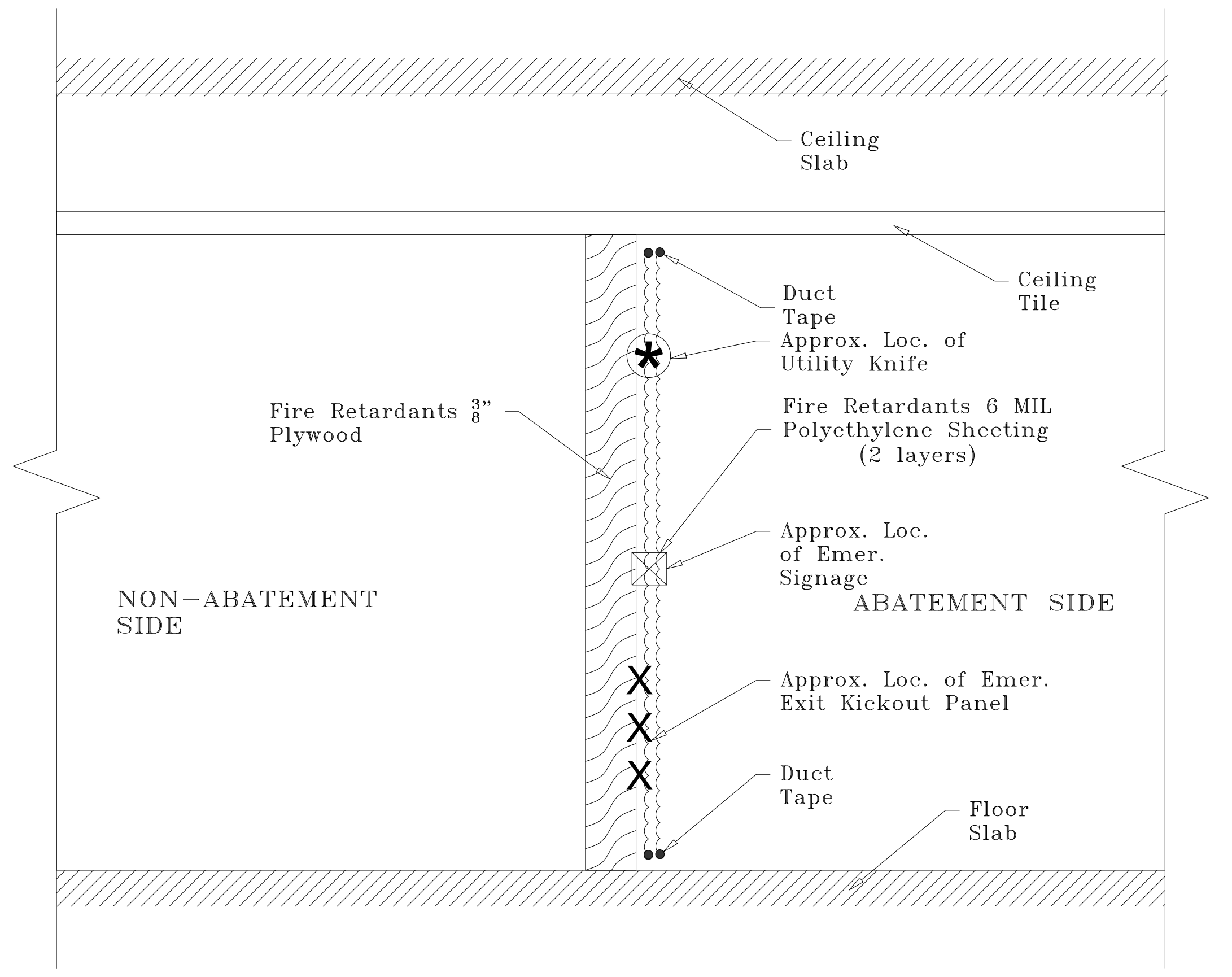
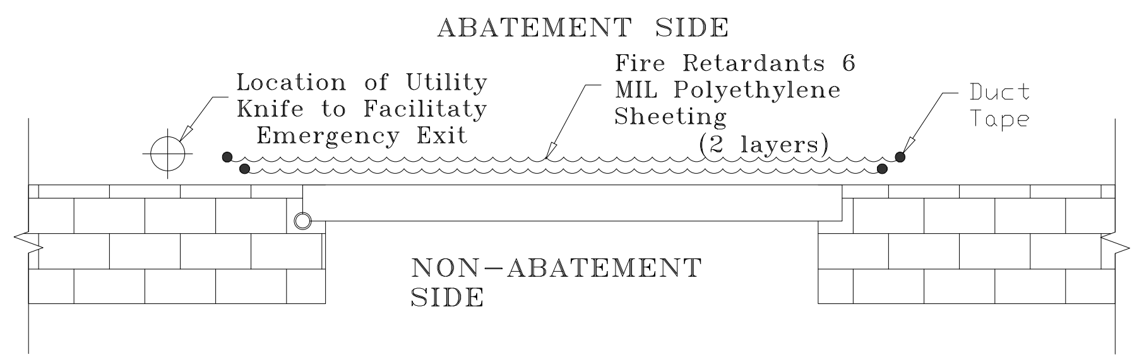
PROJECT NOTES:

1. Prior to submitting a bid fee for the asbestos abatement work summarized in these drawings, the abatement contractor shall confirm the location quantity and condition of all asbestos materials in the scope of work
2. The location and quantities of ACM in these abatement drawings and the defined work area are provided for bid purposes only - prior to starting any abatement activities the abatement contractor shall submit to the CoY for approval, a detailed work plan confirming or redefining the work areas and the abatement procedures associated with the abatement
3. The abatement contractor shall coordinate and schedule all work with the CoY (or their representative) - abatement work once started may need to be performed in discontinuous phases requiring more than one mobilization/demobilization from the site.
4. The abatement contract shall determine in advance of any abatement work the location of temporary water sources and electrical power sources needed for the abatement. The execution of the abatement work may require the abatement contractor to provide temporary power and water through portable generators and drummed water, respectively
5. All waste generated by the abatement must be transported off site daily or stored in a code compliant waste container or holding area.
6. All abatement work must be performed accordingly to applicable federal state and local regulations.
7. Al thermal system insulation removed from piping as part of abatement must be replaced on accordance with re-insulation specifications detailed in these drawings.
8. The abatement contractor is responsible for maintaining the facilities compliance with all fire regulations relating to site egress for workers and building occupants as well as maintaining the conditions and effectiveness of the sites fire system elements as they exist at the start of the abatement.

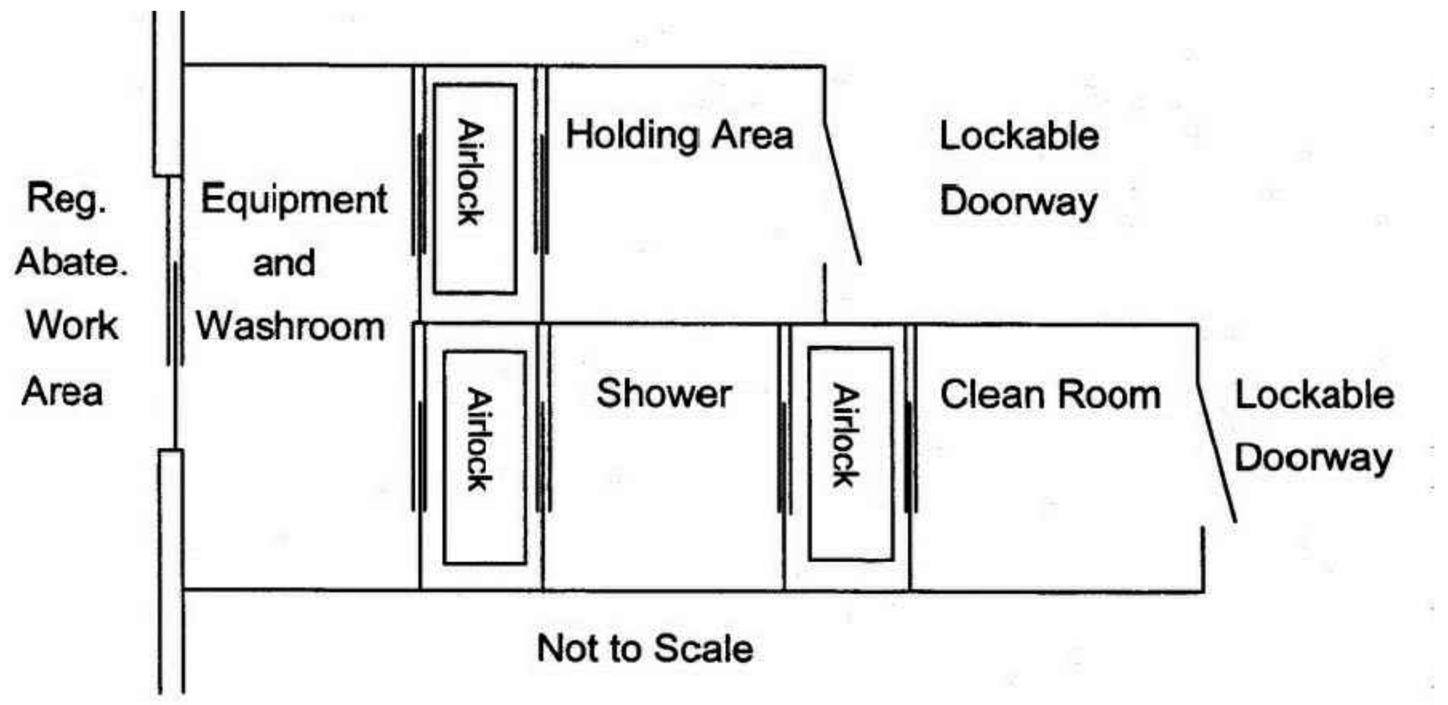
DETAILS:



