SECTION 02080

ASBESTOS REMOVAL AND DISPOSAL

PART 1 - GENERAL

1.01 Work Included

A. The Contractor shall furnish all labor, materials, services, insurance, patents, and equipment necessary to perform the Work of this Contract. All work will be conducted in compliance with EPA, OSHA, and NYS regulations, any other applicable federal, state, and local regulations and in accordance with these specifications. In the event there is a conflicting point between these provisions, the most stringent one shall apply.

B. The work will involve the removal of all Asbestos Containing Materials and all Asbestos Waste from within the Work Zones in accordance with all applicable rules and regulations and this specification. Location of asbestos indicated on the Drawings is provided for guidance only. The Contractor shall be responsible for establishing quantities and locations for abatement. The project will take place at the Edgemont JR/SR High School located at 300 White Oak Lane, Scarsdale, NY 10583.

This project involves the removal and disposal of asbestos containing floor tiles, associated mastic, pipe insulation, plaster and pipe elbow. This is located in the Administrative Buildings at the Edgemont JR/SR High School at 300 White Oak Lane, Scarsdale, NY 10583.

The project shall be conducted as follows:

Admin Building

Gang Bathrooms: Remove and dispose of wall plaster in the entry divider wall, approximately 120 sq. ft in the gang women/girl bathroom only.

Auditorium Bathrooms: Remove and dispose of the lightweight concrete/fiberboard decking present above both bathrooms attached to the concrete deck (approximately 150 SF) in the Men/Boy (B101) and Women/Girl (G100).

Remove and dispose of the pipe insulation and fittings found above both the women/girl bathroom and men/boy bathroom approximately 100 sq. ft.

Remove and dispose of the pipe insulation and fittings found in the pipe chase behind the wall in the women/girl bathroom and men/boy bathroom approximately 40 sq. ft.

NOTE: This work consists of the removal and disposal of ceiling tile beneath the asbestos containing lightweight concrete/fiberboard deck. The work shall include enclosing the exposed ACM deck to prevent future contamination. The abatement contractor is to remove and dispose of all ceiling tile directly below the deck as asbestos containing material and include the cost to re-insulate all pipes and fittings that are abated or removed.

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Asbestos removal of shall be conducted using manual removal methods as outlined in accordance with New York State Industrial Code Rule 56. Pipe insulation and elbows shall be removed per NYS ICR 56. A NYS DOL approved site specific variance may be rendered by the contractor or the consultant in order to alleviate hardships for these removals. All contaminated debris shall be disposed of as asbestos containing material in accordance with all applicable rules and regulations.

NOTE:

a. The abatement areas shown as described in this specification are provided for guidance only and no claims are made as to their accuracy. The Contractor alone is responsible for determining the actual abatement quantities. If quantities differ, the Contractor is responsible for bringing the discrepancy to the Owner/Engineer's attention before proceeds with any removal work. Once the project is started the Contractor shall be responsible for the removal of all asbestos containing materials at the contractors cost regardless of differences in the stated quantities provided in this specification.

b. In the event that clearance samples do not pass, the Asbestos Abatement Contractor will be responsible for all costs associated with resampling.

c. Removal of the asbestos containing materials from this building will be conducted in accordance with NYS Industrial Code Rule 56, applicable variances, and the contract documents. The contractor may use project specific variances from NYS ICR 56 to perform the asbestos abatement work. To utilize a project specific variance, the contractor shall submit a copy of the proposed variance that outlines the removal procedures to the engineer for review and approval before submission to the Department of Labor and prior to the commencement of any work.

d. The Contractor is responsible for using "standard of care" when applying or removing tape, spray adhesive or any other type of bonding material from the walls, floors or ceilings. If damage is sustained to an area during the work procedure directly related to the negligence of the contractor then that Contractor is responsible for returning the area back to its original condition unless otherwise noted.

e. Critical barriers and the doorways shall be covered with two layers of at least six-mil fire retardant polyethylene sheeting and sealed.

f. The Contractor is required to abide by the most current Prevailing Wage Rates at the time of the abatement project.

g. The Contractor shall furnish all labor, materials, services, insurance, patents, and equipment necessary to carry out the removal operation. All work will be conducted in compliance with EPA, OSHA, and NYS regulations and any other applicable federal, state, and local regulations and in accordance with these specifications. In the event there is a conflicting point between these provisions, the most stringent one shall apply.

End of Subpart 1.01

1.02 Definitions

A. ABATEMENT: Any portion of an asbestos project that includes procedures to control fiber release from asbestos containing material. This includes removal, encapsulation, enclosure, repair, or handling of asbestos material that may result in the release of asbestos fiber.

B. AIRLOCK: A system for permitting entrance and exit, while restricting air movement, between a contaminated area and an uncontaminated area.

C. AIR SAMPLING: The process of measuring the fiber content of a known volume of air collected during a specific period of time, using accepted methodologies. 12 NYCRR 56 Subpart 2, Page 7.

D. AMBIENT AIR SAMPLING: A method of sampling by which an air sample is collected outside the regulated abatement work area, and is collected without the use of aggressive air sampling techniques.

E. AMENDED WATER: Water to which a surfactant has been added.

F. ASBESTOS: Any naturally occurring hydrated mineral silicate separable into commercially usable fibers, including chrysotile (serpentine), Amosite (cumingtonite-grunerite), crocidolite (riebeckite), tremolite, anthophyllite and actinolite.

G. ASBESTOS CONTAINING MATERIAL (ACM): Any material containing greater than one percent (1%) of asbestos, also known as **Asbestos Material**.

H. ASBESTOS CONTAMINATED OBJECTS: Any object which has been contaminated by Asbestos or Asbestos Containing Material. This shall include all unprotected porous materials in an Asbestos Work Area.

I. ASBESTOS MATERIAL: Any material containing greater than one percent (1%) of asbestos, also known as **Asbestos Containing Material (ACM)**.

