

**SECTION 028213
ASBESTOS ABATEMENT**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Refer to C&S Companies *Limited Hazardous Material Pre-Renovation Survey Reports, Highland Falls-Fort Montgomery Central School District, High School and Intermediate School* for information regarding materials that have been identified as asbestos-containing materials and materials containing "trace" (less than 1%) asbestos, or that have been sampled and determined to be non-asbestos containing.

1.02 SUMMARY OF WORK

Abatement Work Area Location	Asbestos Abatement of Work Description	Approximate Quantity
HS HM100	NOTE A2 REMOVE INTERIOR ASBESTOS-CONTAINING CAULIK ON COLUMNS, AT WINDOW OPENINGS, ON WALLS AT UNIT VENTILATORS, ON METAL CLOSURE PLATES AT FLOORS AND EXPANSION JOINTS TO CLEAN SUBSTRATE IN LOCATIONS SCHEDULED FOR REMOVAL. ALL WORK SHALL BE CONDUCTED UNDER ABATEMENT CONDITIONS.	6 SF
HS HM101	NOTE A1 REMOVE NON-ASBESTOS-CONTAINING FLOOR TILE LAYERS, COVE BASE, COVE BASE MASTIC, AND ASBESTOS-CONTAINING FLOOR TILE MASTIC. REMOVAL INCLUDES ALL LAYERS OF TILES, FILLERS, MASTICS, UNDERLAYMENTS, FELTS, ETC. TO CLEAN SUBSTRATE UNDER ABATEMENT CONDITIONS. UNDER THE FOOTPRINT OF THE CASEWORK, SEATING, WALLS AND UNIT VENTILATORS SCOPE OF WORK INCLUDES REMOVAL OF CASEWORK, SEATING, AND WALLS UNDER ABATEMENT CONDITIONS. CASEWORK TO BE CLEANED AND DISPOSED OF.	1,600 SF
	NOTE A2 REMOVE INTERIOR ASBESTOS-CONTAINING CAULIK ON COLUMNS, AT WINDOW OPENINGS, ON WALLS AT UNIT VENTILATORS, ON METAL CLOSURE PLATES AT FLOORS AND EXPANSION	5 SF

Abatement Work Area Location	Asbestos Abatement of Work Description	Approximate Quantity
	JOINTS TO CLEAN SUBSTRATE IN LOCATIONS SCHEDULED FOR REMOVAL. ALL WORK SHALL BE CONDUCTED UNDER ABATEMENT CONDITIONS.	
	NOTE A3 REMOVE PRESUMED ASBESTOS-CONTAINING PIPE/FITTING INSULATION. SELECTIVE DEMOLITION OF OPENINGS TO ACCESS ASBESTOS-CONTAINING PIPE/FITTING INSULATION TO BE PERFORMED UNDER ABATEMENT CONDITIONS.	60 LF
HS HM101	NOTE A4 REMOVE ASBESTOS-CONTAINING HVAC VIBRATION DAMPENER INSULATION. ABATEMENT OF INSULATION TO BE PERFORMED UNDER ABATEMENT CONDITIONS.	2 SF
	NOTE A5 REMOVE PRESUMED ASBESTOS-CONTAINING ELECTRICAL COMPONENTS IN THEIR ENTIRETY. COORDINATE DISCONNECTS WITH ELECTRICAL CONTRACTOR.	20 SF
HS HM102	NOTE A2 REMOVE INTERIOR ASBESTOS-CONTAINING CAULIK ON COLUMNS, AT WINDOW OPENINGS, ON WALLS AT UNIT VENTILATORS, ON METAL CLOSURE PLATES AT FLOORS AND EXPANSION JOINTS TO CLEAN SUBSTRATE IN LOCATIONS SCHEDULED FOR REMOVAL. ALL WORK SHALL BE CONDUCTED UNDER ABATEMENT CONDITIONS.	8 SF
HS HM103	NOTE A2 REMOVE INTERIOR ASBESTOS-CONTAINING CAULIK ON COLUMNS, AT WINDOW OPENINGS, ON WALLS AT UNIT VENTILATORS, ON METAL CLOSURE PLATES AT FLOORS AND EXPANSION JOINTS TO CLEAN SUBSTRATE IN LOCATIONS SCHEDULED FOR REMOVAL. ALL WORK SHALL BE CONDUCTED UNDER ABATEMENT CONDITIONS.	10 SF

Table Notes: LF=Lineal Feet, SF=Square Feet

MATERIALS IDENTIFIED TO CONTAIN “TRACE” AMOUNTS OF ASBESTOS

- A. The following materials have been identified in the Limited Hazardous Materials Pre-Renovation Survey Reports: High School-*Red Exterior Window Caulk*

1.03 GENERAL CONDITIONS

- A. The Contractor acknowledges that the quantities of asbestos-containing materials and presumed asbestos-containing materials shall be field-verified, prior to submission of bid. Variations of $\pm 20\%$ in the quantities indicated shall be acknowledged by the Contractor and shall be reflected in their price.
- B. The Contractor's pricing shall include costs for all labor, materials, equipment, asbestos project notifications and fees, building permits and fees, insurance, bonding, waste transportation and disposal, overhead and profit, and all other costs necessary to complete the work, as specified.
- C. All work shall be performed in accordance with the project design specifications and all applicable federal, state, and local regulations. When conflicts occur between the project design documents and federal, state, and/or local regulations, the most stringent requirement shall apply. The Contractor shall comply with the following, except where more stringent requirements are shown or specified:
 1. Federal Regulations:
 - a. OSHA 29 CFR Part 1910.1001 – Asbestos
 - b. OSHA 29 CFR Part 1910.1200 – Hazard Communication
 - c. OSHA 29 CFR Part 1910.134 – Respiratory Protection
 - d. OSHA 29 CFR Part 1910.145 – Specification for Accident Prevention Signs and Tags
 - e. OSHA 29 CFR Part 1926 – Construction Industry
 - f. OSHA 29 CFR Part 1926.1101 – Asbestos, Tremolite, Anthophyllite, and Actinolite
 - g. OSHA 29 CFR Part 1926.500 – Guardrails, Handrails, and Covers
 - h. USEPA 40 CFR Part 61, Subpart A – General Provisions
 - i. USEPA 40 CFR Part 61, Subpart M – Asbestos NESHAP
 - j. USEPA 40 CFR Part 763, Subpart E, Asbestos Hazard Emergency Response Act (AHERA)
 2. New York State Regulations:
 - a. NYSDOL 12 NYCRR Part 56 – “Asbestos,” as amended 3/21/2007
 - b. NYSDEC 6 NYCRR Parts 360 and 364 – Waste Disposal & Transportation
 - c. NYSDOH 10 NYCRR Part 73 – Asbestos Safety Program Requirements
 3. All Local Regulations
 4. Standards and Guidance Documents:
 - a. American National Standard Institute (ANSI) Z88.2-80, Practices for Respiratory Protection
 - b. ANSI Z9.2-79, Fundamentals Governing the Design and Operation of Local Exhaust Systems
 - c. USEPA 560/585-024, Guidance for Controlling Asbestos Containing Materials in Buildings (Purple Book)

d. USEPA 530-SW-85-007, Asbestos Waste Management Guidance

5. All applicable building and fire codes.

D. The Contractor accepts that multiple means of clearance criteria will be utilized for final clearance criteria based on the applicable regulatory requirements for the abatement work performed. Final visual inspections and clearance air sampling will be utilized to determine satisfactory completion of the asbestos abatement work of this project. Phase Contrast Microscopy (PCM) or Transmission Electron Microscopy (TEM) analysis of air samples will be utilized to determine satisfactory clearance, based upon the size of the regulated work area.

E. The Abatement Contractor shall be responsible for, but not limited to, the following:

- a. Submission and approval of required local, state and federal notifications, notification fees and applicable variances prior to commencement of work, as required by regulations.
- b. Verification of all site conditions and locations and quantities of all ACM. Abatement Contractor shall immediately notify Hazardous Material Engineer of any discrepancies noted.
- c. Posting of the building to provide notification of the abatement activities, as required under ICR 56, section 56-3.6. The posting shall occur ten (10) calendar days prior to commencement of work at the site by the Abatement Contractor and shall be placed at all direct means of access to the floor, including all stairways, elevators, hallways, corridors, exterior doors, and emergency egress points. Each posting shall include description of the areas in which the work will be conducted; the types and amounts of ACM being removed; commencement and completion dates of the work; name and asbestos handling license number of the Abatement Contractor; name and address of the air monitoring firm and the laboratory for the project; and a statement that it is unlawful for any person to interfere with or remove the posting.
- d. Removal of all asbestos material within the areas indicated on the project plans
- e. All movable objects inside abatement work areas shall be removed from the work areas as part of the initial work area cleaning prior to abatement.
- f. Abatement Contractor shall inspect facility and ensure that all asbestos material has been removed in accordance with the specifications prior to coordinating final visual inspection by the Project Monitor. Visual inspection by Project Monitor shall not be coordinated until such time as the Abatement Contractor's Project Supervisor has deemed that all abatement and cleaning work has been sufficiently completed in the respective regulated work area.
- g. Furnish all labor, materials, services, insurance and equipment necessary to carry out the removal operation in accordance with applicable regulations and codes.
- h. Obtaining approval from a NYSDEC-permitted waste disposal site for proper disposal of all generated waste streams and coordinating transportation of waste by a hauling firm having a valid 6NYCRR Part 364 waste transporter permit issued by the New York State Department of Environmental Conservation.
- i. Post all applicable regulations, licenses, permits, certifications, and other necessary documentation at the job site.
- j. Maintain the required log of all persons entering work area.
- k. Provide Hazardous Material Engineer with close-out documentation containing all information pertaining to the removal and disposal of asbestos containing materials.

1.04 OWNER RESPONSIBILITIES

- A. The Owner shall be responsible for:
 - 1. Moving items out of areas affected by abatement work activities.
 - 2. Providing a source for electricity and water at the project site.
 - 3. Hiring an independent, third-party asbestos project monitoring / air sampling firm.

1.05 CONTRACTOR RESPONSIBILITIES

- A. The Contractor shall be responsible for:
 - 1. Performing the asbestos abatement work in accordance with all applicable federal, state, and local regulations. Where conflicts occur between federal, state, and local regulations, the most stringent shall apply. As such, the Contractor shall include all necessary costs in their price to complete the work in a legal and safe manner.
 - 2. Providing supervisors and workers who are competent, trained, and medically fit to conduct the asbestos abatement work as well as all materials and equipment necessary to satisfactorily complete the work.
 - 3. Collection and analysis of personal exposure assessment air samples of his employees as required by applicable OSHA standards. The third-party asbestos project monitoring / air sampling firm shall not be responsible for the collection, shipping / delivery, or analysis of the Contractor's personal exposure assessment air samples on this project.
 - 4. Completing the project as specified in the design documents. The Contractor accepts that the asbestos abatement work is not complete until satisfactory final visual inspections are made and after clearance air testing results are deemed to be acceptable, as applicable.
 - 5. Packaging, transporting, and disposing of all asbestos waste generated by the work in accordance with all applicable federal, state, and local regulations.
 - 6. Ensuring regulated work area security during the course of the project, so that unauthorized personnel do not enter regulated work areas.
 - 7. Providing emergency plans and emergency telephone numbers to on-site abatement personnel. The emergency plans and telephone numbers shall be kept on site at all times during the project.
 - 8. Obeying the Owner's policies and procedures pertaining to work on-site.
 - 9. Ensuring that no employee of his company speaks to the media without written permission from the Owner.
 - 10. Complying with the contractual requirements set forth by the Owner.
 - 11. Posting a notice at all building entrances notifying all persons of the Contractor's intent to conduct asbestos abatement, in accordance with State and Federal requirements.
 - 12. Notifying the NYSDOL and USEPA about the asbestos abatement work and paying the associated fees, as applicable.

13. Contractor shall follow the direction of the Owner and Owner's Representatives pertaining to schedule, health / safety issues, and other site activities. The Contractor shall be responsible for the legal means and methods of performing the work in accordance with the contract.

1.06 PERSONAL PROTECTIVE EQUIPMENT

- A. The Contractor shall be responsible for providing his personnel with adequate personal protective equipment to perform the work on this project as per the applicable federal and state regulations.
- B. The Contractor will be responsible for collecting OSHA personal asbestos samples for their workers on this project. Representative samples shall be taken daily and sample results shall be posted at the personal decontamination unit within 48-hours of collection. The Contractor is responsible for providing their employees with adequate respiratory protection based upon the sample results received.
- C. Street clothing is not permitted inside regulated work areas during abatement activities.
- D. The Contractor is responsible for providing the Project Designer, the Project Monitor, Owner/Owner's Representative, and state and federal inspectors with personal protective equipment (PPE). This may include some or all of the following: protective clothing, respirators, high efficiency particulate air (HEPA) cartridges, hard hats, gloves, eye protection, and rubber disposable boots.
- E. Protective suits and respiratory protection shall be required (at a bare minimum) during all asbestos removal activities, regardless of any negative exposure assessment data.

1.07 SUBMITTALS

- A. Qualification Submittals. If requested, the following information shall be transmitted to the Owner / Owner's Representative prior to contract award:
 - 1. Contractor's Asbestos Handling License issued by the NYSDOL.
 - 2. A notarized statement, signed by an officer of the company, containing the following information:
 - a. Any federal, state, or local regulatory agency citations, violations, notices, orders to comply, or penalties recorded against the asbestos abatement contractor in the last three (3) years.
 - b. Any claims or legal proceedings in which the Contractor has been involved in the past three (3) years.
 - c. Any Occupational Safety and Health Administration (OSHA) fines and/or citations, and a list of OSHA recordable accidents per year for the last three (3) years.
 - d. Any asbestos related projects where a contract has been terminated, including project name, client, dates, and reasons for termination.
 - 3. A minimum of five (5) project references for projects similar in nature to this project that have been self-performed and completed in the past three (3) years including the project name and location, scope of work, client, and contact person's name, telephone number, and e-mail address.
- B. Pre-Work Plan for Materials Containing "Trace" Asbestos (ALL CONTRACTORS)
 - 1. Proof of Asbestos Awareness Training for all personnel impact "trace" asbestos materials.

2. OSHA Compliance Plan to satisfy 1926.1101 Asbestos in Construction Standard:
 - a. Negative Exposure Assessment for similar work/conditions
 - b. Written Respiratory Program and proof of required training
 - c. Valid Medical Clearance and Respirator Fit Tests
 3. Drawings identifying Work Practices and Engineering Controls to be utilized for work scheduled to impact materials identified as containing “trace” amounts of asbestos, as required by OSHA. Drawings shall include:
 - a. locations of negative pressure equipment and exhausts
 - b. locations of poly barriers, restricted areas, etc.
- C. Pre-Abatement Submittals. The following information shall be transmitted to the Project Designer at least ten (10) days prior to the commencement of work activities:
1. Contractor’s Asbestos Handling License issued by the NYSDOL.
 2. NYSDOL Asbestos Project Notification.
 3. USEPA Notification of Demolition & Renovation.
 4. Asbestos Project Notice to be posted at the building prior to the start of the work, as required by ICR 56-3.6.
 5. NYSDEC waste transporter permit.
 6. NYSDEC landfill permit, where asbestos project wastes from the site will be disposed.
 7. Project schedule showing phases of work for each regulated work area including, but not limited to, mobilization, work area preparation, abatement/removal, cleanings, work area dismantlement, and demobilization.
 8. NYSDOL-approved asbestos project variance to be used on the project, if applicable.
 9. Wastewater discharge permit required by state, county, or local municipality. If a permit is not required or will not be obtained, submit a written statement describing how wastewater from this project will be collected and disposed.
 10. Safety Data Sheets (SDS) for all chemicals, solvents, products, and materials utilized on the project.
 11. Manufacturer’s specifications/certifications for all materials and equipment utilized on the project.
 12. Written notifications to local fire, rescue, and emergency agencies informing them of the nature and schedule of the work at the site.
 13. List of contact persons and emergency phone numbers for Contractor personnel to be posted at the project site.
 14. Asbestos abatement personnel/worker documentation, including:
 - a. NYSDOL Asbestos Handling Certificates.
 - b. NYSDOH 2832 Asbestos Training Certificates.
 - c. Medical examinations/evaluations.
 - d. Respirator fit test certifications.

- e. OSHA 10-Hour Construction Safety Training certificates.
15. The Contractor shall not proceed with any work until the pre-abatement submittals have been approved by the Owner/Owner's Representative.
- D. Abatement Submittals. The following information shall be transmitted during the course of the work as per Specification Section 01 33 00:
1. OSHA personal exposure assessment air sampling data. The Owner, Owner's Representatives, and Project Designer are not responsible for the interpretation of these results. The intent is only to show that the Contractor is collecting these samples as required by OSHA.
 2. A daily list of the personnel on-site accompanied by their NYSDOL Asbestos Handling Certificate number.
- E. Post-Abatement/Closeout Submittals. The following information shall be transmitted within 30 days after completion of the work, as per Specification Section 01 33 00:
1. Copies of all waste disposal manifests, disposal logs, and weight tickets. All original waste disposal records shall be submitted directly to the Owner/Owner's Representative by the Contractor.
 2. Copy of supervisor's daily project log as required by ICR 56-7.3 documenting all pertinent events that occur throughout the project and including the following:
 - a. Elevated air sampling results shall be noted along with the time of the work cessation, results of barrier and negative air system inspection, and a summary of any necessary repairs and the required cleaning(s).
 - b. Manometer readings to be documented twice per work shift, if applicable.
 - c. Daily (including days without work shifts) inspection results of negative-air ventilation system and any necessary repairs, if applicable.
 - d. Daily (including days without work shifts) inspections of HVAC system positive pressurization and any necessary repairs, if applicable.
 - e. Daily (including days without work shifts) inspection results of barriers and any necessary repairs, if applicable. Inspections shall be twice per work shift on days with scheduled work.
 - f. Daily testing of barriers and enclosures as per ICR 56-8.2(f) and any necessary repairs, if applicable.
 - g. Daily cleaning of enclosures to be documented at the end of each work shift, if applicable.
 - h. Results of each visual inspection and time of each intermediate completion, if applicable.
 - i. Results of visual inspection by Supervisor and Project Monitor for each asbestos abatement work area prior to clearance air sampling.
 3. Entry/exit logs for each asbestos abatement work area.
 4. Final NYSDOL and USEPA project notifications, and any asbestos variances, if applicable.
 5. Any other submittal requested by Owner, Owner's Representatives, or Project Designer.

- F. The Owner / Owner's Representative shall ensure that the Contractor has met all the contractual obligations to close out this project. Failure to provide all of the requested project closeout documentation may result in the delay of payment to the Contractor. The Contractor shall not be entitled to any additional compensation caused by their failure to submit the requested closeout information in a timely manner.

PART 2 - PRODUCTS

2.01 MATERIALS & EQUIPMENT

- A. The Contractor shall be responsible for:
 - 1. Providing all materials and equipment necessary to complete the work.
 - 2. Providing safe and reliable materials and equipment.
 - 3. Providing personal protective equipment for all abatement personnel.
 - 4. Providing HEPA-filtered air filtration devices and HEPA vacuums.
 - 5. Providing continuous negative air pressure within regulated work areas for the duration of the project, as applicable.
 - 6. Utilizing barrier tape and danger signs to keep unauthorized personnel away from the work area. Danger signs shall contain the following language:

DANGER

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

CANCER AND LUNG DISEASE HAZARD

- 7. Utilizing airless sprayers to limit airborne dust in regulated work areas.
 - 8. Utilizing flame-retardant 6-mil polyethylene sheeting for the construction of abatement work areas, decontamination units, and the lining of waste containers.
 - 9. Utilizing 6-mil polyethylene bags for the containerization of all asbestos wastes.
 - 10. Utilizing duct tape or approved equivalent to seal polyethylene sheeting and waste disposal bags.
 - 11. Utilizing electrical equipment and power cords in compliance with all applicable OSHA standards.
 - 12. Utilizing Ground Fault Interrupters (GFIs) or Ground Fault Circuit Interrupters (GFCIs) on all power sources.
- B. Any miscellaneous products not covered in this specification must have written approval from the Project Architect and Project Designer prior to use on-site.
- C. Any miscellaneous products used at the site must be accompanied by manufacturer's product information and safety data sheet (SDS). This information must be submitted to the Project Architect and Project Designer prior to the products arriving on site. The Contractor may not proceed until the products have been approved for use in writing by the Project Architect and Project Designer.

PART 3 - EXECUTION

3.01 UTILITIES

- A. All water and electrical service connections shall be installed by the Contractor in accordance with all applicable federal, state, and local codes, rules, and regulations.
- B. The Contractor shall be responsible for the maintenance of all electrical cords and water hoses, and keeping them in a secure location to prevent unnecessary tripping and/or slipping hazards.
- C. The Contractor shall temporarily shut down / de-energize, isolate / seal, modify, and/or alter existing mechanical, HVAC, electrical, plumbing, and any other related systems, services, and utilities at the site, as required by applicable regulations, prior to the start of the asbestos abatement work. All such work shall be carefully coordinated with the Owner and Owner's Representative.
- D. Existing mechanical, HVAC, electrical, plumbing, and all other building systems, services, and utilities within regulated work areas that are to remain in operation shall be adequately protected by the Contractor during all work activities.

3.02 DECONTAMINATION FACILITIES

- A. All personal and waste decontamination facilities shall be constructed, installed, or otherwise provided by the Contractor to meet the requirements of ICR 56 and shall be deemed adequate by the Project Monitor prior to the commencement of any asbestos abatement preparation work.
- B. The personal decontamination unit shall be equipped with one (1) shower per six (6) full-shift abatement workers.
- C. Decontamination units shall be cleaned at the beginning, during, and end of each work shift. Accumulations of dirt / debris in decontamination units shall not be permitted.

3.03 NEGATIVE PRESSURE VENTILATION

- A. Negative air pressure ventilation shall be installed for all OSHA Class I, Class III, and interior Class II regulated asbestos abatement work areas.
- B. The negative air pressure equipment shall operate continuously, 24-hours a day, from startup of negative air pressure ventilation equipment through cleanup operations and clearance air sampling until satisfactory clearance air sampling results are obtained.
- C. If more than one (1) primary HEPA-filtered ventilation unit is installed, the units shall be turned on one at a time and the integrity of temporary hard-wall isolation barriers checked for secure attachment. A minimum of one (1) additional negative air pressure ventilation unit, having a capacity of at least equal to that of the primary unit, shall be installed as a backup unit to be used upon primary unit failure and during primary unit filter changes.
- D. Negative air pressure ventilation equipment shall be installed and operated continuously to provide at least four (4) air changes per hour in the regulated work area including during clearance air sampling.
- E. The exhaust shall be vented to the outside of the building or structure, to a controllable area away from public access. Each negative pressure ventilation unit exhaust duct shall not terminate less than 15 feet from a receptor or adversely affect the air intake of any building or structure.

If the exhaust duct termination location cannot be met due to allowable space restrictions or the regulated abatement work area being located above the ground floor, the exhaust shall terminate at the exterior of the building or structure, and all receptors within 15 feet of the exterior exhaust duct termination location shall be plasticized with two (2) layers of 6-mil polyethylene. Exhaust tubes may be grouped together in banks of no more than five (5) tubes, with each tube exhausting separately and the bank of tubes terminating together at the same controlled area.

- F. Construction fence at a height of four (4) feet with appropriate signage shall be installed a minimum of 10 feet from the end of the exhaust duct tube or bank of duct tubes to surround and control the area from public access. For ground level exhaust duct terminations at the immediate exterior of the building/structure, the fence shall be installed at the tube discharge location.
- G. Manometers shall be used to document the pressure differential for all OSHA Class I large and small size regulated asbestos abatement work areas. A minimum of -0.02 column inches of water pressure differential, relative to pressure outside the regulated work area, shall be maintained within the regulated work area, as evidenced by manometric measurements. Once installed, on a daily basis and at least twice per work shift, the Contractor shall document the manometer readings in the daily project log.
- H. The manometer shall be installed and made operational once negative air ventilation has been established in the regulated work area. At a minimum, magnahelic manometers shall be calibrated semi-annually, and a copy of the current calibration certification shall be posted at the work site, as required by ICR 56.
- I. The Contractor shall be responsible for the following:
 - 1. Monitoring of negative air pressure equipment and records of the daily manometer readings in the supervisor's project log.
 - 2. Stoppage of activities when negative air pressure is lost or is less than required. The Contractor shall not resume activities until constant negative air pressure is has been reestablished and maintained for at least 30 minutes.

3.04 PRE-CLEANING ACTIVITIES

- A. Pre-cleaning of regulated work areas shall be conducted in accordance with ICR 56.
- B. The Contractor shall request a visual inspection by the Project Monitor to ensure that regulated work areas have been satisfactorily pre-cleaned prior to commencement of work area preparation activities.

3.05 CRITICAL & ISOLATION BARRIERS

- A. After the pre-cleaning activities are completed, the Contractor shall install critical barriers and isolation barriers in accordance with ICR 56.
- B. Critical barriers shall be constructed to seal off all openings and penetrations to regulated work areas including, but not limited to, operable windows and skylights, doorways and corridors that shall not be used for passage, ducts, grilles, diffusers, HVAC system seams, and any other penetrations to surfaces within the regulated work areas. Critical barriers shall be constructed using two (2) independent layers of 6-mil fire-retardant plastic sheeting, with each layer sealed separately with duct tape. Caulk and fire-retardant expandable foam may be used to seal small openings or penetrations. Doorways and corridors, which shall not be used for passage during the asbestos abatement work, shall also be sealed.

- C. Temporary hard-wall barriers to complete containments/enclosures and establish regulated work areas shall be constructed using the following framing, sheathing, sealing, and plasticizing criteria:
 1. Isolation barrier partitions shall be constructed of wood or metal framing in all openings greater than 32 square feet except, where any one dimension is one (1) foot or less, framing is not required. Existing walls or framing may be used to support isolation barrier partition framing and sheathing.
 2. Plywood or oriented strand board (OSB) sheathing of at least 3/8-inch thickness shall be fastened to the regulated work area side of the barrier partition.
 3. Edges of the isolation barrier partition at the floor, ceiling, walls, and fixtures and seams within the partition sheathing shall be sealed using caulk, fire-retardant expandable foam, or tape to form an airtight seal.
 4. The regulated work area side of isolation barrier partitions shall be covered with two (2) layers of 6-mil fire-retardant plastic sheeting with staggered joints and sealed airtight.
- D. Smoke testing shall be conducted by the Contractor prior to the start of abatement activities and at least once a day thereafter until satisfactory clearance air sampling results have been obtained to ensure the effectiveness of all critical barriers, isolation barriers, personal and waste decontamination system enclosures, and regulated work area enclosures. Negative air pressure ventilation units shall be in operation during this testing. Testing of barriers and enclosures is not required on days when there are no Phase IIB or cleaning activities scheduled. Test results, observations and any modifications shall be documented in the daily project log by the asbestos abatement supervisor.
- E. The Contractor shall inspect all barriers at least twice daily – before the start of and following the completion of each day's abatement activities. Inspections are also required on days when there is no Phase II work or support activities scheduled. Inspections and observations shall be documented in the daily project log by the asbestos abatement supervisor.

3.06 ASBESTOS HANDLING & CLEANING ACTIVITIES

- A. The Contractor shall conduct all asbestos abatement activities in accordance with ICR 56 or an approved asbestos project variance.
- B. Negative air machines shall be utilized at all regulated work areas, until satisfactory air sample results have been achieved. HEPA vacuums may only be utilized to provide continuous negative air pressure ventilation on minor-sized abatement projects.
- C. All asbestos materials shall be removed using wet methods. Dry removal, sweeping, wire brushing, use of pressurized water/pressurized air, or other inappropriate techniques will not be permitted.
- D. Airless sprayers shall be utilized to control airborne asbestos fiber concentrations.
- E. The Contractor is responsible for taking appropriate measures to reduce nuisance odors and noise from migrating to other areas of the building.
- F. Waste shall be immediately bagged and be transported to the waste decontamination enclosure. Waste bags shall then be cleaned in the waste decontamination enclosure, double-bagged, labeled, and transported to the waste dumpster, trailer, etc.
- G. Waste bag transfer shall take place inside a cart that has been lined with two (2) layers of 6-mil polyethylene. This cart shall be covered by polyethylene during any waste transfer activities and be labeled with appropriate asbestos signage.

- H. Workers shall wear PPE during work area preparation, abatement activities, cleaning, and during any other work area activities until final air clearance criteria has been achieved.
- I. The Contractor shall be responsible for providing the Project Monitor / Air Sampling Technician with sufficient power to conduct air sampling at the project site. The Contractor shall also provide the Project Monitor / Air Sampling Technician with access to the decontamination unit and hot water on days when final/clearance air sampling is required (even when abatement work is not taking place).

3.07 WASTE DISPOSAL

- A. The Contractor shall ensure that all asbestos waste/debris is sufficiently wet prior to being bagged/containerized for disposal.
- B. Bags, drums, or other acceptable packages/containers used for asbestos waste shall be labeled with appropriate asbestos waste generator tags/labels.
- C. Two (2) 6-mil polyethylene bags or two (2) layers of 6-mil plastic sheeting shall be utilized for the disposal of all asbestos waste.
- D. A daily count of asbestos waste bags, drums, containers, etc. shall be recorded by the asbestos abatement supervisor. This count shall be provided to the Project Monitor each day.
- E. All asbestos waste generated by the work shall be sent to a properly permitted landfill or disposal facility. Waste manifests shall accompany all regulated asbestos-containing material (RACM) waste that is removed from the site. Original waste manifests shall be submitted directly to the Owner/Owner's Representative.
- F. Vehicles used for the transport of all asbestos waste shall bear all appropriate permit tags, markings, and placards.

3.08 INSPECTIONS

- A. The Contractor shall not interfere, impede, or delay any inspections by the Owner/Owner's Representative, Project Designer, Project Monitor, or federal, state, or local inspectors.
- B. The Contractor shall request inspections from the Project Monitor at the following intervals, as applicable to the project:
 - 1. Upon completion of the decontamination system enclosure(s).
 - 2. Upon completion of the pre-cleaning effort.
 - 3. Upon completion of the preparation of the work area.
 - 4. Upon completion of the abatement process.
 - 5. Upon completion of teardown/dismantling activities.
- C. The asbestos abatement supervisor shall be responsible for adequately documenting inspections in the daily project log.

3.09 ASBESTOS PROJECT MONITORING/AIR SAMPLING

- A. The Contractor shall not include any costs in their price for project monitoring or air sampling. The Contractor will not be responsible for the selection or payment of the Project Monitoring/Air Sampling firm.

- B. The Project Monitor/Air Sampling Technician will be responsible for the following:
1. Conducting air sampling during the asbestos abatement phase of the project when required.
 2. Conducting a visual inspection for completeness of abatement and completeness of cleanup as per the provisions of the current ASTM Standard E1368 - "Standard Practice for Visual Inspection of Asbestos Abatement Projects." An entry shall be made into the daily project log by both the asbestos abatement supervisor and the individual performing the inspection, detailing the findings of the visual inspection. The full name and NYSDOL asbestos handling certificate number of the certified individual performing the inspection shall also be documented in the supervisor's daily project log.
 3. Performing aggressive air sampling techniques for final clearance air sampling when required.
 4. Collecting final clearance air samples when required.
- C. The Contractor understands that a Project Monitor has been retained by the Owner to oversee the asbestos abatement work and that the Owner/Owner's Representative has authorized the Project Monitor to stop the Contractor's work if the Contractor is not following the contract documents or the applicable codes, rules, and regulations. Work shall only be permitted to commence if allowed by the Owner/Owner's Representative after corrective actions have been made. The Contractor acknowledges that it is their responsibility to follow all applicable rules and regulations and failure to do so may result in lost time and/or dismissal from site at no cost to the Owner, Project Designer, or Project Monitor. The Contractor shall not be compensated for any lost time, labor, materials, etc., due to inappropriate action.

END OF SECTION

**SECTION 02 83 13
LEAD-SAFE WORK PRACTICES**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Refer to C&S Engineers Inc, *Limited Hazardous Material Pre-Renovation Survey Reports, Highland Falls-Fort Montgomery Central School District, Fort Montgomery High School and Intermediate School* for information regarding materials that have been identified as lead-based paint or lead-containing materials.

1.02 DEFINITIONS

- A. Lead-based paint (LBP), as defined by the U.S. Environmental Protection Agency (USEPA) and the U.S. Department of Housing and Urban Development (HUD), means painted or glazed materials (i.e. ceramic tile) containing 0.5% lead or more by weight.
- B. Lead, as defined by OSHA 29 CFR Part 1926.62, means metallic lead, all inorganic lead compounds, and organic lead soaps. All other organic lead compounds are excluded from this definition.
- C. Action Level, as defined by OSHA 29 CFR Part 1926.62, means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter (30 $\mu\text{g}/\text{m}^3$) of air calculated as an 8-hour time-weighted average (TWA).
- D. Permissible Exposure Limit (PEL), as defined by OSHA 29 CFR Part 1926.62, means employee exposure, without regard to personal protective equipment, to an airborne concentration of lead of 50 $\mu\text{g}/\text{m}^3$ (calculated as a TWA).
- E. Competent person, as defined by OSHA 29 CFR Part 1926.62, means one who is capable of identifying lead hazards and implementing corrective measures to eliminate hazards.
- F. Lead-containing material (LCM) includes LBP, lead-containing components / surfaces, and glazed / ceramic tile applications. A building material is defined as an LCM if any detectable amount of lead is present in that building material.

1.03 SUMMARY OF WORK

- A. Unless otherwise indicated, all painted surfaces and building materials are presumed to contain lead and shall be treated as LCM. Upon request, the Contractor may review available survey reports for additional details pertaining to LCMs identified at the site.
- B. Activities that will disturb LCM shall comply with the conditions specified herein. The Occupational Safety & Health Administration (OSHA) regulates occupational exposure to lead under 29 CFR Part 1926.62, Lead in Construction Standard. Any Contractor disturbing LCM shall comply with all the requirements of 29 CFR Part 1926.62 and this specification. The intent is for the Contractor to protect his workers and building occupants from unnecessary exposures to lead.

- C. The Contractor shall provide all labor, materials, tools, and equipment necessary to protect both workers and building occupants from potential lead exposure.
- D. Any waste products shall be considered industrial or hazardous waste, based on the results of a Toxicity Characteristic Leaching Procedure (TCLP) test. The cost of this testing shall be the responsibility of the Contractor and included in their bid for the project.
- E. Exact quantities and locations of LCMs that will be disturbed shall be determined by the Contractor at the time of bidding. The Contractor must be satisfied as to the quantity of waste requiring disposal, and include all such costs in their bid price.
- F. All work shall be performed in accordance with this specification and applicable federal, state, and/or local regulations. Dry sweeping of lead-containing dust is prohibited. Lead-containing debris shall be removed and collected using high efficiency particulate air (HEPA) vacuums designed to collect waste including paint chips, debris, and dust.
- G. It is the Contractor's responsibility to ensure that waste materials are contained, transported, and disposed of in accordance with all applicable federal, state, and local regulations.

1.04 APPLICABLE REGULATIONS

- A. The Contractor shall comply with all federal, state, and local laws, ordinances, rules, and regulations regarding the handling, storage, and disposal of LCM. The Contractor is further responsible to conduct work in compliance with all applicable codes, rules, laws, and regulations including, but not limited to:
 - 1. Worker Protection - Occupational Safety and Health Administration (OSHA)
 - a. 29 CFR Part 1910.134 - Respiratory Protection Standard
 - b. 29 CFR Part 1926. 20 - General Safety and Health Provisions
 - c. 29 CFR Part 1926.59 - Hazard Communication
 - d. 29 CFR Part 1926.62 - Lead Exposure in Construction
 - e. 29 CFR Part 1910.94 and Part 1926. 57 – Ventilation
 - 2. Ambient Air Quality - Environmental Protection Agency (EPA)
 - a. 40 CFR Part 50.6 - National Primary and Secondary Ambient Air Quality Standards for Particulate Matter
 - 3. Water Quality - Environmental Protection Agency (EPA)
 - a. 40 CFR Part 122 - Administered Permit Programs; The National Pollutant Discharge Elimination System
 - 4. Waste Disposal - Environmental Protection Agency (EPA)
 - a. 40 CFR Part 261 - Identification and Listing of Hazardous Waste
 - b. 40 CFR Part 262 - Standards Applicable to Generators of Hazardous Waste
 - c. 40 CFR Part 263 - Standards Applicable to Transporters of Hazardous Waste
 - 5. New York State Department of Environmental Conservation (NYSDEC)
 - a. Title 6 Parts 360-7, 364, and 370 through 374
- B. The Contractor shall comply with the following regulations and guidance documents:
 - 1. U.S. Department of Labor
 - 2. Occupational Safety and Health Administration Pub. 3126 - Working with Lead in the Construction Industry
 - 3. USEPA Lead Renovation, Repair and Painting (RRP) Program

1.05 LEAD HAZARDS

- A. Work practices / methods that may release lead dust or fumes into the air and onto surrounding surfaces are prohibited. It is the Contractor's responsibility to reduce potential exposure to lead.
- B. Lead is a toxic substance, which travels into the body by inhalation or ingestion due to lead dust and/or fumes that are present. Upon entering the body, lead enters the bloodstream, traveling throughout the body. The body cannot eliminate all of the lead; therefore, it is stored in tissue and organs. Stored quantities of lead may cause irreversible damage to cells, organs, and body systems.
- C. Exposure to lead may affect individuals differently. Exposure may occur without any indication of exposure or symptoms developing. Symptoms of lead poisoning to be aware of include, but are not limited to, loss of appetite, trouble sleeping, irritability, fatigue, headache, joint and muscle ache, metallic taste, decreased sex drive, lack of concentration, and moodiness.
- D. Prolonged exposure may result in damage to the body's systems including nervous, reproductive and circulatory systems. Symptoms of such exposures may include, but are not limited to, stomach pains, high blood pressure, nausea, tremors, seizures, anemia, constipation, and convulsions.
 - 1. The Contractor's Supervisor is responsible to monitor any workers for such symptoms and is further responsible for ensuring affected workers are removed from the area. Affected workers shall not return until such time that the requirements outlined in the OSHA Lead in Construction Standard (29 CFR Part 1926.62) have been met.

1.06 GENERAL REQUIREMENTS

- A. The Contractor is responsible for complying with the following general requirements applicable to the project (at a minimum):
 - 1. Respiratory Protection and personal protection
 - 2. Medical examinations
 - 3. Utilization of engineering controls, as necessary, to reduce potential exposure
 - 4. Proper clean up and disposal of all lead-related waste materials, as required.
- B. The Contractor is solely responsible for properly protecting their workers. Additional safety measures beyond OSHA requirements are encouraged, but are at the implementation and discretion of the Contractor.

1.07 SUBMITTALS

- A. The following information shall be transmitted for review and approval, prior to starting the work:
 - 1. Work Plan - The Contractor shall submit a work plan in compliance with the requirements of the OSHA Lead in Construction Standard (29 CFR Part 1926.62). The plan shall include but is not limited to: handling, cleaning, containerizing, transport, and disposal.
 - 2. Equipment - Information for all equipment utilized shall be submitted for review prior to commencement of project activities. This includes, but is not limited to, equipment specifications and safety data sheets (SDS).

3. Training - The Contractor shall provide proof of Lead Awareness training in accordance with OSHA 29 CFR Part 1926.62 for all employees performing renovation/repair activities resulting in disturbance of LCMs.
 4. Disposal - The Contractor shall submit documentation including all required permits, anticipated disposal facilities, and anticipated transporter information should construction waste be determined to be hazardous. If applicable, copies of applicable laboratory credentials shall be provided for the laboratory performing TCLP analysis.
- B. Post-Abatement / Closeout Submittals. The following information shall be transmitted for review and approval within 30 days following completion of the work:
1. Copies of all OSHA personal/employee lead exposure assessment air sampling data collected during the project.
 2. Original waste manifests/disposal records associated with any LCM waste removed from the site to be provided to the Building Owner.
 3. Any other documentation requested by the Building Owner or Environmental Consultant.

1.08 PERSONAL AIR SAMPLING & ANALYSIS

- A. The Contractor is responsible for conducting personal lead exposure assessment air monitoring of his employees, as required by OSHA 29 CFR Part 1926.62. Personal air samples shall be collected which are representative of a full-shift including at least one sample for each job classification in each work area either for each shift or for the shift with the highest exposure level. Full-shift personal samples shall be representative of the monitored employee's regular, daily exposure to lead.
- B. If requested by the Building Owner or Consultant, the Contractor shall provide laboratory analysis reports showing that they are conducting personal lead exposure assessment air monitoring of employees working with lead in accordance with OSHA 29 CFR Part 1926.62.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cleaning Solutions - A lead-specific cleaning solution shall be utilized for all cleaning activities. The cleaning solution shall be an approved solution that does not contain tri-sodium phosphate (TSP).
- B. Plastic Sheeting - To prevent dust migration, dust barriers, containments, and/or enclosures shall be constructed utilizing 6-mil fire-retardant plastic sheeting. These barriers shall be constructed to minimize dust migration into adjacent non-work areas.
- C. Framing - If framing is utilized for the construction of dust barriers/containments, all reinforcement framing/sheathing materials must be at least 3/8-inch thick. Minimum requirements for framing materials shall be comprised of 2"x4" stud framing in accordance with all applicable building codes.
- D. Adhesives - Commercially available tape and spray adhesives designed for such purposes to maintain the integrity of barriers, containments, and enclosures.

2.02 EQUIPMENT

- A. Protective Clothing - Coveralls, gloves, eye protection, ear protection, safety footwear, hard hats, and fall protection are required as per all applicable OSHA regulations.
- B. Respiratory Protection - The Contractor shall provide workers with adequate respiratory protection based on the lead hazards identified at the site. The level of respiratory protection shall be determined through personal exposure assessment air monitoring.

- C. Respirator Filters - The Contractor shall provide his workers with appropriate respirator filters for the respiratory protection the workers are utilizing as per OSHA 29 CFR Part 1910.134.

PART 3 - EXECUTION

3.01 LEAD COMPLIANCE PLAN

- A. The Contractor is required to establish and follow a lead compliance plan for the project. The requirements, as outlined in OSHA 29 CFR Part 1926.62, include written procedures for construction activities with regard to control methods and engineering controls.
- B. If the Contractor fails to follow their lead compliance plan, the Building Owner may elect to hire a third-party consultant to oversee the Contractor's work. The cost for the third-party consultant shall be borne by the Contractor.

3.02 SIGNAGE

- A. Warning signs shall be posted where the potential for any lead exposure exists.
- B. Signs shall remain in place until renovation/demolition activities have been completed and the area cleaned.
- C. All signage shall comply with OSHA 29 CFR Part 1926.62.

3.03 WORK METHODS

- A. The Contractor shall select work methods in compliance with OSHA 29 CFR Part 1926.62. All work shall be performed utilizing wet methods and other engineering controls, as necessary.
- B. The Contractor is prohibited from dry methods of removal, heat gun applications, mechanical methods (grinding/sanding), and/or torch-cutting during renovation / demolition activities.

3.04 CLEANING & CLEARANCE

- A. Following the completion of all lead-related work activities, all surfaces within and 25 feet beyond the areas impacted by the work shall be cleaned of all visible paint chips, dust, and debris.
- B. Visual examinations/inspections of all areas affected by the lead-related work shall be conducted by the Contractor's competent person to determine satisfactory cleaning of all affected areas; however, the Building Owner may retain a third-party consultant to perform visual clearance examinations/inspections and/or perform lead dust wipe sampling to determine satisfactory cleaning and satisfactory completion of the work.
- C. If the Contractor does not satisfactorily clean an area based on visual examinations, or if lead dust-wipe sampling results are unacceptable, the affected areas shall be re-cleaned by the Contractor at his own expense. The cost for re-cleaning, third-party consultant oversight, and additional sampling / testing associated with re-cleaning activities shall be borne by the Contractor.

3.05 WASTE TRANSPORTATION & DISPOSAL

- A. The Contractor is responsible for proper waste characterization sampling and laboratory analysis of LCM prior to disposal / removal from site. Waste materials include, but are not limited to, the following: personal protective equipment, plastic sheeting, signage, barrier tape, LBP components, and associated materials.

- B. The Contractor is responsible to coordinate interim storage of waste containers at the site with the Owner / Owner's Representative while awaiting waste characterization laboratory results.
- C. Lead paint chips and lead paint debris shall not be co-mingled with construction and demolition (C+D) debris. Failure to do so may result in the Contractor having to pay the associated fees for co-mingled lead waste disposal.

END OF SECTION

SECTION 028314
PCB CAULK ABATEMENT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, shall apply to this Section.
- B. Refer to C&S Companies *Limited Hazardous Material Pre-Renovation Survey Reports, Highland Falls-Fort Montgomery Central School District, High School and Intermediate School* for information regarding materials that have been identified as PCB containing materials, or that have been sampled and determined to be non-PCB containing.

1.02 GENERAL

- A. Current state and federal regulations require the implementation of appropriate protocols while handling, transporting, and disposing of polychlorinated biphenyls (PCBs). This specification was developed to ensure the completeness of abatement procedures while ensuring the health & safety of workers, the general public, and the environment. Any changes in laws and regulations that may be issued in the future could alter the applicability of this document. The District and District Representatives (i.e. Project Architect, Construction Manager, Project Designer, Environmental Consultant, etc.) shall not be responsible for any future regulatory changes that affect this specification.
- B. Building materials found to contain PCBs at a concentration at or above 50 parts per million (ppm) or presumed to contain PCBs are considered PCB bulk wastes (hazardous) by the United States Environmental Protection Agency (USEPA) and the New York State Department of Environmental Conservation (NYSDEC). Concentrations of PCBs in solids greater than 50 ppm must be handled and disposed of in accordance with all applicable state and federal regulations.
- C. The Contractor shall follow the procedures of this specification to ensure that any activities that disturb PCB-containing materials are conducted in a manner that will minimize any potential exposure to the environment, employees, and the general public.
- D. If conflicts occur between any federal, state, and/or or local regulations and this specification, the most stringent course of action shall apply.

1.03 SCOPE OF WORK

- A. This project includes the abatement and disposal of approximately 30 square feet of PCB containing exterior window caulk. Reference figures HS HM100, HS HM101, HS HM102, and HS HM 103 in the plan set for the locations of the PCB containing caulk to be abated. For the purposes of this specification, caulking applications shall include all sealants. As such, the Contractor shall be responsible for abating all caulking applications required to complete scheduled renovation activities.

- B. Where an existing substrate is scheduled to remain, the Contractor shall remove all visible caulk to a smooth, flat condition without causing damage to the existing substrate. After the removal and cleaning activities have been completed, an Architect-approved encapsulating agent or sealant shall be utilized to coat / cover the abated areas.
- C. The Contractor shall be responsible for providing all waste containers and labels. Post containerization, the Contractor shall be responsible for completing waste manifest, and coordinating the transport and disposal of all PCB abatement related wastes on this project. As such, these services, materials, and fees shall be included in the Contractor's scope of work.
- D. Upon completion of work shift, the Contractor shall coordinate the storage of any waste containers with the District and District Representatives.
- E. In the event that the Contractor selects a removal method that generates any additional waste materials (brick, block, window units/door units in their entirety) other than PCB-containing caulk applications, the Contractor assumes the responsibility for proper transportation and disposal of those components and all associated costs.
- F. Upon completion of all PCB abatement activities, the Contractor shall provide all abatement-related documentation to the Project Architect and Project Designer within ten (10) business days.

1.04 SUBMITTALS

- A. Pre-Abatement Submittals. The Contractor shall submit the following information to the Project Architect and Project Designer at least ten (10) business days prior to starting the work:
 - 1. Copies of the following workers certifications:
 - a. HAZMAT or HAZWOPER certificates for all personnel that shall handle PCB-containing materials.
 - b. Medical evaluations to show suitability to wear respiratory protection.
 - c. Fit test records to show respirator suitability.
 - 2. The Contractor's proposed plan for conducting the work including decontamination facility locations, procedures, etc.
 - 3. Certification of mechanical lift training for employees that will be removing PCB caulk at elevated levels.
 - 4. Safety Data Sheets (SDS) shall be submitted for all materials and products to be used on-site.
 - 5. A detailed plan for the collection, handling, and disposal of any wastewater to be generated on the project.
 - 6. Manufacturers' certifications for all equipment to be used on the project.
 - 7. Copy of the company's Hazard Communication Program, Respiratory Protection Plan, and Site Emergency Response Plan.
 - 8. Copy of notifications to the local fire and rescue that work will be conducted at the site.
 - 9. Copies of the emergency phone numbers that will be posted on the personal decontamination unit.

10. Proposed Supervisor on the project, including a list of other projects that the Supervisor has worked on of similar nature.
- B. Abatement-Related Submittals. During the course of abatement activities, the Contractor shall submit the following information to the Project Architect and Project Designer for review:
1. Personal Air Sample Results for PCB Exposure – The Contractor shall be responsible for the collection of personal air samples during the course of PCB abatement activities. The collection, analysis, and interpretation of the air samples are the sole responsibility of the Contractor. The Project Architect and Project Designer shall not be responsible for the interpretation of the laboratory results, only to verify that the Contractor has collected the samples.
 2. A daily list of the abatement personnel on-site.
 3. Copies of workers certifications, medical evaluations, and fit test forms. These documents shall only be valid one (1) year from the date that they were taken. Expired certifications, evaluations, and fit tests shall not be permitted. Workers with expired documentation will not be permitted to work on this project.
- C. Project Closeout Submittals. At the conclusion of PCB caulk abatement activities, the Contractor shall submit the following information to the Project Architect and Project Designer for review:
1. Copies of the Supervisor’s daily log book entries for the project, which must include a daily count of containerized waste, drums, or dumpsters generated during the course of abatement activities.
 2. Original waste manifests and other waste documentation related to the PCB abatement work.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Plastic Sheeting - To prevent dust migration, dust barriers, containments, and/or enclosures shall be constructed utilizing 6-mil fire-retardant polyethylene sheeting when necessary. These barriers shall be constructed to minimize dust migration into adjacent non-work areas when utilized.
- B. Framing - If framing is utilized for the construction of dust barriers/containments, all reinforcement framing/sheathing materials must be at least $\frac{3}{8}$ -inch thick. Minimum requirements for framing materials shall be comprised of 2"x4" stud framing in accordance with all applicable building and fire codes.
- C. Tapes / Adhesives - Commercially available tape and spray adhesives designed for such purposes are allowed to maintain the integrity of barriers, containments, and enclosures.

2.02 EQUIPMENT

- A. Protective Clothing - Coveralls, gloves, eye protection, ear protection, safety footwear, hard hats, and fall protection are required during all abatement related activities, as per all applicable OSHA regulations.

- B. Respiratory Protection - The Contractor shall provide workers with adequate respiratory protection based on the identified hazards. The level of respiratory protection shall be determined through personal exposure assessment air monitoring.
- C. Respirator Filters - The Contractor shall provide their workers with appropriate respirator filters for the respiratory protection the workers are utilizing as per OSHA 29 CFR Part 1910.134.

PART 3 - EXECUTION

3.01 PRE-ABATEMENT WORK

- A. The Contractor shall utilize decontamination procedures to comply with OSHA regulations. A separate decontamination area shall be utilized for equipment. The Contractor shall create this decontamination unit/area to capture all wastewater (including proper berms). The Contractor shall be responsible for the proper transportation and disposal of all wastewater generated during PCB abatement activities. At no time, shall this wastewater be permitted to be disposed of in the ground or sanitary sewer.
- B. After the decontamination unit is deemed satisfactory by the Environmental Consultant, the Contractor shall establish the regulated work area. This area shall comply with state and federal regulations, and shall include the following:
 - 1. Barrier tape, or preferably orange construction fencing, shall be utilized to prevent unauthorized personnel from accessing the regulated work area. This area shall be extended 25 feet (if possible) in a horizontal direction from the furthest point of abatement activities.
 - 2. Signage that complies with OSHA regulations shall be placed on the decontamination unit/area, any waste dumpsters, and at frequent intervals around the perimeter of the work area boundary.
- C. The Contractor shall provide their personnel with PPE to minimize employee exposure to PCBs. This PPE shall be provided to the Environmental Consultant, the District, District Representatives, regulatory inspectors, and/or any authorized visitors, upon demand.
- D. Critical barriers shall be installed, prior to the commencement of abatement activities. These barriers shall be constructed of two (2) layers of 6-mil polyethylene sheeting and shall be secured in place utilizing duct tape and spray glue (or an approved equivalent). These barriers shall remain in place until the work areas have met visual clearance criteria and the Environmental Consultant grants permission for these barriers to be removed. Any air intakes, doors, or other means of air intrusion into the building within 25 feet of removal activities shall also be covered with critical barriers.
- E. A drop cloth made of 6-mil polyethylene sheeting shall be utilized. This drop cloth shall be placed directly below the entire area being abated. The drop cloth should extend ten (10) feet laterally from the furthest point where abatement shall take place, should extend ten (10) feet horizontally from the edge of the building, and should extend two (2) feet up the wall where abatement is taking place. The drop cloth should be firmly secured to the ground utilizing appropriate measures. The drop cloth shall also be constructed / situated to allow wastewater to pool for proper recovery.

3.02 ABATEMENT WORK

- A. A six (6) mil polyethylene drop cloth shall be positioned directly under any abatement areas to capture any abated caulk or water being utilized. Accumulations of caulk and/or water on the drop cloth shall not be tolerated. Any caulking, debris, and/or waste shall be handled and disposed appropriately.
- B. During gross removal activities, the caulk shall be immediately placed into approved containers, labeled accordingly, and disposed of in accordance with applicable regulatory requirements.
- C. The Contractor shall sufficiently abate all visible caulking utilizing wet and manual methods. Dry removal shall not be permitted. Mechanical methods shall not be permitted. Upon completion of abatement activities, the Contractor shall clean the substrate in proximity to the areas where the caulk has been abated. This measure is required to clean any PCB oils or dusts that may be present on the substrate post abatement.
- D. Excessive amounts of water shall not be utilized, but the caulking should be adequately wet to prevent any dust release during removal operations.
- E. The Contractor shall be allowed to remove additional building components (i.e. the entire window system, as opposed to just the caulking around the window) related to the work; however, the Contractor assumes responsibility for the proper transport and disposal of any additional wastes and the associated fees.
- F. The Contractor accepts that visual inspections will be utilized to determine completeness of abatement. The Contractor understands that the Environmental Consultant is responsible for conducting the final visual inspections and they must complete abatement to the satisfaction of the Environmental Consultant.
- G. For interior removal activities, two (2) layers of polyethylene sheeting shall be placed on the entire floor where the abatement work is being performed. The sheeting shall extend a minimum of one (1) foot up the walls and be taped to the wall surface. The interior work area shall be contained and negative air pressure (utilizing negative air machines) shall be utilized, similar to an asbestos abatement regulated work area.

3.03 WASTE TRANSPORTATION & DISPOSAL ACTIVITIES

- A. All PCB waste generated during abatement activities shall be transported and disposed of by the Contractor in accordance with all federal, state, and local regulations.

3.04 ENVIRONMENTAL CONSULTANT RESPONSIBILITIES

- A. The District shall retain the services of a third party Environmental Consultant to observe the Contractor's work for compliance with applicable regulations and the project specifications.
- B. The Environmental Consultant will conduct final visual inspections to ensure that the PCB caulk has been satisfactorily removed.
- C. The Contractor understands that the Environmental Consultant has been retained by the District to oversee the PCB abatement work and that the District has authorized the Environmental Consultant to stop the Contractor's work if the Contractor is not following the contract documents or the applicable codes, rules, and regulations.

Work shall only be permitted to commence if allowed by the District and District Representatives after corrective actions have been made. The Contractor acknowledges that it is their responsibility to follow all applicable rules and regulations and failure to do so may result in lost time and/or dismissal from site at no cost to the District or District Representatives. The Contractor shall not be compensated for any lost time, labor, materials, etc., due to inappropriate actions or behaviors related to the PCB abatement work on this project.

END OF SECTION

**SECTION 028315
MISCELLANEOUS HAZARDOUS & SPECIAL WASTES**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Refer to C&S Engineers Inc. *Limited Hazardous Material Pre-Renovation Survey Reports, Highland Falls-Fort Montgomery Central School District, Fort Montgomery High School & Intermediate School*, for information regarding materials that have been identified as miscellaneous hazardous & special waste.

1.02 SUMMARY OF WORK

- A. The scope of work includes the handling, packaging, containerization, characterization, transportation, and disposal of all the miscellaneous hazardous / special wastes from the project site. In general, the miscellaneous hazardous / special wastes to be properly handled and disposed of on this project include, but are not necessarily limited to fluorescent light bulbs (mercury), fluorescent light ballasts (PCBs), and thermostats (mercury).
- B. Due to the potential presence of hazardous wastes and/or regulated materials, these waste materials may not be disposed of as construction and demolition (C&D) debris. The Contractor shall comply with all applicable state and federal (i.e., OSHA, NYSDEC, USEPA, etc.) regulations when characterizing, handling, packaging, containerizing, transporting, and disposing of these wastes.
- C. If any spills or releases of mercury, PCBs, petroleum, or any other hazardous or regulated material occurs, the Contractor shall notify the Owner's Representative immediately and take all necessary precautions and measures to contain and cleanup such spills or releases in accordance with all applicable regulations.
- D. The Contractor shall ensure that their workers are properly trained and protected during all operations.
- E. The Contractor is responsible for following all applicable federal, state, and local regulations. Failure to comply with regulations shall result in the Contractor having to pay for any legal fees, fines, cleanup costs, and/or other penalties associated with improper activities. If conflicts occur between any regulations and the project specifications, the Contractor is responsible for following the most stringent course of action.

1.03 SUBMITTALS

- A. The Contractor shall provide the following submittals prior to conducting any work activities at the project site:
 - 1. Proof of Training – In accordance with OSHA regulations, training must be provided to inform workers about the potential hazards associated with hazardous / special wastes prior to conducting operations at the project site. HAZMAT or HAZWOPER training certificates are recommended.
 - 2. Waste Container Information – Contractor shall provide documentation detailing the description of the waste containers that shall be utilized for all of the miscellaneous hazardous / special wastes during the course of this project.

1.04 OWNER'S REPRESENTATIVE

- A. The Owner's Representative will oversee the Contractor during the handling of the hazardous / special wastes. The Owner's Representative will be responsible for the following tasks:
 - 1. Keeping a daily project log of the Contractor's activities on-site.
 - 2. Providing oversight of the Contractor.
 - 3. Notifying the Owner if any damaged, leaking, or broken light ballasts, tubes, bulbs, batteries, or thermostats are present.
 - 4. Recording the daily hazardous / special waste count, as provided by the Contractor.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Contractor shall only utilize proper NYSDOT / USDOT shipping containers to package and containerize waste products for disposal purposes.
- B. Raw vermiculite insulation shall not be utilized to package miscellaneous hazardous / special wastes, unless the Contractor has sufficient documentation to verify that the vermiculite insulation is asbestos-free. The documentation must be provided directly from the manufacturer.

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall be responsible for the characterization, removal, packaging, containerization, transportation, and disposal of all miscellaneous hazardous and special wastes associated with the buildings scheduled for demolition.
- B. The Contractor shall provide all labor, materials, tools, equipment, and personal protective equipment (PPE) necessary to remove and dispose of all of the hazardous materials/special wastes from the project site.

3.02 CLOSE-OUT DOCUMENTATION

- A. The Contractor shall provide the Owner's Representative with quantities of all hazardous / special wastes removed on a daily basis. This shall include a final summary at the conclusion of the project.
- B. The Contractor shall provide the Owner / Owner's Representative with all pertinent waste documentation and manifests for the hazardous / special wastes removed and disposed of as part of this project. Original waste manifests and/or waste documentation shall be returned to the Owner within ten (10) days of the wastes leaving the project site.

END OF SECTION