1
H-100
TYPICAL HARD WALL BARRIER AT OPENINGS MORE THAN 32SF
Not To Scale



2
H-100
TYPICAL SOFT WALL BARRIER AT OPENINGS LESS THAN 32SF (OPERABLE DOORWAYS)
Not To Scale



3
H-100
LARGE PROJECT WORKER/WASTE DECONTAMINATION UNIT
Not To Scale

SCOPE OF WORK TABLE:

Work Area	Location	Description of Asbestos Material	Approximate Quantity Of ACM	ICR 56 Procedure
1	Basement – Boiler Room	Concealed Pipe Flange Gasket (Off White)	22 SF	Full Containment
		Concealed Pipe Flange Gasket (Black)	8 SF	
		Pipe Turn Valve Insulation	22 LF	
		Floor Debris	PRE-CEAN	
		Small Fittings	200 LF	
		Pipe Insulation		
		Big Fittings		
2	Basement -Throughout (Excluding Boiler Room & Chiller Room /B04)	Pipe Elbow Insulation (White) to Fiberglass Insulation	30 LF	56-7.11 (f)
		Pipe Elbow Insulation (Grey) to Fiberglass Insulation		
		Pipe Insulation		
3		Pipe Elbow Insulation (White) to Fiberglass Insulation	118 LF	56-7.11 (f)
		Pipe Elbow Insulation (Grey) to Fiberglass Insulation		
		Pipe Insulation		
4		Pipe Elbow Insulation (White) to Fiberglass Insulation	100 LF	56-7.11 (f)
		Pipe Elbow Insulation (Grey) to Fiberglass Insulation		
		Pipe Insulation		
5		Pipe Elbow Insulation (White) to Fiberglass Insulation	15 LF	56-7.11 (f)
		Pipe Elbow Insulation (Grey) to Fiberglass Insulation		
		Pipe Insulation		
6		Pipe Elbow Insulation (White) to Fiberglass Insulation	85 LF	56-7.11 (f)
		Pipe Elbow Insulation (Grey) to Fiberglass Insulation		
		Pipe Insulation		
7		Pipe Elbow Insulation (White) to Fiberglass Insulation	42 LF	56-7.11 (f)
		Pipe Elbow Insulation (Grey) to Fiberglass Insulation		
		Pipe Insulation		
8		Pipe Elbow Insulation (White) to Fiberglass Insulation	12 LF	56-7.11 (f)
		Pipe Elbow Insulation (Grey) to Fiberglass Insulation		
		Pipe Insulation		
9	Museum – Middle Level - MER	Pipe Elbow Insulation (White) to Fiberglass Insulation	20 LF	56-7.11 (f)
		Pipe Elbow Insulation (White) to Fiberglass Insulation		
		Floor Debris	PRE-CLEAN	
10		Pipe Elbow Insulation (White) to Fiberglass Insulation	63 LF	56-7.11 (f)
		Floor Debris	PRE-CLEAN	
11		Pipe Elbow Insulation (White) to Fiberglass Insulation	8 LF	56-7.11 (f)
12		Pipe Elbow Insulation (White) to Fiberglass Insulation	4 LF	56-7.11 (f)
		Total	30 SF & 719 LF	

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CLIENT
CITY OF YONKERS

CITY HALL, 40 SOUTH BROADWAY
YONKERS, NY 10701
914.377.6106

THE HUDSON RIVER MUSEUM

511 WARBURTON AVENUE
YONKERS, NY 10701
914.963.4550

No.	ISSUE OR REVISION	DATE

PROJECT TITLE
HUDSON RIVER MUSEUM
BOILER REPLACEMENT
HUDSON RIVER MUSEUM
511 WARBURTON AVENUE
YONKERS, NY 10701

DRAWING TITLE
GENERAL NOTES,
SCOPE OF WORK TABLE &
DETAILS

SEAL

SCALE: NOT TO SCALE
PROJECT NO.: 21-072-0089 Phase 4
DESIGNED BY: CZ 92-16430
DRAWN BY: SR
CHECKED BY: FC
DATE: 07/21/2022
DRAWING NO.: H-100

GENERAL

PERMITS AND COMPLIANCE

A. The Contractor shall assume full responsibility and liability for compliance with all applicable Federal, State, and local laws, rules, and regulations pertaining to Work practices, protection of Workers, authorized visitors to the site, persons, and property adjacent to the Work.
B. Perform asbestos related Work in accordance with New York State Industrial Code Rule 56 (herein referred to as Code Rule 56), 40 CFR 61, and 29 CFR 1926. Where more stringent requirements are specified, adhere to the more stringent requirements.
C. The Contractor must maintain current licenses, permits and certifications pursuant to New York State Department of Labor and Department of Environmental Conservation for all Work related to this Project, including the removal, handling, transport, and disposal of asbestos containing materials.
D. The Contractor must have and submit proof upon request that any persons employed by the Contractor to engage in or supervise Work on any asbestos Project have a valid NYS asbestos handling certificate pursuant to Code Rule 56.
E. The Contractor shall comply fully with any Variance secured from regulatory agencies by the Owner in the performance of the Work. Any Variance applications previously submitted are included as an appendix of this specification.
F. The Contractor shall be responsible for obtaining all Variances as may be required for the Project or as requested by the Owner. Approval of the Owner is required prior to submission of a Variance application to any regulatory agency. Failure to obtain Owner approval may result in Owner not permitting variance to be used on the project.
G. The Contractor shall be responsible for compliance with The New York State Uniform Fire Prevention and Building Code, or its successor during all Work at the site.
H. Failure to adhere to the Project Documents shall constitute a breach of the Contract and the Owner shall have the right to and may terminate the Contract provided, however, the failure of the Owner to so terminate shall not relieve the Contractor from future compliance.

SUBMITTALS

A. Pre-Work Submittals: Within 7 days prior to the pre-construction conference, the Contractor shall submit 3 copies of the documents listed below for review and approval prior to the commencement of asbestos abatement activities:
  1. Contractor license issued by New York State Department of Labor.
  2. Progress Schedule:
    a. Show the complete sequence of abatement activities and the sequencing of Work within each building or building section.
    b. Show the dates for the beginning and completion of each major element of Work including substantial completion dates for each Work Area, building, or phase.
  3. Project Notifications: As required by Federal and State regulatory agencies together with proof of transmittal (i.e. certified mail return receipt).
  4. Building Occupant Notification: As required by regulatory agencies.
  5. Abatement Work Plan: Provide plans that clearly indicate the following:
    a. All Work Areas/containments numbered sequentially.
    b. Locations and types of all decontamination enclosures.
    c. Entrances and exits to the Work Areas/containments'.
    e. Number and location of negative air units and exhaust. Also provide calculations for determining number of negative air pressure units.
    f. Location of water and electrical connections to building services.
    g. Waste transport routes through the building to the waste storage container.
    h. Type of abatement activity/technique for each Work Area/containment.
  7. Disposal Site/Landfill Permit from applicable regulatory agency.
  8. NYS Department of Environmental Conservation Waste Transporter Permit.

B. Project Close-out Submittals: Within 30 days of the completion of each abatement phase, the Contractor shall submit one copy of the documents listed below to the owner's environmental consultant for review and approval prior to Contractor's final payment. Once the close-out submittal is approved, the Contractor shall provide three sets of the approved close-out documents (double-sided and bound) to owner's representative.
  1. All waste disposal manifests and disposal logs (Original waste manifests shall be sent to the owner's representative.
  2. OSHA compliance air monitoring records conducted during the Work.
  3. Daily progress log, including the entry/exit log.
  4. Disposal Site/Landfill Permit from applicable regulatory agency.
  5. Project notifications, amended notifications, Variances.

PRE-CONSTRUCTION CONFERENCE

A. Prior to start of preparatory Work under this Contract, the Contractor shall attend a pre-construction conference attended by Owner, Facility Personnel, and Environmental Consultant.
B. Agenda for this conference shall include but not necessarily be limited to:
  1. Contractor's scope of Work, Work plan, and schedule to include number of workers and shifts.
  2. Contractor's safety and health precautions including protective clothing and equipment and decontamination procedures.
  3. Environmental Consultant's duties, functions, and authority.
  4. Contractor's Work procedures including:
    a. Methods of job site preparation and removal methods.
    b. Respiratory protection.
    c. Disposal procedures.
    d. Cleanup procedures.
    e. Fire exits and emergency procedures.
  5. Contractor's required pre-work and on-site submittals, documentation, and postings.
  6. Contractor's plan for twenty-four (24) hour Project security both for prevention of theft and for barring entry of unauthorized personnel into Work Areas.
  7. Temporary utilities.
  8. Handling of furniture and other moveable objects.
  9. Storage of removed asbestos containing materials.
  10. Waste disposal requirements and procedures, including use of the Owner supplied waste manifest.

C. In conjunction with the conference the Contractor shall accompany the Owner and Environmental Consultant on a pre-construction walk-through documenting existing condition of finishes and furnishings, reviewing overall Work plan, location of fire exits, fire protection equipment, water supply and temporary electric tie-in.

APPLICABLE STANDARDS AND REGULATIONS

A. The Contractor shall comply with the following codes and standards, except where more stringent requirements are shown or specified:
B. Federal Regulations:
  1. 29 CFR 1910.1001, "Asbestos" (OSHA)
  2. 29 CFR 1910.1200, "Hazard Communication" (OSHA)
  3. 29 CFR 1910.134, "Respiratory Protection" (OSHA)
  4. 29 CFR 1910.145, "Specification for Accident Prevention Signs and Tags" (OSHA)
  5. 29 CFR 1926, "Construction Industry" (OSHA)
  6. 29 CFR 1926.1101, "Asbestos, Tremolite, Anthophyllite, and Actinolite" (OSHA)
  7. 29 CFR 1926.500 "Guardrails, Handrails and Covers" (OSHA)
  8. 40 CFR 61, Subpart A, "General Provisions" (EPA)
  9. 40 CFR 61, Subpart M, "National Emission Standard for Asbestos" (EPA)
  10. 49 CFR 171-172, Transportation Standards (DOT)

C. New York State Regulations:
  1. 12 NYCRR, Part 56, "Asbestos", Industrial Code Rule 56 (DOL)
  2. 6 NYCRR, Parts 360, 364, Disposal and Transportation (DEC)
  3. 10 NYCRR, Part 73, "Asbestos Safety Program Requirements" (DOH)
  4. "New York State Uniform Fire Prevention and Building Code"

D. Standards and Guidance Documents:
  1. American National Standard Institute (ANSI) Z88.2-80, Practices for Respiratory Protection
  2. ANSI Z9.2_79, Fundamentals Governing the Design and Operation of Local Exhaust Systems
  3. EPA 560/585_024, Guidance for Controlling Asbestos Containing Materials in Buildings (Purple Book)
  4. EPA 530-SW-85-007, Asbestos Waste Management Guidance
  5. ASTM Standard E1368 "Standard Practice for Visual Inspection of Asbestos Abatement Projects"

NOTICES

A. The Contractor shall provide notification of intent to commence asbestos abatement activities as indicated below.
  1. At least ten (10) Working days prior to beginning abatement activities, send written notification to:

U.S. Environmental Protection Agency
National Emissions Standards for Hazardous Air Pollutants (NESHAPS) Coordinator
26 Federal Plaza
New York, NY 10007

  2. At least ten (10) days prior to beginning abatement activities send written notification to:

New York State Department of Labor
Division of Safety and Health, Asbestos Control Program.
State Office Campus
Building 12 - Room 161B
Albany, NY 12240

B. The Contractor is required to send notifications to regulatory agencies via electronic, mail, or package delivery service that will provide proof of delivery and receipt.
C. The Contractor shall be responsible for maintaining current project filings with regulatory agencies for the duration of the project.
D. The Contractor shall post and/or provide Building Occupant Notification at least 10 days prior to beginning abatement activities as required by Code Rule 56.

CONTRACTOR AIR SAMPLING

A. In addition to the requirements of OSHA 1926.1101, the Contractor shall be required to perform personal air monitoring every Work shift in each Work Area during which abatement activities occur in order to determine that appropriate respiratory protection is being worn and utilized.
B. The Contractor shall conduct air sampling that is representative of both the 8-hour time weighted average and 30-minute short-term exposures to indicate compliance with the permissible exposure and excursion limits.
C. The Contractor's laboratory analysis of air samples shall be conducted by an NYS DOH ELAP approved laboratory. The consultant shall not collect or analyze the Contractor's air samples.
D. Results of personnel air sample analyses shall be available, verbally, within twenty-four (24) hours of sampling and shall be posted upon receipt. Written laboratory reports shall be delivered and posted at the Work site within five (5) days. Failure to comply with these requirements may result in all work being stopped until compliance is achieved.

PROJECT SUPERVISOR

A. The Contractor shall designate a full-time Project Supervisor who shall meet the following qualifications:
  1. The Project Supervisor shall hold New York State certification as an Asbestos Supervisor.
  2. The Project Supervisor shall meet the requirements of a "Competent Person" as defined by OSHA 1926.1101 and shall have a minimum of one year experience as a supervisor.
  3. The Project Supervisor must be able to speak, read, and write English fluently, as well as communicate in the primary language of the Workers.

B. If the Project Supervisor is not on-site at any time whatsoever, all Work shall be stopped. The Project Supervisor shall remain on-site until the Project is complete. The Contractor may not remove the Project Supervisor from the Project without the written consent of the Owner and the Environmental Consultant; however the Project Supervisor shall be removed from the Project if so requested by the Owner.
C. The Project Supervisor shall maintain the bound Daily Project Log and the entry/exit logs as required by New York State Department of Labor and section 2.03 of the specifications and the Waste Disposal Log (Appendix B) required by section 4.03 of the specifications.
D. The Project Supervisor shall be responsible for the performance of the Work and shall represent the Contractor in all respects at the Project site. The Supervisor shall be the primary point of contact for the Asbestos Project Monitor.

DELIVERY AND STORAGE

A. Deliver all materials to the job site in original packages with containers bearing manufacturer's name and label.
B. Store all materials at the job site in a suitable and designated area.
  1. Store materials subject to deterioration or damage away from wet or damp surfaces and under cover.
  2. Protect materials from unintended contamination and theft.
  3. Storage areas shall be kept clean and organized.

C. Remove damaged or deteriorated materials from the job site. Materials contaminated with asbestos shall be disposed of as asbestos debris as herein specified. This includes unused Contractor supplies located in the regulated work area.

TEMPORARY UTILITIES

A. Shut down and lock out all electrical power to the asbestos Work Areas, including lighting circuits. Any electrical power passing through the Work Areas that can't be shut down due to health and safety reasons, shall be protected as per the requirements of Industrial Code Rule 56.
B. Provide temporary 120-240 volt, single phase, three wire, 100 amp electric service with Ground Fault Circuit Interrupters (GFCI) for all electric requirements within the asbestos Work Area.
  1. Where available, obtain from Owner's existing system. Otherwise provide power from other sources (i.e. generator).
  2. Provide temporary wiring and "weatherproof" receptacles in sufficient quantity and location to serve all HEPA equipment and tools.
  3. Provide wiring and receptacles as required by the Environmental Consultant for project monitoring and air sampling equipment (pumps, fans, leaf blowers, etc.).
  4. All power to the Work Area shall be brought in from outside the area through GFCI's at the source.

C. Provide temporary lighting with "weatherproof" fixtures for all Work Areas including decontamination chambers.
  1. The entire Work Area shall be kept illuminated at all times.
  2. Provide lighting as required by the Environmental Consultant for the purposes of performing required inspections.

D. All temporary devices and wiring used in the Work Area shall be capable of decontamination procedures including HEPA vacuuming and wet-wiping.
E. Utilize domestic water service, if available, from Owner's existing system. Provide hot water heaters with sufficient capacity to meet Project demands.

PRODUCTS

DAILY PROJECT LOG & WORK AREA ENTRY/EXIT LOG

A. Provide a bound Daily Project Log. The log shall contain on title page the Project name; name, address and phone number of Owner; name, address and phone number of Environmental Consultant; name, address and phone number of Abatement Contractor; emergency numbers including, but not limited to local Fire/Rescue department and all other New York State Department of Labor requirements.
B. All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted.
C. All persons entering and exiting the Work Area shall sign the entry/exit log and include name, certification number, and time.
D. The Project Supervisor shall document all Work performed daily and note all inspections required by Code Rule 56, i.e. testing and inspection of barriers and enclosures.

SCAFFOLDING AND LADDERS

A. Provide all scaffolding and/or staging as necessary to accomplish the Work of this Contract. Scaffolding may be of suspension type or standing type such as metal tube and coupler, tubular welded frame, pole or outrigger type or cantilever type. The type, erection and use of all scaffolding and ladders shall comply with all applicable OSHA construction industry standards.
B. Provide scaffolding and ladders as required by the Environmental Consultant for the purposes of performing required inspections.

SURFACTANT (AMENDED WATER)

A. Wet all asbestos-containing materials prior to removal with surfactant mixed and applied in accordance with manufacturer's printed instructions.

WASTE DISPOSAL BAGS, DRUMS, AND CONTAINERS

A. Provide 6 mil polyethylene disposal bags printed with asbestos caution labels. Bags shall also be imprinted with U.S. Department of Transportation required markings.
B. Provide 30 or 55 gallon capacity fiber, plastic, or metal drums capable of being sealed air and water tight if asbestos waste has the potential to damage or puncture disposal bags. Affix asbestos caution labels on lids and at one-third points around drum circumference to assure ready identification.
C. Containers and bags must be labeled accordance with 40 CFR Part 61 NESHAPS and Code Rule 56. When the bags/containers are moved to the holding area, lockable trailer, or lockable hardtop dumpster from the waste decontamination system washroom, each bag/container must also be appropriately labeled with the date moved in waterproof markings.
D. Labeled ACM waste containers or bags shall not be used for non-ACM waste or trash. Any material placed in labeled containers or bags, whether turned inside out or not shall be handled and disposed of as ACM waste.

FIRE RETARDANT PLASTIC SHEETING

A. All polyethylene (plastic) sheeting used on the Project (including but not limited to sheeting used for critical and isolation barriers, fixed objects, walls, floors, ceilings, waste container) shall be at least 6 mil fire retardant sheeting.
B. Decontamination enclosure systems shall utilize at least 6 mil opaque fire retardant plastic sheeting. At least 2 layers of 6 mil reinforced fire retardant plastic sheeting shall be used for the flooring.

EXECUTION

GENERAL REQUIREMENTS

A. Should visible emissions or water leaks be observed outside the Work Area, immediately stop Work and institute emergency procedures per Code Rule 56. Should there be elevated fiber levels outside the Work Area, immediately stop Work, institute emergency procedures per Code Rule 56, and notify all employers and occupants in adjacent areas. All costs incurred in decontaminating such non-Work Areas and the contents thereof shall be borne by the Contractor, at no additional cost to the Owner
B. Valid NYS DOL Asbestos Handler certification cards shall be on site prior to admittance of any Contractor's employees to the asbestos Work Area.
C. The following submittals, documentation, and postings shall be maintained on-site by the Contractor during abatement activities at a location approved by the Abatement Project Monitor:
  1. Valid Contractor handling license issued by New York State Department of Labor.
  2. NYS DOL Asbestos Handler certification cards for each person employed in the removal, handling, or disturbance of asbestos.
  3. Daily OSHA personal air monitoring results.
  4. NYS Department of Health ELAP certification for the laboratory that will be analyzing the OSHA personnel air samples.
  5. NYS Department of Environmental Conservation Waste Transporter Permit.
  6. Project documents (specifications and drawings.)
  7. Notifications, Variances, Approved Work Plan. Ensure that the most up-to-date notifications and Variances are on-site.
  8. Applicable regulations.
  9. Material Safety Data Sheets of supplies/chemicals used on the Project.
  10. Disposal Site/Landfill Permit from applicable regulatory agency.
  11. List of emergency telephone numbers.
  12. Magnahelic manometer semi-annual calibration certification.
  13. Waste Disposal Log.
  14. Daily Project Log.
  15. Entry/Exit Logs.