J. ASBESTOS WASTE: ACM, PACM, asbestos material or asbestos contaminated objects requiring disposal pursuant to applicable laws or regulations. This includes RACM as well as Category I and II Non-Friable ACM.

K. AUTHORIZED VISITOR: Any party on an asbestos project, who has to enter the asbestos project restricted area or regulated abatement work area for emergency purposes or regulatory compliance inspections. Examples include the building/structure owner, his or her agent or representative, utility company representatives, the Commissioner or his or her agents, and personnel of any regulatory agency having jurisdiction over the project. Visitors shall comply with all applicable requirements of OSHA 29 CFR 1926.

L. CATEGORY I NON-FRIABLE ACM: NESHAP classification - Asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products, containing more than one percent (1%) asbestos, that when dry, can not be crumbled, pulverized, or reduced to powder by hand pressure.

M. CATEGORY II NON-FRIABLE ACM: NESHAP classification - Any material, excluding Category I Non-Friable ACM, containing more than one percent (1%) asbestos, that when dry, can not be crumbled, pulverized, or reduced to powder by hand pressure.

N. CLASS I ASBESTOS WORK: OSHA term meaning activities involving the abatement of Thermal Systems Insulation (TSI), and surfacing ACM and PACM.

O. CLASS II ASBESTOS WORK: OSHA term meaning activities involving the abatement of ACM which is not TSI 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.

P. CLASS III ASBESTOS WORK: OSHA term meaning Repair and Maintenance operations, where no more than a minor quantity of ACM, including TSI and surfacing ACM and PACM, is likely to be disturbed.

Q. CLASS IV ASBESTOS WORK: OSHA term meaning Maintenance and Custodial Activities during which employees contact but do not disturb ACM or PACM and activities to clean up non-ACM dust, waste and debris resulting from Class I, II and III activities.

R. CLEAN ROOM: An uncontaminated area or room, which is a part of the personal decontamination enclosure, with provisions for storage and changing of persons' street clothes and protective equipment.

S. CRITICAL BARRIER: Barriers that seal off all openings to or within the defined regulated abatement work area, including but not limited to operable windows and skylights, doorways, ducts, grills, diffusers and any other penetrations to surfaces adjacent to or within the regulated abatement work area.

T. CURTAINED DOORWAY: An assembly which consists of at least three (3) overlapping sheets of 6-mil fire retardant plastic over an existing or temporarily framed doorway,

used to separate the chambers within the decontamination system enclosures and to inhibit airflow if the negative air ventilation system shuts down.

U. ENCAPSULANT (SEALANT) OR ENCAPSULATING AGENT: A liquid material, which can be applied to asbestos material and which prevents the release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together and to the substrate (penetrating encapsulant). See **Sealant**.

V. ENCAPSULATION: Abatement consisting of the coating or spraying of asbestos material with an encapsulant (sealant) or encapsulating agent.

W. ENCLOSURE: Abatement consisting of the construction of airtight walls, ceilings and floors between the asbestos material and the building/structure environment, or around surfaces coated with asbestos material, or any other appropriate procedure as determined by the Department, which prevents the release of asbestos fibers.

X. EQUIPMENT ROOM: A contained area or room which is part of the personal decontamination system enclosure with provisions for the storage of contaminated clothing and equipment.

Y. FIXED OBJECT: Equipment, furniture or other item that is affixed, as a whole, to a floor, ceiling, wall or other building structure or system.

Z. FRIABLE ASBESTOS MATERIAL: Any material that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure, or is capable of being released into the air by hand pressure.

AA. HEPA FILTER: A high efficiency particulate air filter capable of trapping and retaining 99.97 percent of all mono-dispersed particles of 0.3 microns in diameter or larger.

BB. HEPA VACUUM EQUIPMENT: Vacuuming equipment designed for abatement, with a high efficiency particulate air filtration system.

CC. HOLDING AREA: A chamber in the waste decontamination enclosure utilized for temporary storage of containerized ACM waste, prior to transfer to waste transport vehicle.

DD. MOVABLE OBJECT: Equipment, furniture or other item that is not attached or affixed, in whole or in part, to a floor, ceiling, wall or building structure or system or to a fixed object

EE. MULTIPLE ABATEMENT: The abatement of more than one type of ACM within the same containment.

FF. NEGATIVE AIR PRESSURE EQUIPMENT: A local exhaust system, capable of maintaining air pressure within containment at a lower pressure than the air pressure outside

of such containment, and which provides for HEPA filtration of all air exhausted from the containment.

GG. NON-FRIABLE ORGANICALLY BOUND (NOB) ASBESTOS MATERIAL: Non-friable asbestos materials embedded in flexible-to-rigid asphalt or vinyl matrices, including but not limited to flooring materials, adhesives, mastics, asphalt shingles, roofing materials and caulks.

HH. PERSON: Any natural person.

II. PERSONNEL DECONTAMINATION ENCLOSURE SYSTEM: An area designated for controlled passage of all persons to and from the regulated abatement work area.

JJ. PERSONAL AIR SAMPLING: Air sampling located in a worker's breathing zone

KK. REGULATED ABATEMENT WORK AREA: The portion of the restricted area where abatement work actually occurs. For tent work areas, the interior of each tent is a regulated abatement work area. For OSHA Class I and Class II asbestos abatement, the interior of the restricted area containment enclosure is the regulated abatement work area. For exterior non-friable asbestos abatement conducted without the establishment of negative air ventilation systems or containment enclosures, the entire restricted area surrounding the abatement location is considered to be the regulated abatement work area.

LL. REGULATED ASBESTOS-CONTAINING MATERIAL (RACM): Friable ACM or PACM, Category I Non-friable ACM that has become friable or has been or will be subjected to sanding, grinding, cutting or abrading, or Category II Non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

MM. REMOTE DECONTAMINATION SYSTEM ENCLOSURE: Decontamination systems that are attached to the regulated abatement work area but are within the work site.

