

PROJECT MANUAL
FOR
GENERAL ENVIRONMENTAL REMEDIATIONS
IN VARIOUS
MIAMI-DADE COUNTY PUBLIC SCHOOLS

TERM CONTRACT
2021

G-ENV/TB-2021-GR/N-C-S
ITB-21-052-PM

BID PACKAGE NO. G-ENV/TB-2021-GR/N
BID PACKAGE NO. G-ENV/TB-2021-GR/C
BID PACKAGE NO. G-ENV/TB-2021-GR/S

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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MIAMI, FLORIDA 33167
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MIAMI-DADE COUNTY PUBLIC SCHOOLS
1450 NORTHEAST SECOND AVENUE
MIAMI, FLORIDA 33132

TECHNICAL SPECIFICATIONS
for
GENERAL ENVIRONMENTAL REMEDIATIONS

TERM CONTRACT
2021

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MIAMI-DADE COUNTY PUBLIC SCHOOLS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
12525 NW 28th AVENUE, SUITE 509
MIAMI, FLORIDA 33167

TECHNICAL SPECIFICATIONS FOR GENERAL ENVIRONMENTAL REMEDIATIONS TERM CONTRACT 2021

DOCUMENT - JOF COST ITEMIZATION

Unit Cost Extended Description

DIVISION 1 - GENERAL REQUIREMENTS

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01091	Definitions and Standards
01092	Codes, Regulations, and Standards
01301	Submittal Requirements
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01563	Decontamination Units/Tunnels
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01711	Project Decontamination/Asbestos
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DIVISION 13 - SPECIAL CONSTRUCTION

13281	Removal of Asbestos-Containing Materials
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DIVISION 15 – MECHANICAL

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APPENDIX A – JOB-RELATED FORMS

- 1 Emergency Phone Numbers
- 2 Certificate of Worker's Acknowledgment
- 3 Worker Information

- 4 Master Job Order Form (JOF) Draft
- 5 Notice to Commence (NTC) Draft
- 6 Request for Final Air Clearance
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- 9 Waste Disposal Manifest
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APPENDIX B - PROJECT DRAWINGS

Decontamination Units:

- A-1 5-Stage Decontamination Unit
- A-2 3-Stage Decontamination Unit
- A-3 2-Stage & 1-Stage Mini Decontamination Units
- A-4 Material Decontamination Unit
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Tunnel Construction:

- A-6 Full/Partial Tunnel - Wood
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Relocatable Building Containment:

- A-8 Containment Floor Plan
- A-9 Containment Section

The School Board of Miami-Dade County, Florida
GENERAL ENVIRONMENTAL REMEDIATIONS
TERM CONTRACT NO. G-ENV/TB-2021-GR/N-C-S

JOE COST EXTENDED DESCRIPTION

UNIT PRICES

The following Unit Prices, modified by the stated multipliers, shall constitute the basis for payment of work assigned during the term of this contract, in accordance with the conditions stated herein below. Bidders are to submit two multipliers which will be applied as follows: Prime Multiplier will apply to all unit prices when the contractor is performing work in his/her assigned area. The Alternate Multiplier will apply to all unit prices in when the contractor is acting as an alternate contractor. The Board will reimburse contractors' direct cost for DERM notification fees (when required) with proof of payment to DERM. No multipliers shall be applied to said direct cost.

BASE BID UNIT PRICES

The Base Bid Unit Prices, for the removal and disposal of asbestos containing materials and mold contaminated materials, as well as other environmental contaminants, shall include all labor, materials, and equipment necessary for the complete execution of the work, except as specifically indicated otherwise. The removal activities include, but are not necessarily limited to, the following:

➤ **GENERAL**

1. ISOLATION OF THE WORK AREA - INCLUDING INSTALLATION AND REMOVAL OF ALL BARRIERS (MULTIPLE LAYERS), AND SEALS FOR REGULATED AREAS - MAJOR OR MINOR.
2. POSTING OF ALL WARNING SIGNS AND INSTALLATION OF BARRICADES.
3. NEGATIVE PRESSURE DIFFERENTIAL EQUIPMENT & MONITORS.

➤ **PERSONNEL PROTECTION**

1. ALL PROTECTIVE EQUIPMENT AND PROCEDURES.
2. STANDARD AND POWERED AIR-PURIFYING RESPIRATORS.
3. TYPE "C" AIR RESPIRATORS AND SUPPLIED AIR SYSTEMS.

➤ **REMOVAL OF ACM/ OTHER CONTAMINANTS PER SPECIFICATIONS, COMPLETE**

➤ **CLEANING BEFORE, DURING, AND AFTER ABATEMENT / OTHER ENVIRONMENTAL REMEDIATION**

1. ALL REQUIRED CLEANING OF ISOLATED WORK AREAS.
2. RE-CLEANING FOR FAILED CLEARANCE (ASBESTOS)
3. FINAL CLEANING, REMOVAL OF POLY SHEETING AND HEPA-VACUUMING.
4. REMOVAL OF DECONTAMINATION STATION(S) AND RESTORATION OF EXISTING PREMISES TO ORIGINAL CONDITION.

➤ **ENCAPSULATION / SEALING / SANITIZING - PER SPECIFICATIONS, COMPLETE**

1. ASBESTOS ABATEMENT & CLEANUP - LOCK DOWN ENCAPSULANT.
2. MOLD REMEDIATION & CLEANUP - SANITIZER/ANTI-MICROBIAL PAINT.
3. LEAD BASE PAINT ENCAPSULANT/SEALER.
4. HVAC SYSTEM OR COMPONENTS - SANTIZER.
5. IAQ BUILDING - SANTIZER.

➤ **DISPOSAL OF ACM CLASS 9 NA2212 / OTHER ENVIRONMENTAL WASTE**

1. BAGGING OR WRAPPING OF ACM / OTHER HAZARDOUS CONTAMINANTS PER SPECIFICATIONS.
2. HANDLING OF DISPOSAL BAGS, WRAPPED WASTE AND DRUMS (WHEN REQUIRED) FROM WORK AREA OR MDCPS FACILITY TO TRANSPORTER FOR DISPOSAL.
3. DISPOSAL OF MOLDY WASTE AS CONSTRUCTION DEBRIS, AND OR DISPOSAL OF WILDLIFE WASTE OR OTHER ENVIRONMENTAL WASTE AS REQUIRED.

➤ **TRUCK/DUMPSTER/TRANSPORTATION OF ACM / OTHER ENVIRONMENTAL WASTE**

1. All TRANSPORTATION TO LANDFILL OR CONTRACTOR'S OWN ASBESTOS DUMPSTER OFF SITE.
2. All DISPOSAL COSTS (FRIABLE or NON-FRIABLE ASBESTOS) (INCLUDING COST OF DUMPSTER), (DELIVERY, PICKUP, OR RE-LOCATION COST).
3. PROVIDE ACM DISPOSAL SERVICE, OWNER GENERATED WASTE - AS REQUIRED.

*ALL OTHER LABOR, PROCEDURES, MATERIALS, TOOLS, AND EQUIPMENT, IN ACCORDANCE WITH CONTRACT DOCUMENTS AND AS REQUIRED TO COMPLETE THE WORK, SHALL BE INCLUDED IN THE UNIT PRICES FOR REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING AND MOLD-CONTAMINATED MATERIALS AND OTHER ENVIRONMENTAL CONTAMINANTS. IN ADDITION, THE CONTRACTOR SHALL MAKE ANY REPAIRS TO EXISTING SURFACES DAMAGED AS A RESULT OF ABATEMENT OPERATIONS, RESTORING EXISTING MATERIALS TO ORIGINAL CONDITIONS.

ADDITIONAL COST UNIT PRICES The additional unit prices listed below are for specific items of work to be performed in addition to, or in excess of, the scope of work of the Base Bid Unit Prices. These items are exclusive of removal or remediation activities only to the extent of their definition and of Base Bid itemized exceptions below and shall in no way relieve the contractor of his obligations under the Base Bid Unit Prices. These items apply to all asbestos, mold, and other environmental work.

Additional Cost Unit Prices, which are specific exclusions from the scope of the Base Bid Unit Prices shall be as follows:

1. Initial Mobilization w/first decontamination unit, including electrical panel.
2. Additional decontamination units, including electrical panel (in excess of Initial Mobilization to site).
3. Re-mobilization with a phase interval (hiatus) in excess of 2 weeks for Asbestos projects, and 1 week for Mold/IAQ/CDC/Bio projects.
4. Emergency Response surcharge (Mobilization to site within 24 hours or 48 hours).
5. Work Difficulty Multiplier for work Identified outside the normal scope of work
6. Additional equipment and or material cost Not in Contract (NIC).
7. Additional equipment cost for Special Projects in excess of the Term Bid Unit Price.
8. Additional Barrier Protection – Soft or Hard.
9. Exceptional Labor Cost: The hourly labor rates will be used to compensate the contractor for additional work (removal and disposal), in excess of the Base Bid Unit Price labor component, when working with the following:
 - a. Asbestos Containing Building Material.
 - b. Lead Base Paint (LBP)
 - c. Mold/IAQ
 - d. General Non-Asbestos Containing Building Material.
 - e. IAQ Building (nuisance dust) work (fire-extinguisher, pigeon, bat guano, HVAC)
 - f. IAQ Building (wildlife miscellaneous)
 - g. Center for Disease Control - infection prevention/control recommendations.

A. UNIT PRICES/MOBILIIZATION AND MISCELLANOUS COST

1. INITIAL MOBILIZATION

* All Decons, Decontamination areas, Initial or Re-mobilization to the site shall include Warning Signs and Barricade Tape to demarcate and control access to the Regulated Work Area(s) as required by OSHA 29 CFR-1926-1101.

Item No.	Description of the Item	Price Per Unit
A1a.	Initial Mobilization – Including Five-Stage Decon (shower & loadout), GFCI electric panel, temporary power hookup and removal and	\$1700.00 Per Project

plug lockout device if required. (includes all required components to install and remove temporary power hookup, includes extension power cords).

A1b.	Initial Mobilization – Including Three-Stage Decon (shower & loadout), GFCI electric panel, temporary power hookup and removal and plug lockout device, if required. (includes all required components to install and remove temporary power hookup, includes extension power cords).	\$1500.00 Per Project
A1c.	Initial Mobilization – Including Three-Stage Decon (dry & loadout), GFCI electric panel, temporary power hookup and removal and plug lockout device, if required. (includes all required components to install and remove temporary power hookup, includes extension power cords).	\$1300.00 Per Project
A1d.	Initial Mobilization – Including 2 Stage Mini Decon (wood), GFCI temporary power hookup & removal and plug lockout device, if required or GFI protected receptacles. (includes all required components to install and remove temporary power hookup, includes extension power cords).	\$1000.00 Per Project
A1e.	Initial Mobilization – Including 2 Stage Mini Decon (poly), GFCI temporary power hookup & removal and plug lockout device, if required or GFI protected receptacles. (includes all required components to install and remove temporary power hookup, includes extension power cords).	\$900.00 Per Project
A1f.	Initial Mobilization – Including 1 Stage Mini Decon (poly or wood), GFCI temporary power hookup & removal and plug lockout device, if required or GFI protected receptacles. (includes all required components to install and remove temporary power hookup, includes extension power cords).	\$700.00 Per Project
A1g.	Initial Mobilization – (No Decon), including poly door flaps and wash station @ room entrance, GFCI temporary power hookup & removal and plug lockout device, if required or GFI protected receptacles. (includes all required components to install and remove temporary power hookup, 6' x 6' floor poly decontamination station, and 5 gallon bucket for decontamination, includes extension power cords).	\$500.00 Per Project

2. ADDITIONAL DECONTAMINATION UNITS IN EXCESS OF THE INITIAL MOBILIZATION TO SITE

*All Decons, Decontamination areas, Initial or Re-mobilization to the site shall include Warning Signs and Barricade Tape to demarcate and control access to the Regulated Work Area(s) as required by OSHA 29 CFR-1926-1101.

Item No.	Description of the Item	Price Per Unit
A2a.	Additional Five-Stage Decon (shower & loadout), GFCI electric panel, temporary power hookup and removal and plug lockout device if required. (includes all required components to install and remove temporary power hookup, includes extension power cords).	\$750.00 Per Decon
A2b.	Additional Three-Stage Decon (shower & loadout), GFCI electric panel, temporary power hookup and removal and plug lockout device, if required. (includes all required components to install and remove temporary power hookup, includes extension power cords).	\$550.00 Per Decon
A2c.	Additional Three-Stage Decon (Dry & loadout), GFCI electric panel, temporary power hookup and removal and plug lockout device, if required. (includes all required components to install and remove temporary power hookup, includes extension power cords).	\$450.00 Per Decon
A2d.	Additional Two Stage Mini Decon (wood), GFCI temporary power hookup & removal and plug lockout device, if required or GFI protected receptacles (includes all required components to install and remove temporary power hookup, includes extension power cords).	\$300.00 Per Decon

A2e.	Additional Two Stage Mini Decon (poly or Pop-up), GFCI temporary power hookup & removal and plug lockout device, if required or GFI protected receptacles. (includes all required components to install and remove temporary power hookup, includes extension power cords).	\$200.00 Per Decon
A2f.	Additional One Stage Mini Decon (poly or Pop-up or wood), GFCI temporary power hookup & removal and plug lockout device, if required or GFI protected receptacles. (includes all required components to install and remove temporary power hookup, includes extension power cords).	\$150.00 Per Decon
A2g.	Additional Decontamination Station, including poly door flaps @ room entrance GFCI temporary power hookup & removal and plug lockout device, if required or GFI protected receptacles. (includes all required components to install and remove temporary power hookup) 6' x 6' floor poly decontamination station, and 5 gallon bucket for decontamination, includes extension power cords)	\$50.00 per station

3. **RE-MOBILIZATION** - Partial Re-mobilization with a phase interval listed below

Item No.	Description of the Item	Price Per Unit
A3a.	Partial remobilization after a phase interval (Excess of 2 weeks) Asbestos/Lead	\$350.00 Ea. Partial Re-mob
A3b.	Partial remobilization after a phase interval (Excess of 1 week) Mold/IAQ/CDC/Bio	\$250.00 Ea. Partial Re-mob

4. **EMERGENCY RESPONSE (Mobilization to site within 24 hours or 48 hours)**

Item No.	Description of the Item	Price Per Unit
A4a.	Emergency response surcharge (Mobilization to site within 24 hours)	\$500.00 Per EA
A4b.	Emergency response surcharge (Mobilization to site within 48 hours)	\$250.00 Per EA

5. **WORK DIFFICULTY MULTIPLIER**

Item No.	Description of the Item	Price Per Unit
A5a.	Work Difficulty Multiplier - for work Identified outside the normal scope of work Does not include contractors Multiplier. (applied to removal unit cost per work area only)	1.30 Multiplier

6. **ADDITIONAL EQUIPMENT AND OR MATERIAL COST NOT IN CONTRACT (NIC) - "RECEIPTS REQUIRED"**

Item No.	Description of the Item	Price Per Unit
A6a.	Miscellaneous NIC Equipment < \$10,000	1.15 Multiplier
A6b.	Miscellaneous NIC Equipment > \$10,000	1.10 Multiplier

7. **ADDITIONAL EQUIPMENT COST FOR SPECIAL PROJECTS IN EXCESS OF THE TERM BID UNIT PRICE**

Item No.	Description of the Item	Price Per Unit
A7a.	Additional temporary power GFCI panel installation temporary power hookup and removal and plug lockout device, if required. (Includes all required components to install and remove temporary power hookup) (Includes Extension Power Cords)	\$540.00 Ea.

A7b.	Generator (6500 watts) Receipts for fuel required	\$86.00 Per Day
A7c.	Generator (6500 watts) Receipts for fuel required	\$344.00 Per Week
A7d.	Generator (6500 watts) Receipts for fuel required	\$1032.00 Per Month
A7e.	Pressure Washer (3500 - 4400 PSI Min) Receipts for fuel required	\$93.00 Per Day
A7f.	Pressure Washer (4400 PSI Min) Receipts for fuel required	\$372.00 Per Week
A7g.	Pressure Washer (4400 PSI Min) Receipts for fuel required	\$930.00 Per Month
A7h.	Steam Carpet Extractor & Upholstery Cleaner	\$35.00 Per Day
A7i.	Steam Carpet Extractor & Upholstery Cleaner	\$140.00 Per Week
A7j.	Steam Carpet Extractor & Upholstery Cleaner	\$420.00 Per Month
A7k.	Scaffold 15' High 5" x 7'	\$100.00 Per Day
A7l.	Scaffold 15' High 5" x 7'	\$200.00 Per Week
A7m.	Scaffold 15' High 5" x 7'	\$500.00 Per Month
A7n.	Equipment for Bio-Hazard Cleaning - Hydroxide Generator	\$175.00 Per Day

8. ADDITIONAL BARRIERR PROTECTION - SOFT OR HARD IN EXCESS OF THE TERM BID UNIT PRICES

Item No.	Description of the Item	Price Per Unit
A8a.	Soft Barrier 6mil Poly - Install and remove Poly (20' x 100' roll) (In excess of Base Bid Containment Barriers) (For all applications, when authorized by D.E.M)	\$80.00 Per Roll
A8b.	Soft Barrier - Install and remove Poly barrier on wood stud framing (4' o.c. max.) (In excess of Base Bid Containment Barriers) (For interior use only, when authorized by D.E.M)	\$1.30 Per SF
A8c.	Curtain Barrier (No Wood Framing) - Install and remove only curtain, suspended from ceiling or wire supports. (In excess of Base Bid Containment Barriers) (For interior use only, when authorized by D.E.M)	\$1.00 Per SF
A8d.	Reinforced 6 mil poly - Install and remove Soft or Curtain barrier as required. (20' x 100' roll) (In excess of Base Bid Containment Barriers)	\$124.00 Per Roll
A8e.	Hard Barrier - Install and remove Plywood min 4' x 8' x 5/8" & Poly barrier on 2' x 4' wood stud framing (4' o.c. max.) (Used as primary barrier wall) (In excess of Base Bid Containment Barriers)	\$5.00 Per SF

A8f.	Soft Barrier Full Tunnel Two sides & poly roof. Install and remove poly tunnel cross- section* to connect multiple work areas. Tunnel must be free standing with a height between 8'-0" and 10'-0" with a minimum width of 4'-0", unless otherwise specified. *Cross-section shall consist of a 6 mil poly sheeting on sides and roof of 2 x 4 wood framing @ 4' o.c., to form an air-tight barrier, as required by Section 01526. (See detail, these Specifications) (For interior use only, when authorized by DEM)	\$21.00 Per LF
A8g.	Soft Barrier Partial Tunnel One side & poly roof. Install and remove poly tunnel cross- section* to connect multiple work areas. Tunnel must be free standing with a height between 8'-0" and 10'-0" with a minimum width of 4'-0", unless otherwise specified. *Cross-section shall consist of a 6 mil poly sheeting on sides and roof of 2 x 4 wood framing @ 4' o.c., to form an air-tight barrier, as required by Section 01526. (See detail, these Specifications) (For interior use only, when authorized by DEM)	\$13.00 Per LF
A8h.	Hard Barrier Full Tunnel Two Wood Sides & Wood Roof Install and remove Hard Barrier with two wood sides, wood roof and poly barriers. Plywood 4' x 8' x 5/8" on 2' x 4' wood stud framing (4' o.c. max.) required to connect multiple work areas. Tunnel must be free standing with a height between 8'-0" and 10'-0" with a minimum width of 4'-0", unless otherwise specified. (Used as primary barrier wall), (In excess of Base Bid Containment Barriers) As required by Section 01526 Regulated Work Areas (See Appendix B - Project Drawings)	\$39.00 Per LF
A8i.	Tunnel Partial Two Sides Wood & Poly Roof. Install and remove Hard Barrier with poly roof Plywood 4' x 8' x 5/8" on 2' x 4' wood stud framing (4' o.c. max.)	\$33.00 Per LF
A8j.	Tunnel Partial One Side Wood & Wood Roof. Install and remove Hard Barrier with wood roof Plywood 4' x 8' x 5/8" on 2' x 4' wood stud framing (4' o.c. max.)	\$25.00 Per LF
A8k.	Tunnel Partial One Side & Poly Roof. Install and remove Hard Barrier with poly roof Plywood 4' x 8' x 5/8" on 2' x 4' wood stud framing (4' o.c. max.)	\$17.00 Per LF
A8l.	Relocatable Building Enclosure (Hard Barrier Floors, Walls & Ceilings) Install and remove Hard Barrier with two wood sides, wood roof and poly barriers, Plywood floor with Riser for building skirting. Plywood 4' x 8' x 5/8" on 2' x 4' wood stud framing (4' o.c. max.) Required to enclose exterior of relocatable building, to abate ACBM, wildlife, or remediate mold-contaminated wall materials. Enclosure must be freestanding, with a minimum wall height of 8'-0" and a height of 13'-0" at the relocatable building wall. Enclosure shall have a minimum interior width of 6'-0" with plywood floor 5/8". Roof shall consist of alternating plywood panels & poly barriers (Used as primary barrier wall), (In excess of Base Bid Containment Barriers). As required by Section 01526 Regulated Work Areas (See Appendix B - Project Drawings)	\$50.00 Per LF
A8m.	Inspection Window - Construction and installation of 2' x 2' Inspection Window in Hard/Soft Barrier to allow observation of the work area from outside of containment. (In excess of Base Bid Containment Barriers)	\$25.00 Per Window

9. EXCEPTIONAL LABOR COST: EXCESS OF THE TERM BID UNIT PRICES

The following labor rates shall be used to compensate the contractor for costs not adequately compensated under the standard unit price structure of the contract as a result of unusual job conditions or unforeseen situations affecting the work complexity and/or labor productivity. The hourly rate unit prices shall include all labor categories - regular and overtime hours. Procedures, the materials, tools, equipment, and disposal costs required to complete the type of Environmental work should be followed. These hourly rate unit prices will be applied to an anticipated scope of work for each job situation, to be prepared by the Department of Environmental Management (DEM), in order to establish a Lump Sum price for the work. D.E.M. and the

contractor shall agree on said Lump Sum price prior to start of the work. When additional work is required beyond the initial scope of work, the labor unit prices will be applied to the actual man-hours incurred by the contractor, to be verified by the Environmental Remediation Project Inspector (ERPI) and Contractor, daily, on the Hourly Verification Form. M-DCPS may further require submittal of payroll, time sheets, and work logs. The number of workers required to perform the **hourly** work will be approved by the MDCPS Design Coordinator and verified at the jobsite.

Item No.	Description of the Item	Price Per Unit
A9a.	Asbestos Hourly work involving the cleaning, removal and disposal of Asbestos Containing Building Materials.	\$60.00 Per Hour
A9b.	Lead Base Paint (LBP) Hourly work involving paint stabilization or work involving the cleaning, removal and disposal of Lead Base Paint waste or collected pressure washing water.	\$60.00 Per Hour
A9c.	Mold IAQ Hourly work involving the cleaning, removal, decontamination lockdown and disposal of mold generated construction debris.	\$44.00 Per Hour
A9d.	General Hourly work Non-ACM, LBP or IAQ Environmental work (General), required to facilitate the specific Environmental project.	\$39.00 Per Hour
A9e.	IAQ Building Contamination (nuisance dust) Additional Work: Hourly work necessary to allow the removal of building contaminants, (fire-extinguisher) , and HVAC system minor work under unusual conditions, or not compensated by unit prices. All labor categories, regular or overtime hours.	\$33.00 Per Hour
A9f.	IAQ Building Contamination Wildlife (pigeon, bat guano, HVAC, Spoiled/Rotten Food) Additional Work: Hourly work involving removal, ~~or~~ decontamination- deodorize of wildlife when required, waste droppings or fungus under unusual conditions, or not compensated by unit prices. All labor categories, regular and overtime hours.	\$50.00 Per Hour
A9g.	Center for Disease Control - Infection Prevention/Control Recommendations. Additional Work: Hourly work involving removal or decontamination of surfaces – furniture, fixtures or equipment under unusual conditions, or not compensated by unit prices. All labor categories, regular and overtime hours.	\$50.00 Per Hour

B. ASBESTOS RESPONSE ACTIONS

1. ASBESTOS PREPARATION AND CLEANING ACTIVITIES

Note: Cleaning of all furniture, furnishings, equipment, ducts, pipes, shelves, contact surfaces, etc. above the floor plane shall be included in the unit price, except as otherwise specifically indicated.

Item No.	Description of the Item	Price Per Unit
B1a.	Asbestos Fiber Cleanup >160'/260 LF (All Surfaces) (Work Areas <u>less than</u> <1000 SF) HEPA vacuum and wet-wipe all surfaces/ledges. (Includes <u>all horizontal and vertical surfaces</u> , such as light fixtures (all sizes), floors, walls, furniture, shelves, beams A/C ducts, pipes, ledges, and other items).	\$2.25 Per SF of Floor Plane
B1b.	Asbestos Fiber Cleanup >160'/260 LF (All Surfaces) (Work Areas <u>greater than</u> >1000 SF) HEPA vacuum and wet-wipe all surfaces/ledges. (Includes <u>all horizontal and vertical surfaces</u> , such as light fixtures (all sizes), floors, walls, furniture, shelves, beams A/C ducts, pipes, ledges, and other items).	\$1.80 Per SF of Floor Plane

B1c.	Asbestos Fiber Cleanup Minor Disturbance (Horizontal Surfaces) HEPA Vacuum and wet-wipe all horizontal surfaces/ledges. (Includes all horizontal surfaces, such as light fixtures (all sizes), floors, tops of furniture, shelves, beams, A/C ducts, pipes, ledges and other items.	\$1.40 Per SF Floor Plane
B1d.	Clean lighting fixtures - Decontaminate light fixtures(2-4 bulb fluoresce.) includes interior & exterior components (including light covers, per fixture, ballast covers, bulbs, and louvers) and other items in place.	\$20.00 Per Fixture
B1e.	Clean and HEPA vacuum fixed seating (auditorium type) in place (entire seat assembly, all surfaces)	\$15.00 Per Seat
B1f.	A/C Supply and Return Vents or Diffusers (All Sizes) Remove, Clean, & Reinstall (includes cleaning 12" into duct interior & complete vent unit). Includes 6 mil critical seals HVAC as required.	\$25.00 Per Vent
B1g.	A/C Supply and Return Vents or Diffusers (All Sizes) Clean Vent in Place Includes 6 mil critical seals HVAC as required.	\$20.00 Per Vent

C. REMOVAL OF ASBESTOS CONTAINING MATERIALS (ACM)

1. REMOVAL OF ACM PIPE INSULATION GLOVEBAG ENCLOSURE

Item No.	Description of the Item	Price Per Unit
C1a.	Remove insulation from boiler stack/flue	\$19.50 Per LF
C1b.	Remove insulation < 6" from straight runs of pipe.	32.00 Per LF
C1c.	Remove insulation < 6" from fittings/elbows	\$32.00 Per Fitting
C1d.	Remove insulation > 6" from straight runs of pipe.	\$32.00 Per LF
C1e.	Remove insulation > 6" from fittings/elbows	\$40.00 Per Fitting
C1f.	Remove insulation < 6" from strainers, pumps, and small valves	\$32.50 Per Fitting
C1g.	Remove insulation > 6" from strainers, pumps, and large valves	\$48.00 Per Fitting
C1h.	Remove metal jacket on pipe and/or fittings/elbows (any size)	\$2.50 Per LF

2. REMOVAL OF ACM BOILER/GASKETS/ AND PIPE INSULATION UNDER CONTAINMENT

Item No.	Description of the Item	Price Per Unit
C2a.	Remove Pipe insulation with mastic < 6" in outside diameter from straight runs of pipe. Exterior (ambient). Includes: poly wrap & candy strip if required	\$1.95 Per LF
C2b.	Remove Pipe insulation with Mastic < 6" in outside diameter from fittings & Elbows Exterior (ambient). Includes: poly wrap & candy strip if required	\$1.95 Per Fitting
C2c.	Remove Pipe insulation with Mastic > 6" in outside diameter from straight runs of pipe. Elbows Exterior (ambient). Includes: poly wrap & candy strip if required	\$3.90 Per LF

C2d.	Remove Pipe insulation with Mastic > 6" in outside diameter from fittings & Elbows Exterior (ambient). Includes: poly wrap & candy strip if required	\$3.90 Per Fitting
C2e.	Remove insulation from boiler stacks cradles and flue	\$10.00 Per LF
C2f.	Remove Pipe insulation < 6" in outside diameter from straight runs of pipe.	\$6.50 Per LF
C2g.	Remove Pipe insulation < 6" in outside diameter from fittings/elbows	\$10.00 Per Fitting
C2h.	Remove Pipe insulation > 6" in outside diameter from straight runs of pipe.	\$12.00 Per LF
C2i.	Remove Pipe insulation > 6" in outside diameter from fittings/elbows	\$15.00 Per Fitting
C2j.	Remove insulation < 6" in outside diameter from strainers, pumps valves.	\$24.00 Per LF
C2k.	Remove insulation > 6" in outside diameter from strainers, pumps and large valves	\$32.00 Per Fitting
C2l.	Remove metal jacket on any size pipe and /or fittings	\$2.50 Per LF
C2m.	Remove Boiler Gasket Materials from Boiler < 6" or less in outside diameter	\$15.00 Ea.
C2n.	Remove Boiler Gasket Materials from Boiler > 6" in outside diameter	\$20.00 Ea.
C2o.	Remove and dispose Boiler Doors with Gasket Materials from Boiler < 24" or less square in outside door diameter.	\$50.00 Ea.
C2p.	Remove and dispose Boiler Doors with Gasket Materials from Boiler > 24" or more square in outside door diameter.	\$100.00 Ea.