D. The following documentation shall be maintained on-site by the Abatement Project Monitor during abatement activities:
  1. Valid Contractor handling license issued by New York State Department of Labor.
  2. Air Sample Log.
  3. Air sample results.
  4. Project Monitor Daily Log
  5. Asbestos Survey Report.
  6. A copy of ASTM Standard E1368 "Standard Practice for Visual Inspection of Asbestos Abatement Projects."
  7. Calibration chart for rotometer(s) used on-site.

E. The Work Area must be vacated by building occupants prior to decontamination enclosure construction and Work Area preparation.
F. All demolition necessary to access asbestos containing materials for removal must be conducted within negative pressure enclosures by licensed asbestos handlers. Demolition debris may be disposed of as construction and demolition debris provided the Abatement Project Monitor determines that it is not contaminated with asbestos and there has been no disturbance of ACM within the enclosure. If the demolition debris is determined to be contaminated or ACM has been disturbed, it must be disposed of as asbestos waste.

WORK AREA PREPARATION

A. Asbestos danger signs shall be posted at all approaches to the asbestos Work Area. Post all emergency exits as emergency exits only on the Work Area side, post with asbestos caution signs on the non-Work Area side. Provide all non-Work Area stairs and corridors accessible to the asbestos Work Area with warning tapes at the base of stairs and beginning of corridors. Warning tapes shall be in addition to caution signs
B. Shut down and lock out the building heating, ventilating, and air conditioning systems. Electrical systems and circuits shall also be shut down unless permitted to remain active per Code Rule 56 and appropriately protected and labeled. Existing lighting sources shall not be utilized. Provide temporary electric power and lighting as specified herein.
C. All non-ACM surfaces and objects within the Work Area shall be pre-cleaned using HEPA vacuuming and/or wet-wiping methods. Dry sweeping and any other methods that raise dust shall be prohibited. ACM shall not be disturbed during pre-cleaning.
D. Movable objects within the Work Area shall be HEPA vacuumed and/or wet-wiped and removed from the Work Area.
E. All non-movable equipment in the Work Area shall be completely covered with 2 layers of fire retardant plastic sheeting, at least 6 mil in thickness, and secured in place with duct tape and/or spray adhesive. Active Fire Protection System components in the Work Area shall not be covered with fire retardant plastic sheeting or any other obstruction.
F. Provide enclosure of the asbestos Work Area necessary to isolate it from unsealed areas of the building in accordance with the approved asbestos Work plan and as specified herein.
G. Provide critical barriers by sealing off all openings including but not limited to operable windows and skylights, doorways, diffusers, grills, electrical outlets and boxes, doors, floor drains, and any other penetrations to surfaces in the Work Area enclosure, using 2 layers of at least 6 mil fire retardant plastic sheeting.
H. Provide isolation barriers by installing temporary framing and sheathing at openings larger than 32 square feet forming the limits of the asbestos Work Area. Sheathing thickness must be a minimum of 3/8 inch and all sheathing shall be caulked and the Work Area side sealed with two layers of 6 mil fire retardant plastic sheeting. Isolation barriers in stairwells and at work area egress locations shall not be covered with sheathing, only two layers of 6 mil fire retardant plastic sheeting.
I. Isolation barriers shall be installed at all elevator openings in the Work Area. .Elevators running through the regulated abatement work area shall be shut down or isolated as per Code Rule 56. Elevator controls shall be modified so that elevators bypass the Work Area
J. Provide two independent layers of 6 mil fire retardant plastic sheeting over all floor, wall, and ceiling surfaces. Isolation barriers shall also be covered with two independent layers (for a total of four layers). Sheeting shall be secured with duct tape. All joints in fire retardant plastic sheeting shall overlap 12" minimum. Carpeting left in place shall be covered with 3/8 inch plywood sheathing prior to plasticizing.
K. Unless otherwise specified for removal, the Contractor shall either protect all fiberglass insulation on piping, ductwork, tanks, etc. in the Work Area using two layers of six mil fire retardant plastic sheeting or remove the insulation as asbestos containing waste. If the Contractor elects to remove the fiberglass insulation as asbestos-contaminated, he/she shall be responsible for reinsulation if reinsulation of removed insulations is part of the Contract or Project.

L. Frame out emergency exits from Work Area. Provide double layer 6 mil fire retardant plastic sheeting and tape seal opening. Post as emergency exits only and tape utility knife to the Work Area side of each exit. Within the Work Area, mark the locations and directions of emergency exits throughout the Work Area using exit signs and/or duct tape.
M. Remove all items attached to or in contact with ACM only after the Work Area enclosure is in place. HEPA vacuum and wet wipe with amended water all items prior to their removal from the Work Area and before the start of asbestos removal operations.
N. Suspended ceiling tiles shall only be removed after Work Area preparation is complete. If possible, non-contaminated ceiling tiles shall be HEPA vacuumed and removed from the Work Area before asbestos removals begin. Contaminated ceiling tiles shall be disposed of as asbestos waste.

NEGATIVE AIR PRESSURE FILTRATION SYSTEM

A. Provide a portable asbestos filtration system that develops a minimum pressure differential of negative 0.02 in. of water column within all full enclosure areas relative to adjacent unsealed areas and that provides a minimum of 4 air changes per hour in the Work Area during abatement and 6 air changes for non-friable flooring and/or mastic removal.
B. Such filtration systems must be made operational after critical and isolation barriers are installed but before wall, floor, and ceilings are plasticized and shall be operated 24 hours per day during the entire Project until the final cleanup is completed and satisfactory results of the final air samples are received from the laboratory.
C. The system shall include a series of pre_filters and filters to provide High Efficiency Particulate Air (HEPA) filtration of particles down to 0.3 microns at 100% efficiency and below 0.3 microns at 99.9% efficiency. Provide sufficient replacement filters to replace pre_filters every 2 hours, secondary pre_filters every 24 hours, and primary HEPA filters every 600 hours (25 continuous days) of operation. HEPA filter sides shall be marked with installation date during all new HEPA filter installations on project.
D. A minimum of one additional filtration unit of at least the same capacity as the primary unit(s) shall be installed and fully functional to be used during primary unit (s) filter changing and in case of primary failure.
E. At no time will the unit exhaust indoors, within 15 feet of a receptor, including but not limited to windows and doors, or adversely affect the air intake of the building. Exhaust ducting shall not exceed 25' in length, except as allowed by Industrial Code Rule 56. Provide construction fencing at ground level exhaust termination locations per Code Rule 56.
F. Upon electric power failure or shut_down of any filtration unit, all abatement activities shall stop immediately and only resume after power is restored and all filtration units are fully operating. For shut_downs longer than one hour, all openings into the Work Area, including the decontamination enclosures, shall be sealed.
G. For all OSHA Class I removal Work Areas, the Contractor shall provide a manometer to verify negative air pressure. Manometers shall be read twice daily and recorded within the Daily Project Log.
H. There shall be at least a 4 hour settling period after the Work Area is fully prepared and the negative filtration units have been started to ensure integrity of the barriers.
I. Once installed and operational, the Contractor's Supervisor shall conduct daily inspections of the Work Area to insure the airtight integrity of the enclosure and operation of the negative air system. Findings shall be recorded within the Daily Project Log. Inspections shall also be conducted on days when no abatement activities are in progress per Code Rule 56 (i.e. weekends).

REMOVAL OF ASBESTOS CONTAINING MATERIALS

A. Asbestos-containing materials shall be removed in accordance with the Contract Documents and the approved Asbestos Work Plan. Only one type of ACM shall be abated at a time within a Work Area. Where there are multiple types of ACM requiring abatement, Code Rule 56 procedures for sequential abatement shall be followed.
B. Sufficiently wet asbestos materials with a low pressure, airless fine spray of surfactant to ensure full penetration prior to material removal. Re-wet material that does not display evidence of saturation.
C. One Worker shall continuously apply amended water while ACM is being removed.
D. Perform cutting, drilling, abrading, or any penetration or disturbance of asbestos containing material in a manner to minimize the dispersal of asbestos fibers into the air. Use equipment and methods specifically designed to limit generation of airborne asbestos particles. All power operated tools used shall be provided with manufacturer HEPA equipped filtered local exhaust ventilation, as required by regulation.
E. Upon removal of ACM from the substrate, the newly exposed surfaces shall be HEPA vacuumed and/or wet cleaned. Surfaces must be thoroughly cleaned using necessary methods and any required solvents to completely remove any adhesive, mastic, etc.
F. All removed material shall be placed into 6 mil plastic disposal bags or other suitable container upon detachment from the substrate. Cleanup of accumulations of loose debris or waste shall be performed whenever there is enough accumulation to fill a single bag or container and minimally at the end of each work shift.
G. Large components shall be wrapped in two layers of 6 mil fire retardant plastic sheeting. Sharp components likely to tear disposal bags shall be placed in fiber drums or boxes and then wrapped with sheeting.
H. Power or pressure washers are not permitted for asbestos removal or clean-up procedures unless approved in a Site Specific Variance and allowed by owner.
I. All open ends of pipe and duct insulation not scheduled for removal shall be encapsulated using lag cloth.
J. All construction and demolition debris determined by the Environmental Consultant to be contaminated with asbestos shall be handled and disposed of as asbestos waste.
K. The use of metal shovels, metal dust pans, etc. are not permitted inside the work area.

EQUIPMENT AND WASTE CONTAINER DECONTAMINATION AND REMOVAL PROCEDURES

A. External surfaces of contaminated containers and equipment shall be cleaned by wet cleaning and/or HEPA vacuuming in the Work Area before moving such items into the waste decontamination enclosure system airlock by persons assigned to this duty. The persons in the Work Area shall not enter the airlock. No gross removal operations are permitted when waste transfer is in progress.
B. The containers and equipment shall be removed from the airlock by persons stationed in the washroom during waste removal operations. The external surfaces of containers and equipment shall be cleaned a second time by wet cleaning.
C. The cleaned containers of asbestos material and equipment are to be dried of any excessive pooled or beaded liquid, placed in uncontaminated 6 mil plastic bags or sheeting, as the item's physical characteristics demand, and sealed airtight.
D.The clean recontainerized items shall be moved into the airlock that leads to the holding area. Workers in the washroom shall not enter this airlock.
E. Containers and equipment shall be moved from the airlock and into the holding area by persons dressed in clean personal protective equipment, who have entered from the holding area.
F. The cleaned containers of asbestos material and equipment shall be placed in water tight carts with doors or tops that shall be closed and secured. These carts shall be held in the holding until transfer to the waste container. The carts shall be wet cleaned and/or HEPA vacuumed at least once each day.
G. The exit from the decontamination enclosure system shall be secured to prevent unauthorized entry.

H. Where the waste removal enclosure is part of the personnel decontamination enclosure, waste removal shall not occur during shift changes or when otherwise occupied. Precautions shall be taken to prevent short circuiting and cycling of air outward through the shower and clean room.

TENT ENCLOSURES

A. Tent enclosures may only be used where specifically permitted by Code Rule 56 or a Site Specific Variance issued by the NYS Department of Labor.
B. The Contractor shall restrict access to the immediate area where tent removal procedures are taking place using barrier tape and/or construction barriers. Caution signs shall be posted.
C. Remote personnel decontamination enclosures shall be constructed. Configuration shall be as required by Project size and a washroom with attached airlock shall be constructed contiguous to the tent enclosure for small and large size tent enclosure work areas. For tent enclosures with gross abatement of friable materials, a contiguous decontamination system shall be constructed, maintained and utilized, except for minor size tent enclosure work areas where an adjacent decontamination room or area is permitted by Code Rule 56.
D. The Work Area shall be precleaned. All objects and equipment that will remain in the restricted area during abatement shall be sealed with two layers of six mil polyethylene and tape.
E. The tent shall be a single use barrier constructed with a rigid frame and at least two layers of six mil polyethylene unless one layer of six mil polyethylene is otherwise permitted by Code Rule 56. Tents with twenty (20) square feet or less of floor space or no gross removal of friable ACM shall be constructed of one (1) layer of six mil polyethylene and shall include walls, ceilings and a floor (except portions of walls, floors and ceilings that are the removal surface) with double folded seams. All seams shall be sealed airtight using duct tape and/or spray adhesive.
F. The tent shall be constructed with at least one airlock for worker/waste egress.
G. A manometer shall be used for all OSHA Class I abatement.
H. Negative air shall be maintained at four (4) air changes per hour for non-friable and glovebag abatement tent enclosure work areas. Eight (8) air changes shall be maintained for friable gross removal tent enclosure work areas. In a Minor size abatement tent enclosure work area a HEPA vacuum may be used to maintain the required air changes.
I. OSHA compliance air monitoring is required per section 1.09.
J. ACM removal shall follow procedures defined in section 3.07.
K. Waste material shall be placed in properly labeled 6 mil plastic bags or other appropriate containers. The outside of the bags or containers shall be wet wiped and/or HEPA vacuumed in the washroom and shall then be placed in a second bag/container before being transferred to the waste storage container. All transportation of waste bags and containers outside the Work Area shall be in watertight carts. These carts shall be held in the holding area until transfer to the waste container. The carts shall be wet cleaned and/or HEPA vacuumed at least once each day.
L. Following completion of gross abatement and after all accumulations of asbestos waste materials have been containerized, the following decontamination procedures shall be followed.
  1. All bagged asbestos waste and unnecessary equipment shall be decontaminated and removed from the Work Area.
  2. All surfaces in the Work Area shall be wet cleaned. A wet_purpose shop vacuum may be used to pick up excess liquid, and shall be decontaminated prior to removal from the Work Area.
  3. The Contractor shall then apply a thin coat of encapsulant to all non-removal surfaces covered with plastic in the Work Area. In no event shall encapsulant be applied to any surface that was the subject of removal prior to obtaining satisfactory air monitoring results. Encapsulants shall be pigmented or tinted to provide an indication for completeness of coverage. The APM shall determine adequacy of coverage.
  3. After the waiting/settling/drying time requirements have elapsed, the Asbestos Project Monitor shall conduct a visual inspection of the Work Area for cleanliness and completion of abatement. The APM shall document the results of the visual inspection in the Project Monitor Log and Contractor's Daily Project Log.
  4. After satisfactory APM visual inspection, aggressive final clearance air sampling shall then be conducted by the Environmental Consultant.
  5. Upon receipt of satisfactory final clearance air sampling results, the tent shall be collapsed into itself, placed in suitable disposal bags, and tranferred through the washroom to the waste decontamination enclosure. Isolation and critical barriers shall then be removed and bagged as asbestos waste followed by satisfactory visual inspections by the project supervisor and the APM for cleanliness.

GLOVEBAG REMOVAL

A. Glovebag removals may only be used as specifically permitted by Code Rule 56 or a Site Specific Variance issued by the NYS Department of Labor. Glovebags may only be used on pipe or duct insulation.
B. In addition to conformance with applicable regulations and variances, glovebag removals are only permitted to be conducted within tent enclosures complying with these specifications.
C. The Contractor shall restrict access to the immediate area where tent/glovebag removal procedures are taking place using barrier tape and/or construction barriers. Caution signs shall be posted.
D. Remote personnel decontamination enclosures shall be constructed. Configuration shall be as required by Project size and a washroom with attached airlock shall be constructed contiguous to the tent enclosure.
E. Glovebag removals shall utilize commercially available glovebags of at least six mil thickness. Use shall be in accordance with the manufacturer's instructions and the following minimum requirements:
  1. The sides of the glovebag shall be cut to fit the size pipe being removed. Tools shall be inserted into the attached tool pocket.
  2. The glovebag shall be placed around the pipe and the open edges shall be folded and sealed with staples and duct tape. The glovebag shall also be sealed at the pipe to form a tight seal.
  3. Openings shall be made in the glovebag for the wetting tube and HEPA vacuum hose. The opening shall be sealed to form a tight seal.
  4. All glovebags shall be smoke tested by the Asbestos Project Monitor under negative pressure using the HEPA vacuum before removal operations commence. Glovebags that do not pass the smoke test shall be resealed and then retested.
  5. After first wetting the materials to be removed, removal may commence. ACM shall be continuously wetted. After removal of the ACM, the piping shall be scrubbed or brushed so that no visible ACM remains. Open ends of pipe insulation shall be encapsulated.
  6. After the piping is cleaned, the inside of the glovebag shall be washed down and the wetting tube removed. Using the HEPA vacuum, the glovebag shall be collapsed and then twisted and sealed with tape with the ACM at the bottom of the bag.
  7. A disposal bag shall be placed around the glovebag that is then detached from the pipe. The disposal bag is then sealed and transferred through the washroom to the waste storage container.

F. After glovebag removals are complete, tent decontamination procedures shall be followed.

RESTORATION OF UTILITIES, FIRESTOPPING, AND FINISHES

A. After final clearance, remove locks and restore electrical and HVAC systems. All temporary power shall be disconnected, power lockouts removed and power restored. All temporary plumbing shall be removed.
B. Finishes damaged by asbestos abatement activities including, but not limited to, plaster/paint damage due to duct tape, staples, and spray adhesives, and floor tile lifted due to wet or humid conditions, shall be restored prior to final payment.
  1. Finishes unable to be restored shall be replaced under this Contract at the Contractor's expense.
  2. All foam and expandable foam products and materials used to seal Work Area openings shall be completely removed upon completion of abatement activities.

C. All penetrations (including, but not limited to, pipes, ducts, etc.) through fire rated construction shall be firestopped using materials and systems tested in accordance with ASTM E814 on Projects where reinsulation is part of the required work.

DISPOSAL OF ASBESTOS WASTE

TRANSPORTATION AND DISPOSAL SITE

A. The Contractor's Hauler and Disposal Site shall be approved by the Owner. All waste generated during the asbestos project shall be disposed of as RACM asbestos waste.
B. The Contractor shall give twenty-four (24) hour notification prior to removing any waste from the site. Waste shall be removed from the site only during normal working hours unless otherwise specified. No waste may be taken from the site unless the Contractor and Environmental Consultant are present and the Environmental Consultant authorizes the release of the waste as described herein.
C. All waste generated as part of the asbestos project shall be removed from the site within ten (10) calendar days after successful completion of all asbestos abatement work.
D. Upon arrival at the Project Site, the Hauler must possess and present to the Environmental Consultant a valid New York State Department of Environmental Conservation Part 364 Asbestos Hauler's Permit. The Environmental Consultant may verify the authenticity of the hauler's permit with the proper authority.
E. The Hauler, with the Contractor and the Environmental Consultant, shall inspect all material in the transport container prior to taking possession and signing the Asbestos Waste Manifests.

WASTE STORAGE CONTAINERS

A. All waste containers shall be fully enclosed and lockable (i.e. enclosed dumpster, trailer, etc.). No open containers will be permitted on-site (i.e. open dumpster with canvas cover, etc.) unless specifically permitted by applicable regulation or a Site Specific Variance. When asbestos contaminated waste must be kept on the work site overnight or longer, it shall be double bagged and stored in accordance with Federal, State, and local laws.
B. The Environmental Consultant shall verify that the waste storage container and/or truck tags (license plates) match that listed on the New York State Department of Environmental Conservation Part 364 permit. Any container not listed on the permit shall be removed from the site immediately.
C. The container shall be plasticized and sealed with two (2) layers of 6 mil polyethylene. Once on site, it shall be kept locked at all times, except during load out. The waste container shall not be used for storage of equipment or contractor supplies.
D. While on-site, the container shall be labeled with EPA Danger signage:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

E. The New York State Department of Environmental Conservation Asbestos Hauler's Permit number shall be stenciled on both sides and back of the container.
F. The container is not permitted to be loaded unless it is properly plasticized, has the appropriate danger signage affixed, and has the permit number appropriately stenciled on the container.

G. Waste generated off-site is not permitted to be brought onto the Project site and loaded into the waste container.
H. All asbestos waste removed from the project site shall be transported directly to the disposal site without any addtional waste being added to the container during transport.

RE-INSULATION / PIPING INSULATION (HVAC)

GENERAL

SUPPLEMENTAL QUALITY ASSURANCE

A. Code and Standards
  1. Pipe insulation including all accessory items shall have surface burning characteristic rating for flame spread not over 25 and smoke developed not over 50 as tested using ASTM E 84 method and as defined by NYS Building Code.
  2. All insulation material shall have BSA and MEA numbers as required.
  3. Comply with ASHRAE and New York State Energy Conservation Construction Code Standards.

TEMPERATURE REQUIREMENT

A. Apply adhesive, sealers, coating, and all other items and accessories at the proper temperature as recommended by the manufacturer. If ambient conditions are not acceptable, provide temporary heat as required for proper installation without any delay to the Project completion.

PRODUCTS

MATERIALS

A. Pipe Insulation
  1. One-piece molded sectional fiber glass insulation shall have a nominal 4-pound density with a thermal conductivity (k) of not over 0.23 at 75o F. mean temperature. Insulations shall have a jacket and adhesive used to adhere the jacket to the insulation. Insulation shall be suitable for use on piping up to 500o F. operating temperature

B. Jackets
  1. The jackets shall be of white kraft paper outer surface bonded to aluminum foil and reinforced with fiber glass yarn (all service jacket (ASJ) with self-sealing lap). For cold water pipe insulation, the jackets shall be the vapor barrier type, ASJ or PVDC.

C. Insulation and accessories for valves, fittings, flanges etc. shall include the following:
  1. Segments of pipe insulation.
  2. Pre-molded fiberglass fittings.
  3. No. 20 gage galvanized steel annealed wire
  4. In lieu of using coated pre-molded fittings for insulating fittings, valves etc., Zeston premolded 20-mil thick, high impact ultraviolet-resistant one piece PVC fitting covers and precut Hi-Lo-Temp insulation inserts as manufactured by Johns Manville or approved equal are acceptable.
  5. The insulation and accessories shall be removable, pre-formed jackets that are size specific with wire strapping(s).

D. Asbestos free rigid hydrous calcium silicate block, minimum 12 pound density.
E. Bands, staples, tapes, wires, cements, adhesives, sealers and protective finishes: As specified herein or as recommended by insulation manufacturer for proper uses on piping insulations.

EXECUTION

INSTALLATION

A. Install insulation on pipe systems.
B. Install insulation materials with smooth and even surfaces. Insulate each continuous run of piping with full-length units of insulation, with single cut piece to complete run. Do not use cut pieces or scraps abutting each other. The insulation materials shall be installed in a minimum of two layers and the joints shall be staggered for improved coverage.
C. Clean and dry pipe surfaces prior to insulating. Butt insulation joints firmly together to ensure complete and tight fit over surfaces to be covered.
D. All insulation shall be kept dry before and during application. If applied insulation has become wet before it is properly finished, it shall be thoroughly dried by suitable means or else replaced before a vapor barrier is applied.
E. Contractor shall maintain orderly work areas free of debris at all times.
F. Maintain integrity of vapor-barrier jackets on pipe insulation and protect to prevent puncture or other damage.
G. Valves shall be insulated up to packing unit
H. Extend piping insulation without interruption through walls, floors and similar piping penetrations, except where otherwise indicated.
I. The temperature of the jacket shall not exceed 1400F
J. Paper laminated jackets shall be permanently treated to retain the flame spread and smoke developed rating. Chemicals used for treating paper jacket laminates shall not be water soluble and shall be unaffected by water and humidity.
K. Insulation on all cold surfaces must be applied with a continuous, unbroken vapor seal. Hangers, supports, anchors, etc., that are secured directly to cold surfaces must be adequately insulated and vapor sealed to prevent condensation.
L. All surface finishes are to be extended to protect all surfaces, ends and raw edges of insulation.
M. General valves, fittings, etc. shall be insulated as follows:
  1. For pipe sizes smaller than 4" wrap firmly under a minimum of a 3:1 compression, with 1 pound density fiberglass blanket, to a thickness equal to adjoining insulation. Secure with No. 20 gage galvanized annealed steel wire. Finish with a smooth coat of insulating cement.
  2. For pipe sizes 4" and larger, fit segments of pipe insulation equal in thickness to adjoining insulation and secure with No 20 gage galvanized annealed steel wire. Finish with a smooth coat of insulating cement.
  3. In lieu of the foregoing methods, the use of pre-molded fiberglass fittings of the same thickness of adjoining pipe insulation will be accepted. Finish with a smooth coat of insulating cement.

N. Cold Piping: Install the fiberglass or closed cell insulation with factory supplied vapor barrier jacket. Secure all jacket laps and joints strips with lap adhesive. The ends of the pipe insulation shall be sealed off with vapor barrier coating at all fittings and valves, and at interval 21' on continuous runs on pipe. The use of staples on vapor barrier jacketed insulation is not permitted.
In lieu of the specified forgoing methods, for the chilled water and refrigerant lines, the use of rigid-form insulation with factory-applied self-sealing lap tape and vapor-retarder jacket up to 1.5" will be accepted.
. O. Insulation and Protection at Points of Support
  1. Install inserts made from rigid calcium silicate pipe insulation at all points of support. Inserts shall be not less than 12" long and of thickness equal to adjoining insulation. A jacket shall be installed over the insert with longitudinal laps and butt strips for circumferential joints smoothly secured with insulation adhesive. Jacket shall provide vapor barrier where required.
  2. Install galvanized steel shields between supports and inserts. Shields shall be formed to fit the insulation and shall extend up to the centerline of the pipe and of the length specified for the inserts. Supports shall not pierce the insulation and all vapor barriers shall be unbroken and continuous.
  In lieu of the foregoing methods, the use of factory fabricated saddle and will be accepted.

SCHEDULE OF PIPE INSULATION

A. The following piping systems shall be insulated
  1. All steam and condensate piping throughout and steam header drips.

B. Minimum Thickness:

	System Temp, F	Pipe 1" & Below	Pipe 1-1/4" to 2"	Pipe 2-1/2" to 4"	Pipe Above 4"
HEATING: (ASHARE Fundamental 2009, Chapter 22)					
High Pressure Steam	300-450	2.5	2.5	3.0	3.5
Medium Pressure Steam	250-300	2.0	2.5	2.5	3.5
Low Pressure Steam	200-250	1.5	1.5	2.0	2.0
Condensate	190-220	1.0	1.5	1.5	2.0
Hot Water-Dual Temp	40-150	1.0	1.0	1.0	1.5

	System Temp, F	1" & Below	1-1/4" to 2"	2-1/2" to 4"	Above 4"
AIR CONDITIONING: (ASHRAE Handbook 2010 Refrigeration, Chapter 10)					
Chilled Water	40-55	1.0	1.5	2.0	2.0
Drain	35-50	1.0	1.0	1.0	1.0
Make-up Water	40-55	1.0	1.0	1.0	1.0
Refrigerant	-32-0	1.5	1.5	2.0	2.0
Refrigerant	0-39	1.0	1.5	1.5	1.5
Hot gas Refrigerant Piping	40-150	1.0	1.0	1.0	1.5
Liquid Refrigerant Piping	40-150	1.0	1.0	1.0	1.5

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THE HUDSON RIVER MUSEUM

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YONKERS, NY 10701
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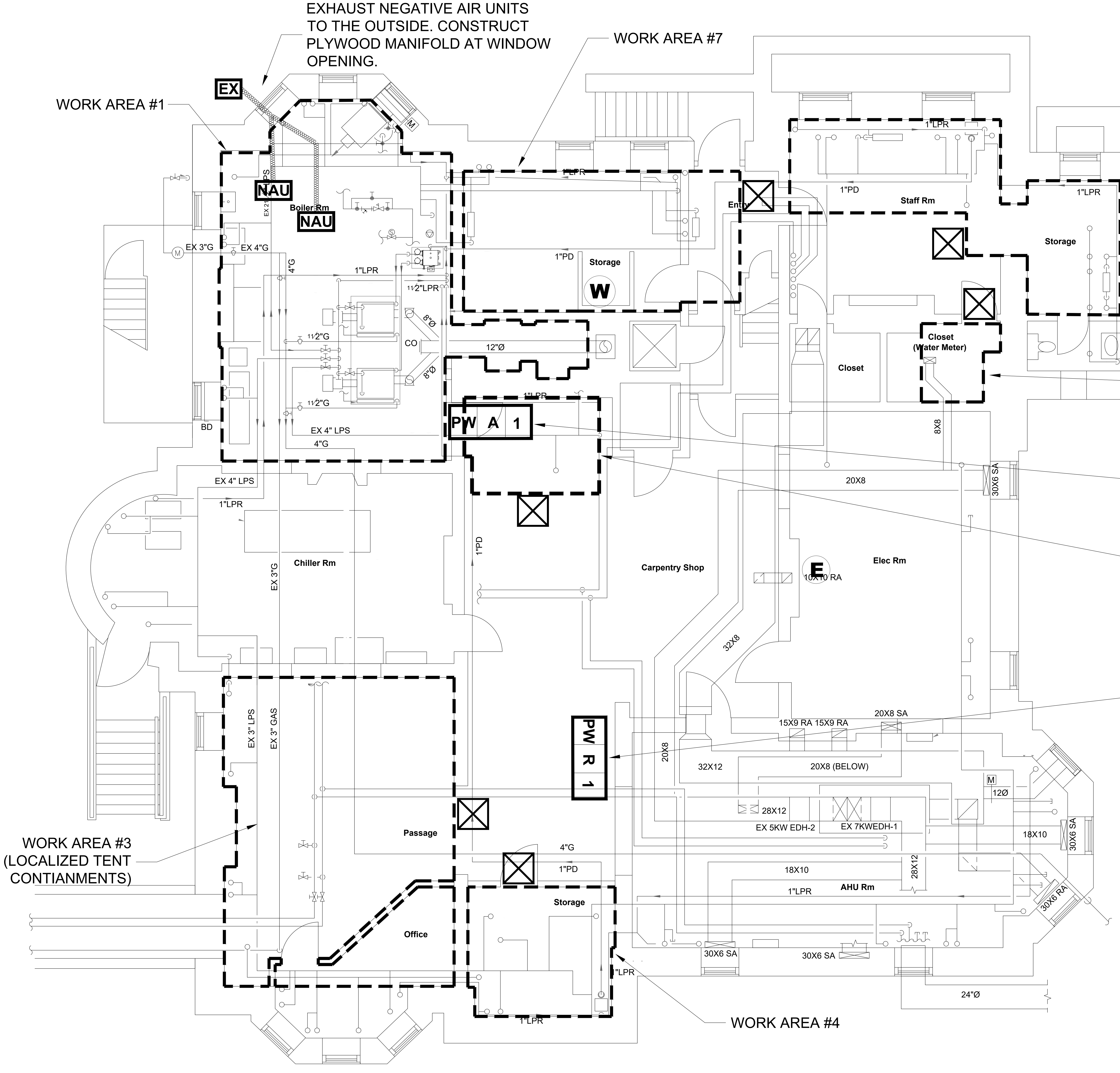
No.	ISSUE OR REVISION	DATE

PROJECT TITLE
HUDSON RIVER MUSEUM
BOILER REPLACEMENT
HUDSON RIVER MUSEUM
511 WARBURTON AVENUE
YONKERS, NY 10701

DRAWING TITLE
ASBESTOS NOTES

SEAL	SCALE	PROJECT NO.
	NOT TO SCALE	21-072-0089 Phase 4
	DESIGNED BY CZ 92-16430	DRAWING NO.
	DRAWN BY SR	H-100A
	CHECKED BY FC	
	DATE 07/21/2022	



EXHAUST NEGATIVE AIR UNITS
TO THE OUTSIDE. CONSTRUCT
PLYWOOD MANIFOLD AT WINDOW
OPENING.

WORK AREA #1

WORK AREA #7

WORK AREA #6

WORK AREA #5

LARGE PROJECT WORKER / WASTE
ATTACHED DECONTAMINATION UNIT
(SEE DETAIL 3 ON H-100)

WORK AREA #2

LARGE PROJECT WORKER / WASTE
REMOTE DECONTAMINATION UNIT
FOR WORK AREAS 2-10.
(SEE DETAIL 3 ON H-100)

WORK AREA #3
(LOCALIZED TENT
CONTIANMENTS)

WORK AREA #4

1/H101 BASEMENT ASBESTOS ABATEMENT PLAN
NOT TO SCALE

WORK AREA 1 NEGATIVE AIR REQUIREMENTS

APPROXIMATE DIMENSIONS: 20' X 40' X 12' = 9,600 cft

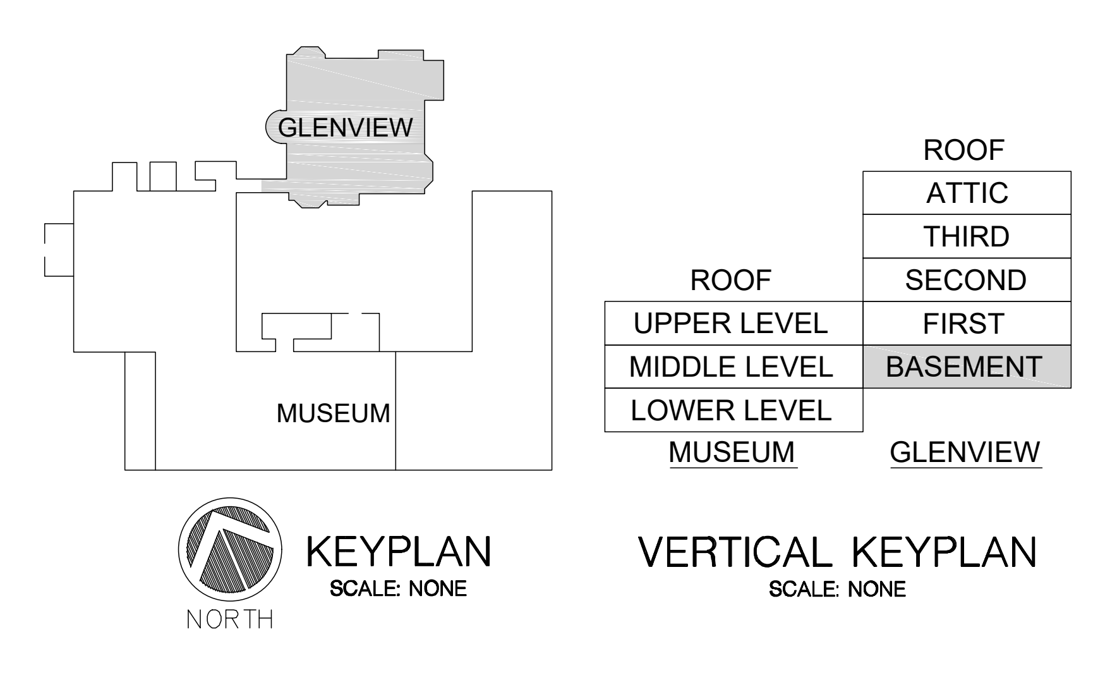
9,600 cft x 4 AIR CHANGES PER HOUR = 38,400 cft/hr

38,400 cft / 60,000 (1,000 cfm units) = 1 unit

= 1 NAU + 1 BACKUP = **2 UNITS**

LEGEND

— —	**WORK AREA LIMITS**
PW A #	**LARGE PROJECT WORKER / WASTE DECONTAMINATION UNIT ATTACHED (A) / REMOTE (R)**
W	**TEMPORARY WATER SOURCE**
E	**TEMPORARY POWER SOURCE / PORTABLE GENERATOR**
NAU	**NEGATIVE AIR UNIT**
EX	**EXHAUST**
☒	**AIRLOCK**



KEYPLAN
SCALE: NONE

VERTICAL KEYPLAN
SCALE: NONE

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DRAWING TITLE

BASEMENT
ASBESTOS ABATEMENT PLAN

SEAL

SCALE
NOT TO SCALE

PROJECT NO.
21-072-0089 Phase 4

DESIGNED BY
CZ 92-16430

DRAWN BY
SR

CHECKED BY
FC

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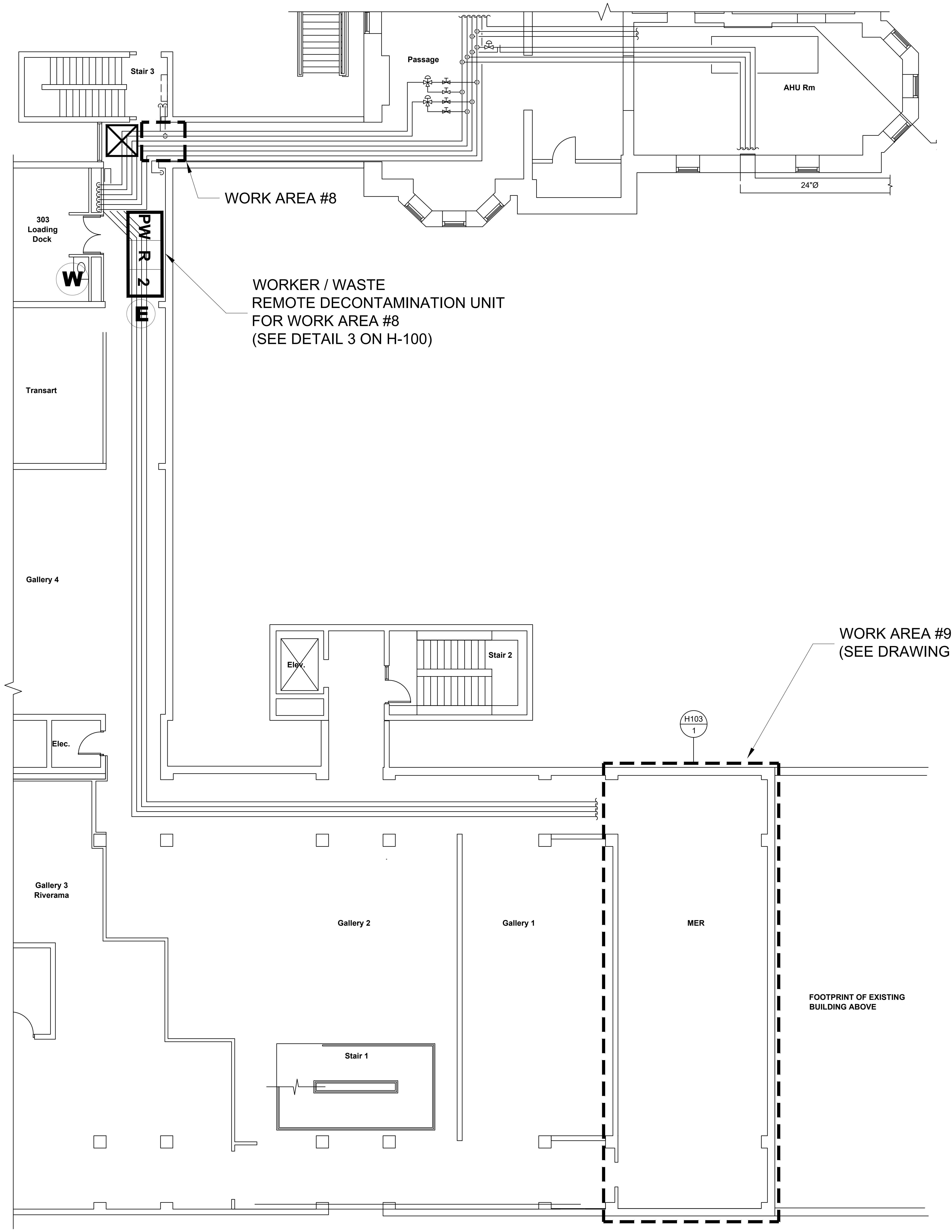
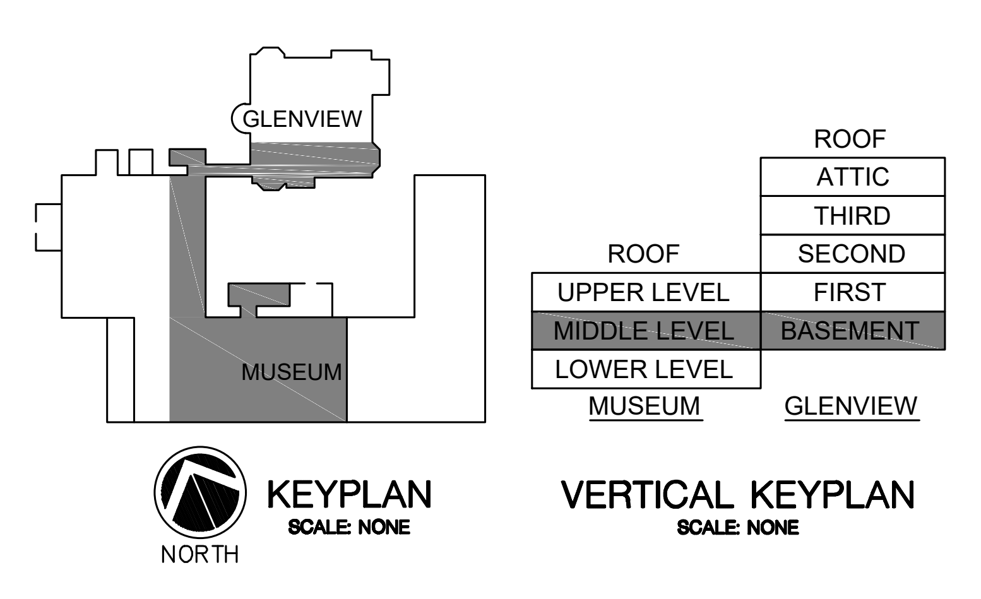
H-101



1 H102 MIDDLE LEVEL ASBESTOS ABATEMENT PLAN
NOT TO SCALE

LEGEND

— —	**WORK AREA LIMITS**
PW R #	**WORKER / WASTE DECONTAMINATION UNIT - REMOTE**
W	**TEMPORARY WATER SOURCE**
E	**TEMPORARY POWER SOURCE / PORTABLE GENERATOR**
☒	**AIRLOCK**



KEYPLAN
SCALE: NONE

VERTICAL KEYPLAN
SCALE: NONE

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MIDDLE LEVEL
ASBESTOS ABATEMENT PLAN

SEAL

SCALE
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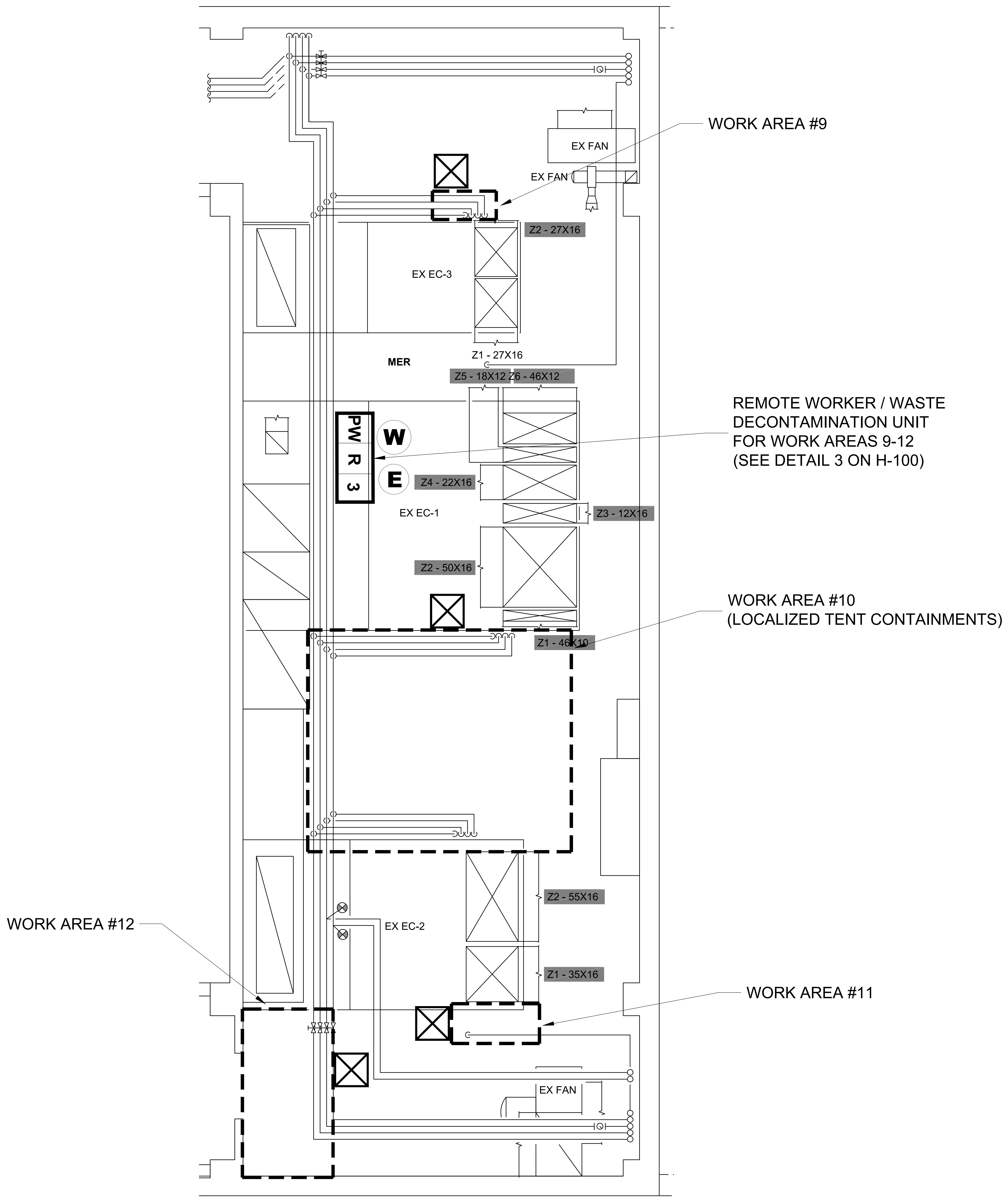
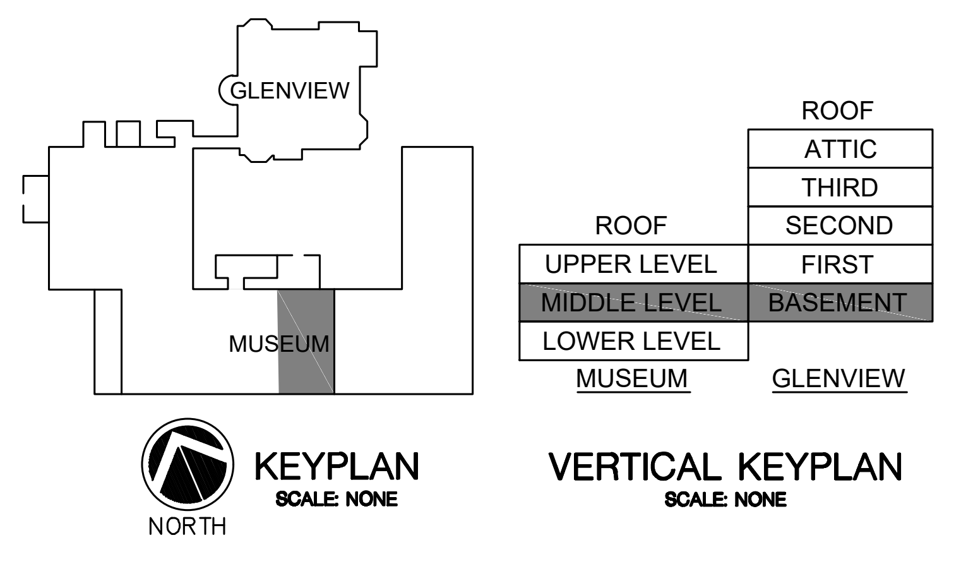


1 H103 MIDDLE LEVEL MER ASBESTOS ABATEMENT PLAN
NOT TO SCALE

LEGEND

— —	**WORK AREA LIMITS**
PW R #	**WORKER / WASTE DECONTAMINATION UNIT - REMOTE**
W	**TEMPORARY WATER SOURCE**
E	**TEMPORARY POWER SOURCE / PORTABLE GENERATOR**
☒	**AIRLOCK**



KEYPLAN
SCALE: NONE

VERTICAL KEYPLAN
SCALE: NONE

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ASBESTOS ABATEMENT PLAN

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