NN. REMOVAL: Abatement, consisting of operations where ACM, PACM or asbestos material is removed or stripped from structures or substrates. This includes demolition operations.

OO. SHOWER ROOM: A room between the clean room and the equipment room in the personal decontamination enclosure with hot and cold running water controllable at the tap and arranged for complete showering during decontamination.

PP. SURFACTANT: A chemical wetting agent added to water to reduce the surface tension of the water and improve its penetration for added mitigation of airborne fiber release.

QQ. VISIBLE EMISSION: Any emission of particulate material that can be seen without the aid of instruments.

RR. WASHROOM: A room between the regulated abatement work area and the holding area in the waste decontamination system enclosure, where equipment and waste containers are wet cleaned or HEPA-vacuumed.

SS. WASTE DECONTAMINATION SYSTEM ENCLOSURE: An area, consisting of a washroom and a holding area separated from each other by airlocks, designated for the controlled transfer of materials and equipment from the regulated abatement work area.

TT. WET CLEANING: The process of eliminating asbestos contamination from surfaces, equipment or other objects by using cloths, mops, or other cleaning tools that have been saturated with amended water.

UU. WORK SITE: Building, structure, parcel of land or premises where an asbestos project takes place.

End of Subpart 1.02

1.03 Submittals

A. Submit the following items to the Engineer for review twenty (20) days prior to the commencement of Work associated with this section:

1. EPA Notification: The form required by the Environmental Protection Agency in accordance with the National Emission Standard for Asbestos, 40 CFR Part 61. This is required if the cumulative quantity of asbestos to be removed from the building is greater than 260 linear or 160 square feet.

2. New York State Department of Labor Notification: The form required by the State of New York Asbestos Control Program in accordance with Article 30 of the New York State Labor Law. This is required if the cumulative quantity of asbestos to be removed from the building is greater than 260 linear or 160 square feet.

3. Building Occupant Notification

4. Any proposed project specific variance to any of the applicable regulations.

B. Upon return of submittals from the Engineer with an action stamp indicating that the submissions have been reviewed and comply with the contract documents, file all notifications with the appropriate agencies in accordance with all applicable regulations and these specifications. Pay the appropriate fees. All filing fees and associated costs shall be borne by the Contractor.

C. Submit the following items to the Engineer for review ten (10) days prior to the commencement of Work associated with this section. No Work shall begin until ALL submittals are returned with an action stamp indicating that the submission is in accordance with these specifications.

1. NOTIFICATIONS: Stamped received copies of the notifications and variances listed above in item A, as well as copies of the canceled checks used to pay all associated fees.

2. CONTRACTOR'S CERTIFICATION: Documentation confirming licensing by New York State Commission of Labor for asbestos Work in accordance with Industrial Code Rule 56.

3. WORKER DOCUMENTATION: Current copies of the AHERA certificates, New York State Department of Labor Asbestos Handling Certificates, Medical Exams and Respirator Fit Tests for all employees performing the Work of this Section.

4. EMPLOYEE RELEASE FORM: Prior to allowing an employee to perform any Work on the project, submits the properly executed Employee Release Form for each employee.

5. CONTINGENCY PLANS: A copy of emergency, security, and contingency plans as follows:

   a. A plan to provide for emergency and fire evacuation of personnel from the Work Zone in an emergency. File a copy of this plan with the local fire and/or ambulance unit;

   b. A plan for maintaining the security of the Work Zone. The security plan shall provide a means of preventing accidental or unauthorized entry. Provide security to the decontamination facility and all points of potential access to the Work Zone 24 hours per day during abatement. Submit the form of security and safety log that will be maintained on the project;

   c. A contingency plan addressing emergencies, equipment failures, and barrier failure. Include the telephone numbers of at least three (3) responsible persons who shall be in the position to dispatch men and equipment to the project in the event of an emergency.

6. LANDFILL: Written evidence that the landfill to be used for disposal of asbestos is approved for disposal of asbestos by the New York State Department of Environmental Conservation (NYS Part 360 Permit) and by the US EPA. In the event the landfill is not located in New York State, approval from the agency having jurisdiction over the landfill must be received. Documentation that the proposed hauler and landfill have the proper permits and are willing to accept the asbestos waste must be included. The hauler must have a Waste Transporter Permit pursuant to Article 27, Titles 3 and 15, of the Environmental Conservation Law from the New York State DEC, Division of Hazardous Substance Regulations (NYS Part 364 Permit).

7. MATERIAL SAFETY DATA SHEETS: For all products intended to be used on the project, a Materials Safety Data Sheet in accordance with the OSHA Hazard Communication Standard 29 CFR 1910.1200. Include a separate attachment indicating the specific worker protection equipment required for each material.

8. AIR FILTRATION DEVICES: Manufacturer's data on type of equipment to be used to remove airborne asbestos.

9. ROOM INSPECTION: Inspect all areas in which Work is to be performed. Inspection shall occur in the presence of representatives of the Owner and Engineer. Record any existing damage to components, such as walls, doors, windows, carpeting, fixtures, and equipment. Any damaged components found after completion of the Work will be repaired at the Contractor expense. Make

arrangements for the inspection, notify the participants, record the findings, and issue minutes of the inspection to all participants.

10. SCHEDULES: A copy of construction, staffing, and equipment schedules:

a. A construction schedule stating critical dates of the job including start and completion of mobilization, activation, deactivation, and demobilization of all Work activities (including mobilization, Work Zone preparation, asbestos abatement, inspection and clearance monitoring, each phase of refinishing, and final inspections). Update schedule with each partial payment request. Changes in schedule are subject to the Engineer's approval and require three (3) days prior notice.

b. A schedule of staffing stating number of workers per shift, name and number of supervisor(s) per shift, hours per shift, shifts per day, and total days to be worked;

c. A schedule of equipment to be used including numbers and types of all major equipment such as high efficiency particulate absolute (HEPA) air filtration units, HEPA vacuums, and airless sprayers.

11. INSURANCE POLICIES: The Environmental Contractor shall purchase and maintain during the life of this contract the insurances stipulated herein. This insurance must be purchased from a New York State licensed A.M. Best Rated "A" or "A+" carrier. The following list of Additionally Insured must be included under insurance policies held by the Contractor on this project with the exception of Workmen's Compensation and Employer's Liability Insurance, shall be named as additional insured's for the Commercial General Liability, Umbrella Liability, Hazardous Material Abatement General Liability and Business Automobile Policy:

a. Edgemont Union Free District and its employees
b. Fuller & D'Angelo Architects and its employees
c. Warren Panzer Engineers, P.C. and its employees

(1) *Worker's Compensation and Employer's Liability Insurance:* Statutory Worker's Compensation and Employer's Liability Insurance for all of his employees to be engaged shall require the Subcontractor similarly to provide Worker's Compensation and Employer's Liability Insurance for all of the latter's employees to be engaged in such work.

(2) *Commercial General Liability:*
Explosion, Collapse & Underground Coverage shall be provided.

Products & Complete Operations Aggregate shall be maintained for a period of two years after final acceptance of the Owner.

(3) *Automobile Insurance:* Comprehensive Automobile Liability Insurance on owned, hired, or non-owned vehicle in amounts not less than $1,000,000 Combined Single Limit each occurrence.

(4) *Conditions of Coverage:* Bodily Injury and Property Damage coverage under both Commercial General and Commercial Automobile Insurance shall include the "occurrence" basic wording, which means an event or continuous or repeated exposure to conditions, which results bodily injury, sickness or disease including death at any time resulting there from. Coverage shall include liability arising from water damage, and property in care, custody and control of Contractor and Subcontractor.

(5) *Hazardous Material Abatement General Liability Occurrence Insurance:* A policy without a sunset clause, in amounts not less than $1,000,000, each occurrence, naming the Owner as the Certificate Holder. Also, include insurance policies of any subcontractor, including the Sudden and Accidental Pollution Liability Insurance required of the Hauler.

(6) *Contractor's Contingent Liability:* The Contractor shall procure and maintain such insurance as will protect the Contractor from his contingent liability for damages and for injury to the person or property of another which may arise from the operations of all Subcontractors under this Contract.

Contractor's and Employee's Equipment: The Contractor assumes responsibility for all injury or destruction of the Contractor's materials, tools, machinery, equipment, appliances, shoring, scaffolding, false and form work, and personal property of Contractor's employees from whatever cause arises. Any policy of insurance secured covering the Contractor or Subcontractors leased or hired by them and any policy of insurance covering the contractor or subcontractors against physical loss or damage to such property shall include an endorsement waiving the right of subrogation against the Owner for any loss or damage to such property.

a. Coverage, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment.

b. The form of the Certificate of Insurance shall be AIA Document G705, Certificate of Insurance. In addition to the Certificate of Insurance, the Contractor shall provide the Owner with copies of any endorsements subsequently issued amending coverage or limits.

D. Daily during the conduct of abatement activities, submit to the Engineer the following:

Printouts from pressure differential monitoring equipment marked with date and Work start/stop times for each day. Use printout paper that indicates elapsed time in intervals no greater than one hour. Indicate on each day recording times of starting and stopping abatement Work, type of Work in progress, breaks, and filter changes. Cut printout into segments by day and label with project name, Contractor's name and date;

E. Within thirty (30) days of removal from the premises, submit to the Owner the disposal certificate(s) from the landfill receiving the Asbestos Waste stating dates and quantities received.

F. Within seven (7) days of completion of all Work associated with this Section submit to the Owner, the following:

1. A bound copy of the job log book showing sign in and sign out of all persons entering the Work Zone, including name, date, time, and position or function and a general description of daily activity. Keep these records on file for the duration of employment plus 30 years;

2. A notarized statement attesting that all personnel performing any work under this Contract were compensated in accordance with the prevailing wage rates contained herein.

End of Subpart 1.03

1.04 Special Reports

A. Except as otherwise indicated, submit special reports directly to the Owner and the Engineer within one (1) day of the occurrence requiring the special report, with copies to all others affected by the occurrence.

B. When an event of unusual and significant nature occurs at the site (examples: failure of negative pressure system, rupture of temporary enclosures, unauthorized entry into Work Zone), prepare and submit a special report listing date and time of event, chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information.

C. Report any accidents, at the site and anywhere else Work is in progress related to this project. Record and document data and actions. Comply with industry standards.

End of Subpart 1.04

1.05 Quality Assurance

A. Where methods or procedures are specified, they shall constitute minimum measures and shall in no way relieve the Contractor of sole responsibility for the means, methods, techniques, sequences, or safety measures in connection with the Work.

B. Provide foremen who speak fluent English to supervise all abatement activities. Foremen shall be certified as handler supervisors in accordance with Section 902 of the New York State Labor Law Article 30, and have experience in this field and can furnish a record of satisfactory performance on at least three (3) projects for Work of comparable type.

C. Any proposed Subcontractor performing any Work under this Section "Asbestos Removal and Disposal" shall have similar qualifications. Submit qualifications with the BID for any proposed Subcontractor. Submit Subcontractor qualifications in the same form and quantity as required for the Contractor.

End of Subpart 1.05

1.06 Applicable Standards and Regulations

A. Perform all Work in compliance with the most current version of all pertinent laws, rules, and regulations, existing at the time of Work, including, but not limited to:

1. Code of Federal Regulations

   a. Title 29 CFR Parts 1910.1001, 1910.1200, 1910.134 1926.58 and 1926.1101; [The Occupational Safety and Health (OSHA) Standards]

   b. Title 30 CFR Part 61, Subpart G;
   [The Transport and Disposal of Asbestos Waste]

   c. Title 40 CFR, Part 61, Subparts A and M;
   [The EPA National Emission Standard for Hazardous Air Pollutants and the National Emission Standard for Asbestos]

   d. Title 40 CFR, Part 763, Subpart E
   [Asbestos Containing Materials in Schools; Final Rule and Notice]

   e. Title 49 CFR Parts 106, 107, and 171-179.
   [The Transportation Safety Act of 1974 and the Hazardous Material Transportation Act]

   f. Public Law 101-637
   [ASHARA]

2. New York State Official Compilation of Codes, Rules and Regulations.

   a. Title 12 Part 56

   b. Title 10 Part 73

   c. Title 6 Parts 360-364

   d. Labor Law - Article 30 and Sections 900-912.

   e. All applicable Additions, Addenda, Variances and Regulatory Interpretation Memoranda.

3. Applicable Standards

   a. The American National Standard Institute (ANSI) Practices for Respiratory Protection ANSI Z88.2-1980.

   b. The American National Standard Institute (ANSI) Fundamentals Governing the Design and Operation of Local Exhaust Systems.

   c. UL 586 Test Performance of High Efficiency Particulate Air-Filter Units.

B. In the event there is a conflicting point between these provisions, the most stringent one shall apply.

End of Subpart 1.06

1.07 Air Monitoring

A. Conduct personnel air monitoring in accordance with OSHA requirements. Collect a sufficient number of samples to determine the Time Weighted Average exposure of twenty percent (20%) of the work force.

B. The Owner will provide area air monitoring as follows:

Sample Type	Analysis Method
Background	PCM
Pre-abatement*	PCM
During abatement activities*	PCM
Clearance air monitoring	TEM

* These samples are only required if the project is over 260 linear or 160 square feet in size. Project monitoring is required throughout per AHERA.

The Contractor shall cooperate with the Owner's designated representatives with regard to air monitoring and project monitoring procedures. Ensure that employees and Subcontractors do the same.

C. If analysis of any of the air samples collected during abatement indicates that the airborne asbestos concentration outside the Work Zone is greater than or equal to 0.01 f/cc or the background level, whichever is greater:

1. Stop Work immediately;

2. Inspect the integrity of the barriers;

3. Wet clean and vacuum the location where elevated fiber counts were reported; and

4. Do not resume Work until such time when the airborne asbestos concentration outside the Work Zone is once again less than the above limit.

D. In order to pass TEM clearance testing, each and every sample collected shall indicate that the airborne concentration of asbestos fibers of less than 70 s/mm^2 and the average structure concentrations inside the Work Zone shall not be statistically larger than the average of ambient levels as determined by the Z-test.

E. The method of sampling shall be aggressive in accordance with the requirements of applicable regulations. The method of analysis for background, pre-abatement, and during abatement air samples shall be Phase Contrast Microscopy (PCM). In accordance with Appendix A to Subpart E-Interim TEM Analytical Methods and SED requirements, TEM shall be used to analyze final post-abatement samples for this project. The testing laboratory shall be a member of the Environmental Laboratory Approval Program (ELAP). Clearance criteria shall be an average of the 5 inside the work area samples, less then 70 structures per square millimeter.

F. In case of failure of the initial final air clearance monitoring, the work zone will be retested following immediate re-cleaning. This process will be repeated as necessary until final air clearance is obtained. All costs and expenses resulting from the additional re-cleaning and retesting (including sampling and analysis) due to failure of the initial final air clearance shall be borne by the Contractor. The expenses thereby incurred will be deducted from any monies due or that may become due to the Contractor.

G. The Contractor shall provide security personnel to watch the decontamination facility and all points of potential access to the Work Zone.

- END OF PART 1 -

PART 2 - PRODUCTS

2.01 Asbestos Caution Signs

A. Use Asbestos Caution Signs as specified in OSHA Title 29 CFR 1910.1001(j) and 1926.58(k). Posting of warning signs in and around the work site should be in cooperation with Edgemont Schools.

End of Subpart 2.01

2.02 Asbestos Caution Labels

A. Use Asbestos Caution Labels as specified in OSHA Title 29 CFR 1910.1001(j) and 1926.58(k).

End of Subpart 2.02

2.03 Disposal Bags

A. Use Disposal Bags which are a minimum six (6) mil in thickness, clear in color and preprinted with the Asbestos Caution Label.

End of Subpart 2.03

2.04 Encapsulating Material

A. All Encapsulating Materials shall be approved by UL for use in class 1A buildings and shall have composite fire and smoke hazard ratings as tested under procedure ASTM E- 84, NFPA 255 and UL 723

Flame Spread	25
Smoke Developed	50

B. If the removal of fireproofing materials is included in this Contract, select an encapsulant from those approved by UL for use with the new fireproofing. If Retro-Guard Type RG or RG-1 manufactured by W.R. Grace & Co. is to be applied, use American Coatings 22P & 22 Powerlock, or Fiberlock Fiberset FT and Fiberset PM, or Certane 909 and 1000, or H.B. Fuller 32-60 and 32-61, or IPC Serpliflex and Serpiloc.

End of Subpart 2.04

2.05 Equipment

A. Temporary lighting, heating, hot water heating units, ground fault interrupters, and all other equipment on site shall be UL listed and shall be safe, proper, and sufficient for the purpose intended.

B. All electrical equipment shall be in compliance with the National Electric Code. Attention is specifically called to Article 305 Temporary Wiring.

End of Subpart 2.05

2.06 First Aid Kits

A. Maintain adequately stocked first aid kits in the Clean Room and Work Zone, in accordance with OSHA requirements.

End of Subpart 2.06

2.07 High Efficiency Particulate Air (HEPA) Filters

A. Employ filters, which have been individually tested and certified by the manufacturer to have an efficiency of not less than 99.97 percent when challenged with 0.3-micron dioctylphthalate (DOP) particles, in accordance with Military Standard Number 282 and Army Instructional Manual 136-300-175A. Each filter shall bear a US 586 label to indicate ability to perform under the specified conditions.

B. Each HEPA filter shall be marked with the name of the manufacturer, serial number, airflow rating, efficiency and resistance, and the direction of airflow.

End of Subpart 2.07

2.08 Plastic

A. Use only new fire retardant plastic sheets of polyethylene, which has a minimum thickness of 6 mil, true grade.

B. For the initial floor protective layer use only new fire retardant reinforced plastic sheets of polyethylene, which has a minimum thickness of ten (10) mil, true grade

End of Subpart 2.08

2.09 Plywood

A. Use only fire-rated CDX plywood, which is at minimum one half inch (1/2") in thickness.

End of Subpart 2.09

2.10 Respirators

A. Use only respirators approved by the Mine Safety and Health Administration (MSHA), Department of Labor, or the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services.

End of Subpart 2.10

2.11 Sealants

A. Use combination fire stop foam and fire stop sealant. Use Dow Corning Fire Stop Foam and Dow Corning Fire Stop Sealant or as approved. Apply in accordance with manufacturer's recommendations.

End of Subpart 2.11

2.12 Studs

A. Use only 2" x 4" fire-rated CDX or metal studs.

End of Subpart 2.12

2.13 Vacuums

A. Use only vacuums equipped with HEPA filters that are specially designed for asbestos abatement work.

End of Subpart 2.13

2.14 Wetting Agents

A. The wetting agent shall be water amended with one (1) oz. of a chemical surfactant per five (5) gallons of water. The composition of the surfactant shall be approximately 50% polyoxyethylene ether and 50% polyoxyethylene esters.

- END OF PART 2 -

PART 3 - EXECUTION

3.01 Personnel Protection

A. Satisfy all applicable Worker protection requirements.

B. Provide protective equipment for use by Workers and designated representatives of the Owner including disposable full body coveralls, respirators and approved cartridges, gloves, hard hats, and goggles. Maintain on site, two (2) sets of protective equipment for the exclusive use of representatives of the owner.

C. At all times, provide all persons with personally issued and marked respiratory equipment suitable for the asbestos exposure level in the Work Zone. Ensure that all persons properly use this equipment at all times.

D. As a minimum, half face negative pressure type respirators must be worn by all personnel during Work Zone preparation. If airborne concentrations of asbestos inside the Work Zone exceed 0.1 fibers per cubic centimeter, employ either PAPR or type "C" respiratory protection whichever is appropriate.

E. Half face respirators shall constitute the minimum level of respiratory protection for all persons entering that Work Zone from the time the Work Zone is activated until acceptance.

F. Should airborne concentrations of asbestos inside the Work Zone exceed 2.0 fibers per cubic centimeter, supply all personnel with personally issued and marked Type "C" supplied air respirators operated in the positive pressure demand mode.

G. If the permissible respirators fail to provide sufficient protection against volatile substances emitted by any sealants or other chemicals used, the services of a certified industrial hygienist will be procured, at the Contractor's expense, to determine proper respiratory protection. The Owner will not be liable for the cost of increased respiratory protection.

H. Maintain surveillance of heat stress conditions in the Work Zone. The prevailing Threshold Limit Values (TLVs) for heat stress and the method of heat stress measurement adopted by the American Conference of Governmental Industrial Hygienists (ACGIH) shall govern worker exposure to heat stress.

End of Subpart 3.01

3.02 Decontamination

A. Construct and operate the Personnel and Waste Decontamination Enclosure Systems in conformance with all applicable rules and regulations. Locate decontamination units outside of the Work Zone.

B. Construct the Decontamination Enclosure System (DES) as a series of three (3) completely enclosed and connected rooms: an Equipment Room, a Shower, and a Clean (locker) Room. Separate rooms with curtained doorways.

1. Ensure that all egress from the Work Zone is through the DES.

2. Ensure that all persons leaving the Work Zone vacuum themselves of asbestos in the Work Zone and disrobe in the Equipment Room, shower (including washing of hair) with respirator on, and redress in the Clean Room.

3. Ensure that all persons entering the Work Zone wear clean and new protective clothing and equipment prior to entrance.

4. Equip the Shower with hot and cold water adjustable at the tap, liquid soap, shampoo and disposable towels.

5. Leave all contaminated clothing and equipment in the Equipment Room in barrels or bags. Sanitize respirators in the showers. Equip with fresh cartridges in the Clean Room.

6. No more than one curtained doorway shall be opened at the same time.

7. Waste removal through the DES shall not occur while personnel are using the DES.

End of Subpart 3.02

3.03 Work Zone Preparation

A. Electrical Power: Unless otherwise indicated, shut down all electric power within the Work Zone, as follows:

1. Lock all circuits, which have been shut off, in the off position and label with a printed tag which reads as follows:

"TEMPORARY DISCONNECT
Due to Asbestos Removal Project
DO NOT ACTIVATE THESE CIRCUITS"

2. Provide temporary power and lighting and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements. Provide all equipment, which must remain operable, as well as all temporary ground-fault interrupter circuits for lights and electrical equipment. Individually protect all power equipment used inside each Work Zone with in-line ground fault interrupters. Locate ground-fault interrupter outside of the Work Zone.

3. Provide all electrical tie-ins and extensions. Provide a temporary panel board, connected to an electric panel designated by the Owner.

B. Heating Ventilation and Air Conditioning (HVAC): Employ all means necessary to prevent contamination and fiber dispersal to other areas of the structure, as follows:

1. Thoroughly clean all HVAC Equipment and ductwork in the Work Zone. Seal all vents within the Work Zone with tape and plastic. Seal all HVAC duct seams. Wrap all ductwork in two (2) layers of plastic.

2. Remove all HVAC filters. Pack disposable filters in sealable double plastic bags for disposal at the approved landfill. Replace with new filters after final cleanup. Wet-clean permanent filters; reinstall after final cleanup.

3. Remove all heating and ventilating equipment grills, diffusers, returns, and other items located on the asbestos bearing surfaces. Wet clean all such items, seal in two (2) layers of plastic and remove from the Work Zone. Reinstall all displaced items after satisfactory clearance air testing.

4. HVAC systems shall be treated as follows:

   a. Unless otherwise indicated, shutdown and lockout all heating, ventilating and air conditioning systems. Isolate system at points of entry to the Work Zone; use two (2) layers of plastic.
   b. In cases where the HVAC system serving the Work Zone also serves other areas of the building which must remain in operation,

i. Isolate the ductwork entering the Work Zone from the remainder of the system. Cap all ductwork where it passes in or out of the Work Zone with galvanized steel ASTM 5261 in accordance with SMACNA HVAC Duct Construction Standards. Cover with two (2) layers of plastic.

ii. Operate the affected HVAC system twenty-four (24) hours per day from the initiation of Work Zone activation until successful final air clearance. Maintain a positive pressure within the operational portion of the HVAC system of 0.05 inch water gauge or greater with respect to the ambient pressure outside of the Work Zone. Install pressure-monitoring devices.

c. In cases where it is necessary for ductwork passing through the Work Zone to remain active, the following conditions are to be maintained:

i. Maintain a positive pressure within the HVAC system of 0.05 inch water gauge (or greater) with respect to the ambient pressure outside of the Work Zone: the conditions for this system shall be maintained and be operational twenty-four (24) hours per day from the initiation of Work Zone preparation until successful final air clearance.

ii. Test, inspect and record the positive pressure in the duct both at the beginning and at the end of each shift.

iii. Monitor the positive pressurization of the duct using instrumentation that will trigger an audible alarm, if the static pressure falls below the set value.

iv. Place the supply air fan and the supply air damper for the active positive-pressurized duct in the manual "on" position to prevent shutdown by fail safe mechanisms.

v. Shut down and lock out the return air fan and the return air dampers.

vi. Cover all active HVAC ducts that pass through the Work Zone with two (2) layers of plastic.

C. Steam Systems: Unless otherwise noted on the Drawings, shut down all steam systems passing through the Work Zone prior to activation.

D. Utilities: Provide all water, electrical and waste facility connections, as well as all sanitary drains. The Contractor will not be charged for water used, electricity consumed, or discharges made to sanitary sewers as a part of this project.

E. Temporary Service Lines: Upon completion of abatement activities, remove all temporary service lines and restore to their original conditions, in a manner acceptable to the Engineer. Repair any part of the permanent service lines, equipment and building facilities disturbed or damaged as a result of the installation or removal of the temporary service lines.

F. Temporary Heating: Provide temporary heating in the Work Zone, as needed to maintain a minimum temperature of 50°F. Heating equipment shall be approved by the Engineer.

G. Movable Objects: Before Work is initiated; clean all items which can be removed without disrupting any asbestos material. Pre-clean movable objects within the proposed areas using HEPA filtered vacuum equipment an/or wet cleaning methods as appropriate; remove such objects from Work Zones to a temporary location, as directed by the Engineer.

H. Fixed Objects: Pre-clean non-removable objects within the proposed Work Zones, using HEPA filtered vacuum equipment and wet cleaning methods as appropriate prior to abatement activities, and enclose with two (2) layers of plastic sealed with tape.

I. Openings: Prior to placing plastic on walls, floors and ceilings, seal off all openings, including, but not limited to corridors, doorways, windows, skylights, ducts, grills, diffusers, and any other penetrations of the Work Zones, with two (2) layers of plastic sealed with tape.

J. Floor, Wall and Ceiling Penetrations: Prior to any abatement activities fire stop all openings or penetrations that have not already been sealed. This includes empty holes, expansion joints and holes accommodating items such as cables, pipes, ducts, conduit, etc.

K. Fire Exits: Maintain emergency and fire exits from the Work Zones, or establish alternative exits satisfactory to the local fire officials. Provide panic exit devices for security and egress. Establish this exit in accordance with all applicable codes and regulations.

L. Signs: Outside of the perimeter barrier and at all entrances and exits to the Work Zone, post signs in English, Spanish and any other language spoken at the project location.

1. The signs shall read:

DANGER
ASBESTOS

CANCER AND LUNG DISEASE
HAZARD

Authorized Personnel Only

Respirators and Protective Clothing
are Required In This Area

2. Demarcate the regulated area. Post signs at such a distance from the area that an employee will read these signs before entering the area.

M. All of the above procedures shall be completed prior to the disturbance of any asbestos containing material.

End of Subpart 3.03

3.04 Asbestos Removal

A. Floor Tile and Mastic Removal

Work in this part shall be performed in accordance with ICR 56. Where mastic removal is required, AV-A-3 may also be utilized.

The sequence of abatement activities shall be as follows:

1. The areas worked on shall be unoccupied and blocked off to uncertified personnel with barricade tape and with asbestos warning signs. Only certified personnel will be allowed in the abatement areas during work and up until the time clearance air tests are passed.

2. Construct remote or attached Decontamination Units for personnel and waste in accordance with NYS DOL ICR-56. Use studs, sixteen inches on center, covered with plywood and two (2) sheets of 6-mil fire retardant polyethylene sheeting.

3. Install critical barriers over all window and door openings, etc. Critical barriers shall consist of two (2) independent layers of 6-mil fire retardant polyethylene sheeting. Any opening over 32 square feet shall have a hard wall (plywood) barrier in addition to the plastic sheeting. **Inspect all plastic three times a day for sagging and repair all such sags or failures immediately.**

5. Secure a source of water within the Work Zone (other than the Shower within the Decontamination Zone) for wetting and cleaning.

6. Install a tape barrier at an appropriate distance from the perimeter of the tent to isolate the work area.

7. In accordance with ICR 56-11.7 *Non-friable Flooring and/or Mastic Removal,* floors walls and ceilings will not be required to be plasticized. The contractor shall install a four (4) foot splash guard of 6-mil fire retardant polyethylene sheeting on the wall above any cove base. Six (6) air changes per hour are required.

8. Wet all Asbestos prior to removal using a wetting agent. Maintain asbestos wet until packaged for disposal.

9. Upon detachment from the substrate, directly bag or drop into a flexible catch basin all asbestos containing waste material.

10. Following asbestos removal, the entire work area shall be wet cleaned and HEPA vacuumed.

11. Drying time following abatement as per ICR 56-9. Upon completion of the final drying period, the Project Monitor and/or Air Monitor shall inspect abatement locations for dryness and debris. All debris will be wetted, bagged and disposed of accordingly. Clearance air tests may be performed once abatement areas are inspected and determined to be dry and free of debris.

12. Isolation barriers/ tent shall not be dismantled until final clearance sampling has been performed and acceptable results attained.

13. Air monitoring of each work area shall be conducted in accordance with ICR 56-7, ICR 56-8 and AHERA. The number of samples required will be dependent on the amount of material being removed.

14. In the event of an unsatisfactory clearance air test results, abatement areas shall be re-cleaned, a new settling period observed and clearance tests rerun.

B. <u>Pipe Insulation and Pipe Elbow Removal</u>

1. For Pipe Insulation Removal and Pipe Elbow Removal, the Contractor may use NYS DOL ICR 56-11.3 as the removals are of a minor size.

2. Air sampling must follow ICR 56 subpart 56-4.

End of Subpart 3.04

3.05 Encapsulation

A. Encapsulating material using an airless sprayer. Comply with manufacturer's recommendations. The Encapsulating material shall be mixed with contrasting color paint to assure proper application. No encapsulant will be allowed to be applied to abated surfaces until after acceptable final air sample results are received.

End of Subpart 3.05

3.06 Disposal Practices

A. Wet and properly package all Asbestos prior to removal from the Work Zone via the Waste Decontamination Enclosure System. Remove all residual asbestos from the exterior of any package, drum, bag, or other container of Asbestos prior to removal from the Work Zone. Affix the ASBESTOS CAUTION label, the name of the Owner, the name of the Contractor, the name of any Tenant and the location where generated to all packages, drums, bags or other containers used for Asbestos disposal.

B. Store all Asbestos Waste in a totally secure manner. Transport all Asbestos Waste to the disposal site within ten (10) days after completing the Work of this section.

C. Transport Asbestos Waste through the building at the direction of the Engineer at times designated by the Owner. Use sealed carts.

D. During the transport of Asbestos Waste, on or across public thoroughfares, employ a hauler bearing all required permits for the hauling of asbestos. The haulers shall carry insurance in the same types and amounts as the Contractor. In addition, the hauler shall carry "Sudden and Accidental Pollution Liability Insurance" in an amount not less than $1,000,000.

E. Dispose of Asbestos Waste at approved landfill bearing all appropriate licenses and permits for asbestos disposal and operated in compliance with all applicable rules and regulations. The Landfill used shall be dedicated for asbestos materials only and shall not accept any other hazardous substances.

F. Within thirty (30) days of removal from the premises, the Contractor shall provide the Owner with disposal certificate(s) from the approved waste disposal site. Final payment will not be approved until all disposal certificates have been provided.

End of Subpart 3.06

3.07 Clean-up Procedures

A. Daily, during abatement activities:

1. Clean-up visible accumulations of loose Asbestos Waste whenever a sufficient amount of Asbestos Containing Material to fill a single asbestos waste bag has been removed. Removal all waste materials from the Work Zone at the end of each work shift. Maintain visible material wet until after clean up.

2. Place visible accumulations of Asbestos Waste in containers utilizing non-metallic dust pans and non-metallic squeegees or vacuums.

3. Do not use metal shovels.

4. Do not use brooms.

5. Wet clean and vacuum all surfaces of the Work Zone on a daily basis.

6. When the DES Shower Room alternates as a Washroom, wash the Shower Room immediately with cloths or mops saturated with a detergent solution prior to wet cleaning.

7. If excess water accumulates in the Work Zone, stop Work until the water is collected and disposed of properly.

B. Final Clearance, the Work Zone will be considered acceptable when it has passed both visual inspections and air testing performed by the Engineer according to the criteria and sequence below:

1. In order to pass each of the visual inspections, the Work Zone and adjacent areas shall be free of all visually apparent asbestos. Any disputes over the results of any visual inspection shall be resolved by the Contractor submitting the results of bulk sample analysis demonstrating the contents of the material in question. Remove all Asbestos materials and all asbestos contaminated materials; non-asbestos materials may remain. The laboratory performing such analyses shall be a regular participant in the ELAP Quality Assurance Program for bulk sample analyses with performance results satisfactory to the Engineer. The Engineer reserves the right to independently verify the bulk results.

2. If the Work Zone is not suitable for acceptance for any reason, promptly perform the Work requested by the Engineer.

3. Keep each Work Zone isolated and posted with ASBESTOS CAUTION and CAUTION KEEP OUT signs until after acceptance.

4. Typical acceptance sequence shall be as follows:

   a. After removal of visible accumulations of Asbestos Waste, vacuum all surfaces;

   b. Remove all bagged materials from the Work Site;

   c. Wet clean and vacuum, surfaces in the Work Zone. Drying period is required – 6 hours;

   d. Visual inspection by Engineer to verify the absence of Asbestos Waste, dust and or debris;

   e. Clearance Air Monitoring; Clearance air monitoring shall consist of an adequate number of air samples taken inside of the work area and five air samples taken outside of the work area according to ICR 56 and AHERA.

   f. Upon successful clearance air testing, shut down air filtration units (demobilization);

   g. Remove the isolation barriers in conjunction with the use of HEPA vacuums;

   h. After all Work and decontamination is complete, relocate and secure objects moved to temporary locations in the course of the Work to their former positions and assure that they are in working order.

- END OF PART 3 -
- END OF SECTION 02080 -