3. REMOVAL OF ACM SURFACING MATERIALS UNDER CONTAINMENT

Item No.	Description of the Item	Price Per Unit
C3a.	Spray-On Applied surfacing materials, scrape and remove asbestos-containing overspray and residues from ceilings, walls, beams, etc.(over any substrate). (finish only, wall remaining)	\$6.50 Per SF
C3b.	Spray-On Applied surfacing materials, remove asbestos-containing, overspray, residues, and ceiling plaster lath on suspension system, includes scraping any overspray on walls, beams, and adjacent surfaces. (remove entire assembly)	\$8.00 Per SF
C3c.	Plaster or Stucco materials, remove asbestos-containing on concrete or block. (Finish only, wall remaining) < 160'/260 LF (Interior or exterior - all locations)	\$35.00 Per SF
C3d.	Plaster or Stucco materials, remove asbestos-containing on concrete or block. (Finish only, wall remaining) >160'/260 LF (Interior or exterior - all locations)	\$25.00 Per SF

C3e.	Plaster or Stucco over metal lath or gypsum base on wood or metal framing (wall and ceiling). Remove asbestos containing materials, (Remove entire assembly)	\$10.50 Per SF
C3f.	Plaster or Stucco over metal lath or gypsum base on wood or metal framing Remove asbestos containing materials, (Finish only, wall remaining)	\$7.50 Per SF
C3g.	Demolition of 4" block walls, including asbestos containing finish. (Includes Insulation barriers)	\$12.00 Per SF
C3h.	Demolition of 8" block walls, including asbestos containing finish. (Includes Insulation barriers)	\$13.00 Per SF
C3i.	Relocatable Unit - Remove asbestos containing finish, Plaster or Stucco Finish on over metal lath or gypsum base. Includes remove of: Bottom side of door overhangs, rotten wood, moisture barriers (paper or plastic), screws and fiberglass insulation. (entire assembly down to framing)	\$6.50 Per SF
C3j.	Plaster or Stucco finish Glovebag removal for individual opening (Includes Insulation barriers)	\$50.00 Per SF

4. REMOVAL OF ACM TRANSITE MATERIALS UNDER CONTAINMENT

Item No.	Description of the Item	Price Per Unit
C4a.	Transite Panels (all sizes) - (under containment)	\$4.25 Per SF
C4b.	Transite Panels (all sizes) - (ambient)	\$3.75 Per SF
C4c.	Transite Panels (all sizes) with <u>caulking removal</u> in Window walls or kick Panels - (under containment)	\$4.50 Per SF
C4d.	Transite Panels (all sizes) with <u>caulking removal</u> in Window walls or kick Panels - (ambient)	\$4.00 Per SF
C4e.	Transite Panels (all sizes) <u>Caulking and Framing removal</u> in Window walls or kick Panels includes all Caulking & Framing removal (entire frame assembly) - (under containment)	\$5.50 Per SF
C4f.	Transite Panels (all sizes) <u>Caulking and Framing removal</u> in Window walls or kick Panels includes all Caulking & Framing removal (entire frame assembly) - (ambient)	\$5.00 Per SF
C4g.	Transite Roof Deck Only - removal and cleaning of related items.	\$6.00 Per SF
C4h.	Transite Roof Deck & Roofing System - removal down to substrate all layers (including existing built-up per roofing system, light weight concrete or insulation and wire mesh. (remove and dispose of as asbestos containing materials.).	\$15.00 Per SF
C4i.	Transite Flue (all diameters) includes poly wrap & candy strip, and removal of roof cap vent or drain components.	\$15.00 Per LF

5. REMOVAL OF ACM FLOORING MATERIALS (UNDER CONTAINMENT)

Item No.	Description of the Item	Price Per Unit
C5a.	Remove Resilient Floor Tile & Mastic (any substrate) <u>< 160 SF</u> Small Scale short duration (ambient)	\$6.50 Per SF

C5b.	Remove Resilient Floor Tile & Mastic from <u>Concrete Substrate</u> : Includes ACM & non-ACM floor tile, mastic, carpet overlay, additional layers of tile and related baseboard or moldings.	\$4.00 Per SF
C5c.	Remove Resilient Floor Tile & Mastic from <u>Wood Substrate</u> : Includes ACM & non-ACM floor tile, mastic, carpet overlay, Felt paper, additional layers of tile and related baseboard or moldings.	\$5.00 Per SF
C5d.	Remove Resilient Floor Tile & Mastic from <u>Plywood sheets (4'x8')</u> : Planks or Tongue & Groove slates Includes ACM & non-ACM floor tile, mastic, carpet overlay, Felt paper, additional layers of tile and related baseboard or moldings. (multiple layers of plywood and floor tile, over any substrate) and related baseboard or moldings.	\$6.00 Per SF
C5e.	Carpet Removal with ACM mastic <u>Under carpet</u> : Wood molding and baseboard moldings (all substrates) (Including the carpet overlay), and miscellaneous resilient floor tile residual over any substrate.	\$2.60 Per SF
C5f.	Removal of <u>Exposed ACM Mastic</u> : (all substrates) includes related baseboard or moldings.	\$1.30 Per SF
C5g.	Additional surcharge for removal of non-asbestos <u>Yellow/green glue over ACM mastic</u> (floors).	\$2.00 Per SF
C5h.	Removal of ACM sheet flooring (vinyl and/or linoleum including backing felt), mastic, wood molding, and base (all substrates) including any and all layers of resilient flooring.	\$5.00 Per SF
C5i.	Removal of <u>Wood flooring planks tongue & groove</u> : (all substrates) includes related baseboard or moldings.	\$3.00 Per SF

6. REMOVAL OF ACM CEILING MATERIALS (UNDER CONTAINMENT)

Item No.	Description of the Item	Price Per Unit
C6a.	Remove Ceiling Tile (all sizes & cleaning of grid - includes HEPA Vac & Wet Wiping) <u>≤ 160 SF</u> Small Scale short duration (ambient).	\$4.50 Per SF
C6b.	Remove Ceiling Tile (all sizes & cleaning of grid and related grid items, Lights, speakers, vents, grills etc. includes HEPA Vac & Wet Wiping) <u>"Grid remains in place"</u>	\$3.00 Per SF
C6c.	Remove Ceiling Tile (includes grid removal all sizes & cleaning related items, includes HEPA Vac & Wet Wiping) <u>"Grid is removed"</u>	\$2.50 Per SF
C6d.	Remove Ceiling Tile (all sizes - <u>glued-on</u> /mastic and cleaning of substrate, includes HEPA Vac & Wet Wiping)	\$4.00 Per SF
C6e.	Remove Ceiling Tile Z-Spline (all sizes & and cleaning of substrate) includes HEPA Vac & Wet Wiping)	\$2.50 Per SF
C6f.	Transite Ceiling Tile (<u>all sizes & cleaning of grid</u>) <u>< 160 SF</u> <u>(ambient)</u>	\$4.75 Per SF
C6g.	Transite Ceiling Tile (all sizes), <u>grid remains</u> - includes all required cleaning of ceiling tile grid and fixtures. (under containment)	\$3.25 Per SF
C6h.	Transite Ceiling Tile (all sizes), <u>grid removal</u> and cleaning of related items. (ambient)	\$2.75 Per SF

7. OTHER ASBESTOS CONTAINING BUILDING MATERIALS (ACBM) REMOVALS

Item No.	Description of the Item	Price Per Unit
C7a.	Remove Light Fixture including Pads and Wiring (all sizes)	\$30.00 Per Ea.
C7b.	Remove Electric Wire Insulation (all wires per linear foot of conduit) (all sizes)	\$4.00 Per LF.
C7c.	Remove Lab Table /Drying Racks/Lab Sink Wall Rack Panel (all sizes)	\$6.50 Per SF
C7d.	Remove Mirrors/Chalkboards or Adhesive & Mastics (all sizes) Includes cleaning of substrate	\$2.00 Per SF
C7e.	Caulking/Sealant only, all applications,	\$5.00 Per LF
C7f.	Remove asbestos containing drywall on furring or framing systems (includes drywall, mud, and cavity insulation)	\$4.00 Per SF
C7g.	Remove Fire Door (1), (door only - all sizes)	\$100.00 Per Ea.
C7h.	Remove Fire Doors (>1), (door only - all sizes)	\$75.00 Per Ea.
C7i.	Remove Vault Door or Safe (door only - all sizes)	\$500.00 Per Ea.
C7j.	Remove Duct Connector (Vibration Isolator) Expansion Fabrics AHU's. (Includes all components & pin drive assemblies) (per LF of duct perimeter)	\$9.00 Per LF
C7K.	Remove HVAC Duct Insulation or Mastics, (Duct remains) (All Sizes) (all mastic colors) (Complete removal of Insulation, mastics, pins and washer-cap)	\$32.00 Per LF
C7l.	Remove HVAC Duct Insulation or Mastics, (Duct Remains)(All Sizes) (all mastic colors) (Complete removal of Insulation, mastics, pins and washer-cap)	\$4.00 Per SF
C7m.	Remove /Scrape HVAC Duct Mastics from metal duct work (All Sizes). Duct Remains (includes duct hanger wire, and all attachments with mastic coatings)	\$40.00 Per LF
C7n.	Remove /Scrape HVAC Duct Mastics from metal duct work (All Sizes). Duct Remains (includes duct hanger wire, and all attachments with mastic coatings)	\$5.00 Per SF
C7o.	Remove Drop HVAC Ductwork assembly in one piece with duct insulation (All Sizes) and ACBM mastic complete removal. (includes removal of "one LF "of insulation and mastic for cutting of metal duct).	\$64.00 Per LF
C7p.	Remove Drop HVAC Ductwork assembly in one piece with duct insulation (All Sizes) and ACBM mastic complete removal (includes removal of "one LF "of insulation and mastic for cutting of metal duct). (All Sizes)	\$8.00 Per SF
C7q.	Remove Honeycomb Eliminators and wood planks from interior of cooling tower. (includes cleaning, decontamination, and encapsulation of all interior surfaces)	\$15.00 Per SF

C7r.	Remove Contaminated Soil one inch below contamination level specified (access < 24" high crawlspace) (includes all cleaning, decontamination and lockdown for crawl spaces)	\$31.00 Per CF
C7s.	Remove Contaminated Soil one inch below contamination level specified (access > 24" high crawlspace) (includes all cleaning, decontamination and lockdown for crawl spaces)	\$21.00 Per CF
C7t.	Remove Contaminated Soil one inch below contamination level identified (nonobstructive-unlimited access/open air) (includes all cleaning, decontamination and lockdown)	\$10.50 er CF
C7u.	Pick-Up and Dispose of Contaminated Debris interior or exterior (includes all cleaning, decontamination, and lockdown)	\$5.00 Per CF
C7v.	Remove Bituminous <u>roof membrane Intact</u> (non friable) (No mechanical removal) Removed materials remaining Intact are dispose as construction debris	\$5.00 Per SF
C7w.	Remove Bituminous <u>roof membrane Non-Intact</u> (friable) (No mechanical removal) Non-Intact materials removed must be disposed as asbestos waste, properly Bagged, sealed and labeled for transportation and disposal.	\$13.00 Per SF
C7x.	Remove Bituminous <u>Incidental Intact flashing</u> (non friable) (includes removal of parapet wall flashing system down to the substrate) Removed materials remaining intact are dispose as construction debris	\$8.50 Per SF
C7y.	Remove Bituminous roof flashing membrane Non-Intact (friable) Non-intact materials removed must be disposed as asbestos waste, properly Bagged, sealed and labeled for transportation and disposal.	\$17.00 Per SF
C7z.	Remove Sinks with Undercoating (remove intact) (includes all cleaning, decontamination)	\$50.00 Per Ea.

8. REMOVAL OF ACM MATERIALS PRIOR TO DEMOLITION OF ENTIRE BUILDING

Item No.	Description of the Item	Price Per Unit
C8a.	Removal of floor tile, linoleum, mastics, wood moldings, and bases - for resilient flooring (on concrete, wood, tile or similar) including carpet and/or additional layers of tile. (Critical barriers, under negative pressure) (demolition)	\$2.25 Per SF
C8b.	Removal of Acoustic Ceiling Tile (Cleaning) <u>grid remains</u> in place and related items. All sizes of suspended ceilings. (Critical Barriers & Negative Air required) (demolition)	\$2.50 Per SF
C8c.	Removal of Acoustic Ceiling Tile (Drop) <u>grid removal</u> for removal of ceiling tile, grid and related items, lights etc. All sizes of suspended ceilings, (Critical Barriers & Negative Air required) (demolition).	\$2.00 Per SF
C8d.	Removal of Acoustic Ceiling Tile (Clean) from walls or ceilings only. (includes mastic removal from all surfaces) and cleaning of grid and related items All sizes of suspended or adhesive ceiling tile installations. (Critical Barriers & Negative Air required) (demolition).	\$3.50 Per SF
C8e.	Removal of Ceiling Tile Z-Spline from above asbestos ceilings, (includes walls, chases etc.) and cleaning of related items All sizes of suspended or adhesive ceiling tile installations, (demolition). (Critical Barriers & Negative Air required)	\$2.00 Per SF

C8f.	Removal Transite Ceiling Tile (<u>all sizes & cleaning of grid</u>) < 160 SF (Critical Barriers & Negative Air required)_(demolition).	\$4.25 Per SF
C8g.	Removal Transite Ceiling Tile (all sizes), <u>grid remains</u> - includes all required cleaning of ceiling tile grid and fixtures, (Critical Barriers & Negative Air required) (demolition).	\$2.75 Per SF
C8h.	Transite Ceiling Tile (all sizes), <u>grid removal</u> and cleaning of related Items, (Critical Barriers & Negative Air required) (demolition).	\$2.25 Per SF
C8i.	Remove Pipe insulation <6" in outside diameter from straight runs of pipe, (Critical Barriers & Negative Air required) (demolition).	\$4.00 Per LF
C8j.	Remove Pipe insulation >6" in outside diameter from straight runs of pipe, (Critical Barriers & Negative Air required) (demolition).	\$8.00 Per LF
C8k.	Remove Pipe insulation >10" in outside diameter from straight runs of pipe, (Critical Barriers & Negative Air required) (demolition).	\$10.00 Per LF

9. HOLE DRILLING IN ASBESTOS CONTAINING MATERIALS (CRITICAL BARRIERS & NEGATIVE AIR)

Item No.	Description of the Item	Price Per Unit
C9a.	Hole Drilling of ACM up to 1/4" (AMBIENT)	\$2.50 Per Hole
C9b.	Hole Drilling of ACM, Holes greater than > 1/4" up to 3/4" (AMBIENT)	\$3.50 Per Hole
C9c.	Hole Drilling of ACM, Holes greater than > 3/4" up to 1" (AMBIENT)	\$6.00 Per Hole
C9d.	Hole Drilling of ACM, Holes greater than > 1" up to 1 1/2" (AMBIENT)	\$8.00 Per Hole
C9e.	Hole Drilling of ACM, Holes greater than > 1 1/2" (AMBIENT)	\$10.00 Per Hole
C9f.	Hole Drilling of ACM up to 1/4" (Under Containment)	\$1.25 Per Hole
C9g.	Hole Drilling of ACM, Holes greater than > 1/4" up to 3/4" (Under Containment)	\$1.75 Per Hole
C9h.	Hole Drilling of ACM, Holes greater than > 3/4" up to 1" (Under Containment)	\$3.00 Per Hole
C9i.	Hole Drilling of ACM, Holes greater than > 1" up to 1 1/2" (Under Containment)	\$4.00 Per Hole
C9j.	Hole Drilling of ACM, Holes greater than > 1 1/2" (Under Containment)	\$5.00 Per Hole

D. MOLD ABATEMENT CLEANING ACTIVITIES - SURFACE CLEANING/REMEDIATION

1. MOLD SURFACE CLEANING AND SURFACE PREPARATION

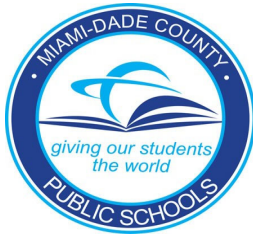
Unit cost include the following but are not limited to the following: HEPA Vacuuming, wet-wiping and cleaning of related surfaces using a detergent solution.

Item No.	Description of the Item	Price Per Unit
D1a.	<u>Mold Surface (Spot) Cleaning</u> and decontamination of items and surfaces. Including but not limited to surfaces such as: lights (all sizes, bulbs, includes interior, exterior components, and light covers), floors, walls, furniture, shelves, beams, A/C supply or return vents, ducts, pipes, ledges.	\$1.50 Per SF
D1b.	<u>Mold General Clean-up Heavy FF&E/Storage (All Surfaces <1000 SF)</u> <u>All Horizontal and Vertical surfaces</u> , including but not limited to surfaces such of floor plane as: lights (all sizes, bulbs, includes interior, exterior components, and light covers), floors, walls, furniture, shelves, beams, A/C supply or return vents, ducts, pipes, ledges. (For Work Areas less than <1000 SF)	\$2.75 Per SF of floor plane
D1c.	<u>Mold General Clean-up Heavy FF&E/Storage (All Surfaces >1000 SF)</u> HEPA Vacuum and wet-wipe all surfaces/ledges using a detergent solution. <u>All Horizontal and Vertical surfaces</u> , including but not limited to surfaces such as: lights (all sizes, bulbs, includes interior, exterior components, and light covers), floors, walls, furniture, shelves, beams, A/C supply or return vents, ducts, pipes, ledges. (For Work-Areas less than >1000 SF)	\$2.50 Per SF of floor plane
D1d.	<u>Mold General Clean-up (All Surfaces <1000 SF)</u> <u>All Horizontal and Vertical surfaces</u> , including but not limited to surfaces such as: lights (all sizes, bulbs, includes interior, exterior components, and light covers), floors, walls, furniture, shelves, beams, A/C supply or return vents, ducts, pipes, ledges. (For Work-Areas less than <1000 SF)	\$2.25 Per SF of floor plane
D1e.	<u>Mold General Clean-up (All Surfaces > 1000 SF)</u> <u>All Horizontal and Vertical surfaces</u> , including but not limited to surfaces such as: lights (all sizes, bulbs, includes interior, exterior components, and light covers), floors, walls, furniture, shelves, beams, A/C supply or return vents, ducts, pipes, ledges. (For Work-Areas less than >1000 SF)	\$2.00 Per SF of floor plane
D1f.	<u>Mold General Clean-up (Horizontal Surfaces < 1000 SF)</u> <u>All Horizontal surfaces</u> including but not limited to surfaces such as: lights (all sizes, bulbs, includes interior, exterior components, and light covers), floors, walls, furniture, shelves, beams, A/C supply or return vents, ducts, pipes, ledges. (For Work-Areas less than <1000 SF)	\$1.25 Per SF of floor plane
D1g.	<u>Mold General Clean-up (Horizontal Surfaces > 1000 SF)</u> <u>All Horizontal surfaces</u> including but not limited to surfaces such as: lights (all sizes, bulbs, includes interior, exterior components, and light covers), floors, walls, furniture, shelves, beams, A/C supply or return vents, ducts, pipes, ledges. (For Work Areas less than >1000 SF)	\$1.00 Per SF of floor plane
D1h.	<u>Mold General Clean-up (Remove & Reinstall) HVAC Supply/Return Vents</u> Remove, clean, and reinstall A/C vents and diffusers. (Return & or Supply all sizes) <u>(Includes cleaning 12" into duct interior & supply or return vent covers).</u>	\$12.00 Per Vent
D1i.	<u>Mold General Clean-up Seating (Auditorium Type)</u>	\$10.00 Per Seat
D1j.	<u>Anti-Microbial Paint Application</u> Surface Preparation/Encapsulation of work areas or containment item surfaces. (Includes surfaces such as: floors, walls, wall cavities, Studs, furniture, shelves, beams, A/C supply or return ducts, pipes, ledges, and or other items as required).	\$3.50 Per SF
D1k.	<u>Anti-Microbial Paint Airless Application</u> Surface Preparation/Encapsulation of work areas or containment item surfaces. (Includes surfaces such as: floors, walls, wall cavities, Studs, furniture, shelves, beams, A/C supply or return ducts, pipes, ledges, and or other items as required).	\$2.50 Per SF of floor plane

2. MOLD REMEDIATION

Unit cost include the following: HEPA Vacuuming, wet-wiping and cleaning of related surfaces using a detergent solution.

Item No.	Description of the Item	Price Per Unit
D2a.	<u>Remove Mold Contaminated Acoustic Ceiling Tile (Grid Remains)</u> Removal of ceiling tile only, Grid remains in place , but is cleaned, and repaired if damaged by the removal process (all sizes of suspended tile).	\$2.25 Per SF
D2b.	<u>Remove Mold Contaminated Flooring (Portables)</u> Remove entire floor system, including all layers of resilient flooring, base and moldings, mastic, plywood, backing felt/vapor barrier and including the wood substrate.	\$4.50 Per SF
D2c.	<u>Remove Mold Contaminated Carpet (Glue-Down Installation)</u> Remove baseboards, moldings, mold contaminated glue down carpet. Includes removal of glue from all substrates.	\$3.00 Per SF
D2d.	<u>Remove Mold Contaminated Carpet (Tack & Padding Installation)</u> Remove baseboards, moldings, mold contaminated carpet and Padding. Includes removal of carpet tackles, padding and padding adhesive from all substrates.	\$2.50 Per SF
D2e.	<u>Remove Mold Contaminated Drywall (Excludes Framing)</u> Remove baseboards, moldings, mold-contaminated drywall all sizes/ Multiple layers on furring or framing system. (furring/framing remains)	\$2.25 Per SF
D2f.	<u>Remove Mold Contaminated Wall or Ceiling Coverings</u> Remove baseboards, moldings, mold-contaminated Coverings , additional layers, (ceramic tile, vinyl wall coverings, plastic paneling, wood or plywood panels, over plaster or drywall to remain).	\$2.50 Per SF
D2g.	<u>Remove Mold Contaminated Batt or Board Insulation</u> Remove mold-contaminated insulation, batt or board wall or ceiling insulation.	\$1.25 Per SF
D2h.	<u>Remove Mold Contaminated HVAC Duct Insulation - Duct Remains</u> Remove mold-contaminated insulation (All Sizes) Duct remains (Complete removal of Insulation, mastics, pins and washer-cap)	\$16.00 Per LF
D2i.	<u>Remove Mold Contaminated HVAC Duct Insulation - Duct Remains</u> Remove mold-contaminated insulation (All Sizes) Duct remains (Complete removal of Insulation, mastics, pins and washer-cap)	\$2.00 Per SF
D2j.	<u>Remove - Drop Mold Contaminated HVAC Ductwork Assemble</u> Remove - Drop mold-contaminated HVAC Ductwork assembly in one piece with duct insulation (All Sizes) and ACBM mastic complete removal.	\$32.00 Per LF
D2k.	<u>Remove / Drop Mold Contaminated HVAC Ductwork Assemble</u> Remove - Drop mold-contaminated HVAC Ductwork assembly in one piece with duct insulation (All Sizes) and ACBM mastic complete removal.	\$4.00 Per SF
D2l.	<u>Remove Mold Contaminated Cabinetry or Shelving Assemble</u> Remove and decontaminate cabinets, casework and FF&E affixed to surfaces	\$25.00 Per LF
D2m.	<u>Surface Fogging/Misting, Occupied Spaces, Mechanical or HVAC Systems</u> Provide Antimicrobial or Surface Treatments for air and surface Treatments as required for disinfection and decontamination of surfaces to Neutralize airborne biohazards.	\$0.25 Per SF of floor plan



SECTION 01013

SUMMARY OF THE WORK

PART 1 - GENERAL

1.01 RELATED WORK:

- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.

1.02 PROJECT DESCRIPTION

a. TERM BID:

1. The Work involves the remediation of asbestos, mold, and other environmentally hazardous materials at various schools and other facilities of Miami-Dade County Public Schools. The Work will be performed under a Term Bid, to be in effect for a term of two (2) years, with the provision to extend said Term Bid at the original prices for an additional three (3), one (1) year periods, at the direction of the Superintendent or his designee. There shall be no guaranteed minimum work assigned under the contract. The Bid will be made on the basis of predetermined Unit Prices for the different items of work to be performed, as established by the Department of Environmental Management and itemized in the Bid Proposal Form. Bidders **will** bid on two multipliers to increase or decrease the value of all unit prices. The Prime Multiplier shall apply to all items of the Bid Proposal Form, when the Contractor is performing work in its assigned area. The Alternate Multiplier shall apply to all items of the Bid Proposal Form, when the Contractor is performing work outside of its assigned area.
2. The Division of School Operations of Miami-Dade County Public Schools has organized the district into three (3) areas: North, Central, and South. Based on this current regional distribution of schools, the work under this contract will be divided into three contracts - one for the North Area, one for the Central Area, and one for the South Area, respectively. All contracts have been designated "open" to all Bidders. However, M/WBE participation in subcontracts is encouraged.



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3. The Term Contract 2021 and bearing Project No. G-ENV/TB-2021-GR/N-C-S by the Miami-Dade County Public Schools, D.E.M. The term of the contract is for two (2) years, with commencing on the date of award by the Board. If the maximum is reached prior to expiration of contract term, the contract may be extended for three additional one (1) year periods, at the direction of the Superintendent of his designee, provided the performance and guarantee, and payment bonds are submitted accordingly. However, no minimum amount of work or compensation is guaranteed or implied.

b. SCOPE OF WORK:

1. The Scope of Work includes, but is not necessarily limited to, the clean-up, abatement, encapsulation and disposal of asbestos-containing materials. The Scope of Work also includes the cleanup, remediation and disposal of mold and mold-contaminated materials, pigeon, bat or other animal waste, as well as other environmental contaminants. The quantity and value of work involved shall not exceed the maximum limit established in the Term Bid provisions, or the individual work order limits specified herein below.
2. Additional Work/Lead-Based Paint: The Board may, at its sole option, request Lead-Based Paint Related Work from the Contractor, provided the Contractor is properly licensed, bonded and insured to perform such Work. Lead-Based Paint Work shall be issued as additional work under the Term Contract, subject to all terms and conditions thereof, except that issuance of a JOF shall be based on the lowest price proposal for the specific Work, regardless of Area. All Lead-Based Paint Work shall be performed in accordance with all applicable local, state and federal regulations, by personnel meeting all EPA and OSHA training and certification requirements.
 - a) There is no requirement for Term Bid Contractors to meet the qualifications criteria for such additional Lead-Based Paint Activities in order to be awarded a Term Contract. However, contractors not meeting the criteria will be ineligible to perform such additional work. If a Term Contractor acquires the qualifications to perform such work during the term of the Contract, he/she shall become eligible thereafter.
 - b) The value of all Additional Work issued to the Contractor shall be included in the tabulation of the maximum compensation limit under the Term Contract. There is no guaranteed minimum amount of work or compensation, stated or implied, for Additional Work under the Term Contract.



3. Additional Work/HVAC Duct Cleaning: The Board may, at its sole option, request HVAC Duct Cleaning from the Contractor, provided the Contractor is properly licensed, certified, bonded and insured to perform such work, and having a minimum of three years experience satisfactorily completing duct cleaning projects of similar scope and complexity, or otherwise secures a Subcontractor who meets the above- referenced qualifications. HVAC Duct Cleaning Work shall be issued as additional work under the Term Contract, subject to all terms and conditions thereof, except that issuance of a JOF shall be based on the lowest lump sum price obtained for the specific work, regardless of Area. All HVAC Duct Cleaning Work shall be performed in accordance with the National Air Duct Cleaning Association (NADCA) specifications and guidelines, by experienced personnel, supervised by a NADCA certified as an Air System Cleaning Specialist. All duct and insulation patching and repairs and duct access door installations shall be performed in accordance with MDCPS Mechanical Specifications and industry standards, by personnel holding Certificates of Competency for the appropriate trade disciplines.

- a) There is no requirement for Term Bid Contractors to meet the qualifications criteria for such additional HVAC Duct Cleaning Activities in order to be awarded a Term. Contract. However, contractors not meeting the criteria **will** be ineligible to perform such additional work. If a Term Contractor acquires the qualifications to perform such work during the term of the Contract, he/she shall become eligible thereafter.
- b) The value of all Additional Work issued to the Contractor shall be included in the tabulation of the maximum compensation limit under the Term Contract. There is no guaranteed minimum amount of work or compensation, stated or implied, for Additional Work under the Term Contract. The Board reserves the right to solicit independent bids and award separate contract for HVAC Duct Cleaning work.

c. JOB ORDER FORM (JOF):

- 1. The Work **will** be issued by the Department of Environmental Management through individual work orders, priced according to the established Unit Prices, as modified by the contractor's Multiplier. Each job will be issued a separate work order, known as a " Job Order Form" (JOF), in accordance with of the General Conditions of the Contract. No individual job assignment may exceed \$200,000.00 in value.



2. The Job Order form will be designed by the Department of Environmental Management each time a particular work item is to be accomplished. The JOF will note, among other things, the specific scope and locations of the work, special conditions and procedures particular to that location and costs for the accomplishment of the work, in accordance with the provisions of the General Conditions of the Contract.

d. ADDITIONAL REQUIREMENTS:

1. The Work may be referenced in other documents, including: the Contract, General Conditions, Special Conditions, Supplementary Conditions, Drawings, Addenda and Modifications to the Contract Documents issued subsequent to the initial printing of this project manual. The Work may also be referenced in printed material referenced by any of these. Work of the Contract may also be unavoidably affected or influenced by governing regulations, natural phenomena including weather conditions, and other forces outside the Contract Documents.

1.02 POTENTIAL ASBESTOS/ENVIRONMENTAL HAZARDS:

- a. The disturbance or dislocation of asbestos, lead and/or mold containing materials, as well as of animal waste and other environmental contaminants, may cause asbestos fibers, lead atoms, mold spores, bacteria or other chemical or biological contaminants to be released into the building's atmosphere, thereby creating a potential health hazard to workmen and building occupants. The contractor shall apprise all workers, supervisory personnel, subcontractors and others who will be at the job site of the seriousness of the hazard and of proper work procedures which must be followed.
- b. Where in the performance of the work, workers, supervisory personnel, subcontractors or consultants may encounter, disturb or otherwise function in the immediate vicinity of any identified asbestos-containing or potentially toxic/hazardous materials, the contractor shall take appropriate continuous measures, as necessary to protect all building occupants from the potential exposure to said hazards. Such measures shall include the procedures and methods described herein, as well as full compliance with regulations of applicable federal state and local agencies.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION



3.01 PHASING OF WORK:

- a. The contract may require work to be performed in phases. The timing and exact work dates shall be coordinated with the Department of Environmental Management's Environmental Coordinator, who will inform the facility administrator, the renovation project manager, and other contractors, as applicable.

3.02 TIMING OF THE WORK:

- a. The Project shall be completed within the time schedule and duration specified in the Notice to Commence and/or the JOF. The contractor shall schedule all manpower, equipment and methods necessary to perform the work in said time frame, including but not limited to the use of multiple simultaneous phases/work areas.
- b. In the event that the project work (Asbestos) is stopped for a period of fourteen (14) or more calendar days, due to no fault of the contractor, partial re-mobilization costs will be paid to the contractor in accordance with the established unit prices. The contractor shall submit written request (JOF part II) for partial re-mobilization cost within five (5) calendar days after recommencement of work.

3.03 WORK TIME FRAMES:

- a. Standard work schedule for the term of this contract will be Monday through Friday, 7:30 am. to 6:00 pm. After 6:00 P.M., Contractor may continue daily work activities which do not require progress inspections by the Environmental Remediation Project Inspector (ERPI), provided that the facility staff are present on their regular work shift and prior notice is given to the ERPI. ERPI inspections shall be scheduled between 8:30 am. to 4:30 pm. No Work, including preparation, shall commence without prior notice to proceed (pre-inspection approval) from the ERPI. No abatement/remediation work shall commence prior to the ERPI's field inspection and acceptance of conditions.
- b. If the contractor elects to work after the normal operating work hours, solely for the benefit of the contractor, the cost for project coverage (including ERPI's costs and custodial coverage costs) will be paid for by the contractor. At the Board's option, an accelerated schedule, including after hours, weekend, and/or holiday work, may be required to accommodate specific project requirements. Work scheduled for after hours, weekends, and holidays will be specified based on individual project needs, at the convenience of the Board. In such cases, custodial and ERPI coverage costs will be borne by the Board. Unit prices listed in the Form of Proposal apply to work to be performed under both Standard Work Schedules and Accelerated Work Schedules.



3.04 ADDITIONAL WORK- LEAD-BASED PAINT RELATED WORK

a. Issuance Procedures:

1. When lead-based paint work is required, the Department of Environmental Management shall issue a Scope of Work and Project Conditions to all eligible Term Contractors. The Department shall also arrange a Field Inspection/Scope Definition Meeting to clarify any job specific issues and to permit the Contractors to verify the scope and complexity of the Work.
2. Contractors shall then submit to the Department, within the specified time, lump sum price proposals to perform the required Work. Proposals shall include all required evidence of licenses, insurance, bonding, personnel training and certifications, and any other legal prerequisites to acceptance of the proposal and execution of the Work.
3. The lowest price proposal that meets all criteria and requirements shall be accepted and a Job Order Form for the Work shall be issued to the Contractor.
4. All other terms and conditions of the Term Contract shall apply to such Additional Work.

b. Work Procedures/Lead Abatement (Lead-Based Paint Activities)

1. EPA establishes two conditions to define work that constitutes "Lead-Based Paint Activities", as follows:
 - a. Paint must be lead-based paint, containing at least 1.0 ug/cm' of lead direct reading by XRF Analysis or at least 0.5% lead weight on paint chip analysis by Atomic Absorption.
 - b. Activity must be "abatement" - 100% permanent removal of the lead-containing paint film.
2. If these two conditions are met, then the work constitutes a lead-based paint activity and must be performed by certified personnel, working for a licensed lead contractor, in strict accordance with all provisions of EPA 40 CFR Part 745 Subpart Land OSHA 29 CFR 1926.62, as well as all other regulations governing the removal, cleanup, transportation, and disposal of lead-based paint and other toxics.



3. Depending on project conditions, project-specific procedures may include, but are not necessarily limited to, work area isolation/enclosure, engineering controls, personnel protection, work area and personnel decontamination procedures, and final clearances. Said specific procedures shall be specified in the Special Conditions section of the JOF/Scope of Work for each job.
4. Prior to disposal of waste materials, Toxicity Leachiate Characteristic Procedure (TCLP) testing of the waste stream shall be performed by the Board's laboratory consultant. Based on the test results, the waste may have to be disposed as either hazardous waste or as construction debris.

c. Work Procedures/Paint Preparation (Not Lead-Based Paint Activities)

1. When the work to be performed does not meet the conditions for lead-based paint activities (either the paint is not EPA lead-based paint or the work does not constitute complete removal), but the paint films do contain detectable levels of lead, the requirements of EPA 40 CFR Part 745 Subpart L shall not apply, but the work shall still meet the requirements of OSHA 29 CFR 1926.62 and all other applicable lead regulations.
2. In such cases, work scope may include, but is not necessarily limited to, pressure washing, wash water collection, hand scraping and sanding, and other procedures to remove loose paint and prepare the surface for repainting. The work may entail a sample area to establish exposure criteria for the balance of the work (to be performed by others), or it may entail the required work in its entirety. The specific scope will be outlined in the JOF.
3. Depending on project conditions, project-specific procedures may include, but are not necessarily limited to, work area isolation or demarcation, engineering controls, personnel protection, decontamination procedures and final clearances. Said specific procedures shall be specified in the Special Conditions section of the JOF/Scope of Work for each job.
4. Prior to disposal of waste materials, Toxicity Leacheate Characteristic Procedure (TCLP) testing of the waste stream shall be performed by the Board's laboratory consultants. Based on the test results, the waste may have to be disposed as either hazardous waste or as construction debris.



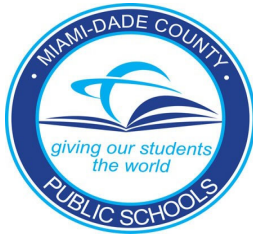
d. Protection of Facilities and Occupants:

1. All Work shall be performed using procedures that prevent exposure of students, staff and the public to airborne dust and contaminants resulting from the Work. Work procedures shall prevent spread of dust contamination to the facility and surrounding site, as well as damage to
2. Procedures may include, but are not necessarily limited to, enclosure containment, drop cloths, air filtration, decontamination areas and other safeguards.

3.05 ADDITIONAL WORK - HVAC DUCT CLEANING

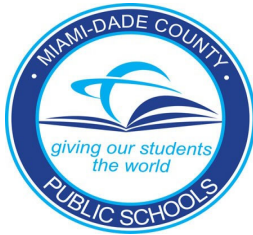
a. Issuance Procedures:

1. When HVAC duct cleaning work is required, the Department of Environmental Management shall issue a Scope of Work and Project Conditions to all eligible Term Contractors, regardless of the specific Area where the work is to occur. The Department shall arrange a Field Inspection/Scope Definition Meeting to clarify and job specific issues and to permit the Contractors and/or subcontractors to verify the scope and complexity of the Work.
2. Each Contractor shall then submit to the Department, within the specified time, a lump sum price proposal to perform the required Work. Proposals shall include all required evidence of certifications, experience, licenses, insurance and bonding, worker competency certificates, and any other legal prerequisites to acceptance of the proposal and execution of the Work.
3. The lowest price proposal that meets all criteria and requirements shall be accepted and a Job Order Form for the Work shall be issued to the Contractor. If no proposal is acceptable the Board reserves the right to seek separate bids.
4. All other terms and conditions of the Term Contract shall apply to such Additional Work.



b. Work Procedures:

1. Duct Cleaning Work shall be performed in accordance with the latest edition of the National Air Duct Cleaning Association's (NADCA) "General Specifications for the Cleaning of Commercial HVAC Systems" (2005) and NADCA's "Assessment, Cleaning and Restoration Standard" (ACR 2006), which are hereby incorporated and made a part of these Specifications, as well as all applicable local, state and federal regulations and guidelines.
2. Depending on project conditions, project-specific procedures may include, but are not necessarily limited to, work area demarcation, drop cloths, engineering controls, personnel protection, decontamination procedures and post-cleanup clearances. Project conditions may also require the cutting of access openings in existing sheet metal or fiberglass ductwork, subsequent patching of duct and insulation, and/or installation of pre-fab access doors. Project-specific procedures shall be specified in the Special Conditions section of the JOF for the job.
3. All restoration work, including duct patching, installation of access doors, and re-insulation of ductwork shall be performed by experienced personnel holding competency certificates for the appropriate trade disciplines. All cutting and restoration work shall be performed in compliance with the Sheet Metal & Air Conditioning Contractors National Association (SMACNA) standards, using procedures that will prevent damage to the existing systems and will ensure system integrity and good operational performance after completion of the work.
4. All Work shall be performed using procedures that prevent exposure of students, staff and the public to airborne dust and contaminants resulting from the Work. Work procedures shall prevent spread of dust contamination to the facility and surrounding site, as well as damage to the facility and its contents, materials, and systems, as a result of the Work.



5. Work requiring contractor personnel to enter the duct system to perform cleaning may constitute "Confined Space" work. Personnel entering the duct, as well as supervisory and support personnel, shall have received confined space training and be familiar with all confined space safety and rescue procedures. Additionally, the duct system structural supports shall be evaluated to assess its ability to safely support the additional loads without damage to the system or risk to the employee.
6. Duct Access Opening and Doors:
 - a. Access openings may need to be cut in the supply and return ducts, as required to effectively clean and inspect the air duct system. Location of new access openings shall be determined by a competent air conditioning mechanic, in such manner as to prevent damage to the ductwork or impair the air conveyance system's performance. The size of the openings shall be sufficient to perform the required cleaning and routine maintenance, without compromising the structural integrity of the duct system.
 - b. Access openings shall be covered by pre-fabricated, hinged, insulated duct access doors. Where hinged doors are not feasible, pre-fabricated, insulated, sandwich access doors with spring airtight closure by hand knobs shall be provided.
 - c. All new access doors shall be fabricated and installed in compliance with the North American Insulation Manufacturers Association (NAIMA) and SMACNA standards.
 - d. All cut or raw edges of ducts and fiberglass insulation shall be sealed with duct mastic (non-asbestos). At supply ducts, edges shall also be coated with Portersept ® 3830 white acrylic primer/finish.
7. Flexible ducts:
 - a. Except as otherwise directed by the Board's representative for specific projects, flexible ducts shall not be cleaned, but shall be replaced new. For specification requirements for flexible ducts, see Section 15890 of these Specifications.

END OF SECTION



SECTION 01043

PROJECT COORDINATION

PART 1 - GENERAL

1.01 RELATED WORK:

- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.

1.02 SUMMARY:

- a. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to the following:
 - 1. Administrative and supervisory personnel.
 - 2. Preconstruction Meeting.
 - 3. Pre-Remediation Condition Inspection.
 - 4. Daily Log.
 - 5. Special Reports.
 - 6. Contingency Plans.
 - 7. Notifications to other entities at the job site.

1.03 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- a. General Superintendent/Supervisor: Provide a full-time Asbestos / Remediation Project Supervisor who shall be experienced in the administration, removal and supervision of asbestos abatement projects (or mold remediation, depending on the material to be remediated) including Work practices, protective measures for building and personnel, disposal procedures, etc. This person is the Competent Person as required by OSHA in 29 CFR 1926.1101 and is the Contractor's Representative responsible for compliance with all applicable federal, state and local regulations, particularly those relating to asbestos-containing materials, lead- based paint, or mold, as specifically required. This person must have successfully completed the following courses:

Asbestos:

- 1. 5-day EPA course on asbestos project supervision, and
- 2. 1-day EPA asbestos supervisor refresher course each year



Mold:

1. 4-day course on mold remediation supervision and Florida mold remediator license per FS 468.84
2. 14-hrs continuing education & license renewal every two years.

These courses must be approved by the Florida Department of Environmental Protection (DEP) and these requirements shall be in accordance with Florida Statutes 468 and 469.

- b. All other On-Site Personnel: All personnel from the contractor that will work on-site during the project/ remediation must have a certificate of successful completion of a 4-day asbestos worker course, meeting the EPA Model Accreditation Plan and approved by the Department of Business and Professional Regulation under Florida Statutes 469.12. In addition, personnel must show evidence of continued certification through yearly approved one-day refresher courses and of current medical surveillance and respirator fit testing. All personnel that will work on mold remediation/cleanup projects must have certification as a mold worker in accordance with EPA guidelines and State requirements.

1.04 PRECONSTRUCTION MEETING:

- a. An initial progress meeting recognized as the "Preconstruction Meeting" will be convened, at the option of the Owner's Representative, prior to start of any Work. A meeting will be held at the project site and shall include the Environmental Remediation Project Inspector (ERPI) and the Contractor or Contractors. Other representatives from DEM, the school administration and other M-DCPS departments may also be present. Twenty-Four (24) hours advance notice will be provided to all participants prior to convening the Preconstruction Conference.
- b. This will be an organizational meeting, to review responsibilities of the Contractor and personnel assignments to finalize the locations of the temporary facility for containment. In addition, final coordination will occur as to which building services will be "active" or inactivate, based upon the decisions of the Owner or his maintenance staff.

1.05 PRE-REMEDIATION CONDITION INSPECTION:

- a. Before commencement of any work activities, the Contractor shall walk-through the area of Work. The contractor shall develop a list indicating the condition of all items, materials, fixtures and finishes, which are to remain in the Work Area during remediation activities. Other areas may also be included outside the Work Area if it is anticipated that the Contractor's activities could adversely affect these areas. The contractor may include photographs showing the condition of materials and surfaces and documenting and pre-existing damage. Failure to identify damaged property or conditions will not relieve the contractors' responsibility to restore property to its original condition or replace damaged material.



- b. This survey should also cover any areas which are affected by remediation activities and need to be restored at the end of the job. This survey will serve as an important part of the project closeout phase, since it will determine if further repairs, replacements, or adjustments need to be made to the Work Area before final payment is approved for the Contractor. Submit a copy of this survey, signed by the contractor's representative performing the inspection, as part of the pre-job submittal package.

1.06 DAILY LOG:

- a. The Contractor shall maintain at the Work site a DAILY LOG documenting the dates and times of, but not limited to, the following items:
 - 1. Meetings: purpose, attendees, brief discussion.
 - 2. Visitations: authorized and unauthorized.
 - 3. Personnel, by name, entering and leaving the Work Area.
 - 4. Special or unusual events, i.e. barrier breaching, equipment failures, accidents, disputes, injuries, etc.
 - 5. Air monitoring tests and results (includes OSHA compliance monitoring).
- b. Documentation of Contractor's completion of the following:
 - 1. Inspections (by the ERPI) of the Work Area preparation prior to start of asbestos removal activities and daily thereafter.
 - 2. Removal of any sheet plastic barriers.
 - 3. Contractor's request for (ERPI) inspections prior to lock-down, encapsulation, or any other operation that will conceal the condition of asbestos-containing / mold materials or the substrate from which such materials have been removed.
 - 4. Removal of waste materials from the Work Area and Waste Shipment Record for waste containing Asbestos.
 - 5. Contractor's request for (ERPI) final inspection and final air clearance test.
 - 6. Verification of all additional work by the Contractor and (ERPI).
- c. Submit copies of this daily log for with the final closeout documents in the Specific Post-Job Submittal.
 - 1. The log shall be signed by an authorized representative of the contractor. Final payment for the project will not be authorized until daily log is received by the Department of Environmental Management.



1.07 SPECIAL REPORTS:

a. General:

Except as otherwise indicated, submit special reports directly to the Owner's Representative within one day of the occurrence requiring special report.

b. Reporting Unusual Events:

When an event of unusual and significant nature occurs at site (examples: failure of the Pressure Differential System, rupture of temporary enclosures), prepare and submit a special report listing the chain of events, persons participating, response by the Contractor's personnel, evaluation of results or effects, and similar pertinent information. When such events are known or predictable in advance, advise the Owner's Representative at the earliest possible date.

c. Reporting Accidents:

Prepare and submit reports of any accidents, at the Work area and anywhere else Work is in progress. Record and document date and actions and comply with the requirements of Article 10 of the General Conditions of the Contract.

1.08 CONTINGENCY PLAN:

a. Contingency Plan:

Prepare a contingency plan for emergencies including fire, accident, power failure, Pressure Differential System failure, supplied air system failure, or any other event that may require modification or abridgement of the decontamination unit or the Work Area isolation procedures. Include in the plan specific procedures for decontamination or Work Area isolation. Nothing in this plan should impede safe exiting or provocation of adequate medical attention in the event of an emergency, regardless of other specification sections.

b. Telephone Numbers:

Post on the Personnel Decontamination Unit, telephone numbers and locations of emergency services including, but not limited to fire, ambulance, hospital, policies, and the power company. A typical form is included in Appendix "A".



1.09 NOTIFICATIONS:

- a. Notify Miami-Dade County DERM in accordance with NESHAP requirements.
- b. Notify other entities at the job site of the nature of the asbestos/mold abatement activities.
- c. Notify the nearest Police and Fire departments of the projects and special nature of the abatement activities.

1.10 SUBMITTALS:

Refer to Section 01301, Submittals

1.11 JOB SITE RECORDS:

- a. The contractor shall have available at the job site the following documents in addition to the daily log:
 1. Current 10 - Day Notice to DERM as applicable
 2. Applicable Regulations.
 3. Term Contract Specifications.
 4. Copy of Job Order Form
 5. Valid Workers' Training Certificates for all of the contractor's on-site employees.
 6. Current Report from OSHA Medical Examination for all of the contractor's on-site employees.
 7. Current Worker Respirator Fitting Documentation for all of the contractor's on-site employees, showing brand and size.
 8. Worker's Acknowledgment.
 9. A passed Jessica Ludsford Act form for each onsite employee

1.12 PLAN OF ACTION:

- a. At the request of The Department of Environmental Management the Contractor shall submit, with the General Removal Submittals, an itemized and detailed Plan of Action for the procedures proposed to comply with various removal methods (floor tile, ceiling tile, HVAC mastic, etc.) of this specification. Include in the plan the method and means of supplying water and power to areas of the job, the methods and timing to shut down or shut off the various building systems affecting the work, the sequencing of remediation work, the interface of trades involved in the performance of the work, methods to be used to ensure the safety of building occupants and visitors to the site, a disposal plan including location of approved disposal site and a detailed description of the methods to be used to control asbestos contamination.



Expand upon the use of portable, HEPA ventilation system, isolation of the building's electrical and mechanical system, method of removal to prohibit visible emissions in the Work Area and packaging of removed asbestos debris

- b. If any individual work assignment has specific conditions that require deviation from the standard Plan of Action, submit those special procedures in a Plan of Action included with the Pre-Job Submittals for that JOF.

1.13 INSPECTION- EXISTING CONDITIONS:

- a. Prior to commencement of the work, an inspection will be made of pre-existing conditions. A list will be made by the Asbestos Contractor of the condition of all related items and surfaces anticipated to be affected by the work. Photographs showing the condition of existing elements and finishes may be included by the Contractor with the list. At the completion of work, the list will be used to evaluate what damages have been caused by the work to existing facilities and determine what repairs the Contractor must effect at his expense to restore said facilities to original condition.

1.14 STOP WORK:

- a. If the Owner, the Owner's Representative or the Project Administrator presents a written Stop Work Order, the contractor shall immediately and automatically stop all work. Do not recommence work until authorized in writing by the entity that issued the Stop Work Order.

1.15 JOF QUANTITIES & COSTS:

- a. The Job Order Form will establish the scope of work and define the location of asbestos / mold containing materials for each specific work order. If any other materials are found, not noted in the Job Order Form, which are suspected of containing asbestos/ mold, the Contractor shall immediately notify the Owner's Representative in order to determine if the materials contain asbestos / mold and if a change is to be made to the JOF to include the additional work.
- b. Material quantities, sizes, and other factors affecting costs shall be verified by actual field inspection and measurement by the Contractor before starting work on any individual job. Any discrepancies with the JOF amounts will be reported in writing to DEM prior to the acceptance and execution of the JOF, by proper completion of the JOF's Part II. If accepted, the JOF will be revised accordingly. Otherwise, DEM and the Contractor shall review the work to resolve the



discrepancies; if unsuccessful, the JOF will be assigned to the Alternate Contractor in accordance with provisions of the General Conditions. Contractor's failure to visit the work site and verify existing conditions and amounts (SF, LF, etc.) shall constitute his acceptance of the issued JOF quantities and costs.

- c. If Unforeseen Conditions are encountered during the course of the work, that will affect quantities or costs, the Contractor shall immediately bring same to the Owner's attention in writing. No work shall commence relative to the unforeseen conditions/materials until verification, quantification and written acceptance by DEM of any additional costs. Contractor shall follow procedures outlined in item 1.15 (a), (b) by re-submitting JOF's Part II as stated above to obtain approval of new work.

1.16 CONTRACTOR'S USE OF PREMISES:

- a. General: During the entire construction period the Contractor shall have the use of the designated work area for construction operations. When applicable, an area will be designated for use outside the building for staging and storage (Container to be provided by the Contractor). Contractor's personnel shall restrict their movements to designated areas. Care will be taken to operate in an unobtrusive and manner in order to minimize the impact of the abatement operation on the functioning of the adjacent facilities.
- b. Use of the Site:
 - 1. Confine operating at the site to the areas permitted under the Contract. Portions of the site beyond areas on which work is indicated are not to be disturbed. Conform to site rules and regulations affecting the Work while engaged in project construction.
 - 2. Keep existing driveways and entrances serving the premise clear and available to the Owner and his employees at all times. Do not use these areas for parking or storage of materials unless specifically instructed by the ERPI.
 - 3. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage sheds to the areas indicated on the drawings or by DEM Designers and verified by ERPI.
 - 4. Lock automotive type vehicles, such as passenger cars and trucks and other mechanized or motorized construction equipment, when parked and unattended, so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended with the motor running or the ignition key in place or accessible to unauthorized persons.



c. Contractor's Use of the Existing Facility/Building:

1. The Contractor shall provide photo identification cards for his/her employees to be worn at all times while conducting work for Miami-Dade County Public Schools. Such cards shall be approved by M-DCPS. Identification cards shall include the name of the Remediation Contractor, employee's name. T-shirts with company logo or name will not be accepted as substitution for photo identification cards. Personnel **without** proper photo identification **will** be required to leave the facility.
2. The Contractor must insure that workers are properly attired at all times on M-DCPS property. (No muscle shirts, short shorts, cutoffs, or clothes with inappropriate markings). Proper decorum shall be maintained at all times while on M-DCPS property. Any workers whose attitude in any way, shape or form interferes with, threatens, or in any other manner disrupts the school operations will be removed immediately from the job site upon notice by a school official or authority.
3. The Contractor's remediation project supervisor (superintendent) must be present, on-site, throughout the entire remediation operation while workers are utilized. The Contractor's must have a remediation project supervisor inside the work area(s) during the entire removal phase of each project. During that time, or when working on several work areas, an outside asbestos certified worker (4-day Worker Course) will be required for Asbestos Projects, along with other Environmental projects requiring (Environmental Certified Worker Courses) will also require a certified worker outside each decontamination unit or decontamination station to prevent entrance by unauthorized persons. The M-DCPS/ERPI may stop work if the supervisor is not present at any time noted above. Only the supervisor is to interface with school administration (when required by special circumstances).
4. Maintain the existing building in a safe and weather tight condition throughout the construction period. Repair all damage caused by abatement/construction operations. Take all precautions necessary to protect the building and its occupants during the construction period.
5. Keep public areas such as hallways, stairs, elevator lobbies and other facilities free from accumulation of materials, equipment and debris. Any equipment which must be operated outside the work area must be properly protected, monitored, and secured to prevent unauthorized access.
6. The Contractors will not be provided with phone privileges on project site, except for emergencies.



7. Portable heaters shall not be permitted.
8. Smoking and tobacco product use by the Contractors Employees shall be strictly prohibited at all times on M- DCPS facilities. Alcohol, drugs, and mood modifiers shall be strictly prohibited at all times on M-DCPS facilities. Employees observed to be under the influence of said substances shall immediately removed from site. Employees observed to possess said substances, while on site, will be referred to the proper authorities.
9. The Contractor may be required to provide portable toilet facilities. The use of existing facilities within the building, by the Contractor and his personnel, will not be permitted, unless otherwise noted and approved by the site administration at the pre-construction meeting.
10. When required, the Contractor shall provide single occupant, self-contained toilet unit(s) of the chemical type for the employees use. Toilet shall be properly vented and fully enclosed with a glass-fiber reinforced polyester shell or similar non-absorbent material and regularly emptied. Portable toilets shall be placed where indicated by the ERPI and the site administrator, and properly secured against tipping and vandalism. Lock portable toilet facilities at night and when leaving the site.

1.17 OWNER OCCUPANCY:

- a. The Owner normally will occupy the site and the existing building during the entire period of construction. Full cooperation with the Owner or his Representative is required during construction operations, to minimize conflicts and to facilitate Owner's usage. Perform all Work so as not to interfere with the Owner's operations.

1.18 OWNER'S OBLIGATIONS:

- a. Removal of Existing Objects: Prior to the start of work, the Owner will remove computers, telephones copy machines and other movable electronic equipment. The Contractor will be responsible for moving all other movable furnishings, small objects, books, etc. and any other movable objects which are not moved by the Owner, if specified in the JOF. The Contractor will be compensated for the removal/return of FF&E based on the established unit prices for General Hourly Work as modified by the appropriate multiplier.
- b. Storage of Removed Items: The owner will provide a secure storage area at each job site to store the Owner's furniture, equipment, and other items.



- c. Approval of the Plan of Action: When requested The Owner's Representative, before the start of any abatement activities shall review the Plan of Action. This review shall place special attention on the need to access or shut off any electrical, mechanical, piping, controls or other building systems that may relate to this or other building operations during the abatement period.

Part 2 - PRODUCTS (Not Applicable)

Part 3 - EXECUTION

3.01 SEQUENCE OF WORK: ASBESTOS

- a. The following sequence is intended as a general list of the work items and may be adjusted after consulting with the Owner's Representative.
 - 1. The Contractor will remove all equipment, furnishings, etc, as noted in other sections and wet wipe/clean as required by the Job Order Form.
 - 2. Coordinate the shut-down of all building services affected or modified as a result of the abatement activities. File all necessary notifications to D.E.R.M. etc. Provide stamped copy from D.E.R.M. and or copy of return mail receipt requested.
 - 3. Establish separation walls and security access areas as required by the plan of Action or on the plans. Establish and secure the work areas outside of containment.
 - 4. Install critical barriers on all outside walls per Section 01526.
 - 5. Provide for electrical and plumbing connections to the work area. Establish decontamination areas per Section 01563.
 - 6. Coordinate and provide effective engineering controls on the existing H.V.AC. ducts, electrical, sprinkler and the fire alarm systems, adjust or modify as necessary. Install mechanical protection on the sprinkler heads and coordinate with the Owner if the system cannot be shut down.
 - 7. Install Primary and Secondary barriers per Section 01513 on walls, ceilings, etc. designated to remain.



8. Install the pressure differential machines in the Work Area, connect to discharge ducts as designated by the ERPI, or on the drawings, and demonstrate acceptable operation of the pressure differential system per Section 01513.
9. Provide any "surgical" procedures at this time to install critical enclosure and/or fireproofing barriers at any space as required to establish proper negative pressures.
10. Remove **A.C.M.** from all surfaces (flooring, pipe insulation, etc.) within the temporary enclosure per Section 13281.
11. Erect any permanent enclosures as shown on the drawings.
12. Dispose of A.C.M. removed from the enclosure area per Section 13284.
13. Decontaminate the enclosure area per Section 01711.
14. Encapsulate per Section 01711.
15. Obtain Work Area Clearance per Section 01714.
16. Remove primary and critical barriers and the pressure differential system in accordance with Section 01714.
17. Perform final cleaning, etc. as required for project clearance per Section 01714.
18. Receive approval for work area clearance, and provide reconstruction services as required.
19. Provide all required final documentation, pay requests, etc. as required by Section 01718 and other contract documents.

3.02 SEQUENCE OF WORK: MOLD

- a. The following sequence is intended as a general list of the work items and may be adjusted after consulting with the Owner's Representative.



M-DCPS - Technical Specifications
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1. The Contractor will remove all equipment, furnishings, etc, as noted in other sections and wet wipe/clean as required by the Job Order Form.
2. Coordinate the shut-down of all building services affected or modified as a result of the abatement activities. File all necessary notifications to D.E.R.M. etc. Provide stamped copy from D.E.R.M. and or copy of return mail receipt requested.
3. Establish separation walls and security access areas as required by the plan of Action or on the plans. Establish and secure the work areas outside of containment.
4. Install critical barriers on all outside walls per Section 01526.
5. Provide for electrical and plumbing connections to the work area. Establish decontamination areas per Section 01563.
6. Coordinate and provide effective engineering controls on the existing H.V.AC. ducts, electrical, sprinkler and the fire alarm systems, adjust or modify as necessary. Install mechanical protection on the sprinkler heads and coordinate with the Owner if the system cannot be shut down.
7. Install Primary and Secondary barriers per Section 01513 on walls, ceilings, etc. designated to remain.
8. Install the pressure differential machines in the Work Area, connect to discharge ducts vented to exterior as designated by the ERPI.
9. Provide any "surgical" procedures at this time to install critical enclosure and/or fireproofing barriers at any space as required to establish proper negative pressures.
10. Remove mold from all surfaces (flooring, pipe insulation, etc.) within the temporary enclosure.
11. Erect any permanent enclosures as shown on the drawings.
12. Dispose of mold removed from the enclosure area.



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13. Decontaminate the enclosure area.
14. Encapsulate as applicable
15. Remove primary and critical barriers and the pressure differential system.
16. Perform final cleaning, etc. as required for project clearance.
17. Receive approval for work area clearance.
18. Provide all required final documentation, pay requests, etc. as required and other contract documents.

END OF SECTION



SECTION 01092

CODES, REGULATIONS, AND STANDARDS

PART 1 - GENERAL

1.01 SUMMARY:

- a. This Section sets forth governmental regulations and industry standards which are included and incorporated herein by reference and made a part of the specification. This Section also sets forth those notices and permits which are known to the Owner and which either must be applied for and received or which must be given to governmental agencies before start of the Work.
- b. Requirements include adherence to Work practices and procedures set forth in applicable codes, regulations and standards.

1.02 CODES AND REGULATIONS:

- a. **General Applicability of Codes, Regulations, and Standards:** Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable codes, regulations, and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.
- b. **Contractor Responsibility:** The Contractor shall assume full responsibility and liability for the compliance with all applicable Federal, State and local regulations pertaining to Codes, Work practices, hauling, disposal, protection of workers and visitors to the site including persons occupying areas adjacent to the site. Since the Contractor is responsible for coordinating other trades within this scope of work, the Contractor must comply with Chapter 489, Florida Statutes, concerning requirements for building contractors in addition to being licensed as a Florida Asbestos Abatement Contractor (as outlined in Chapter 455 of the Florida Statutes) and a Florida Mold Remediator (per Chapter 468.84). The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State and local regulations. The Contractor shall hold the Owner, Owner's Representatives and the Consultant harmless for his failure to comply with any applicable



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Work, Hauling, Disposal, Safety, Health or any other applicable regulations on the part of himself, his employees or his subcontractors. The contractor shall be responsible for any monetary fine incurred by the owner as a result of actions by any employee or representative. In the event of such fine the owner shall have recourse to any and all payments owed to the contractor for individual Job Order Forms issued under this term contract, in order to defray the cost.

- c. **Posting and Filing of Regulations:** Maintain two (2) copies of applicable federal, state and local regulations indicated above. Maintain one copy of each at the job site and keep one copy of each in the Contractor's main office. Applicable regulations include, but are not limited to, the following:
- d. **Federal, State & Local Requirements:** Regulations and guidelines that govern asbestos and lead abatement Work, hauling and disposal of asbestos or lead waste materials, and mold remediation and duct cleaning guidelines, which are incorporated herein and become a part of these documents, include but are not limited to the following:

EPA: U.S. Environmental Protection Agency regulations, including but not limited to:

- 1. National Emission Standards for Hazardous Air Pollutants (NESHAP): 40 CFR Part 61 Subpart M, Asbestos.
- 2. Asbestos Hazard Emergency Response Act (AHERA): 40 CFR Part 763 - Asbestos-Containing Materials in Schools-Final Rule.
- 3. Lead; Requirements for Lead-Based Paint Activities in Target Housing and Child-Occupied Facilities; Final Rule. 40 CFR Part 745, Subpart L.
- 4. Lead; Renovation, Repair, and Painting Program; Lead Hazard Information Pamphlet; Notice of Availability; Final Rule. 40 CFR Part 745.

OSHA: U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), including but not limited to:

- 1. Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite: Final Rules
Title 29, Part 1910, Section 1001 and
Part 1926, Section 1101 of the
Code of Federal Regulations



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2. Lead Exposure in Construction; Interim Final Rule
Title 29, Part 1926, Section 62 of the
Code of Federal Regulations
3. Respiratory Protection
Title 29, Part 1910, Section 134 of the
Code of Federal Regulations
4. Access to Employee Exposure and Medical
Records Title 29, Part -1910, Section 2 of the
Code of Federal Regulations
5. Hazard Communication
Title 29, Part 1926, Section 59 of the
Code of Federal Regulations
6. Specifications for Accident Prevention Signs and Tags
Title 29, Part 1910, Section 145 of the
Code of Federal Regulations

DOT: U.S. Department of Transportation, including but not limited to:

1. Hazardous Substances
Title 29, Part 171 and 172 of the
Code of Federal Regulations

State Requirements: Governing asbestos abatement Work or hauling and disposal of asbestos waste materials, and mold remediation, including, but not limited to the following:

1. Chapter 255.551 - 255.563 of the Florida Statutes (Asbestos Management Program).
2. Chapter 469.001 - 469.009 of the Florida Statutes (Licensure of Asbestos Consultants and Contractors).
3. Chapter 468.84 of the Florida Statutes (Licensure of Mold Remediators).
4. Asbestos Coordination through:
Department of Environmental Protection (FDEP)
Division of Air Resource Management
2600 Blairstone Road
Tallahassee, FL 3239



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National Air Duct Cleaners Association (NADCA) Guidelines: Guidelines which provide procedural safeguards and best practices in the accessing and cleaning of HVAC ductwork and components, including but not limited to:

1. General Specifications for the Cleaning of Commercial HVAC Systems-2005
2. Assessment, Cleaning and Restoration Standard (ACR)-2006

Miami-Dade County Public Schools: Contractor shall adhere to all applicable M-DCPS rules and regulations and comply with all established procedures and policies which govern the work and his activities.

- e. **Notification:** Contractor shall include the following information in a notification sent to DERM, at least ten working days prior to beginning Work. This notification shall be in conformance with the requirements of EPA National Emission Standards for Hazardous Air Pollutants (NESHAPS) Asbestos Regulations (40 CFR 61, Subpart M, Section 61.145):
- a. Name and address of the Owner.
 - b. M-DCPS Department of Environmental Management's Project Number (JOF #).
 - c. Name, address, and License number of the asbestos Contractor.
 - d. Exact physical address of the facility being demolished or renovated.
 - e. Description of the facility being demolished or renovated, including the size, age and prior use of the facility.
 - f. Estimate of the amount of ACM to be removed in terms of linear feet of pipe and surface area on other facility components.
 - g. Scheduled starting and completion dates of demolition or renovation. Provide an updated notification if the starting or completion dates change by more than two weeks.
 - h. Nature of planned demolition or renovating and method(s) to be used.
 - i. Name and address of the waste disposal site where the asbestos waste material will be disposed.



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- j. Send the DERM notification to:
Miami-Dade County
Department of Environmental Resources Management
(DERM) 33 S.W. 2nd Avenue Suite 900
Miami, Florida 33130
(305) 372-6925
- k. The contractor shall submit to the owner, proof of Notifications in the form of a DERM-stamped copy of the notice or a certified mail receipt. Provide Proof of DERM Fee Payment, Submit copy of check as per Submittals Requirements 01301

1.03 STANDARDS:

- a. Standards which govern asbestos abatement Work or hauling and disposal of asbestos waste materials, as well as mold remediations, include but are not limited to the following:
 - 1. American National Standards Institute (ANSI)
 - 2. Fundamentals Governing the Design and Operation of Local Exhaust Systems, Publication 29.2-79.
 - 3. Practices for Respiratory Protection Publication 288.2-80.

1.04 EPA GUIDANCE DOCUMENTS:

- a. EPA Guidance Documents: Which discuss asbestos abatement, or hauling and disposal of asbestos waste materials, are listed below for the Contractor's information only. These documents do not describe the Contract Work and are not a part of the Work of this Contract.
 - 1. Guidance for Controlling Asbestos-Containing Materials in Buildings (Purple Book). EPA 560/5-85-024.
 - 2. Friable Asbestos-Containing Materials in Schools: Identification and Notification Rule (40 CFR Part 763).
 - 3. Asbestos in Buildings: Guidance for Service and Maintenance Personnel. EPA 560/5-85-018.
 - 4. Asbestos Waste Management Guidance. EPA 530-SW-85-007.
 - 5. Asbestos Fact Book. EPA Office of Public Affairs.



6. A Guide to Respiratory Protection for the Asbestos Abatement Industry. EPA-560-0PTS-86-001.
7. Guideline: Mold Remediation in Schools and Commercial Buildings; EPA 402-K-01-001.

1.05 LICENSES:

- a. Licenses: Maintain current licenses as required by applicable State or legal jurisdictions for the removal, transporting, disposal or other regulated activity relative to the Work of this Contract.

1.06 TAXES AND FEES:

- a. Unless otherwise provided in the Contract Documents, the Contractor shall pay sales, consumer, use and other similar taxes which are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. The contractor shall secure and pay for the building permit and all other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work. DCPS will reimburse contractor's direct cost for DERM notification fees with proof of payment to DERM.

1.07 PATENTS, ROYALTIES AND LICENSES:

- a. The Contractor shall pay all patent licenses, royalties and license fees relating to, or involved with, the accomplishment of this work. As a condition of this contract he agrees to hold the Owner and the Consultant harmless against any related claims and he shall defend the Owner and his Consultant from any legal action or monetary claims or related damages for any infringement of any patent rights, methods or license agreements.

1.08 SUBMITTALS:

- a. Refer to section 01301

1.09 NON-COMPLIANCE:

- a. CONTRACTOR VIOLATIONS:
 1. If the contractor, during the course of the work, fails to comply with applicable codes, regulations, contract specifications, or safety requirements, The Department of Environmental Management Representative shall issue a



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verbal warning to the Contractor's on-site supervisor, requesting immediate correction followed by a subsequent Notice of Non-Compliance to the Contractor's on-site supervisor for the violation(s) observed. The site Notice of Non-Compliance will be reported to the Department of Environmental Management's (LEA), which in turn may issue a copy of the DEM Representatives' Notice of Non-Compliance to the Contractor within 24 hours of the occurrence, advising the Contractor of the violations incurred by its field personnel. Upon receipt of a Non-Compliance, the Contractor shall immediately confirm to DEM/LEA in writing, the corrective action taken to remedy the situation.

2. If the Contractor fails to correct the violations cited, the Department shall issue a Stop Work Order; work shall not resume until all required corrections have been implemented. If the observed violations are of such nature that a toxic substance release could result, or that the health and safety of persons or property are endangered, the DEM Representative will order the Contractor to stop work immediately. Any delays in the completion of the work, as a result of stoppage due to non-compliances, shall be borne by the Contractor, and shall not be reason for extension of the project schedule; the Liquidated Damages provisions of the contract shall apply.
3. Non-Compliance: If the violation is such that a department Non-Compliance Notification is issued, the citation will be recorded in the contractor's file and will be considered as part of the Contractor's evaluation. Any violation which results in exposure of the occupants to contaminants will be notified to the EPA/Region IV office in Atlanta, the OSHA/South Florida office, and/or Dade County DERM, as appropriate.

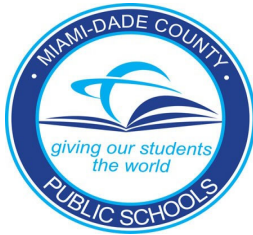
b. CONSEQUENCES OF NON-COMPLIANCE:

1. The Contractor's Non-Compliance record will be kept as part of the firm's performance history, which will be used to evaluate each contractor's performance at the completion of the Term Contract. The Board shall use the evaluation results to determine acceptance for future bids under the Board's Contractor Pre-Qualification Program.
2. Repeated failure by the Contractor to comply with the requirements of the Contract Documents and applicable regulations, evidenced through the issuance of multiple Non-Compliance notices, shall constitute sufficient cause for termination of the Term Contract and declaring the Contractor "non-responsible." Non-responsible contractors are excluded from bidding on Miami-Dade County School Board projects for a period of fourteen (14) months.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION



SECTION 01091

DEFINITIONS AND STANDARDS

PART 1 - GENERAL

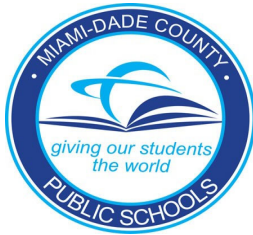
1.01 SUMMARY:

a. General Purpose:

This section provides explanation of standard format and terms used in these specifications and outlines definitions of commonly used words.

1.02 DEFINITIONS - BROAD SCOPE:

- a. General: Definitions contained in this Section are not necessarily complete, but are general to the extent they are not defined more explicitly elsewhere in the Contract Documents.
- b. Indicated: This term refers to graphic representations, notes or schedules on Drawings, or other Paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Where terms such as "shown", "noted", "scheduled", and "specified" are used, it is to help locate the reference; no limitation on location is intended except as specifically noted.
- c. Directed: Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean "directed by the Owner's Representative", "requested by the Owner's Representative", and similar phrases. However, no implied meaning shall be interpreted so as to extend the Owner's Representative's responsibility into the Contractor's area of construction supervision.
- d. Approve: The term "approved", where used in conjunction with the Owner's Representative action on the Contractor's submittals, applications, and requests, is limited to the responsibilities and duties of the Architect as stated in the General and Supplementary Conditions. Such approval shall not release the Contractor from responsibility to fulfill the Contract Document requirements, unless otherwise provided in the Contract Documents.
- e. Regulation: The term "Regulations" includes laws, statutes, ordinances and lawful orders issued by authorities having jurisdiction, as well as rules, conventions and agreements within the construction industry that control performance of the Work, whether they are lawfully imposed by authorities having jurisdiction or not.



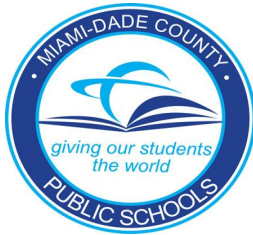
- f. **Furnish:** The term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and similar operations."
- g. **Install:** The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations."
- h. **Provide:** The term "provide" means "to furnish and install, complete and ready for the intended use."
- i. **Installer:** An "Installer" is an entity engaged by the Contractor, either as an employee, subcontractor or sub-subcontractor for performance of a particular construction activity, including installation, erection, application and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
- j. **Project Site:** Is the space available to the Contractor for performance of the Work, either exclusively or in conjunction with others performing other construction as part of the project. The extent of the project site is shown on the Drawings, and may or may not be identical with the description of the land upon which the project is to be built.
- k. **Testing Laboratories:** A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the project site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests.
- l. **Owner's Representative:** The Owner's Representative will represent the Owner during construction and until final payment is due. The Owner's Representative will advise and consult with the Owner. The Owner's instructions to the Contractor will be forwarded through the Owner's Representative, the Project Administrator (also known for this work as the Environmental Remediation Project Inspector - ERPI), or the Owner's designee.
- m. **Project Administrator:** The Project Administrator is a full time representative of the Owner with authority to stop the Work if requirements of the Contract Documents are not met, or if in the sole judgment of the Project Administrator, the interests of the Owner, safety of any person or the Owner's property, are jeopardized by the Work. If a separate Project Administrator is not specified in the contract documents, the Owners Representative will assume his responsibilities. For the Miami Dade County Schools, this entity is known as the Department of Asbestos Management Construction Coordinator.



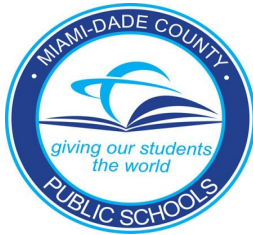
- n. **General Superintendent:** This is the Contractor's Representative at the work site also known as the On-Site Contractor's Supervisor. This person is the Competent Person required by OSHA in 29 CFR 1926.1101.
- o. **Inspector:** A term used in the contract documents to mean the Environmental Remediation Project Inspector (ERPI), the designated representative of the M-DCPS Department of Environmental Management, who functions as the Project Administrator for purposes of this specification. Inspectors from other M-DCPS departments may have a role as construction trades inspectors relative to replacement of materials.

1.03 DEFINITIONS RELATIVE TO ASBESTOS & MOLD REMEDIATION:

- 1. **Air Monitoring:** The process of measuring the fiber or spore concentration of a specific volume of air.
- 2. **Amended Water:** Water to which a surfactant has been added to decrease the surface tension to 35 or less dynes.
- 3. **Asbestos:** Includes the minerals chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite. For purpose of these Specifications both the asbestiform and non-asbestiform varieties of the above minerals and any of these materials that have been chemically treated and/or altered shall be considered as asbestos.
- 4. **Asbestos-Containing Material (ACM):** Any material containing more than one percent {1%} by weight or volume of asbestos of any type or mixture of types.
- 5. **Asbestos-Containing Waste Material:** Any material which is or is suspected of being contaminated with an asbestos-containing material which is to be removed from a Work Area for disposal.
- 6. **Asbestos Debris:** Pieces of ACM that can be identified by color, texture, or composition, or dust, if the dust is determined by an accredited inspector to be ACM.



7. **Authorized Visitor:** The Owner, the Owner's Representative, testing lab personnel, the Architect/Engineer or a representative of any federal, state and local regulatory or other agency having authority over the project. Representatives of any regulatory agency, may be accompanied by the Owner or his representative.
8. **Barrier:** Any surface that seals off the Work Area.
9. **Breathing Zone:** A hemisphere forward of the shoulders of a person with radius of approximately six to nine inches.
10. **Certified Industrial Hygienist (C.I.H.):** An industrial hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene.
11. **Consultant:** An Asbestos Consultant holding a State License and properly certified by the State of Florida. In mold remediation projects, the Environmental Consultant & CIH assisting the owner with IAQ concerns. This term may also refer to an Architect or Engineer, when any building modifications occur as part of the renovation.
12. **Contractor:** Refers to the entity which performs the remediation work. This entity shall hold a State License and be properly certified by The State of Florida to perform the work specified by this contract. This entity may be an individual (male or female) or corporation, but for the sake of clarity is referred to in the male gender in this document.
13. **Critical Barrier:** The air-tight barrier which prevents air or fiber movement between the work area, the outside or other portions of the building. This may be part of a physical barrier.
14. **Demolition:** The wrecking or taking out of any fixed and built-in objects or load-supporting structural member of a facility, together with any related handling operations.
15. **Disposal Bag:** A leak-tight clear plastic bag, properly labeled minimum of 6 mil thickness, used for transporting asbestos waste from the Work Area. A plastic bag used to remove mold-containing materials from the Work Area to the dumpster.
16. **Encapsulant:** A material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent release of fibers.
 - (a) **Bridging Encapsulant:** An encapsulant that forms a discrete layer on the surface of an on-site asbestos matrix.



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- (b) Penetrating encapsulant: An encapsulant that is absorbed by the on-site asbestos matrix without leaving a discrete surface layer.
 - (c) Removal encapsulant: A penetrating encapsulant specifically designed for removal of asbestos-containing materials rather than for post-abatement lock-down.
- 17. **Encapsulation:** Treatment of asbestos-containing materials with an encapsulant.
 - 18. **Filter:** A media component used in respirators to remove solid or liquid particles from the worker's breathing air.
 - 19. **Full Decontamination Unit:** A (5) five chamber personnel decontamination station with polyethylene flaps and a locking secured entrance door, and consisting of a Clean Room, Air Lock, Shower, Air Lock, and Equipment Room. (See Enclosed Diagram).
 - 20. **Dry Decontamination Unit:** (Floor tile removal projects) A (3) three chamber decontamination unit with polyethylene flaps and a locking secured entrance and consisting of Clean room, Air Lock, and Equipment Room. (See Enclosed Diagram).
 - 21. **Mini Decontamination Unit:** A 1 chamber unit with flaps and locking entrance door. 01091-5. with polyethylene flaps and a locking secured entrance
 - 22. **Friable Asbestos Material:** Material that contains more than one percent (1%) asbestos by weight and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.
 - 23. **Glove-bag:** A sack (typically constructed of transparent polyethylene or polyvinyl chloride plastic, a minimum 6 mil thickness), with two inward projecting long sleeve gloves, designed to enclose an object from which asbestos-containing material is to be removed.
 - 24. **Lock-Down Encapsulant:** Material used to lock-down any remaining microscopic asbestos fibers on surfaces after abatement and fine-cleaning
 - 25. **HEPA Filter:** A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97% of asbestos fibers, lead atoms, or mold spores as small as 0.3 microns or greater in dimension.
 - 26. **HEPA Filter Vacuum Collection Equipment (or vacuum cleaner):** High Efficiency Particulate Air Filter system capable of collecting and retaining asbestos fibers. Filters shall be of 99.97% efficiency at retaining fibers of 0.3 microns or larger.



27. **Negative Pressure Respirator:** A respirator in which the air pressure inside the respiratory-inlet covering is positive during exhalation in relation to the air pressure of the outside atmosphere and negative during inhalation in relation to the air pressure of the outside atmosphere.
28. **Personal Monitoring:** Sampling of the fiber concentrations within the breathing zone of a worker.
29. **Physical Barrier:** A barrier between the work area and the adjacent building areas constructed of hard, wood, or other hard materials in order to prevent physical intrusion into the work area. The physical barrier may contain the Critical Barrier.
30. **Punch List:** As used herein shall refer to a list of items of work required by Contract Documents which after inspection by the M-DCPS ERPI has been termed to be deficient and/or inconsistent with the Contract Documents. This list will be compiled, and submitted to the Contractor, only upon substantial completion of the project, as determined by the Department of Environmental Management.
31. **Pressure Differential and Ventilation System:** A local exhaust system, utilizing HEPA filtration, capable of maintaining a pressure differential with the inside of the Work Area at a lower pressure than any adjacent area, and which filters re-circulated air or generates a constant air flow from adjacent areas into the Work Area.
32. **Primary Barrier:** That barrier which protects the critical barrier and serves as the main working barrier for containment of asbestos containing debris or air-fibers.
33. **Protection Factor:** The ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator at the breathing zone of the wearer. The protection factor is a measure of the degree of protection provided by a respirator to the wearer.
34. **Renovation:** Altering, in any way, one or more facility components, exclusive of operations where load-supporting structural members are wrecked or taken out (those operations constitute demolition).



- 35. **Repair:** Returning damaged ACM to an undamaged condition or to an intact state so as to prevent fiber release.
- 36. **Respirator:** A device designed to protect the wearer from the inhalation of harmful substances within the atmosphere.
- 37. **Secondary Barrier:** An additional barrier placed on top of the Primary Barrier in order to provide better protection of the Critical Barrier.
- 38. **Surfactant:** A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation.
- 39. **Time Weighted Average (TWA):** The average concentration of a contaminant in air during a specific time period.
- 40. **Visible Emissions:** Any emissions containing asbestos that are visually detectable without the aid of instruments.
- 41. **Wet Cleaning:** The process of reducing asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils that have been dampened with amended water or diluted removal encapsulant, which after use are thoroughly decontaminated or disposed of as asbestos-contaminated waste.
- 42. **Wetting Agent:** A substance added to water to improve penetration.
- 43. **Work Area:** The area where asbestos, lead or mold removal operations or repair are performed. The work area is defined and/or isolated to prevent the spread of contaminated dust, fibers or debris and the entry of unauthorized personnel. When dealing with asbestos materials that are friable or could become friable during the work, the work area is a Regulated Area as defined by 29 CFR 1926.1101.

1.04 SPECIFICATION FORMAT:

- a. **Specification Production:** None of the following explanations shall be interpreted to modify the substance of the Contract requirements. Portions of these specifications have been produced by Owner's standard method of editing master specifications and may contain minor deviations from traditional writing formats. Such deviations are a natural result of this production technique, and no other meaning will be implied or permitted.



b. **Format:**

1. For convenience, the basic unit of this text is a "Section". Each Section is identified by a descriptive title (name) and number. Individual Sections are grouped together with other Sections of similar or related work groupings known as "divisions". Divisions are recognized as the present industry consensus on uniform specification organization and sequence (CSI Master Format). The Section title is not intended to limit meaning or content of a Section, nor to be fully descriptive of the requirements specified therein, nor to be an integral part of text.
2. Each Section of specifications has been subdivided into 3 "parts" for uniformity and convenience (Part 1 - General, Part 2 - Products, and Part 3 - Execution). Some Sections may not require the use of all three parts. These titles do not limit the meaning of and are not an integral part of text which specifies requirements.

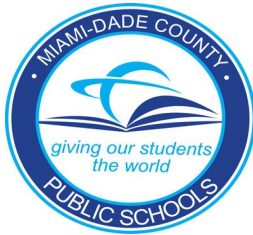
- c. **Imperative language:** Is used generally in specifications. Except as otherwise indicated, requirements expressed imperatively are to be performed by Contractor. For clarity of reading at certain locations, contrasting subjective language is used to describe responsibilities which must be fulfilled indirectly by the Contractor or by others, when so noted.

- d. **Section numbering:** Is used to facilitate cross-references in the Contract Documents.

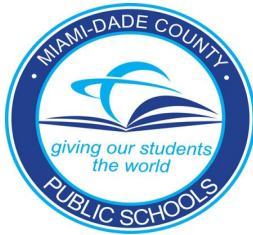
- e. **Page Numbering:** Pages are numbered independently for each Section. The Section number is shown together with the page number at the bottom of each page to facilitate the location of text in the Specifications.

- f. **Specification Content:** Because of methods by which this project specification has been produced, certain general characteristics of content and conventions in use of language are explained as follows:

1. **Specifying Methods:** The techniques or methods of specifying to record requirements varies throughout text and may include "prescriptive", "open generic-descriptive", "compliance with standards", "performance" or a combination of these. The method used for specifying one unit of Work has no bearing on requirements for another unit of Work.



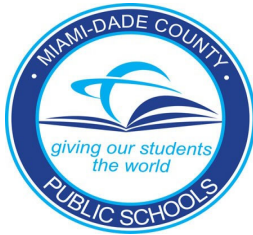
2. **Overlapping and Conflicting Requirements:** When compliance with two or more Industry Standards or Specification Requirements is specified, and when overlapping of different standards or requirements establish conflicting levels of quality, the most stringent or costly requirement shall be enforced, unless specifically indicated otherwise in the Contract Documents. Refer any requirement conflicts to the Owner for a decision before proceeding.
3. **Minimum Quality/Quantity:** In every instance, quality level or quantity specified is intended to be the minimum for the Work to be performed. Except where specifically indicated, actual Work may either comply exactly with that minimum (without specified tolerances) or may exceed that minimum within reasonable limits. No work will be accepted that is below the specified level of quality. Refer instances of uncertainty to the Owner for a decision before proceeding.
4. **Specialists' Assignments:** Certain instances in specification text require (or imply) that specific Work be assigned to specialists or expert entities, who must be engaged for the performance of that Work. Such assignments shall be recognized as special requirements over which the Contractor has no choice or option. These requirements should not be interpreted to conflict with the enforcement of building codes and similar regulations governing the Work; they are also not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of Work is recognized as "expert" for indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of entire set of Contract requirements remains with the Contractor.
5. **Trades:** Except as otherwise indicated, the use of titles such as "carpentry" in specification text implies neither that the Work must be performed by an accredited or unionized trades-person of corresponding generic name (such as "carpenter") nor that specified requirements apply exclusively to work by trades-persons of that corresponding generic name.
6. **Abbreviations:** The language of Specifications and Contract Documents is of the abbreviated type in certain instances and implies words and meanings which will be appropriately interpreted. Actual word abbreviations of a self-explanatory nature have been included in the texts. Principally, specific abbreviations have been established for lengthy technical terminology and primarily in conjunction with coordination of specification requirements with notations on drawings and in schedules.



At the first instance of use within a Section, the abbreviations are defined by full use of the name or word. Thereafter in the Section, the abbreviations substitute for the full words. Trade association names and titles of general standards are frequently abbreviated. Singular words will be interpreted as plural and plural words will be interpreted as singular, where applicable and also where full context of the Contract Documents so indicates.

1.05 INDUSTRY STANDARDS:

- a. **General Applicability of Standards:** Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, applicable standards of the construction industry have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies were bound herewith. Refer to paragraph 1.04.f.2 for resolution of overlapping and conflicting requirements which result from the application of several different industry standards to the same unit of Work. Refer to individual unit of Work Sections for indications of which specialized codes and standards the Contractor must keep at the project site for reference.
- b. **Referenced standards:** Are those which are referenced directly in contract documents or by governing regulations and have precedence over non-referenced standards which are recognized in industry for applicability to Work.
- c. **Non-referenced standards:** Are hereby defined to have no particular applicability to the Work except as general requirements of whether the Work complies with standards recognized in the construction industry.
- d. **Publication Dates:** Where compliance with an industry standard is required, comply with the standard that is in effect as of date of the Contract Documents.
- e. **Updated Standards:** At the request of the Owner, submit a change order proposal where an applicable industry code or standard has been revised and re- issued after the date of the Contract Documents and before the performance of the Work affected. The Owner will decide whether to issue the change order to proceed in compliance with the updated standard.
- f. **Copies of Standards:** The Contract Documents require that each entity performing Work be experienced in that part of the work being performed. Each entity is also required to be familiar with recognized industry standards



applicable to that part of the Work. Copies of applicable standards are not bound within the Contract Documents:

1. Where copies of standards are needed for proper performance of the Work, the Contractor is required to obtain such copies directly from the publication source.
 2. Although certain copies of standards needed for enforcement of the requirements may be required submittals, the Owner's Representative reserves the right to require the Contractor to submit additional copies of the standard as necessary for enforcement of the requirements.
- g. **Abbreviations and Names:** Where acronyms or abbreviations are used but not identified in specifications or other Contract Documents then they are defined to mean the industries recognized name of trade association, standards generating organization, governing authority or other entity applicable to context of text provision. Refer to "Encyclopedia of Associations", published by Gale Research Co., available in large libraries.

The following acronyms or abbreviations as referenced in the Contract Documents are defined to mean the associated names. Both names and addresses are subject to change, and are believed to be, but are not assured to be, accurate and up-to-date as of date of the Contract Documents:

AIA	American Institute of Architects
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute
ACGIH	American Conference of Governmental Industrial
CDC	Centers for Disease Control
CFR	Code of Federal Regulations
DEP	Department of Environmental Protection (State of Florida)
DERM	Department of Environmental Resources Management (Mia-DC)
DOT	Department of Transportation
EPA	Environmental Protection Agency
OSHA	Occupational Safety & Health Administration



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- h. **Trade Union Jurisdictions:** It is a procedural requirement that the Contractor and subcontractors must maintain the complete and current information on jurisdictional matters, regulation actions and pending actions, as applicable to the Work. Discuss new developments at appropriate project meetings at the earliest feasible dates and record information of relevance along with the action agreed upon. The manner in which the Contract Documents have been organized and subdivided is not intended to be an indication of jurisdictional or trade union agreements. Assign and subcontract the Work and employ tradesmen and laborers, in a manner which will not unduly risk jurisdictional disputes of a kind which could result in conflicts, delays, claims and losses in the performance of the Work.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION



SECTION 01092

CODES, REGULATIONS, AND STANDARDS

PART 1 - GENERAL

1.01 SUMMARY:

- a. This Section sets forth governmental regulations and industry standards which are included and incorporated herein by reference and made a part of the specification. This Section also sets forth those notices and permits which are known to the Owner and which either must be applied for and received or which must be given to governmental agencies before start of the Work.
- b. Requirements include adherence to Work practices and procedures set forth in applicable codes, regulations and standards.

1.02 CODES AND REGULATIONS:

- a. **General Applicability of Codes, Regulations, and Standards:** Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable codes, regulations, and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.
- b. **Contractor Responsibility:** The Contractor shall assume full responsibility and liability for the compliance with all applicable Federal, State and local regulations pertaining to Codes, Work practices, hauling, disposal, protection of workers and visitors to the site including persons occupying areas adjacent to the site. Since the Contractor is responsible for coordinating other trades within this scope of work, the Contractor must comply with Chapter 489, Florida Statutes, concerning requirements for building contractors in addition to being licensed as a Florida Asbestos Abatement Contractor (as outlined in Chapter 455 of the Florida Statutes) and a Florida Mold Remediator (per Chapter 468.84). The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State and local regulations. The Contractor shall hold the Owner, Owner's Representatives and the Consultant harmless for his failure to comply with any applicable



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Work, Hauling, Disposal, Safety, Health or any other applicable regulations on the part of himself, his employees or his subcontractors. The contractor shall be responsible for any monetary fine incurred by the owner as a result of actions by any employee or representative. In the event of such fine the owner shall have recourse to any and all payments owed to the contractor for individual Job Order Forms issued under this term contract, in order to defray the cost.

- c. **Posting and Filing of Regulations:** Maintain two (2) copies of applicable federal, state and local regulations indicated above. Maintain one copy of each at the job site and keep one copy of each in the Contractor's main office. Applicable regulations include, but are not limited to, the following:
- d. **Federal, State & Local Requirements:** Regulations and guidelines that govern asbestos and lead abatement Work, hauling and disposal of asbestos or lead waste materials, and mold remediation and duct cleaning guidelines, which are incorporated herein and become a part of these documents, include but are not limited to the following:

EPA: U.S. Environmental Protection Agency regulations, including but not limited to:

- 1. National Emission Standards for Hazardous Air Pollutants (NESHAP): 40 CFR Part 61 Subpart M, Asbestos.
- 2. Asbestos Hazard Emergency Response Act (AHERA): 40 CFR Part 763 - Asbestos-Containing Materials in Schools-Final Rule.
- 3. Lead; Requirements for Lead-Based Paint Activities in Target Housing and Child-Occupied Facilities; Final Rule. 40 CFR Part 745, Subpart L.
- 4. Lead; Renovation, Repair, and Painting Program; Lead Hazard Information Pamphlet; Notice of Availability; Final Rule. 40 CFR Part 745.

OSHA: U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), including but not limited to:

- 1. Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite: Final Rules
Title 29, Part 1910, Section 1001 and
Part 1926, Section 1101 of the
Code of Federal Regulations



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2. Lead Exposure in Construction; Interim Final Rule
Title 29, Part 1926, Section 62 of the
Code of Federal Regulations
3. Respiratory Protection
Title 29, Part 1910, Section 134 of the
Code of Federal Regulations
4. Access to Employee Exposure and Medical
Records Title 29, Part -1910, Section 2 of the
Code of Federal Regulations
5. Hazard Communication
Title 29, Part 1926, Section 59 of the
Code of Federal Regulations
6. Specifications for Accident Prevention Signs and Tags
Title 29, Part 1910, Section 145 of the
Code of Federal Regulations

DOT: U.S. Department of Transportation, including but not limited to:

1. Hazardous Substances
Title 29, Part 171 and 172 of the
Code of Federal Regulations

State Requirements: Governing asbestos abatement Work or hauling and disposal of asbestos waste materials, and mold remediation, including, but not limited to the following:

1. Chapter 255.551 - 255.563 of the Florida Statutes (Asbestos Management Program).
2. Chapter 469.001 - 469.009 of the Florida Statutes (Licensure of Asbestos Consultants and Contractors).
3. Chapter 468.84 of the Florida Statutes (Licensure of Mold Remediators).
4. Asbestos Coordination through:
Department of Environmental Protection (FDEP)
Division of Air Resource Management
2600 Blairstone Road
Tallahassee, FL 3239



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National Air Duct Cleaners Association (NADCA) Guidelines: Guidelines which provide procedural safeguards and best practices in the accessing and cleaning of HVAC ductwork and components, including but not limited to:

1. General Specifications for the Cleaning of Commercial HVAC Systems-2005
2. Assessment, Cleaning and Restoration Standard (ACR)-2006

Miami-Dade County Public Schools: Contractor shall adhere to all applicable M-DCPS rules and regulations and comply with all established procedures and policies which govern the work and his activities.

- e. **Notification:** Contractor shall include the following information in a notification sent to DERM, at least ten working days prior to beginning Work. This notification shall be in conformance with the requirements of EPA National Emission Standards for Hazardous Air Pollutants (NESHAPS) Asbestos Regulations (40 CFR 61, Subpart M, Section 61.145):
- a. Name and address of the Owner.
 - b. M-DCPS Department of Environmental Management's Project Number (JOF #).
 - c. Name, address, and License number of the asbestos Contractor.
 - d. Exact physical address of the facility being demolished or renovated.
 - e. Description of the facility being demolished or renovated, including the size, age and prior use of the facility.
 - f. Estimate of the amount of ACM to be removed in terms of linear feet of pipe and surface area on other facility components.
 - g. Scheduled starting and completion dates of demolition or renovation. Provide an updated notification if the starting or completion dates change by more than two weeks.
 - h. Nature of planned demolition or renovating and method(s) to be used.
 - i. Name and address of the waste disposal site where the asbestos waste material will be disposed.



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- j. Send the DERM notification to:
Miami-Dade County
Department of Environmental Resources Management
(DERM) 33 S.W. 2nd Avenue Suite 900
Miami, Florida 33130
(305) 372-6925
- k. The contractor shall submit to the owner, proof of Notifications in the form of a DERM-stamped copy of the notice or a certified mail receipt. Provide Proof of DERM Fee Payment, Submit copy of check as per Submittals Requirements 01301

1.03 STANDARDS:

- a. Standards which govern asbestos abatement Work or hauling and disposal of asbestos waste materials, as well as mold remediations, include but are not limited to the following:
 - 1. American National Standards Institute (ANSI)
 - 2. Fundamentals Governing the Design and Operation of Local Exhaust Systems, Publication 29.2-79.
 - 3. Practices for Respiratory Protection Publication 288.2-80.

1.04 EPA GUIDANCE DOCUMENTS:

- a. EPA Guidance Documents: Which discuss asbestos abatement, or hauling and disposal of asbestos waste materials, are listed below for the Contractor's information only. These documents do not describe the Contract Work and are not a part of the Work of this Contract.
 - 1. Guidance for Controlling Asbestos-Containing Materials in Buildings (Purple Book). EPA 560/5-85-024.
 - 2. Friable Asbestos-Containing Materials in Schools: Identification and Notification Rule (40 CFR Part 763).
 - 3. Asbestos in Buildings: Guidance for Service and Maintenance Personnel. EPA 560/5-85-018.
 - 4. Asbestos Waste Management Guidance. EPA 530-SW-85-007.
 - 5. Asbestos Fact Book. EPA Office of Public Affairs.



6. A Guide to Respiratory Protection for the Asbestos Abatement Industry. EPA-560-0PTS-86-001.
7. Guideline: Mold Remediation in Schools and Commercial Buildings; EPA 402-K-01-001.

1.05 LICENSES:

- a. Licenses: Maintain current licenses as required by applicable State or legal jurisdictions for the removal, transporting, disposal or other regulated activity relative to the Work of this Contract.

1.06 TAXES AND FEES:

- a. Unless otherwise provided in the Contract Documents, the Contractor shall pay sales, consumer, use and other similar taxes which are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. The contractor shall secure and pay for the building permit and all other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work. DCPS will reimburse contractor's direct cost for DERM notification fees with proof of payment to DERM.

1.07 PATENTS, ROYALTIES AND LICENSES:

- a. The Contractor shall pay all patent licenses, royalties and license fees relating to, or involved with, the accomplishment of this work. As a condition of this contract he agrees to hold the Owner and the Consultant harmless against any related claims and he shall defend the Owner and his Consultant from any legal action or monetary claims or related damages for any infringement of any patent rights, methods or license agreements.

1.08 SUBMITTALS:

- a. Refer to section 01301

1.09 NON-COMPLIANCE:

- a. CONTRACTOR VIOLATIONS:
 1. If the contractor, during the course of the work, fails to comply with applicable codes, regulations, contract specifications, or safety requirements, The Department of Environmental Management Representative shall issue a



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verbal warning to the Contractor's on-site supervisor, requesting immediate correction followed by a subsequent Notice of Non-Compliance to the Contractor's on-site supervisor for the violation(s) observed. The site Notice of Non-Compliance will be reported to the Department of Environmental Management's (LEA), which in turn may issue a copy of the DEM Representatives' Notice of Non-Compliance to the Contractor within 24 hours of the occurrence, advising the Contractor of the violations incurred by its field personnel. Upon receipt of a Non-Compliance, the Contractor shall immediately confirm to DEM/LEA in writing, the corrective action taken to remedy the situation.

2. If the Contractor fails to correct the violations cited, the Department shall issue a Stop Work Order; work shall not resume until all required corrections have been implemented. If the observed violations are of such nature that a toxic substance release could result, or that the health and safety of persons or property are endangered, the DEM Representative will order the Contractor to stop work immediately. Any delays in the completion of the work, as a result of stoppage due to non-compliances, shall be borne by the Contractor, and shall not be reason for extension of the project schedule; the Liquidated Damages provisions of the contract shall apply.
3. Non-Compliance: If the violation is such that a department Non-Compliance Notification is issued, the citation will be recorded in the contractor's file and will be considered as part of the Contractor's evaluation. Any violation which results in exposure of the occupants to contaminants will be notified to the EPA/Region IV office in Atlanta, the OSHA/South Florida office, and/or Dade County DERM, as appropriate.

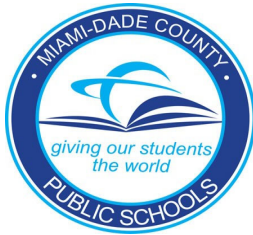
b. CONSEQUENCES OF NON-COMPLIANCE:

1. The Contractor's Non-Compliance record will be kept as part of the firm's performance history, which will be used to evaluate each contractor's performance at the completion of the Term Contract. The Board shall use the evaluation results to determine acceptance for future bids under the Board's Contractor Pre-Qualification Program.
2. Repeated failure by the Contractor to comply with the requirements of the Contract Documents and applicable regulations, evidenced through the issuance of multiple Non-Compliance notices, shall constitute sufficient cause for termination of the Term Contract and declaring the Contractor "non-responsible." Non-responsible contractors are excluded from bidding on Miami-Dade County School Board projects for a period of fourteen (14) months.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION



SECTION 01301

SUBMITTAL REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED WORK:

1. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.

1.02 SUMMARY

- a. This Section specifies the requirements and schedule for contractor submittals to the Owner. Submittals are divided into General Contract Submittals and Specific Job Related Submittals as specified herein below.
- b. All submittals must be submitted to the Owner's Representative prior to the Project Start Date, to allow adequate time for review.

1.03 SUBMITTAL PROCEDURES:

- a. Include the following information on the label for processing all submittals:
 1. Facility Name and Address
 2. DEM project number (JOF)
 3. Contractor Name and Address
 4. Title of Appropriate Submittal: Term Bid General Submittal, Pre- or Post-Job Submittal
- b. Submittal Transmittal:
 1. Package and bind each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Department of Environmental Management using a transmittal form. Submittals received from sources other than the Contractor will be returned without action. Contractor is only required to submit one copy of the General Submittal at the start of the contract term, and one copy of each Pre/Post Job Submittal for each JOF.



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2. On the transmittal form record relevant information and requests for data. On the form or a separate sheet, record deviations from Contract Document requirements including minor variations and limitations. Include Contractor's certification that information complies with the Contract Document requirements.

c. Submittal Requirements:

1. All project submittals shall be bound in book or binder form, following the order specified in their respective outlines.
 - a) Provide one copy of the Term Bid General Submittal.
 - b) Provide one copy of the Specific Pre-Job Submittal, per JOF.
 - c) Provide one copy of the Specific Post-Job Submittal, per JOF.
 - d) Provide one copy of the Final Project Documents as a separate break-out section of the Specific Post-Jobs Submittals, per JOF.
2. Term Bid General, Pre/Post Specific Submittals:
 - a) Term Bid General Submittals: The Owner will review the Term Bid General Submittal and will notify the contractor, via phone/email, of review comments. (Acceptable, Unacceptable, etc.). If submittal is unacceptable, Contractor shall resubmit same with corrections, in accordance with review comments.
 - b) Specific Pre-Job Submittals: The Owner will review each project submittal and if acceptable, will notify Contractor that he may proceed with preparation of work area. If unacceptable, Contractor shall submit with corrections prior to start of work. No time extensions will be granted to the Contractor for his failure to provide acceptable submittals in a timely manner.
 - c) Specific Post Job Submittals: Must be submitted when the Contractor requests Final Payment of the JOF amount. Post Job submittals will be required for the release of the full retainage amount. On small projects of limited compensation, failure to submit post job submittals may result in withholding of all or part of the Final Payment (even in excess of the retainage amount)



PART 2 – PRODUCTS

2.01 PRODUCT DATA:

- a. Collect all Product Data into a single submittal. Product Data includes printed information such as Material Safety Data Sheets (MSDS), manufacturer's use instructions and catalog cuts.
- b. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, mark copies to indicate the applicable information. Include the following information:
 1. Manufacturer's printed recommendations.
 2. Compliance with recognized Trade Association Standards.
 3. Compliance with recognized Testing Agency Standards.
 4. Application of Testing Agency labels and seals.
- c. Material Safety Data Sheets: Process material safety and data sheets as "Product Data".

PART 3 - EXECUTION

3.01 SUBMITTAL SCHEDULE:

- a. **GENERAL TERM BID SUBMITTALS:** These submittals will be submitted within twenty (20) days after contract award or prior to the start of any work and as outlined in other areas of this section. Contractor will be responsible to keep all parts of the Term Bid General Submittals up to date at all times. The Term Bid General Submittals shall include, but not limited to the following:
 1. 01013 - Plan of Action for various general removal projects (floor tile, ceiling tile, HVAC mastic, moldy drywall, etc.).
 2. 01043 - Certificate of training of the General Superintendent. Contingency plans for various general removal projects.



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3. 01092 - Licenses, Notifications, permits.
4. 01503 - Approved temporary power panels and temporary power data.
5. 01513 - Pressure differential system design. HEPA filtered fan units: Product data, maintenance schedule. Pressure differential monitoring equipment: Product data and operation instructions, maintenance schedule.
6. 01526 - Spray cement and spray cement remover: product data and material safety data sheet. Signs: samples. Locks: ten decontamination unit keys.
7. 01561 - Certificate of Workers Acknowledgment, Training Certification, Medical Surveillance documentation, and Notarized Certification of Compliance with 29 CFR 1926.1101.
8. 01562 - Type "C" supplied air: system diagram and operation instructions.
9. 01562 - Product data: NIOSH approval label and certifications. Respiratory fit test documentation (annually for each worker) and Notarized Certification of Compliance with 29 CFR 1910.134.
10. 01563-Waterfilters and polyethylene: product data.
11. 01632 - Substitution requests: product data, samples, etc. as applicable.
12. 01711 - Encapsulant: product data, material safety data sheet, fireproofing compatibility data.
13. 01712 - Cleaning Agent: Submit product and MSDS data for cleaning/disinfectant and/or biocide to be used on this contract.
14. 01718 - Submit all required post-job submittal documentation at the end of each project, including logs, manometer readings, waste shipment records, and any other documents, together with the request for Final Payment. Absence of submittals may delay such payments.



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15. 13281 - Removal of Asbestos: Submit typical plan of action for each removal activity. Where applicable, submit Negative Exposure Assessment.
 16. 13281 - Glovebag: product data. Where applicable, submit Negative Exposure Assessment.
 17. 13282 – Disposal: Provide Name and address of landfill, landfill contact person and telephone number. Product data for disposal bags and transport drums. Within 35 days of project completion, submit Waste Shipment Records with landfill signature (Asbestos projects). For disposal of lead contaminated waste, provide waste disposal records from approved lead landfill.
 18. 13285 and 13286 - Disinfectant/cleaner: Submit product data, use instructions and recommendations from manufacturer of cleaner intended for use. Anti-microbial paint: Submit product data, use instructions and recommendations from manufacturer of anti-microbial coating intended for use. Submit the Material Safety Data Sheet, or equivalent, in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) for each chemical substance proposed for use on the Work. Include a separate attachment for each sheet indicating the specific worker protective equipment proposed for use with the material indicated.
- b. **SPECIFIC PRE-JOB SUBMITTALS:** The contractor will be required to submit all pre-job submittals as outlined. These submittals will be submitted for each individual project and/or job order form, seven (7) working days prior to the scheduled start date, where possible. Contractor will not be considered ready to begin a project until all pre-job submittals have been received & approved by the Owner. (All documents are to include the JOF Number.) The specific pre-job submittals shall include the following:
1. Notification(asbestos projects):
 - a) Ten Day DERM notice with Stamped Copy or Return Receipt (mail) Copy.
 - b) Provide Proof of Payment, (copy of check).



2. Written Notice to Local Emergency Service Agencies:
 - a) Police Department.
 - b) Fire Department.
3. Disposal Information:
 - a) Waste disposal site information.
 - b) Transporters 1 and 2.
 - c) Method of transportation: enclosed truck with drums or enclosed on- site asbestos dumpster.
4. Contractor's Emergency Contact Phone List.
 - a) See Appendix A for Form.
- c. **SPECIFIC POST-JOB SUBMITTALS:** The contractor will be required to submit Post-Job Submittals for each individual project and/or Job Order form after all final completion requirements have been met. Contractor will not receive Final Payment, including any retainage held, until all required Post-Job Submittals have been received & approved by the Owner.

Specific Post-Job Submittals shall include the following:

1. Worker Related Items:
 - a) Certificate of Worker Acknowledgment for each worker (per project).
 - b) Personnel Air samples: Daily sample results from personal breathing zone, for each representative category of work occurring in the work area during removal activities. (Does not apply to Mold Remediation or Duct Cleaning projects).
2. Daily Log:
 - a) Submit signed copies.
 - b) Events, respirator protection, visitation, personnel entering/leaving to work area, contractors activities, Etc.



3. Pressure Differential Monitoring Results:
 - a) Submit original printout per work area.
 - b) Cut printout into segments by the day, attached to 8 1/2 x 11 paper.
 - c) Label with project name (JOF), work area Contractor name and date.
4. Work Area Documents:
 - a) Request for Final Air Clearance, (Final Inspection per work area).
 - b) Work Area Clearance Authorization.
 - c) Contractors Certification of Installation of Non-Asbestos Containing Building Materials.
5. Final Project Documents (break-out section):
 - a) JOF Section 6 (signed, Final or Final Revision) Including completion of JOF Section 7, Contractor's Certificate of Completion.
 - b) Ten Day Notification, Final Revision (Derm Stamped Copy required for close-out).
 - c) Disposal Documentation:
 - 1) Copies of Waste Shipment Records, WSR labeled with the JOF project number and work area locations. (Must include the description and quantities of ACM materials removed).
 - 2) Transporters 1 and 2 disposal site owner or operator signature required for project closeout.
 - 3) As required by NESHAPS 61.149, the Asbestos Contractor will provide the Final Landfill Waste Shipment **Records within the required time frame of 35 days.**
- d. PERIODIC SUBMITTALS: Specific Submittals will be required periodically, during the course of the work, and as part of the post job submittals.



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Failure to provide said submittals as they become due may result in stoppage of work. Stoppage of work for this reason will not be cause for extension of completion date. These periodic submittals include, but are not limited to the following:

1. 01043 - Event reports, accident reports, due within 48 hours of occurrence.
2. 01561 - Daily personal air sample results, to be posted on site within 24 hours.
3. 01562 - During work on supplied air respirators, daily carbon monoxide monitoring results and weekly carbon monoxide calibration documentation.

END OF SECTION



SECTION 01410

AIR MONITORING-TEST LABORATORY SERVICES

PART 1 - GENERAL

1.01 RELATED WORK:

- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.
- b. Related Work Specified Elsewhere:
 1. Work Area Clearance Section 01714

1.02 DESCRIPTION OF THE WORK:

- a. This section describes air monitoring carried out by the Owner's Laboratory to verify that the building outside the Regulated Work Area remains uncontaminated and to determine airborne fiber/mold spore concentrations with the work area during various stages of the work. This section sets forth airborne fiber levels both inside and outside the Work Area as action levels and describes the action Required By The Contractor if an action level is met or exceeded.
- b. This section also describes air monitoring of personnel required by the Occupational Safety & Health Administration (OSHA) Standards which will be carried out by the Contractor's Laboratory.

1.03 AIR MONITORING:

- a. Work Area Isolation: The purpose of the Owner's air monitoring is to detect faults in the Work Area isolation such as:
 1. Contamination of the building outside of the Work Area with airborne asbestos fibers.
 2. Failure of filtration or rupture in the Pressure Differential System.



3. Contamination of air outside the building with airborne asbestos fibers.
 4. Should any of the above occur, the Contractor shall immediately cease asbestos remediation activities until the fault is corrected. Work shall not recommence until authorized by the Department of Environmental Management.
- b. Work Area Airborne Fiber Count: The Owner's Laboratory's will monitor airborne fiber concentrations in the Work Area. The purpose of this air monitoring will be to detect airborne fiber counts which may significantly challenge the ability of the Work Area procedures and Engineering Controls to protect the unabated portions of the building or the outside of the building from contamination by airborne fibers.
 - c. Personnel Sampling: The Contractor is responsible for the monitoring of his employees throughout the duration of the job in accordance with the O.S.H.A. standards. Such monitoring shall be performed by an accredited Laboratory under the direct control of a Licensed Asbestos Consultant. The Contractor shall provide continuous monitoring of at least 25% of the workers performing each work type. The personnel sampling results shall show both excursion and 8 hour T.W.A.'s. in lieu of continuous monitoring, the contractor may establish a negative exposure assessment for each project, in accordance with OSHA standards. Negative Exposure Assessments: will be based on individual Specific Job Historic Data monitored prior for the PEL and excursion limit within 12 months of the current or Projected Asbestos Job. Data must be obtained during work operations conducted under work place conditions closely resembling the process, type of material, control methods, crew experience and work practices used, per OSHA 1926.1101.

1.04 ASBESTOS AIR MONITORING CRITERIA:

The following table outlines the air monitoring criteria and methodology for the Contract. The Contractor shall cooperate with the Owner's Testing Laboratory to accomplish the task. The Contractor will provide power, connections, and extension cords as required for the job, in compliance with OSHA standards.

- a. Asbestos Air Monitoring Criteria Table: See Table on next page.



AIR MONITORING CRITERIA TABLE

AIR TEST	NUMBER OF SAMPLES	METHODOLOGY	CRITERIA
Background			
Prevalent (Pre-Abatement)	(2) Inside Rm (1) outside Rm	PCM	≤ 0.1 f/cc or Prevalent Comparison Level
Ambient Removal	(1) - (4) (2) Up Wind (2) Down Wind	PCM	≤ 0.1 f/cc or Prevalent Comparison Level
Disturbance	(1) Per Rm	TEM	≤ 0.1 f/cc / <70 S/mm ² or Prevalent Comparison Level
Work In Progress			
Ambient	(1) - (4) Mirror Background	PCM	≤ 0.1 or Prevalent Comparison Level
Containment	(5) Per Work Area 2 in work area, 1@ Neg. Air Exhaust 1 in Clean Rm. 1 in Equip. Rm	PCM	See Stop Action Levels
Final Clearance			
PCM ≤ 160 sf/260 LF	(7) Per Work Area 5 - in Work Area 2 Blanks	PCM	All Samples ≤ 0.01 f/cc (No Average)
TEM ≤ 160 sf/260 LF	(13) Per Work Area 5-inside Work Area 5-outside, 3 - blanks	TEM	≤ 70 S/mm ² or Z- Test ($Z \leq 1.65$)



1.05 SCHEDULE OF AIR SAMPLES:

- a. Before Start of Work: The Owner's Laboratory may secure "background" air samples prior to the start of Work to determine prevalent fiber concentrations before remediation.
- b. In Progress/Testing:
 - 1. During removal operations, the Owner's Laboratory may take air samples inside and/or outside the Work Area per Paragraph 1.03 a & b above.
 - 2. During all operations that impact the asbestos materials, the Contractor shall conduct personnel monitoring in compliance with OSHA Standards. Results of the Contractor's daily O.S.H.A. compliance monitoring shall be posted at the job site with 24 hours of collection.
 - 3. Asbestos Contractor to provide sufficient OSHA approved electrical extension cords for the execution of owner air testing, all phases.
 - 4. Air sampling for mold projects shall be at the discretion of the Department of Environmental Management.

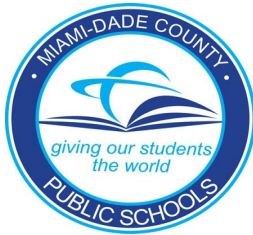
PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 AIR MONITORING:

- a. The Owner will provide on-site air monitoring through its Laboratory to collect and analyze all project "area" air samples. Only the Owner's Laboratory has the authority to handle the sampling equipment. The Contractor shall cooperate with the Owner's Laboratory and shall not disturb monitoring equipment.

END OF SECTION



SECTION 01503

TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 RELATED WORK:

- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.

1.02 SCOPE

- a. This section covers all temporary connections to existing building utilities and all temporary facilities required or necessary to carry out the Work.

1.03 COORDINATION WITH OWNER:

- a. The Contractor shall walk-through the project site with the Owner's representative to verify the exact locations from which temporary utilities can be obtained. No utility connections or use of Owner facilities will be permitted without prior Owner approval.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT:

- a. Provide new or used materials and equipment that are undamaged and in good serviceable condition. Provide only materials and equipment that are recognized as being suitable for the intended use, by compliance with appropriate standards. Inappropriate or extremely damaged and/or worn equipment may be rejected by the Owner's Representative.

2.02 SCAFFOLDING:

- a. Provide scaffolding, ladders and/or staging necessary to accomplish the Work of this Contract. Scaffolding may be of suspension type or standing type, such as metal tube and coupler, tubular welded frame, pole or outrigger type or cantilever



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type. The type, erection and use of all scaffolding shall comply with all applicable OSHA provisions. Scaffolding in excess of 20' high or two levels shall be designed by a qualified structural engineer. Guardrails and toe-boards shall be used in accordance with 29 CFR 1926.451.

- b. Scaffolding shall not be moved or relocated while occupied by any workers.
- c. Equipment rungs off all ladders (aluminum ladders will not be permitted in the Work Area) with an abrasive non-slip surface. Provide a nonskid surface on all scaffold surfaces subject to foot traffic.
- d. Scaffolding exceeding more than two (2) 6 X 8 sections high will be compensated utilizing the Term-Bid Additional Equipment Cost For Special Projects line item cost for the: day, week or by the month. Specialized, large, complex scaffolding, requiring structural engineering calculations and specialized erection and bracing, shall be rented/leased from a professional scaffolding company. Costs of said scaffolding will be reimbursed to the contractor upon submittal of valid, paid receipts from the scaffolding company.

2.03 TEMPORARY WATER SERVICE:

- a. Temporary Water Service Connection: Valves and connections shall be compatible and properly rated for operation with the temperatures and pressure encountered. After completion of use, all connections and fittings shall be removed without damage or alteration to existing water piping and equipment. Leaks from dripping valves and connections will not be allowed; such valves or connections shall be replaced.
- b. Water Hoses: Use heavy-duty, abrasion-resistant hoses with a minimum pressure rating of 125 p.s.i. Provide appropriate and correct fittings as required to allow for connection to existing wall hydrants or spouts, as well as temporary water heating equipment, branch piping, showers, shut-off nozzles and filtration equipment.
- c. Hot Water: Provide UL-rated electric water heater to supply hot water for the Decontamination Unit shower. The water heater is required to be in operation while removal is in process. Provide heater with relief valve connecting to PVC or hard copper piping leading to a suitable drain or receptacle. Wiring of the water heater shall be in compliance with local electric codes for wet locations.



2.04 TEMPORARY ELECTRICAL SERVICE:

- a. General: Comply with applicable NEMA, NEC, and UL standards, and local governing codes and regulations, for materials and layout of all temporary electrical service.
- b. Contractor Qualifications: Electrical service shall be installed by an electrical contractor properly licensed by the State of Florida Department of Business and Professional Regulation, under Section 489, Florida Statutes, or hold a Miami-Dade County Certificate of Competency. Employees installing electrical services shall possess a personal Certificate of Competency as a Journeyman Wire-man issued by the Miami-Dade County Licensing Board.
- c. Temporary Power: Provide temporary service to accommodate all electrical equipment required for the completion of the work. The source of the power shall be at a location designated and approved by the owner. **Connection to emergency panels is not permitted.** Provide calculations to the Owner's Representative showing all anticipated loads and capacity of power source to handle such loads. Source for temporary power should be at a distribution panel to prevent any disruption of power to the occupied classrooms. *The temporary panel shall be located in the clean room of the decontamination unit or enclosed separately with hard barriers with locked access (pad lock shall be same key as decontamination unit.* (Provide lockable boot/plug lockout, if required for connection of temporary electric service (pig tail connections).

* If a pig tail connection is not used, the hard-wire SO (electrical cable) must be disconnected upon reaching substantial completion and removed no later than the same day of demobilization. Upon removing the temporary panel, the Electrical subcontractor must restore the electrical panel. Provide knock out plugs and patching of walls where required.

* For Fuse Type Panels, provide a Disconnect Box with the appropriate size breaker to adequately accommodate and supply the Asbestos Contractors Temporary Electric Service Panel.

*Contractor must maintain all temporary power equipment, cords, connections, building panels, temporary panels, outlets, outlet covers, breakers and their components in accordance with NEC and OSHA standards.

- d. Voltage Differences: Provide identification warning signs at power outlets which are other than 110-120 volt power. Provide polarized outlets for plug-in type outlets, to



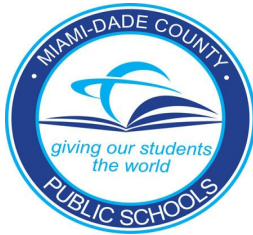
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prevent insertion of 110-120 volt plugs into higher voltage outlets. Dry-type transformers shall be provided where required to provide voltage necessary for work operation.

- e. Electrical Connection: Electrical contractor to furnish properly sized main breaker for connection of the electrical equipment and loads served at its supply point.
- f. Ground Fault Protection: Equip all circuits of Contractor's temporary panel with Ground Fault Circuit Interrupters [GFCI]. On Minor Work, where temporary panel is not required, provide individual GFCI protection to all circuits used for the Work Area or Decontamination Units. GFCI's shall be circuit breaker type, with test and reset buttons.
- g. Electrical Power Cords: Power cord supplying the contractor's electrical panel shall be extra hard usage type and suitable for the environment installed. **Power cord connections shall have strain-relief connectors, and be properly supported. Use of tie wire is not permitted.** Power cords shall be kept out of reach students. Extension cords for general use in the work area shall be a minimum #14 gauge *three conductor with ground*, heavy duty outdoor type. Use waterproof connectors to connect separate sections of electrical cords, as per OSHA Standards.
- h. Lamps and Light Fixtures: Provide general service incandescent or fluorescent light fixtures of the wattage indicated or required for adequate illumination as required by the Work in this Section. Protect lamps with guard cages, or "lexan" or similar enclosures where fixtures are exposed to physical damage. Provide vapor tight fixtures at work area and decontamination units. Provide rain-tight fixtures where subject to weather and moisture. All light fixtures shall be UL or FM labeled

2.05 TEMPORARY HEAT:

- a. Heating Units: If required by the Owner's Representative, provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the fuel being consumed. Use steam or hot water radiant heat where available, and where not available, use electric resistance units. **Under no circumstances** shall fuel-burning units or forced air or fan type units be used inside the Work Area.



2.06 SELF-CONTAINED RESTROOM FACILITIES:

- a. Self-Contained Restroom Units: If no existing restroom facilities are available for the Contractor's use, provide single-occupant, self-contained restroom units of the chemical type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar non-absorbent material. The Contractor shall maintain all restroom facilities, dedicated for his employees, in a clean and sanitary condition at all times. Self-contained restroom units shall be located where designated by the Owner's Representative and the School Administrator.

2.07 FIRST AID:

- a. First Aid Supplies: Comply with OSHA regulations and construction industry standards.

2.08 FIRE EXTINGUISHERS:

- a. Fire Extinguishers: Provide fire extinguishers in accordance with NFPA Standard 10 "Portable Fire Extinguishers", latest edition and Underwriters' Laboratories standards. Extinguishers shall be dry-chemical type, ABC multi-purpose, with fog nozzle attached to the hose and shall have a minimum UL Rating of 2A-10BC.

PART 3 - EXECUTION

3.01 SCAFFOLDING:

- a. During the erection and/or moving of scaffolding, care must be exercised so that the polyethylene floor covering is not damaged. Use plywood or 90lb. mineral surfaced felt under all legs directly in contact with the polyethylene.
- b. Clean debris as necessary from walking surfaces to maintain safety.
- c. Clean all equipment prior to removal from the Work Area and wrap in two layers of 6 mil thick polyethylene sheeting and seal before removal from the Work Area.
- d. Periodically inspect scaffolding to ensure that connections and components remain structurally sound and safe for continued use.

3.02 INSTALLATION/GENERAL:

- a. Use qualified tradesmen for installation of temporary services and facilities. Locate temporary services and facilities where indicated by Owner's representative and School Administrator and where they will serve the entire project adequately and result in minimum interference with the performance of the Work and with normal school operations.



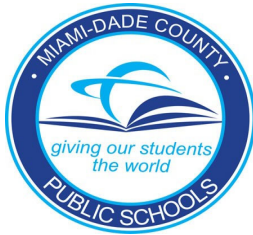
- b. Require that tradesmen accomplishing this Work be licensed as required by local authority for the Work performed. Relocate, modify and extend services and facilities as required during the course of the Work so as to accommodate the entire Work of the project.

3.03 WATER SERVICE:

- a. *Hot water shall be supplied at a minimum temperature of 100°F.* Supply hot and cold water to the Decontamination Unit in accordance with Section 01563.
- b. Maintain hose connections and valves in leak-proof condition. Where the finish below a water connection might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize the possibility of water damage. **No hoses shall be permitted inside the work area.**

3.04 ELECTRICAL SERVICE:

- a. Provide a weatherproof, grounded temporary electric power service and distribution system of sufficient size, capacity and power characteristics to accommodate performance of Work during the entire construction period. Install temporary lighting adequate to provide sufficient illumination for safe Work and traffic conditions in each Work Area.
- b. Lockout: All existing power to or through the Work Area as described below. Unless specifically approved otherwise, existing power and lighting circuits to the Work Area are not to be used. Contractor shall coordinate with Owner or his maintenance personnel to establish locations and sources of all power leading into work area. Owner must approve lock-out procedures.
 - 1. Lockout power to Work Area by switching off all breakers serving power or lighting circuits in the Work Area. Tape breakers in the "off" position. Tape notation to front of panel listing which circuits are to remain off, the reason and the date. Note that circuits are not to be energized unless approved by the Contractor.
 - 2. Lockout power to circuits running through Work Area wherever possible by switching off all breakers serving these circuits. Follow the procedure noted above. If circuits cannot be shut down for any reason, the conduits and junction boxes associated with these circuits shall be identified. All junction boxes, outlets or similar terminations shall be made waterproof and properly sealed against use or entry.



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- c. Temporary Electrical Panel: Provide a temporary electrical panel, sized and equipped to accommodate all electrical equipment and lighting required by the Work, including Owner's laboratory testing equipment. Connect temporary panel to existing building electrical system where indicated by Owner's Representative. Protect temporary service with circuit breakers or fused disconnects. Locate the temporary panel as approved by the Owner or the Owner's Representative. All branch circuits are to originate from the temporary panel unless approved otherwise.
- d. Power Distribution System: Provide circuits of adequate size and proper characteristics for each use. Run wiring overhead and rise vertically where wiring will be at least exposed to damage from the construction operations. Properly install and test G.F.I. units.
- e. Temporary Wiring: In the Work Area shall be type THW, non-metallic, sheathed cable located overhead and exposed for surveillance. Temporary lighting shall have waterproof connections. Provide water-tight enclosures or boxes for wiring devices. No aluminum wiring shall be permitted per Contractor's temporary service or branch circuits.
- f. Number of Branch Circuits: Provide a sufficient number of branch circuits as required by the Work and sized per the National Electric Code. At minimum provide the following:
 - 1. One Circuit for each HEPA filtered fan unit, sized as required.
 - 2. For power tools and task lighting:
 - a. One 20 amp. 120 volt circuit in the Work Area for each 2,500 square feet of Work Area.
 - b. One 20 amp. 120 volt circuit at each decontamination unit, located in the Equipment Room. Each circuit can have up to 4 outlets (four gang box maximum).
 - 3. For the Owner's exclusive use while conducting air sampling:
 - a. One 20 amp. 120 volt circuit each Work Area.
 - b. One 20 amp. 120 volt circuit at the clean side of each Decontamination Unit.
 - c. One 20 amp. 120 volt circuit at each exhaust location of the HEPA filtered fan units.

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4. For the Owner's exclusive use for conducting final air sampling as set forth in Section 01714 - "Work Area Clearance" as follows:
 - a. Five outlets (120 volt) inside the Work Area in locations designated by the Owner's Representative.
 - b. Two outlets (120 volt) outside the Work Area in locations designated by the Owner's Representative.

3.05 TEMPORARY LIGHTING:

- a. Lockout: All existing power to lighting circuits in the Work Area as previously described. Unless specifically indicated by the Owner's Representative, existing lighting circuits to the Work Area are not to be used. All lighting to the Work Area and Decontamination facilities is to be provided from the temporary electrical panel.
- b. Number of Lighting Circuits: Provide sufficient lighting circuits as required by the Work. All lighting circuits are to originate at the temporary electrical panel.
- c. Lighting Levels:
 1. Where the work requires interruption of existing building lighting, provide sufficient temporary lighting to maintain required footcandle levels and ensure the safety of building occupants.
 2. Where Work is being performed provide sufficient temporary lighting to ensure proper workmanship (60 foot candle minimum light level).
 3. During Owner's visual inspection provide sufficient temporary lighting to permit proper viewing of all surfaces in the work area (80 foot candle minimum light level).
 4. In the Decontamination Unit provide lighting to maintain a 50 foot candle minimum light level.
 5. Protect each circuit with a ground fault circuit interrupter (GFCI) of proper size located in the temporary panel.

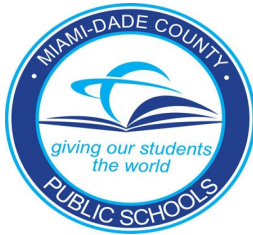


3.06 SANITARY FACILITIES:

- a. Restrooms Assigned to Contractor: Use of the Owner's existing restroom facilities may be allowed at the discretion of the Facility Administrator. If assigned, these facilities are to be properly cleaned and maintained in a condition acceptable to the Administrator and the Owner's Representative. At substantial completion, restore these facilities to the condition prevalent at the time of initial use.
- b. Restrooms/Shared Use: At the discretion of the Facility Administrator, the contractor may be allowed use of restroom facilities also being used by facility staff. Contractor shall ensure its employees use and maintain these facilities in a manner consistent with normal facility use. Contractor's employee shall ensure facilities are clean and orderly after their use, and they must conduct themselves with courtesy and decorum toward facility staff. **Restrooms_ designated for use by students shall not be shared by Contractor's personnel under any circumstances.**
- c. Restroom/Portable: When use of existing facilities is not permitted, provide portable restroom facilities at location indicated by school Administrator and Owner's Representative. Portable facilities shall be maintained in a condition acceptable to the Owner.
- d. Restroom facilities, whether shared, assigned, or portable shall not be used for storage of Contractor's materials, tools, or equipment, under any circumstances.

3.07 FIRE EXTINGUISHERS:

- a. Fire Extinguishers: Locate fire extinguishers where required by regulations and where they are most convenient and effective for their intended purpose. **Provide not less than one extinguisher in each Work Area, one in the Equipment Room and one outside the Work Area in the Clean Room.**



SECTION 01513

TEMPORARY PRESSURE DIFFERENTIAL & AIR CIRCULATION SYSTEM

PART 1 - GENERAL

1.01 RELATED WORK:

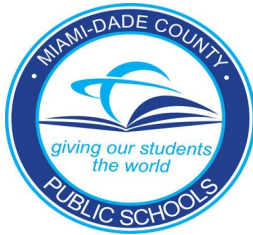
- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.
- b. Related Work Specified Elsewhere:
 - 1. Regulated Areas: Section 01526
 - 2. Decontamination Units/Tunnels: Section 01563
 - 3. Removal of Asbestos-Containing Materials Section 13281
 - 4. Remediation of Mold-Contaminated Materials Section 13283
 - 5. Remediation of Other Environmental Contaminants Section 13284

1.02 QUALITY ASSURANCE – MONITORING (MANOMETER REQUIRED):

- a. The Contractor shall continuously monitor and record the pressure differential between the Work Area and the ambient air outside of the Work Area, with a monitoring device (manometer) incorporating a continuous recording device (e.g. strip-chart). The manometer must be set up and operated in the clean room. This device shall be supplied by the Contractor, and shall have both audio and visual alarm systems. (Per OSHA 1926.1101 Recommendations).

1.03 SUBMITTALS:

- a. Before Start of Work: (Pre-Job General Submittal) For Asbestos Removal Projects, submit design of the Pressure Differential System to the Owner's Representative prior to the Project Start Date. Do not begin Work until submittal is approved by the Owner's Representative. Include in the submittal at a minimum:



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1. The number of HEPA filtered fan units required and the calculations necessary to determine the number of units, a description of projected air flow within the Work Area and methods required to provide adequate air flow in all portions of the Work Area, anticipated pressure differential across Work Area enclosures, a description of methods of testing for correct air flow and pressure differential, the manufacturer's project data on the HEPA filtered fan units to be used, the location of the HEPA filtered fan units in the Work Area, the method of supplying adequate power to the HEPA filtered fan units and designation of building electrical panel(s) which will be supplying the power, a description of work practices to insure that airborne fibers travel away from the workers and the manufacturer's project data on equipment used to monitor pressure differential between inside and outside of the Work Area.
- b. Post-Job Submittal requirements: For Asbestos Removal Projects, *submit original printout from pressure differential monitoring equipment. Mark printout with Date and Start Time for each day. Use printout paper that indicates elapsed time in intervals no greater than hours.* Cut printout into segments by day, attach to 8-1/2" by 11" paper. Label with M-DCPS project Name and JO#, Work Area, and Contractor's name and date

PART 2 – PRODUCTS

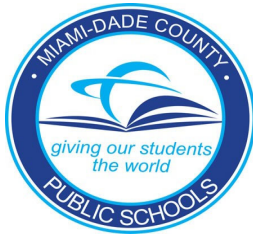
2.01 HEPA FILTERED FAN UNITS:

- a. General: Supply the required number of HEPA filtered fan units to the site in accordance with these specifications. Use units that meet the following requirements.
- b. Cabinet: Shall be constructed of durable materials able to withstand damage from rough handling and transportation. The width of the cabinet should be less than 30 inches to fit through standard-size doorways. Provide units whose cabinets are factory-sealed to prevent contaminants from being released during use, transport or maintenance, which are arranged to provide access to and replacement of all pre-filters from the intake end and are mounted on casters or wheels.
- c. Fans: Rate Capacity of fan according to usable air-moving capacity under actual operating conditions.
- d. HEPA Filters: Provide units whose final filter is the HEPA type with the filter media (folded into closely pleated panels) completely sealed on all edges with a structurally rigid frame.



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1. Provide units with a continuous rubber gasket located between the filter and the filter housing to form a tight seal.
 2. Provide HEPA filters that are individually tested and certified by the manufacturer to have an efficiency of not less than 99.97 percent when challenged with 0.3 mm dioctylphthalate (DOP) particles. Provide filters that bear a UL586 label to indicate ability to perform under specified conditions.
 3. Provide filters that are marked with the name of the manufacturer, serial number, air flow rating, efficiency and resistance and the direction of test air flow.
- e. Pre-filters: Which protect the final filter by removing the larger particles, are required to prolong the operating life of the HEPA filter. Two stages of pre-filtration are required. Provide units with the following pre-filters:
1. First-stage pre-filter: low-efficiency type (e.g. for particles 100 um and larger).
 2. Second-stage (or intermediate) filter: medium efficiency (e.g. effective for particles down to 5 um).
- Provide units with pre-filters and intermediate filters installed either on or in the intake grid of the unit.
- f. Odor Filters: When determined necessary by the Owner, an organic vapor filter shall be placed in the pressure differential machine in order to control odors resulting from mastic removal.
- g. Instrumentation: Provide HEPA filtered fan units equipped with:
- 1 Magnehelic gauge or manometer to measure the pressure drop across filters and indicate when filters have become loaded and need to be replaced.
 - 2 A table indicating the usable air-handling capacity for various static pressure readings on the Magnehelic gauge affixed near the gauge for reference or the Magnehelic reading indicating at what point the filters should be replaced.
- h. Safety and Warning Devices: Provide units with the following safety and warning devices:
- 1 Electrical (or mechanical) lockout to prevent the fan from operating without a HEPA filter, or with the HEPA filter in back wards.



- 2 Automatic shutdown system to stop the fan in the event of a rupture in the HEPA filter.
 - 3 Warning lights to indicate normal operation (green), too high a pressure drop across the filters (i.e. filter overloading) (yellow) and too low of a pressure drop (i.e. rupture in HEPA filter or obstructed discharge) (red).
 4. Audible alarm if unit shuts down due to operation of safety systems.
- i. Electrical components: Provide units with electrical components approved by the National Electrical Manufacturers Association (NEMA) and Underwriter's Laboratories (UL). Each unit is to be equipped with overload protection, sized for the equipment. The motor, fan, fan housing and cabinet are to be grounded.

PART 3 - EXECUTION

3.01 PRESSURE DIFFERENTIAL ISOLATION

- a. Physically isolate the Work Area from all adjacent areas or systems of the building with a Pressure Differential System that will cause a movement of air from outside to inside the Work Area at the location of any breach in the isolation of the Work Area.
- b. Relative Pressure in Work Area: **For Asbestos Removal Projects, certain Mold Remediation Projects, and/or where specified in the JOF, continuously maintain the Work Area at an air pressure that is lower than that in any surrounding space in the building or at any location in the immediate proximity outside of the building envelope.** This pressure differential when measured across any physical or critical barrier must equal or exceed a static pressure of:
-0.02 inches of water.

Accomplish the pressure differential by exhausting a sufficient number of HEPA filtered fan units from the Work Area. The number of units required will depend on machine characteristics (CFM), the volume of the work area, the required number of air changes, and the efficiency of the seal at isolation barriers. The number of units will increase with increased make-up air or leaks into the Work Area. Determine the number of units required for pressure isolation by the following procedure:

1. Establish isolation by airtight enclosure of the work area from adjacent areas, reinforcing the seals where required. Establish required air circulation and air changes in the Work Area, personnel and equipment decontamination units. Exhaust a sufficient number of units from the work area to develop the required pressure differential.



2. **The required number of HEPA filtered fan units is the number determined by the procedures outlined above and detailed in Paragraph 3.02 below. One additional fan unit shall be available on site as a back-up unit. The back-up unit must be located inside the work area prior to the start of removal.**
- c. Exhaust the HEPA filtered fan units: To the outside of the building unless authorized otherwise in writing by the Owner's Representative. If authorized to vent inside the building, provide means for odor control. Outside vents shall exhaust a minimum of four feet above the lowest roof section unless authorized otherwise by the Owner's Representative.
 1. Mount units to exhaust directly or through disposable duct-work. Use duct-work and fittings of same diameter or larger than the discharge connection on fan unit. Arrange exhaust as required to inflate duct to a rigidity sufficient to prevent flapping. Contractor shall mount exhaust duct-work independently of existing roofing system (membrane, flashing, soffit, fascia, drip guard, etc.) All duct shall be disposed upon project completion.
- d. Isolate elevators, stair towers and return air intakes: For work in buildings greater than 5 stories in height or wherever there is a high speed elevator: Erect seals with an air space at doors to elevators and stair towers. Pressurize this space with HEPA filtered air so that it is at a pressure greater than either the Work Area elevator shaft or stair tower and follow the follow procedure:
 1. Fabricate seal by first sealing door with duct tape and 6 mil thick polyethylene. Construct a barrier from ½" gypsum board supported by 3- 5/8", 25 gauge metal studs at 16" on centers. Space face of barrier a minimum of 3" from face of door. Seal barrier with 6 mil thick sheet plastic and duct tape.
 2. Pressurize space with exhaust with HEPA filtered fan unit. Continuously maintain a pressure differential with this space a minimum of 0.02 inches of water higher in static pressure than any adjacent Work Area.
 3. Locate HEPA filtered fan unit outside of the Work Area. Fabricate a manifold as required to distribute air to individual spaces to be isolated. Provide relief venting at unit as required to prevent shut down (due to low air flow) while still maintaining required air pressure.



- e. Isolation of chases and enclosed stairs in buildings greater than 5 Floors in height: Pressurize chases and enclosed stairs with HEPA filtered air so that it is at a pressure greater than any adjacent Work Area. Pressurize space with exhaust from HEPA filtered fan unit. Continuously maintain a pressure differential with this space a minimum of 0.02 inches of water higher in static pressure than any adjacent Work Area.
- f. Isolation of return air duct-work: Return air duct work which must be kept operating and is located in or thru the Work Area is to be isolated from the Work Area as follows:
 - 1. Cover the opening with a hard barrier, such as plywood, and seal with duct tape. Wrap the barrier with two layers of 6 mil thick polyethylene. Seal all polyethylene seams with spray cement and duct tape. Test to see if the system is capable of resisting air pressures and get Owner's Representative approval before proceeding further.

3.02 AIR CIRCULATION IN THE WORK AREA:

- c. Air Circulation: For purposes of this Section air circulation refers to either the introduction of outside air into the Work Area or the circulation and filtering of air within the Work Area. Air circulation in the Work Area is a minimum requirement intended to help maintain airborne fiber counts at a level that does not significantly challenge the Work Area isolation measures. The Contractor may also use this air circulation as part of the engineering controls in his worker protection program.
- d. Determining the Air Circulation Requirements: Provide a fully operational air circulation system supplying a minimum of the following air circulation rate:
4 air changes per hour.
- e. Determine Number of Units: Needed to achieve required air circulation according to the following procedure:
 - 1. Determine the volume in cubic feet of the Work Area by multiplying floor area by ceiling height.
 - 2. Determine the total air circulation requirement in cubic feet per minute (CFM) for the Work Area by multiplying this volume by the number of air changes and dividing by 60.
$$\text{Air Circulation Required in Cubic Feet of Air per Minute (CFM)} = \frac{\text{Volume of work area (cu.ft.)}}{60 \text{ (minutes per hour)}} \times \text{Number of air changes per hour}$$



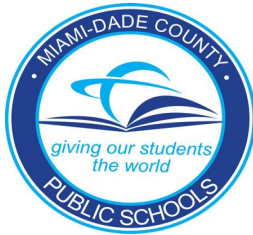
3. Divide the air circulation requirement (CFM) above by capacity of HEPA filtered fan unit(s) used. Capacity of a unit for purposes of this section is the capacity in cubic feet per minute with fully loaded filters (pressure differential which causes loaded filter warning light to come on) in the machine's labeled operating characteristics.

$$\text{Number of Units Needed} = \frac{\text{Air Circulation Requirement (CFM)}}{\text{Capacity of Unit with Loaded Filters (CFM)}}$$

3.03 EXHAUST OR RE-CIRCULATION SYSTEM

Use either the Exhaust System or the Re-circulation System as described below:

- c. EXHAUST SYSTEM: Pressure differential isolation and air circulation in the Work Area may be accomplished by an exhaust system as described below.
 1. Exhaust all units: From the Work Area to meet air circulation requirement of this Section.
 2. Location of HEPA Filtered Fan Units: Locate fan unit(s) so that makeup air enters the Work Area primarily through the decontamination unit and so that air circulates between all areas of the work area.
 3. Place End of Unit, and intake duct or its exhaust duct through an opening in the plastic barrier or wall covering. Seal the plastic around the unit or duct with tape.
 4. Exhaust HEPA filtered fan units to the outside of the building unless otherwise authorized, in writing by the Owner's Representative. If authorized to exhaust inside the building, provide means for odor control.
 5. Decontamination Unit: Arrange the Work Area and the Decontamination Unit so that the majority of make up air comes through the Decontamination Unit.
 6. Supplemental Makeup Air Inlets: Provide supplemental air openings if required for proper air flow through the Work Area in a location only as approved by the Owner's Representative. Locate makeup air inlets as far as possible from the fan unit(s) (e.g. on an opposite wall), off the floor (preferably near the ceiling) and away from barriers that separate the Work Area from occupied areas.
 7. Make-up air inlets must be covered with a pre-filter and then covered with flaps to reseal automatically if the Pressure Differential System should shut down for any reason.



Prepare overlapping surfaces of plastic with double- sided carpet tape to ensure seal if system shuts down. The Owner's Representative shall inspect the installation for compliance.

- d. RE-CIRCULATION SYSTEM: If authorized by the Owner's Representative, the pressure differential isolation and air circulation in the Work Area may be accomplished by a re-circulation system asdescribed below:
 - 1. Re-circulate air: In the Work Area through HEPA filtered fan units to accomplish air circulation throughout the entire work area.
 - 2. Location of Fan Units: Locate the HEPA filtered fan units so that air is circulated between all parts of the Work Area and so that required pressure is maintained throughout all parts of the Work Area. Move units as necessary so that in any location where asbestos-containing materials are being disturbed the exhaust from one HEPA filtered fan unit is blowing contamination away from the workers. Direct air flow in these locations so that it is predominantly toward workers' back at the breathing zone elevation.

3.04 AIR CIRCULATION IN DECONTAMINATION UNITS:

- c. Pressure Differential Isolation: Continuously maintain the pressure differential required for the Work Area in the Decontamination Unit across the shower room with the equipment room at a lower pressure than the clean room.
- d. Air Circulation: Continuously maintain air circulation in the Decontamination Units at same level as required for the WorkArea.
- e. Air Movement: Arrange air circulation through the Decontamination Unit so that it produces a movement of air from the clean room through the shower room into the equipment room.

3.05 USE OF THE PRESSURE DIFFERENTIAL AND AIR CIRCULATION SYSTEM:

- c. General: Each HEPA filtered fan unit shall be serviced by a dedicated minimum 115V-20V circuit with Ground Fault Circuit Interrupter (GFCI) supplied from temporary power supply installed under requirements of Section 01503- "Temporary Facilities". Do not use existing branch circuits to power the fan units.
- d. Testing the System: Test the pressure differential system before any asbestos-containing material is wetted or removed. After the Work Area has been prepared, the decontamination facility set up and the fan unit(s) installed then start the unit(s) (one at a time).



Demonstrate the operation and testing of the Pressure Differential System to the Owner's Representative.

- e. Demonstrate the condition of equipment: For each HEPA filtered fan unit and pressure differential monitoring equipment including proper operation of all lights, proper operation of all alarms, and proper operation and calibration on pressure monitoring equipment
- f. Demonstration of satisfactory operation: Of the Pressure Differential System to the Owner's Representative will include, but not be limited to, the following indicators:
 - 1. Plastic barriers and sheeting move slightly in towards the Work Area, the curtain of the decontamination unit move slightly in towards the Work Area, there is a noticeable movement of air through the Decontamination Unit, the use of smoke tube to demonstrate air movement from Clean Room through Shower Room to Equipment Room., Owner's Representatives' request the contractor will use a differential pressure meter or manometer to demonstrate the required pressure differential at every barrier separating the Work Area from the balance of the building, equipment, ductwork or outside.
- g. Maintenance Records: Provide on site, maintenance records for each HEPA filtered fan unit including but not limited to HEPA filter replacement, replacement of gaskets and seals and visual inspections.
- h. Modify the Pressure Differential System: As necessary to demonstrate successfully the above.
- i. Use of the System During Remediation Operations: Start HEPA filtered fan units before beginning Work (before any asbestos-containing material is disturbed). After remediation Work has begun, run the units continuously to maintain a constant pressure differential until complete decontamination of the Work Area and Final Air Clearance has been obtained and the Owner's Representative has given authorization to remove containment enclosure Do not turn off units at the end of the Work shift or when remediation operations temporarily stop. **Do not shut down the Air Pressure Differential System during the encapsulation process. Supply sufficient pre- filters to allow replacement as necessary.**

Begin remediation work at a location furthest from the fan units and proceed toward them. If an electric power failure occurs, immediately stop all remediation Work and notify Owner's Representative. Do not resume until power is restored and fan units are operating again. **No air shall be exhausted from the Work Area without HEPA filtration.**

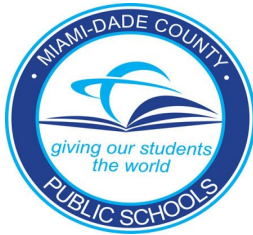


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If replacement of the HEPA filter is required, this shall be accomplished inside the containment enclosure with adequate differential pressure. Equipment failure shall not be a valid reason for not maintaining a differential ambient air pressure. Any question regarding effectiveness of the air handling units or their capabilities will be decided by the Owner's Representative. **No Removal Activities Will Be Allowed Without Proper Differential Air Pressure.** At the completion of remediation Work, allow the fan units to run as specified under Section 01711 "Project Decontamination", to remove airborne fibers that may have been generated during remediation Work and cleanup and to purge the Work Area with clean makeup air. The units may be required to run for a longer time after decontamination, if dry or only partially wetted asbestos material was encountered during any remediation Work.

- j. Dismantling the System: When a final inspection and the results of final air tests indicate that the area has been decontaminated, the HEPA filtered fan units may be removed from the Work Area. Before removal from the Work Area, remove and properly dispose of pre-filters, decontaminate the exterior of the unit and seal the intake to the unit with 6 mil thick polyethylene to prevent environmental contamination from the filters.

END OF SECTION



SECTION 01526

REGULATED AREAS

PART 1 - GENERAL

1.01 RELATED WORK:

- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.
- b. Related Work Specified Elsewhere:
 - 1. Pressure Differential/Air Circulation System Section 01513
 - 2. Decontamination Facilities: Section 01563
 - 3. Removal of Asbestos Containing Materials Section 13281
 - 4. Remediation of Mold Contaminated Materials Section 13283
 - 5. Remediation of Other Contaminants Section 13284

1.02 SUMMARY

- a. Definition: Other definitions common in the industry notwithstanding, a Regulated Area is defined herein as an environmental work area with access restricted to trained, certified personnel, demarcated and isolated from other portions of the building, and which may require usage of personal protection equipment upon entry.
- b. This section outlines the processes and procedures for the demarcation, isolation, and access control of Regulated Areas for various environmental remediation projects.
- c. The requirements for the regulated work areas of different remediation projects will vary according to the toxicity and exposure risk of the different contaminants being remediated. Refer to detailed descriptions in this section, as well as in the "Removal" section for each type of contaminant.

1.03 SUBMITTALS:

- a. Refer to Section 01301 for required submittals.



PART 2 - PRODUCTS

2.01 POLYETHYLENE SHEET: Provide the following:

- a. Polyethylene Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, 6.0 mil thick as indicated, clear, frosted or black, as indicated for decontamination units, walls, ceilings and temporary enclosures.
- b. Fire-Resistant Polyethylene Sheet: Where there is hot equipment or a potential for fire, provide flame-resistant polyethylene film that conforms to the requirements set forth by the National Fire Protection Association Standard 701, Small-Scale Fire Test for Flame-resistant Textiles and Films. Provide the largest size possible to minimize seams, 6.0 mil thick as indicated, clear, frosted or black, as indicated.
- c. Reinforced Polyethylene sheet: Where the plastic sheet is the only separation between the Work Area and the unabated portions of the building, provide nylon reinforced polyethylene film in the largest size possible to minimize seams, 6.0 mil thick minimum, clear, frosted or black, as indicated.

2.02 DUCT TAPE:

- a. Provide duct tape in 2" or 3" widths as indicated, with an adhesive which is formulated to stick to sheet polyethylene.

2.03 SIGNS AND WARNING TAPE:

- a. Provide warning signs and/or warning tape to designate the work area as off-limits to the general public. Such signs/tapes shall be in compliance with the requirements of OSHA 1926.1101. As part of the General Term Contract Submittals, submit samples of the signs and tape to be used.
- b. Signs shall be of materials that will withstand moisture and the elements, as well as wear and tear. Plastics, plastic or polyethylene film, or other similar materials, factory printed in color, shall be acceptable. No photocopies of signs shall be accepted.

2.04 PRESSURE DIFFERENTIAL SYSTEM

- a. Provide Negative Air Machines (HEPA filtered fan units), as specified in Section 01513, to establish air circulation within the work area, to filter the air through HEPA filters in order to minimize concentrations of airborne contaminants, and to establish a negative pressure differential between the work area and the ambient air outside of the work area.



- b. Negative pressure equipment must be in good condition. Provide evidence of capacity rating based on manufacturer's literature. Provide evidence of maintenance schedule. Owner's representative reserves the right to prohibit use of equipment exhibiting signs of damage, specially where filter seal may be compromised.

2.05 WOOD/PLYWOOD

- a. All materials for wood and polyethylene barriers shall be in good condition, without dangerous splinters, protruding nails, or other safety hazards.
- b. Wood studs and plywood shall meet the requirements of Section 01563 Decontamination Units/Tunnels, of these Specifications. Studs shall be pressure treated and no less than 2 x 4 in dimension. Plywood shall be at least 5/8" thick, exteriorgrade.

PART 3 - EXECUTION

3.01 SEQUENCE OF WORK:

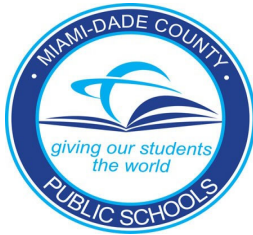
- a. Carry out the Work of this section sequentially. Complete each activity before proceeding to the next.
- b. Further details regarding the sequence of the work are contained in Division 13.

3.02 GENERAL:

- a. Work Area: The Work Area is defined as the location where remediation work occurs. The extent, configuration, and enclosure requirements of the Work Area may vary depending on the type of contaminants and nature of the Work of the individual project. The Work Area may be a portion of a room, a single room or a complex of rooms. A Work Area is considered contaminated during the Work and must be isolated from the balance of the building. Decontamination of the Work Area must effected at the completion of the remediation work, prior to re-occupancy of the space(s).

3.03 DEMARCATION OF THE REGULATED AREA:

- a. Clearly demarcate the limits of the regulated area to alert building occupants and the general public of the special restrictions regarding access and of specific protection requirements to be followed by those authorized to enter. Only Authorized Personnel will be allowed within the demarcated Work Area.
 - 1. Where the area must be isolated, in accordance with the requirements specified herein below, warning signs shall be provided adjacent to entry



points into the work area, in such a way that the signs are clearly visible to persons before they enter the regulated areas. All entrances to the work areas shall require signage appropriate to the type of remediation being performed.

2. Where the nature of the work is such that the work area does not need isolation by physical barriers, demarcate the area by barrier tape, maintaining a buffer distance in compliance with applicable regulations. The tape shall be printed with warnings or cautions consistent with the contaminants being remediated.
- b. **For Asbestos Removal projects**, post warning signs that read as shown below. (Signs must be posted immediately after securing the work area). Immediately inside the locked door and outside the Regulated Work Area, post a manufactured warning sign, approximately 20 inches by 14 inches, displaying the following legend with letter sizes and styles of a visibility as required by 29 CFR 1926.1101:

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

- c. **For Asbestos Removal projects** where the Work Area does not require full enclosure, delineate the area with 3 inches wide polyethylene warning tape with the printed warning, "DANGER ASBESTOS". Install this ribbon between 3 and 4 feet above the floor and hang the above-referenced warning signs at periodic intervals around the perimeter (10 ft. o.c./min. to 20 ft.o.c./max.).
- d. **For Remediation of Mold and other environmental contaminants**, provide signs that read:

DANGER MICROBIAL

HAZARD

AUTHORIZED PERSONNEL ONLY

RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA



- e. For cleanup of mold, and other environmental contaminant projects that do not require full enclosure of the work area, delineate the work area with 3-inch wide yellow polyethylene warning tape with a pre-printed warning reading "CAUTION" and/or "KEEP OUT". Install this ribbon between 3 and 4 feet above the floor and hang the above-referenced warning signs at periodic intervals around the perimeter (10 ft. o.c./min. to 20 ft.o.c./max.).

3.04 ISOLATION OF THE REGULATED AREA

- a. Completely Isolate the Work Area from other parts of the building so as to prevent asbestos, mold, or other contaminants, as well as water, dust or debris, from passing beyond the isolated area. Should the area beyond the Work Area(s) become contaminated with asbestos, mold or other contaminants as consequence of the Work, clean those areas in accordance with the procedures indicated in Section 01711. Perform all such required cleaning or decontamination at no additional cost to the Owner.
- b. Coordinate with the Owner's Representative (Environmental Remediation Project Inspector (ERPI) regarding the doors that will be locked and sealed as part of the isolation of the Work Area. After receiving authorization from the Owner's Representative lock all doors into Work Area. Cover any exit signs that direct emergency exiting, either outside or inside of the Work Area, to those locked doors. **Seal the doors with 6-mil. polyethylene critical seals prior to covering with the regular Work Area barriers. Place an absorbent barrier, such as a rolled towel in the gap between the bottom of the door and the floor, to prevent escape of any liquids that may bypass the poly barriers should the seals fail.** Post warning signs as described above, appropriate for the specific type of remediation being conducted. Unless otherwise noted or directed by the Owner's Representative, work area isolation shall not block emergency exits from occupied portions of the building.
- c. Place all tools, negative air equipment, scaffolding, staging, etc. necessary for the Work, in the area to be isolated, prior to completion of Work Area isolation.
- d. Remove all removable furniture that has been designated uncontaminated by the Contract Documents or the ERPI (if specified in Job Order Form). Also, remove uncontaminated equipment and/or supplies from the Work Area before commencing Work or completely cover with two (2) layers of polyethylene sheeting, at least 6 mil in thickness, securely taped in place with duct tape: Such furniture and equipment shall not be included in the scope of Work unless covering plastic or seal is breached.
- e. Disable Ventilating Systems or any other system bringing air into or out of the Work Area. Disable the system by disconnecting wires, removing circuit breakers, by lock-able switch or other positive means that will prevent accidental premature restarting



of equipment. If the system cannot be disabled, seal off in an air-tight manner all ducting (supply and return), terminating or opening at the Work Area or physically divert or cut off all air flow to the Work Area.

- f. Lockout power to the Work Area or running through the work area, as specified in Section 01503, Subsection 3.04, and as coordinated with the Owner. Securely waterproof any electrical outlets, junction boxes, etc. which will remain "hot".
- g. Other Building Systems: Shall be modified as required by the Owner in conjunction with local authorities. Fire sprinkler heads shall be mechanically protected from damage and shall remain operational unless approval is received in writing to shut down the system. Fire, smoke and burglar alarm systems operation shall be coordinated with the Owner to alleviate any operational problems. No systems are to be shut down or made inoperative until written permission is received from the Owner or appropriate party.
- h. Inspection Windows: When specified in the JOF, install inspection windows, as directed by the JOF. Each inspection window is to have a minimum 24" x 24" viewing area fabricated from 1/4" acrylic or poly-carbonate sheet. Install it in a manner that provides unobstructed vision from the outside to the inside of the Work Area. Protect the window from damage of scratching, dirt or any coatings used during the Work. A sufficient number of windows are to be installed to provide observation for as much of the Work Area as possible. Inspection windows that open into uncontrolled areas are to be covered with a removable plywood hatch secured by lock and key. Keys will be provided to the ERP! for all suchlocks.
- i. Temporary Barrier Walls: Where the work area is not completely contained within existing building partitions, and as required for safety, control or confidentiality, or as directed by the ERP! and the JOF, provide "physical barrier" walls to secure the work area from the balance of the building (public areas). Temporary barrier walls will be sealed with one or two layers of 6-mil. polyethylene sheeting, as required for Containment Barriers. The public side of containment barriers shall be clean, with a finished look acceptable to the Owner, and shall be free of any splinters, or other sharp edges or points, that could injurepassers by.

3.05 ACCESS CONTROL:

- a. Locked Access: Arrange the Work Area so that the only access into the Work Area is through the lockable Decontamination Unit. Provide or install a hinged, lockable door or panel at the opening into the Decontamination Unit. Provide keyed - alike locks at all project sites, under this Term Contract. Provide a minimum of Ten keys for the Decontamination Unit doors to the Owner as part of the General Term Bid Submittals. Combination locks will not be accepted.



All other doors into the work area shall be secured and sealed per 3.04 above.

- b. Visual Barrier: Where the Work Area is immediately adjacent to, or within view of, occupied areas, provide a physical barrier so that the Work procedures are not visible to building occupants.
- c. Warning Signs: Provide appropriate warning signs per 3.03 above, at each access point to the Work Area, whether active or locked/sealed. (All warning signs shall be provided in the appropriate language(s) to ensure comprehension by those affected by this project). Warnings signs must be kept legible throughout the duration of the removal project. The contractor shall affix and maintain the approximate warning signs on all external sides of temporary enclosures.

3.06 EMERGENCY EXITS: Provide emergency exits and emergency lighting as set forth below:

- a. Emergency Exits: At specific locations provide the following means for emergency exiting: Mark outline of door on Primary and Critical Barriers with luminescent paint at least 1" wide. Hang a retractable blade razor knife on a string beside the outline. Arrange Critical and Primary barriers so that they can be easily cut with one pass of razor knife. Paint the words "**EMERGENCY EXIT**" inside the outline with luminescent paint in letters at least one foot high and 2" thick.
- b. Emergency Lighting: Locate and install battery-pack type emergency lighting as required, if unavailable from building.

3.07 TUNNELS AND BARRIER WALLS:

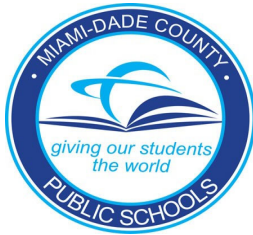
- a. Tunnels: Where the scope of the Work involves the construction of tunnels, it shall be as described in Section 01563 of these Specifications.
- b. Barrier Walls: Where required by the JOF, by job conditions outlined in 3.04.i. above, or directed by the JOF, construct temporary barrier walls to secure the work area. The walls shall be free-standing and stable, secured to building floor slab and walls. The walls must provide a visual and physical barrier, of good appearance, to the satisfaction of the Owner. Barrier wall construction shall meet the requirements of Section 01563 of these Specifications or the requirements for wallboard construction, as specified in U.S. Gypsum Company publications # SA-923 and # SA-924. Exterior applications shall use only 5/8" exterior grade plywood on pressure-treated wood studs. Details shall be as follows:
 - 1. Vertical studs and horizontal plates shall be pressure treated 2 x 4 wood, securely anchored.



2. Wall panels shall be 5/8" minimum thickness, construction grade plywood, with one good side to face the occupied portions of the building.
3. Alternatively, 25 ga., 3 5/8" galvanized metal studs and plates may be used, supporting 1/2" gypsum wallboard panels, with seams taped and finished with joint compound.
4. Regardless of the wall construction, the side facing the work area shall be sealed with critical barriers and wall poly as required for the enclosure or permanent building walls.

3.08 CONTAINMENT BARRIERS:

- a. Completely Separate the Work Area from other portions of the building and from the exterior environment using containment barriers, formed of polyethylene sheets, at least 6 mil thick, sealed with duct tape. Based on the nature of the contaminant, containment barriers shall be either one layer (primary) or two individual layers (primary & secondary) of polyethylene sheets. Where not directly applied to building walls, provide wood stud supports for the sheets, at 4'-0" center to center maximum spacing (closer as required). Studs shall be anchored to the building slab through a continuous wood plate and braced laterally as required. Where the barrier separates the work area from the exterior, or as needed for the individual condition, provide plywood panels attached to the studs and sealed from the work area side with the containment barriers (see 3.07 above).
- b. Critical Seals: Individually seal all ventilation openings (supply and exhaust), doorways, windows, and other openings into the work area with at least one layer of 6 mil thick polyethylene sheeting, taped securely in place with duct tape. These critical seals shall be prior to, and in addition to, the critical barriers. Maintain the seal until all Work, including Project Decontamination, is completed. Individual job requirements, as established in the JOF or indicated by the ERPI, may also include the sealing of light fixtures, clocks, and other equipment or appurtenances. Take care when sealing lighting fixtures to prevent melting or burning of sheeting.
- c. Continuously seal the perimeter of all polyethylene containment and critical barriers with duct tape and/or spray cement.
- d. Mechanically support containment barriers independently of duct tape and spray cement seals, so that the seals do not support the weight of the plastic sheet. The following are acceptable methods of supporting the barriers. Alternative support methods may be used, if approved by the ERPI.
 1. For one layer installations: Install one 3/16" Tapcon or #12 screw into wall at each corner of wall to be covered, 4" below the ceiling. Wrap 2 strands of tie wire around the tapcons and stretch taut. If additional supports are



needed for the wire, install tapcons/screws@ +/- 15'-0" o.c. along the wall. Drape 6 mil. polyethylene sheet over wire so th.at a two foot flap extends down. Staple or glue flap to poly sheet to encase the wire (staples@ 6" oc. max.). Erect the entire assembly so that it hangs vertically without floor "supports" upon which debris could collect. Seal all edges of the poly barrier as indicated inc. above. **DO NOT ATTACH MECHANICAL SUPPORTS (tie-wire) TO CEILING TILE, GRID, FIXTURES OR ELECTRICAL ITEMS.**

2. For two-layer installations: Install a 1x3 wood plate horizontally on the wall at 4" from the ceiling. Attach the plate to the wall with tapcons, screws, or other fasteners appropriate for the wall construction, spaced at 2'-0" o.c. maximum. Staple each layer of polyethylene sheeting to the plate, through a cardboard strip; space staples at 6" o.c. maximum. Allow the sheet to extend above the plate and seal the sheet to the wall with spray glue and/or duct tape, for a continuous seal. Polyethylene sheet layers must be able to be removed as separate layers at the end of the job.
3. Ceiling barrier: Provide 6-mil. polyethylene barrier. Install 1/4" Tapcons or other approved fasteners into walls across the room, 4" below the ceiling. Provide wire suspension system by wrapping 2 strands of tie wire around the tapcons and stretching same taut. Provide intermediate supports for the wire as required, by securing hanging wires through the ceiling grid to the support hangers or to the structure above. Suspension wire system shall be spaced a maximum of 8'-0" o.c.. Ceiling poly shall be draped over the suspension wires and secured with duct tape. Alternately, in lieu of wire supports above the ceiling, install "T" supports below the poly barrier at the locations where the wires would have been located. T-supports shall be constructed from 2x4 wood studs, of sufficient length to fit securely from floor to ceiling grid.
4. Floor Covering: Where the floor is not part of the abatement/remediation, provide two layers of 6-mil. polyethylene sheeting over the floor. Create sharp right angle bends at junctions of the floor and walls, so there is no radius which could be stepped on, causing the wall attachment to be pulled loose or cutting the poly. Spray-cement and duct tape all seams in the floor covering. Locate seams in top layer six feet (6') from, or at right angles to, seams in the bottom layer. Install the sheeting so that the top layer can be removed independently of the bottom layer. Based on toxicity and condition of contaminant being remediated/cleaned, single 6-mil. layer (drop cloth) may be used, at the discretion of the ERPI.



5. Any carpet flooring not contaminated and scheduled to remain shall be covered with (3) layers of polyethylene sheeting at least 6 mil thick. Place corrugated cardboard or other absorbent sheets between the top and middle layers of polyethylene. To avoid any movement, securely tape the cardboard to the underlying polyethylene sheeting.
- e. **Layers:** Containment barriers shall be provided in layers, as follows:
 1. Asbestos Floor Tile Removal: Provide one layer of 6 mil poly for all walls and barriers, and one layer of 6 mil. for all ceilings.
 2. Friable Asbestos Removal Projects: Provide two layers of 6 mil poly on all walls, ceilings, barriers, floors, and other necessary surfaces, as required, to enclose the Work Area. **FRIABLE CONDITION OF MATERIAL TO BE DETERMINED BY THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT.**
 3. Mold Remediation Projects (involving removal of moldy building materials): At ceilings, walls, barriers and floors, provide one layer of 6 mil. poly.
 4. For asbestos cleanups, as well as for mold and other environmental cleanups, no enclosure will generally be required, since all surfaces require cleaning. Based on job conditions, drop cloths at floor may be required, as directed by the JOF.
- f. Stairs and Ramps: Do not cover stairs or ramps with unsecured sheet plastic. Where stairs or ramps are to be covered with plastic, provide 5/8" exterior grade plywood or similar material, over the plastic and securely hold in place. Do not cover rungs or railings with any type of protective materials, but clean thoroughly at the end of the job.
- g. Repair of Damaged Polyethylene Sheeting: Provide additional layer of 6 mil polyethylene sheeting over containment barriers which have been damaged by removal operations, or where seal has allowed water to seep between layers. If a second layer remains sealed from the exterior of the work area, remove the affected sheeting and wipe down entire area. Install new sheet plastic only when area is completely dry. If work area seal has been breached (mold & other environmental projects), add the new layer over existing and reseal the work area immediately. If accessible, approach the breach from outside the work area and decontaminate the area. If a breach occurs in an asbestos project, annex the contaminated area to the work area as per I. below.
- h. Ceiling Protection: Where required to protect the existing ceiling surfaces, the contractor shall use 6 mil polyethylene sheeting. Such sheeting shall not be hung from acoustical ceiling grid.



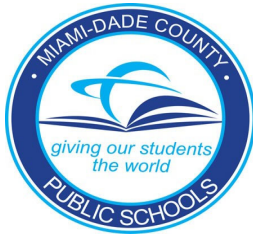
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- d. Extension of Work Area: If the Critical Barrier is breached in any manner that could allow the passage of asbestos debris or airborne fibers out of the Work Area, then the affected area should be added to the Work Area, and enclosed as required by this Section of the specifications, and decontaminated as described in Section 01711- "Project Decontamination".

3.09 DROP CLOTH:

- a. Shall be used, to protect the floor layer(s) from debris generated by the remediation Work, as specified in the appropriate Work Sections. (Not required for floor tile work). On cleanup projects, provide drop cloths under walls to be cleaned, from the bottom of the wall to 6'-0" out, to contain any debris.

END OF SECTION



SECTION 01561

WORKER PROTECTION

PART 1 - GENERAL

1.01 RELATED WORK:

- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.
- b. Related Work Specified Elsewhere:
 - 1. Respiratory Protection: Section 01562
 - 2. Decontamination Units/Tunnels: Section 01563

1.02 DESCRIPTION OF WORK:

- a. This Section describes the equipment and procedures required to protect workers against exposure to asbestos, mold, or other environmental contaminants, as well as other workplace hazards. For equipment and procedures for respiratory protection, refer to Section 01562 of these Specifications.

1.03 WORKER TRAINING:

- a. Asbestos: In accordance with 29 CFR 1926.1101, train all workers in the dangers inherent in handling asbestos and breathing asbestos dust, as well as in proper work procedures and personal and area protective measures. Florida Statute 469.012 requires that the contractor's supervisor complete a five (5) day course in Asbestos Project Management & Supervision and that the contractor's workers complete an approved course of not fewer than four days in Asbestos Abatement, prior to removing, encapsulating, enclosing or disposing of asbestos-containing materials; in addition, they must complete a one day re-certification course each year thereafter.
- b. Mold: Although there are no federal regulations governing mold remediation, the Environmental Protection Agency has issued guidelines regarding the work. The industry standards, based on such guidelines and on certification requirements from the American Council for Accredited Certification, provide that an individual must



complete a course in microbial remediation and receive an ACAC certificate. Florida Statutes 468.8413 establishes the minimum requirements to obtain license as a mold remediator, including 14 hours of continuing education every two-year period prior to license renewal. Firms and workers must meet all state requirements under 468.84.

- c. HVAC Duct Cleaning: The National Air Duct Cleaning Association (NADCA) specifications prescribe education and licensing requirements for firms and workers performing such work. Such requirements are hereby adopted into these specifications.
- d. Other Environmental Contaminants: Workers and firms performing remediation/cleanups of other environmental contaminants must have a minimum of two years experience on similar projects and must meet all licensing requirements for the particular activity.

1.04 MEDICAL EXAMINATIONS:

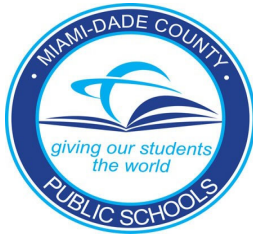
- a. Provide medical examinations: For all workers who may exceed the OSHA PEL for asbestos, and/or who will be required to wear negative pressure respirators, during the course of their work. In the absence of specific airborne fiber data provide medical examinations for all workers who will enter the Work Area for any reason. The examination shall, as a minimum, meet OSHA requirements as set forth in 29 CFR 1926.1101 and/or 29 CFR 1910.134.

1.05 CERTIFICATE OF WORKER'S ACKNOWLEDGMENT/ASBESTOS-MOLD-OTHER:

- a. A "Certificate of Worker's Acknowledgment" is located in Appendix "A". After each worker has completed the Contractor's Respiratory Protection Program and completed all training programs and medical examinations, secure a fully executed copy of the Worker's Acknowledgment Form. Submit a signed original "Certificate of Worker's Acknowledgment" per JOF/Facility, for each worker who is to be at the Job site or entering the Work Area on Asbestos, Mold or other Environmental Abatement projects.***

1.06 REQUIRED SUBMITTALS - DOCUMENTS:

- a. As part of the General Term contract Submittals, submit the following documents to the Owner for review:
 - 1. Certificate of Worker Acknowledgment: Submit the Certificate of Worker's Acknowledgment per 1.05 above.



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2. Training Program: Submit certification that the workers' training for each discipline (asbestos, mold, etc), as required by the appropriate regulation or recommended by the respective guideline, was conducted by an approved training provider.
3. Training Certification: Submit evidence of each worker's training for the type of work being conducted at each project.
4. Report from Medical Examination: Conducted within the last 12 months, as part of compliance with OSHA medical surveillance requirements for each worker who is to enter an Asbestos Work Area, or to wear a negative-pressure respirator on any work area. Submit the following for each worker.
 - (a) Name and Social Security Number.
 - (b) Date of the medical examination.
 - (c) Statement that the examination in accordance with 29 CFR 1926.1101 or 29 CFR 1910.134
 - (d) Written Opinion from the examining Physician including:
 - (1) For Asbestos Projects: Whether worker has any detected medical conditions that would place the worker at an increased risk of material health impairment from exposure to asbestos.
 - (2) Any recommended limitations on the worker or on the use of personal protective equipment such as respirators.
 - (3) A statement that the worker has been informed, by the physician, of the results of the medical examination of any medical conditions that may result from asbestos exposure.
 - (4) Physician's statement that the worker is able to wear and use the type of respiratory protection proposed for the project.

PART 2 - EQUIPMENT

2.01 PROTECTIVE CLOTHING:

- a. Coveralls: Provide disposable full-body coveralls and require that they be worn at all times by all workers in the Work Area. Provide a sufficient number and sizes of



coveralls for all required changes of all workers and for inspectors, air monitoring personnel, etc. to be in the Work Area each day.

- b. Boots: Provide work boots with non-skid soles where required by OSHA for all workers. Provide boots at no cost to workers. For asbestos projects, dispose of boots as asbestos-contaminated waste at the end of the work task or seal in 6 mil thick plastic bags for transportation to the next job site.
- c. Hard Hats: On projects conducted on active construction sites, provide hard hats as required by OSHA for all workers and provide spares for use by authorized visitors. Require hard hats to be worn at all times that Work is in progress which may potentially cause head injury. Require hats to remain in the Work Area throughout the Work. Thoroughly clean, decontaminate and bag hats before removing them from the Work Area.
- d. Goggles: Provide eye goggles as required by OSHA for all workers during mold remediation or cleanup projects, as well as those involved in scraping, spraying, applying amended water or encapsulant, or any other activity which may potentially cause eye injury. Full-face piece respirators may satisfy this requirement.
- e. Gloves: Provide work gloves to all workers and require that they be worn at all times in the Work Area. Dispose of used gloves as contaminated waste at the end of the Work.

2.02 RESPIRATORY EQUIPMENT:

- a. Provide each worker with appropriate respirator as outlined in Section 01562/RESPIRATORY PROTECTION.

PART 3 - EXECUTION

3.01 GENERAL:

- a. Provide worker protection as required by the latest OSHA and EPA standards and guidelines for the specific contaminant involved in the work, unless more stringent requirements are written into these specifications. The procedures outlined herein are minimums that must be adhered to regardless of contaminant concentration in the Work Area.
- b. On friable asbestos projects, each time the Work Area is entered (after the preparation phase), remove all street clothes (required only with shower) in the changing room of the Decontamination Unit and put on new disposable coveralls,

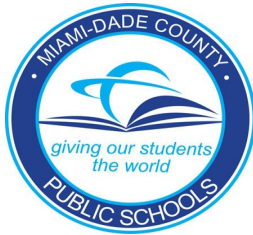


and a clean respirator (only nylon swimsuits or disposable undergarments may be worn under the disposable coveralls). On other projects, street clothes may be kept on under the disposable coveralls.

- c. Then, put on a respirator appropriate for the contaminant and level of exposure anticipated. the respirator must be donned prior to the hood of the protective coveralls. Hood of protective coveralls must remain on head at all times in the Work Area.
- d. Proceed through the decontamination area to equipment room and put on work boots, if required.

3.02 DECONTAMINATION PROCEDURES:

- a. Require all workers and authorized visitors to adhere to the following personal decontamination procedures whenever they leave the WorkArea:
- b. **Friable Asbestos Projects (or other remediation projects with showers)**, using Type- C Supplied Air or Powered Air-Purifying Respirators (PAPR): Require that all workers and authorized visitors use the following decontamination procedure as a minimum requirement whenever leaving the Work Area:
 - 1. When exiting the Work Area, remove all disposable clothing and footwear in the equipment room.
 - 2. Still wearing the respirator, proceed to showers. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator to avoid inhaling contaminants while showering.
 - 3. The following procedure is required as a minimum: Thoroughly wet body, including hair and face. With respirator still in place thoroughly wash body, hair, respirator face-piece and all parts of the respirator, except the blower unit and battery pack on a PAPR. (If wearing a PAPR, hold the blower unit above head to keep the motor dry or use other means to protect the motor.) Pay particular attention to the seal between the face and respirator and under straps. Take a deep breath, hold it and/or exhale slowly, completely wet hair, face, and respirator. While still holding breath, remove respirator and hold it away from face before re-starting to breathe.
 - 4. If using PAPR, shut down in the following sequence: first, cap inlets to filter cartridges, then turn off blower unit (this sequence will help keep debris which was collected on the inlet side of filter from dislodging and contaminating the outside of the unit). Dispose of filter if water gets inside. Thoroughly clean the



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blower unit and hoses. Carefully clean the battery pack with wet cloth. Be extremely cautious of getting water in battery pack as this may destroy the battery. Carefully wash facepiece of respirator inside and out.

5. Shower with soap and water to completely cleanse all body parts and rinse thoroughly.
 6. Dry with supplied disposable towels and proceed from shower to the changing room; change into street clothes or into new disposable work clothes.
- c. **Asbestos Projects (or other remediation projects with showers)**, using non-powered Air-Purifying or Negative-Pressure Respirators: Require that all workers and authorized visitors use the following decontamination procedure as a minimum requirement whenever leaving the Work Area with a half or full-face cartridge type respirator:
1. When exiting the Work Area, remove all disposable clothing and footwear in the equipment room.
 2. Still wearing the respirator, proceed to showers. Showering is mandatory. Care must be taken to follow reasonable procedures in removing the respirator and filters to avoid inhaling fibers while showering.
 3. Thoroughly wet body from neck down. Wet hair as thoroughly as possible taking care not to get water into the respirator filter. Take a deep breath, hold it and/or exhale slowly, complete wetting of hair, thoroughly wetting face, respirator and filter exterior. While still holding breath, remove the respirator and hold it away from the face before starting to breathe. Dispose of wet filters as contaminated waste. Carefully wash facepiece of respirator inside and out.
 4. Shower with soap and water and completely cleanse all body parts. Rinse thoroughly.
 5. Dry with supplied disposable towels and proceed from shower to the changing room; change into street clothes or into new disposable work clothes.
- d. **Dry Decontamination:** For projects not requiring a shower, but having a dry decontamination station, the following procedures will be followed.
1. Personnel entering the work area must don two sets of disposable coveralls (with head & foot covers) over their street clothes before entering the Work Area. Personnel must also wear the appropriate respirator as described in Section 01562/Respiratory Protection. Respirator must be worn at all times



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in or outside the Work Area while handling Asbestos Containing Materials, mold or other contaminants. For friable asbestos projects, workers must don two sets of coveralls. For other projects involving non-friable asbestos, or other contaminants, two sets of coveralls will also be required. Integrity of suits must be maintained throughout the abatement of all asbestos projects.

2. For Mold cleaning or Remediation projects worker must don one (1) set of coveralls, Eye and Hand protection. Integrity of coveralls/protective suits must be maintained throughout the cleaning or remediation process.
3. After leaving the Work Area, and within the Equipment Room, personnel should carefully HEPA vacuum all debris from the exterior set of protective coveralls. After vacuuming debris from the outer suit, workers shall mist the suit using an airless sprayer. They should then carefully remove the exterior suit, being careful to roll the clothing inside out so that the clean interior of the clothing is exposed. Removed coveralls must be disposed of as asbestos containing waste, in the waste bag located in the Equipment Room. Then, remove the interior suit, by similar roll-out process and properly dispose of suit while leaving on the respiratory protection.
4. Proceed to the central Airlock to continue decontamination. Personnel should then, while still wearing the respirator, wet wipe the exterior of the respirator, using clean water from the container located in the Airlock. The respirator must not be removed until wipe down is completed and personnel has exited to the Clean Room.
5. Applicability: Dry decontamination techniques may be used for Class II asbestos abatement work and for minor (<10 sf/25 lf) Class I (TSI or surfacing ACM/PACM) abatement work, as well as for mold remediation/cleanup and other environmental projects, as specified herein or outlined in the JOF.

3.03 PROCEDURE WITHIN WORK AREA:

- a. Workers shall NOT eat, drink, smoke, chew gum or tobacco in the Work Area, regardless of the contaminant involved. To perform any of these tasks, workers shall exit the work area, after proper decontamination, as noted in the procedure described above and exit the decontamination facilities.

3.04 DECONTAMINATION PROCEDURES/MINOR WORK:

- a. The following procedures will be followed for minor work on projects using a Mini

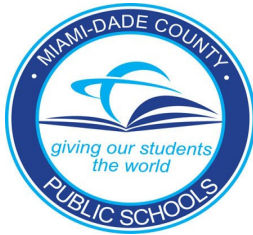


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Decontamination Unit or a Floor Poly Decon Area. Perform the following at completion of the Work or at end of the work shift:

1. Each person HEPA vacuums thoroughly the other person.
 2. While still wearing respirator each person removes their coveralls, turning it inside out while removing it.
 3. Place suits in a disposal bag located in the decontamination area.
 4. Each person HEPA vacuums hands, hair, face and respirator and wipes said items with damp towels.
 5. Each person HEPA vacuums area of respirator seal to face on the other person.
 6. If using PAPR, shut down in the following sequence: First cap inlets to filter cartridges then turn off blower unit (this sequence will help keep debris which has collected on the inlet side of filter from dislodging and contaminating the outside of the unit). Thoroughly vacuum and wipe the blower unit and hoses. Carefully wipe the battery pack.
 7. Remove respirator and HEPA vacuum face at respirator seal, as well as all surfaces of the respirator. HEPA vacuum any parts of head or hair previously covered by respirator straps.
 8. Wash respirator face-piece inside and outside.
- b. Upon completion of above procedures, thoroughly wash face and hands with soap and water.

END OF SECTION



SECTION 01562

RESPIRATORY PROTECTION

PART 1 - GENERAL

1.01 RELATED WORK:

- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.
- b. Related Work Specified Elsewhere:
 - 1. Air Monitoring Section 01410
 - 2. Regulated Areas Section 01526
 - 3. Worker Protection Section 01561

1.02 SUMMARY:

- a. This section outlines the procedures the Contractor must follow in order to comply with regulatory requirements relative to Respiratory Protection for workers. These procedures are intended to prevent worker exposure to airborne contaminants (asbestos, mold, and other environmental toxins) during the execution of the work.

1.03 STANDARDS:

- a. Except to the extent that more stringent requirements are written directly into the Contract Documents, the following regulations and standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies were bound herewith. Where there is a conflict in requirements set forth in these regulations and standards, meet the more stringent requirement.
 - 1. OSHA - U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards 29 CFR 1910.134, and, 29 CFR 1926.1101.
 - 2. CGA - Compressed Gas Association, Inc., New York, Pamphlet G-7, "Compressed Air for Human Respiration", and Specification G-7.1 "Commodity Specification for Air".



3. ANSI - American National Standard Institute - Practices for Respiratory Protection, ANSI Z88.2.
4. NIOSH - National Institute for Occupational Safety and Health.
5. MSHA - Mine Safety and Health Administration.
6. EPA - Guidelines for Mold Remediation in Schools and Commercial Buildings, EPA 402-K-01-001.

1.04 SUBMITTALS:

Before Start of Work, as part of the General Term Contract Submittals, submit the following to the Owner for review. Do not begin Work until these submittals are approved by the Owner:

- a. Product Data: Submit manufacturer's product information for each component used, including the NIOSH and MSHA label for each component in an assembly and/or for entire assembly.
- b. System Diagram: When a Type-C supplied air respiratory system is required or utilized for the Work, submit a drawing showing assembly of components into a complete supplied air respiratory system. Include a diagram showing the location of the compressor, filter banks, backup air supply tanks, hose line connections in the Work Area(s) and the routing of air lines to the Work Area(s) from the compressor.
- c. Operating Instructions: Submit complete operating and maintenance instructions for all components and systems as a whole including the Carbon Monoxide (CO) monitor operation and calibration procedures.
- d. Respiratory Protection Program: Submit Contractor's written respiratory protection program manual as required by OSHA 29 CFR 1910.134.
- e. Medical Surveillance: Submit certificate from physician stating that each specific worker has been cleared to wear a respirator during the course of the work.
- f. Respiratory Fitting Documentation: Submit documentation indicating successful fit testing of respirators for contractors' workers, showing the size, type and brand of respirator, in accordance with 29 CFR 1910.134 and 29 CFR 1926.1101. On each individual project, maintain on site documentation for the workers present on the job.



1.05 AIR QUALITY FOR SUPPLIED AIR RESPIRATORY SYSTEMS:

- a. Provide air used for breathing in Type C supplied air respiratory systems that meets or exceeds standard set for CGA type 1 (Gaseous Air) Grade D.

1.06 MAXIMUM ALLOWABLE CONTAMINANT LEVELS (TYPE-C SYSTEMS):

- a. The following table sets forth the quantity of any given contaminant allowed according to the referenced standard:

CONTAMINANT	GRADE "D" max, concentration
Carbon Monoxide	20 PPM/v
Carbon Dioxide	1000 PPM/v
Condensed Hydrocarbons	5 mg./cu. meter
Objectionable Odors	None
Asbestos Fibers	0.01f/cc

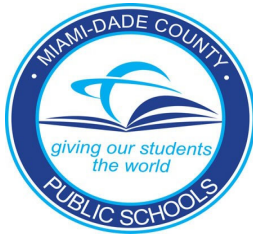
1.07 DELIVERY:

- a. Deliver replacement parts, etc., not otherwise labeled by NIOSH or MSHA to job site in manufacturer's containers.

PART 2 - EQUIPMENT

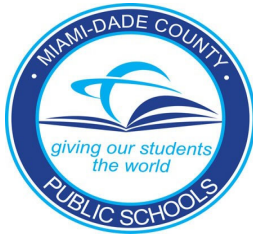
2.01 AIR PURIFYING RESPIRATORS:

- a. Respirator Bodies: Provide half-face or full-face type respirators. Full-face respirators shall be equipped with a nose cup or other anti-fogging device.
- b. Filter Cartridges: Provide high efficiency particulate air (HEPA) filters that are at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter (NIOSH 42 CFR 84-P100 Filter) properly labeled with NIOSH designation and color coding. In addition, a chemical cartridge section may be added, if required, for solvents, spray poly and other contaminants that may be present in the work area.



2.02 SUPPLIED-AIR RESPIRATOR SYSTEMS:

- a. