shall be constructed of wood or metal framing with a minimum of 1 layer of 6-mil plastic secured with lath strips and sealed with tape. Floors will be constructed of 6-mil polyethylene.
3. Seal off all openings between the work area and uncontaminated areas outside of the work area with 4-mil polyethylene sheeting and tape or fire-retardant caulk as needed.
4. Before work is begun, clean all removable items and equipment. Remove these items and store as directed. Cover all non-removable items and equipment in the work area with two layers of 6-mil plastic taped securely in place.

B. Worker Decontamination Enclosure Systems - Class I and II Work:

1. Worker decontamination enclosure system shall be provided at all locations where workers will enter or exit a negative pressure containment area. One system at a single location for each contained work area is preferred. These systems may consist of existing rooms outside of the work area if the layout is appropriate from the work area. When this situation does not exist, enclosure systems may be constructed out of metal, wood or plastic support as appropriate.
2. Plans for construction, including materials and layout, shall be submitted as shop drawings and approved by the Engineer prior to work initiation. Worker decontamination enclosure systems constructed at the worksite shall utilize 6-mil opaque black or white polyethylene sheeting or other acceptable materials for privacy. Detailed descriptions of portable, prefabricated units, if used, must be submitted for approval. Plans must include floor plan with dimensions, materials, size, thickness, plumbing and electrical utilities.
3. For Class I work the worker decontamination enclosure system shall consist of at least a clean room, a shower room, and an equipment room, each separated from each other and from the work area by airlocks.
4. For Class II work the worker decontamination enclosure system shall consist of at least a clean room and an equipment room, each separated from each other and from the work area by airlocks.
5. Entry to and exit from all airlocks and decontamination enclosure system chambers shall be through doorways capable of providing a positive seal to the outside, should failure of the differential pressure unit(s) occur, and when not in use. Doorway designs, providing equivalent protection and acceptable to the Engineer may be utilized.
6. Access between any two rooms in the decontamination enclosure system shall be through a three piece flap doorway. Pathways into (from clean to contaminated) and out from (contaminated to clean) the work area shall be clearly designated.
7. Clean room shall be sized to adequately accommodate the work crew. Benches shall be provided as well as hooks for hanging up street clothes. Shelves for storing respirators shall also be provided in this area. Clean work clothes (if required under disposables); clean disposable clothing, replacement filters for

respirators, towels and other necessary items shall be provided in adequate supply at the clean room. A location for postings shall be used to permit access into the clean room from outside the work area. Lighting, heat and electricity shall be provided as necessary for comfort. This space shall not be used for storage of tools, equipment, or materials or as office space.

8. The equipment room shall be used for storage of equipment and tools at the end of a shift after they have been decontaminated using a HEPA filtered vacuum and/or wet cleaning techniques as appropriate. Replacement filters (in sealed container until used) for HEPA vacuums and negative pressure ventilation equipment, extra tools, containers of surfactant and other materials and equipment that may be required during the abatement may also be stored here as needed. A walk-off pan (a small children's swimming pool or equivalent) filled with water shall be located in the work area just outside the equipment room for workers to clean off foot coverings after leaving the work area and prevent excessive contamination of the worker decontamination enclosure system. A drum lined with a labeled 6-mil polyethylene bag for collection of disposable clothing shall be located in this room. Contaminated footwear (e.g. rubber boots, other reusable footwear) shall be stored in this area for reuse the following workday.

C. Isolation of the Work Area - Full Containments:

1. Construct isolation and negative pressure containment barriers as follows:
2. Seal all surfaces with 1 layer of 4-mil watertight polyethylene plastic sheeting as provided in b. below.
3. Sole permissible exceptions to total enclosures are: (1) an entrance airlock with showers and a decontamination chamber, and (2) a debris removal airlock for cleaning and asbestos waste removal.
4. Wet clean and/or HEPA vacuum all non-removable and non-asbestos items in the work area. After cleaning, wrap/cover articles to remain in the room such that they are adequately protected from damage.
5. As all existing ventilation systems in the work area are to be sealed throughout the removal operation, an alternate system shall be utilized. Install approved negative air filtration units utilizing appropriate HEPA filters to exhaust air from the work area. Negative air filtration units shall be of sufficient number and capacity to ensure that total air volume is exchanged once every 15 minutes. A negative static pressure 0.02 inches of water column shall be maintained as measured by a manometer.
6. A written log shall be maintained for all units utilizing a HEPA filter. This log shall include, but not be limited to, hours of operation, time of filter changes, pressure gauge readings, and current location of the unit.
7. Replacement air shall enter the work area through the decontamination facility and the make-up air vents, in order to reduce the possible escape of contaminated air. Install and have operating the entire alternate ventilating system prior to commencement of asbestos abatement.
8. Containment walls shall be constructed of wood or metal studs. Exterior side of studs shall be faced with one layer of 6-mil poly. Interior side of studs shall be faced with one layer of 4-mil poly. Containment walls may extend to the concrete deck or contractor may elect to construct a poly covered ceiling above the boiler. If necessary to ensure its integrity install wood furring strips to further secure this upper poly ceiling.
9. Containments that will remain in place for longer than one work shift and where decontamination units are placed in corridors shall have lockable doors as necessary to allow for entering and exiting the containment. All doors shall remain unlocked at all times that workers are inside containment. Where lockable doors are not required an Abatement Contractor representative shall be present at all times while the

containment is in place to prevent entry prior to completion of successful visual and air clearance testing.

10. Install a 12”x12” clear view port in one containment wall for purposes of viewing abatement work activities from outside of the work area.
11. Demonstrate proper airflow by use of smoke producing bombs inside the decontamination unit and work area, and smoke producing tubes, or smoke producing matches, outside the work area, pressure differential reading, or other appropriate means and record the results before starting abatement work and at the start of each work shift.

D. Maintenance of Workplace Barriers and Worker Decontamination Enclosure System:

1. Following completion of the construction of all polyethylene barriers and decontamination system enclosures, check to insure that barriers will remain intact and secured to walls and fixtures before beginning actual abatement activities.
2. All polyethylene barriers in the workplace, in the worker decontamination enclosure system, and at partitions constructed to isolate the work area shall be inspected at least twice daily, prior to the start of each day's abatement activities and following the completion of the day's abatement activities. Document inspections and observations in the daily project log.
3. The contractor may also conduct perimeter air monitoring to demonstrate that clearance levels are met or that perimeter area levels as measured by PCM do not exceed background levels.
4. Repair damage and defects in the enclosure system immediately upon discovery.
5. At any time during the abatement activities, after barriers have been erected, if visible material is observed outside of the work area or if damage occurs to barriers, work shall immediately stop, repairs shall be made to barriers, and debris/residue cleaned up using appropriate HEPA vacuuming and wet mopping procedures.
6. If air samples collected outside of the work area during abatement activities indicated airborne fiber concentrations greater than 0.01 f/cc, work shall immediately stop for inspection and repair of barriers. Cleanup of surfaces outside of the work area using HEPA vacuums or wet cleaning may be necessary.
7. Clearly identify and maintain emergency and fire exits from the work area.

3.4 REMOVAL OF ASBESTOS IN NEGATIVE PRESSURE CONTAINMENT PROCEDURE

A. This section shall apply to the removal of asbestos-containing materials inside all negative pressure containments.

B. Clean and isolate the work area in accordance with Section 3.3.A. Containment in accordance with 3.3.C will be required for all asbestos removal.

C. Wet all asbestos-containing material with an amended water solution using equipment capable of providing a fine spray mist, in order to reduce airborne fiber concentrations when the material is disturbed. Saturate the material; however, do not allow excessive water to accumulate in the work area. Keep all removed material wet enough to prevent fiber release until it can be containerized for disposal. Maintain a high humidity in the work area by misting or spraying to assist in fiber settling and reduce airborne concentrations. Wetting procedures are not equally effective on all types of asbestos-containing materials but, shall still be used in all cases.

D. Saturated asbestos-containing material shall be removed in manageable sections. Removed material should be containerized before moving to a new location for continuance of work. Surrounding areas shall be periodically sprayed and maintained

in a wet condition until visible material is cleaned up.

E. At the contractor's option, the entire work of abatement of asbestos containing pipe insulation in this project may be performed utilizing a glove bag procedure as outlined in the following section.

3.5 ALTERNATIVE PROCEDURES

A. Procedures described in this specification are to be utilized at all times.

B. If specified procedures cannot be utilized, a request must be made in writing to the IHC providing details of the problem encountered and recommended alternatives.

C. Any alternative procedure must be approved in writing by the IHC prior to implementation.

3.6 FINAL CLEANUP PROCEDURES

A. Remove and containerize all visible accumulations of asbestos-containing material and asbestos contaminated debris utilizing rubber dust pans and rubber squeegees to move material around. Do not use metal shovels to pick up or move accumulated waste.

B. Remove all containerized waste from the work area.

C. Decontaminate all tools and equipment and remove at the appropriate time in the cleaning sequence.

D. Inspect the work area for visible residue. If any accumulation of residue is observed, it will be assumed to be asbestos and cleaning cycle repeated.

E. The work area shall be cleaned until it is visually clean as determined by the Certified Industrial Hygienist or assigned IHC. Additional cleaning cycles shall be provided as necessary at no cost to the Owner until cleaning is satisfactory.

F. The contractor shall notify the building owner's representative (IHC) 24 hours in advance for the performance of the final visual review and inspection. The final visual review and testing will be performed by the IHC.

G. Final inspection will include the entire work area, the personnel decontamination facility, all plastic sheeting, seals over ventilation openings, doorways, windows, other openings, and all surfaces from which asbestos-containing material has been removed. Contractor must provide adequate lighting to perform visual inspections. If any debris, residue on surfaces, dust, or other matter is found, repeat final cleaning and continue decontamination. When the work area is visually clean, notify the owner's representative. Visual inspection is not complete until confirmed in writing, by the owner's representative. Visual inspections will be performed in accordance with the "Standard Practice for Visual Inspection of Asbestos Abatement Projects", ASTM Designation E1368-90.

H. Failure of general areas to meet the specification requirements for cleanliness will require further area cleaning at the contractor's expense.

3.7 DISPOSAL OF ASBESTOS-CONTAINING MATERIALS

A. Permits and Notifications: Secure necessary permits in conjunction with asbestos removal, hauling and disposition and provide timely notification of such actions, as may be required by Federal, State, regional, and local authorities. Notify the Regional Office of the United States Environmental Protection Agency and provide copies of the

notification to the Owner/IHC a minimum of 10 working days prior to the commencement of the work. Provide notification in accordance with 40 CFR 61.22(d)(1).

B. Disposal of Asbestos: Collect and dispose of all RACM, Category I and Category II asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated clothing which may produce airborne concentrations of asbestos fibers in sealed impermeable bags or drums. Prior to placing in bags or containers, wet down asbestos wastes to reduce airborne concentrations. Waste asbestos material shall be disposed of in accordance with EPA and Montana Department of Health and Environmental Sciences requirements at a Class II landfill. The "small quantity exclusion" of the regulations shall not apply to disposal of waste asbestos materials. Establish a temporary holding area approved by the Owner for properly packaged asbestos waste. This area is only to be used during the regular Asbestos Abatement Contractor's work hours.

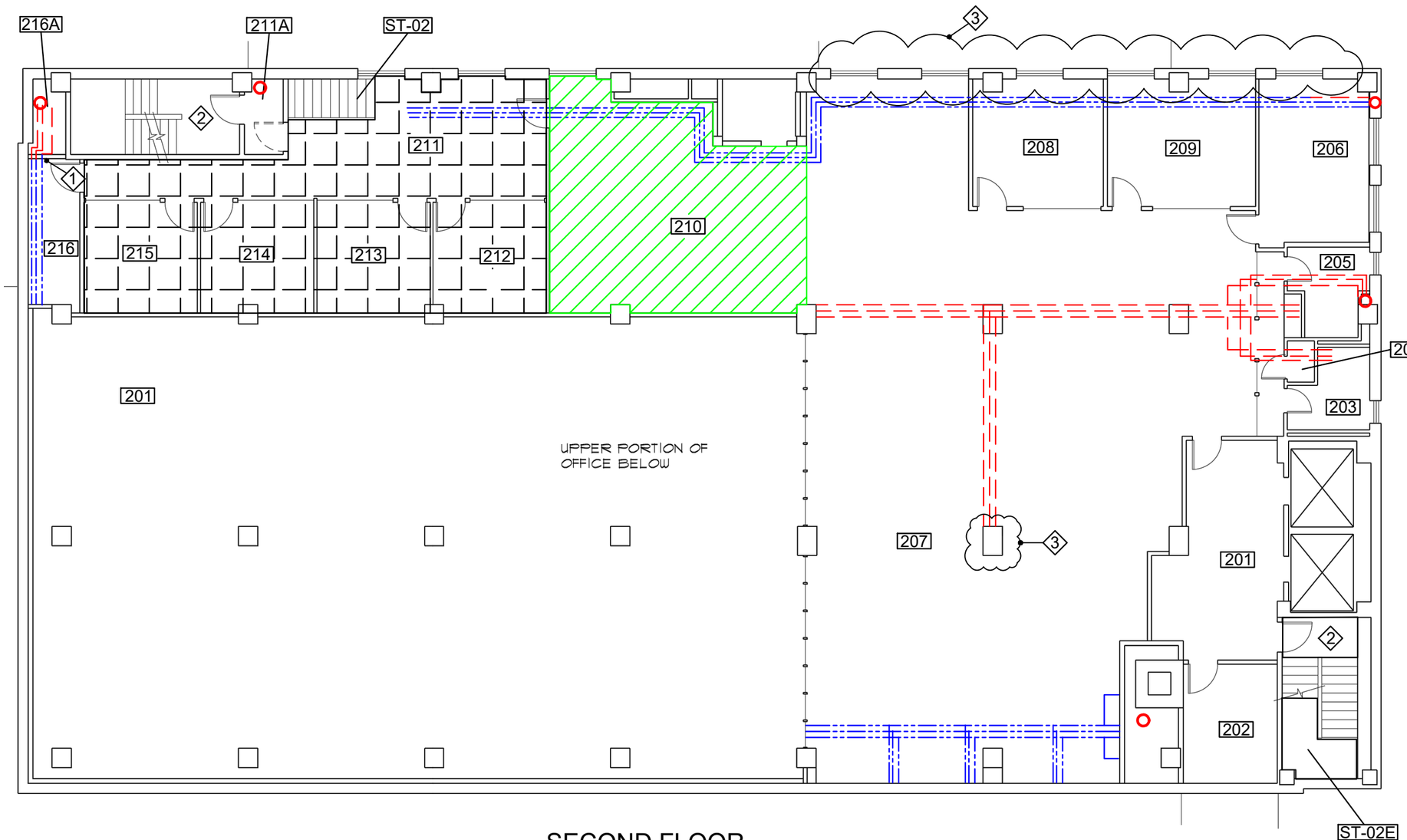
End of Section 02080 – Asbestos Abatement

DIVISIONS
THREE-SIXTEEN
NOT USED

FIGURES

GENERAL NOTES:

1. ABATEMENT CONTRACTOR TO COORDINATE WITH YELLOWSTONE COUNTY TO ENSURE FIRE PROTECTION SYSTEMS, SECURITY SYSTEMS, DATA/COMMUNICATIONS SYSTEMS AND ELECTRICAL SYSTEMS ARE PROPERLY DISABLED/TERMINATED PRIOR TO REMOVAL OF THESE SYSTEMS TO ACCESS ACMS. THE COST FOR REMOVAL AND DISPOSAL OF THESE MATERIALS TO ACCESS ACMS IS INCIDENTAL TO THE ABATEMENT.
2. THE ABATEMENT CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF LAY-IN CEILING SYSTEMS, CEILINGS, WALLS , CABINETRY AND OTHER COVERING MATERIALS TO ACCESS ACM MATERIALS IDENTIFIED FOR ABATEMENT. THE COST FOR REMOVAL AND DISPOSAL OF THESE MATERIALS IS INCIDENTAL TO THE ABATEMENT.
3. ABATEMENT CONTRACTOR WILL ESTABLISH NEGATIVE PRESSURE ENCLOSURES PRIOR TO REMOVAL AND DISPOSAL OF NON-ACM MATERIALS FROM THE WORK AREA. ALL NON-ACM MATERIALS THAT WILL BE DISPOSED OF AS NON-ACM WASTE MUST BE REMOVED AND DECONTAMINATED PRIOR TO DISTURBANCE OF ACM MATERIALS IN THE NEGATIVE PRESSURE ENCLOSURE.
4. THE ABATEMENT CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF TOILETS, SINKS AND DIVIDERS FROM RESTROOMS ON THE 3RD FLOOR.
5. OWNER'S INDUSTRIAL HYGIENIST MUST INSPECT AND APPROVE NEGATIVE PRESSURE ENCLOSURES PRIOR TO REMOVAL OF MATERIALS.
6. A RECORDING MANOMETER WILL BE REQUIRED ON EACH NEGATIVE PRESSURE ENCLOSURE TO DOCUMENT THE NEGATIVE PRESSURE INSIDE THE CONTAINMENT IS MAINTAINED AT -0.2 INCHES OF WATER COLUMN OR BETTER.
7. THE OWNER'S INDUSTRIAL HYGIENIST WILL CONDUCT AIR SAMPLING OUTSIDE OF THE WORK AREAS AT VARIOUS TIMES DURING ABATEMENT ACTIVITIES TO ENSURE THE AIRBORNE FIBER CONCENTRATIONS OUTSIDE OF THE WORK AREAS DO NOT EXCEED THE HIGHER OF 0.01 F/CC OF AIR OR THE BACKGROUND FIBER CONCENTRATION IN THE BUILDING AS ESTABLISHED BY AREA AIR SAMPLING PRIOR TO THE START OF ABATEMENT ACTIVITIES IN THE WORK AREA. IF THE AIRBORNE FIBER CONCENTRATION OUTSIDE OF THE WORK AREAS EXCEEDS THE MAXIMUM ALLOWABLE CONCENTRATION, THE ABATEMENT CONTRACTOR WILL SUSPEND WORK UNTIL THE CAUSE OF THE HIGH FIBER COUNTS IS IDENTIFIED AND REMEDIED.
8. YELLOWSTONE COUNTY WILL PROVIDE TWO PARKING SPACES ADJACENT TO THE NORTH WALL OF THE BUILDING FOR THE ABATEMENT CONTRACTOR'S USE DURING THE ABATEMENT PROJECT.
9. THE ABATEMENT CONTRACTOR MAY USE THE BUILDING ELEVATORS TO TRANSPORT CLEAN EQUIPMENT TO AND FROM THE 2ND AND 3RD FLOOR WORK AREAS. THE ELEVATORS WILL NOT BE USED FOR ROUTINE ACCESS TO THE WORK AREAS OR FOR THE TRANSPORT OF ASBESTOS WASTE. THE ELEVATORS WILL BE SEALED WITH CRITICAL BARRIERS DURING ANY ABATEMENT ACTIVITIES ON THAT FLOOR.
10. THE ABATEMENT CONTRACTOR WILL BE RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF WINDOWS IN THE WORK AREA IF THE ABATEMENT CONTRACTOR ELECTS TO INSTALL A WASTE CHUTE OR ALLOW FOR THE EXHAUST OF THE NEGATIVE AIR MACHINES.
11. THE ABATEMENT CONTRACTOR WILL USE THE NORTHWEST STAIRWELL OF THE BUILDING FOR ROUTINE ACCESS.
12. THE ABATEMENT OF ACM PLASTER FROM THE STAIRWELLS WILL BE CONDUCTED IN A MANNER THAT MAIINTAINS BUILDING ACCESS TO THE OTHER STAIRWELL. CLOSURE OF STAIRWELLS WILL BE MINIMIZED TO MAINTAIN FIRE ESCAPE ROUTES.
13. THE ABATEMENT CONTRACTOR IS RESPONSIBLE FOR CONTROLLING ACCESS TO THE BUILDING THROUGH THE WORK AREAS.
14. THE ABATEMENT CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING ADDITIONAL LIGHTING IN THE WORK AREAS AS REQUIRED TO SAFELY CONDUCT THE ABATEMENT WORK.
15. THE HVAC DUCTWORK IN THE WORK AREAS MUST BE ISOLATED FROM THE REMAINDER OF THE BUILDING PRIOR TO REMOVING NON-ACM OR ACM MATERIALS FROM THE WORK AREAS.
16. YELLOWSTONE COUNTY WILL PROVIDE ACCESS TO WATER AND ELECTRICITY FOR THE ABATEMENT CONTRACTOR'S USE AT NO COST.
17. ABATEMENT CONTRACTOR IS RESPONSIBLE FOR FILLING WINDOW OPENINGS OF WINDOWS REMOVED TO ABATE ACM WINDOW GLAZING COMPOUND.
18. ABATEMENT CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF HVAC AIRLINE CONTROLS.
19. ABATEMENT CONTRACTOR WILL SUBMIT THE LAYOUT OF THE PROPOSED CONTAINMENTS AND PROPOSED SCHEDULE TO THE OWNER'S INDUSTRIAL HYGIENIST FOR REVIEW AND APPROVAL PRIOR TO THE START OF WORK.
20. ABATEMENT CONTRACTOR MAY USE EXISTING RESTROOMS ON 2ND AND 3RD FLOOR. IF THESE RESTROOMS ARE NOT AVAILABLE DUE TO ABATEMENT ACTIVITIES, THE ABATEMENT CONTRACTOR WILL PROVIDE TEMPORARY RESTROOM FACILITIES FOR USE BY THE ABATEMENT CONTRACTOR'S EMPLOYEES.
21. ABATEMENT CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TEMPERATURE IN THE WORK AREAS ABOVE 40 DEGREES FAHRENHEIT AT ALL TIMES.
22. ABATEMENT CONTRACTOR SHALL ENSURE THAT ALL WORKERS, WHILE IN OCCUPIED AREAS OF THE BUILDING OR GROUNDS, DON STREET CLOTHES ONLY. AT NO TIME SHALL WORKERS BE ALLOWED OUT OF THE ABATEMENT AREA WHILE WEARING PERSONAL PROTECTIVE EQUIPMENT.
23. ALL FURNITURE, EQUIPMENT, COUNTERS, ETC. SCHEDULED FOR REMOVAL WILL BE REMOVED BY OTHERS PRIOR TO THE START OF THE ABATEMENT.
24. SOLVENTS USED TO REMOVE FLOOR MASTICS SHALL BE COMPATIBLE WITH NEW FLOOR FINISH MATERIALS.



SECOND FLOOR

GRAPHIC LEGEND:

REMOVE AND DISPOSE OF THE FOLLOWING ACMS IN ACCORDANCE WITH THE APPLICABLE STATE AND FEDERAL REGULATIONS:MOVE

- ACM 9"X9" FLOOR TILE AND MASTIC UNDER NON-ACM CARPET
- ACM BLACK MASTIC UNDER CONTAMINATED CARPET
- ACM STRAIGHT PIPE INSULATION AND MUDDED FITTINGS
- ACM MUDDED FITTINGS WITH NON-ACM FIBERGLASS STRAIGHT RUN INSULATION
- ACM STRAIGHT PIPE INSULATION AND MUDDED FITTINGS IN VERTICAL PIPE CHASE

KEY NOTES:

1. ACM VAULT DOOR GASKET
2. ACM LIGHT FIXTURE PAPER BACKING
3. ACM BROWN MASTIC BETWEEN CEILING PANEL GRID AND WALLS

SHEET NOTES:

1. LOCATIONS OF PIPING AND MUDDED FITTINGS ARE DIAGRAMMATIC ONLY AND ARE NOT INDICATIVE OF EXACT LOCATIONS OR QUANTITIES.
2. REMOVAL OF BUILDING MATERIALS OBSTRUCTING ACCESS TO ACMS IS THE RESPONSIBILITY OF THE ABATEMENT CONTRACTOR.

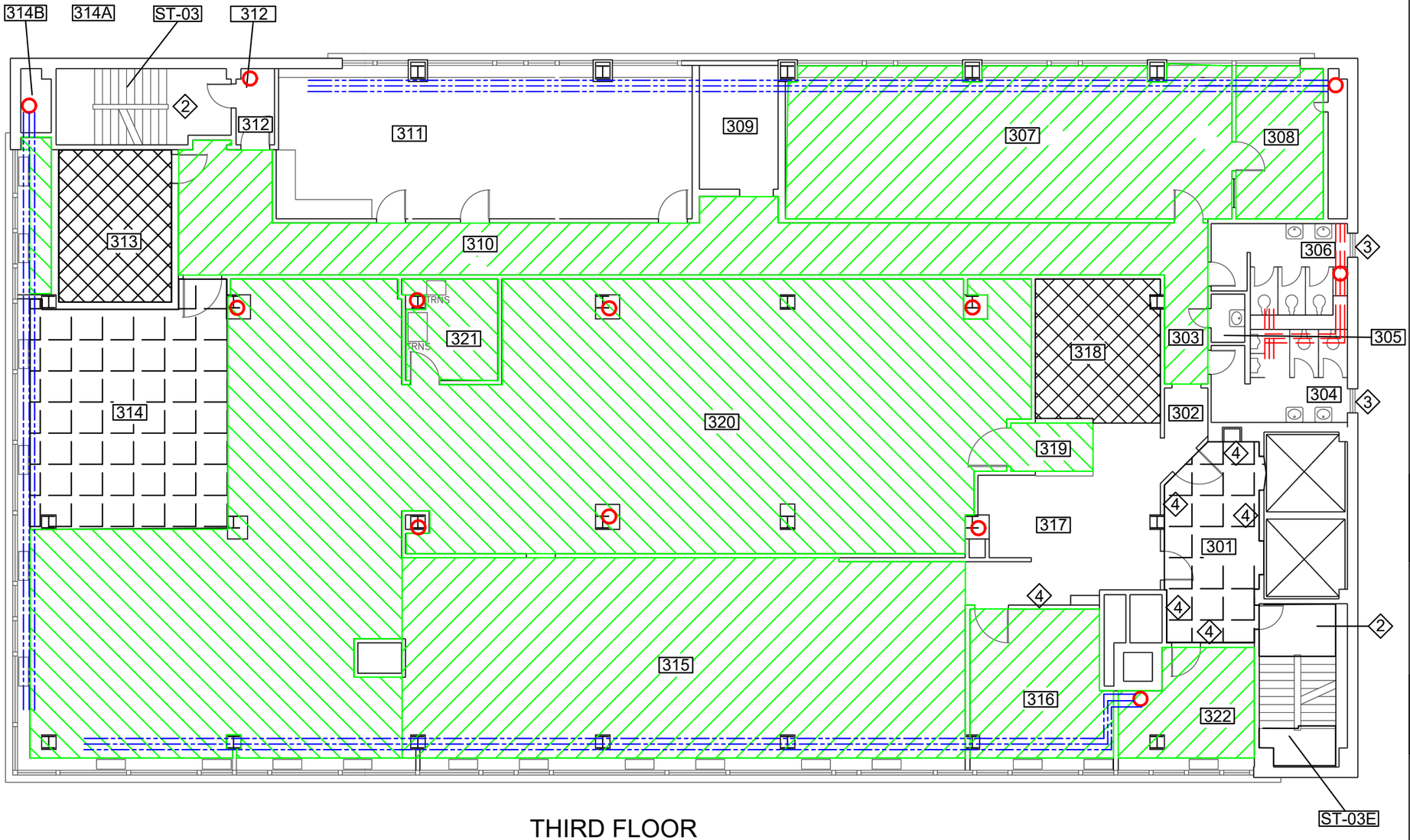
ASBESTOS ABATEMENT LOCATION PLAN

NOT TO SCALE

NORTHERN INDUSTRIAL HYGIENE, INC.

DATE:	NOVEMBER 2021
DRAWN BY:	RBB
CHK BY:	TN
CAD FILE:	182-057.dwg
PROJECT NAME:	MILLER BUILDING
LOCATION:	2825 3RD AVENUE NORTH BILLINGS, MONTANA
NIH PROJECT NUMBER:	182-057

H101
ASBESTOS ABATEMENT LOCATION PLAN
SECOND FLOOR



THIRD FLOOR

ASBESTOS ABATEMENT LOCATION PLAN

NOT TO SCALE

GRAPHIC LEGEND:

REMOVE AND DISPOSE OF THE FOLLOWING ACMS IN ACCORDANCE WITH THE APPLICABLE STATE AND FEDERAL REGULATIONS:MOVE

- ACM 9"X9" FLOOR TILE AND MASTIC UNDER NON-ACM CARPET
- ACM BLACK MASTIC UNDER NON-ACM CARPET
- ACM 9'X9" FLOOR TILE AND MASTIC UNDER NON-ACM FLOOR TILE
- ACM 9'X9" FLOOR TILE AND MASTIC
- ACM STRAIGHT PIPE INSULATION AND MUDDED FITTINGS
- ACM MUDDED FITTINGS WITH NON-ACM FIBERGLASS STRAIGHT RUN INSULATION
- ACM STRAIGHT PIPE INSULATION AND MUDDED FITTINGS IN VERTICAL PIPE CHASE

KEY NOTES:

1. ACM VAULT DOOR GASKET
2. ACM LIGHT FIXTURE PAPER BACKING
3. ACM WINDOW GLAZING COMPOUND
4. ACM BROWN COVE BASE MASTIC & CONTAMINATED COVE BASE

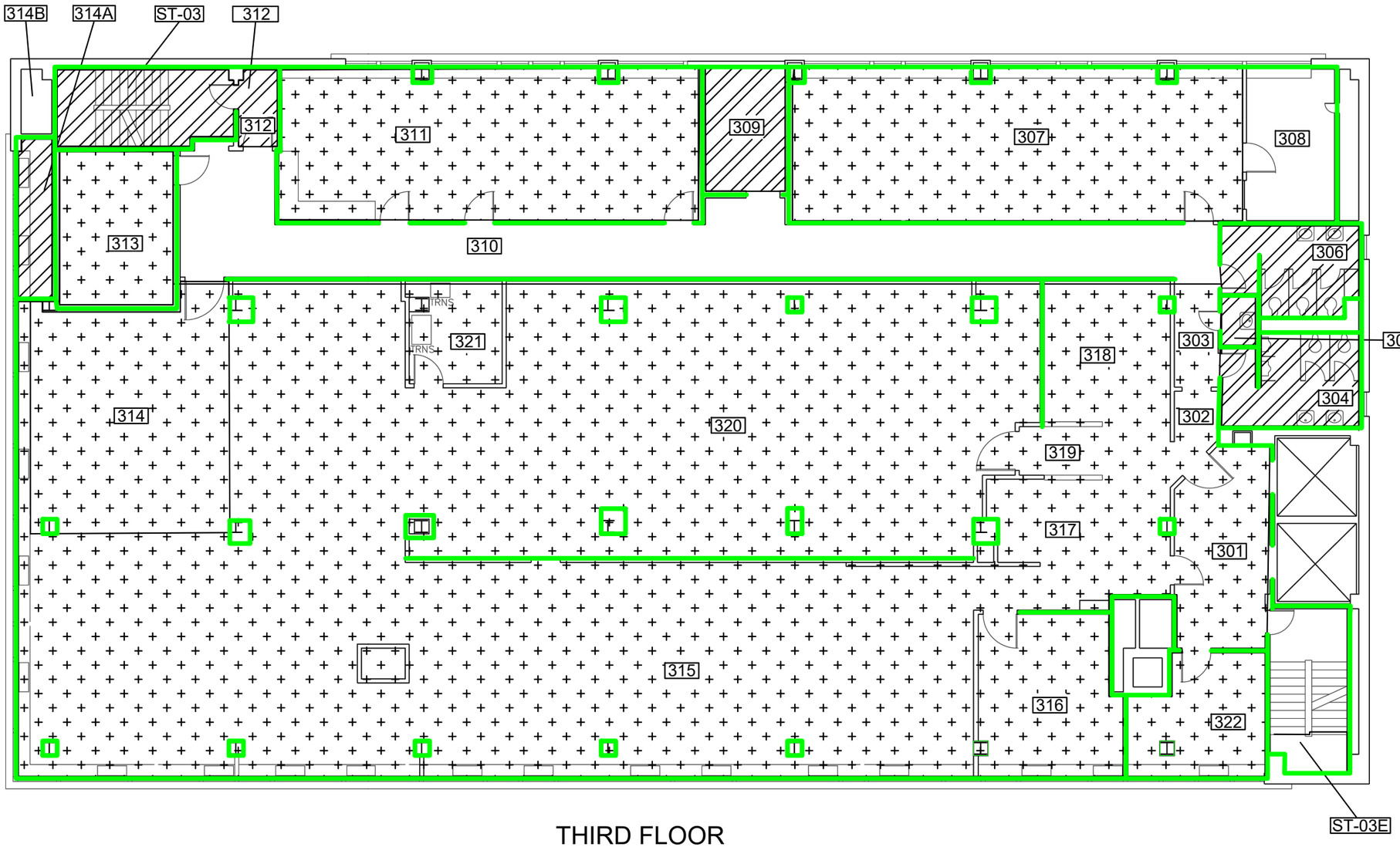
SHEET NOTES:

1. LOCATIONS OF PIPING AND MUDDED FITTINGS ARE DIAGRAMMATIC ONLY AND ARE NOT INDICATIVE OF EXACT LOCATIONS OR QUANTITIES.
2. REMOVAL OF BUILDING MATERIALS OBSTRUCTING ACCESS TO ACMS IS THE RESPONSIBILITY OF THE ABATEMENT CONTRACTOR.

NORTHERN INDUSTRIAL HYGIENE, INC.

DATE:	NOVEMBER 2021
DRAWN BY:	RBB
CHK BY:	TN
CAD FILE:	182-057.dwg
PROJECT NAME:	MILLER BUILDING
	2825 3RD AVENUE NORTH
LOCATION:	BILLINGS, MONTANA
NIH PROJECT NUMBER:	182-057

H102
ASBESTOS ABATEMENT LOCATION PLAN
THIRD FLOOR



GRAPHIC LEGEND:

REMOVE AND DISPOSE OF THE FOLLOWING ACMS IN ACCORDANCE WITH THE APPLICABLE STATE AND FEDERAL REGULATIONS:MOVE

ACM ACOUSTIC SURFACING ON ACM PLASTER CEILING

ACM PLASTER CEILING

ACM PLASTER WALL

SHEET NOTES:

1. REMOVAL OF BUILDING MATERIALS OBSTRUCTING ACCESS TO ACMS IS THE RESPONSIBILITY OF THE ABATEMENT CONTRACTOR.

THIRD FLOOR REFLECTED CEILING PLAN

ASBESTOS ABATEMENT LOCATION PLAN

NOT TO SCALE

NORTHERN INDUSTRIAL HYGIENE, INC.

DATE:	NOVEMBER 2021
DRAWN BY:	RBB
CHK BY:	TN
CAD FILE:	182-057.dwg

PROJECT NAME:	MILLER BUILDING
	2825 3RD AVENUE NORTH
LOCATION:	BILLINGS, MONTANA
NIH PROJECT NUMBER:	182-057

H103
ASBESTOS ABATEMENT LOCATION PLAN
THIRD FLOOR-REFLECTED CEILING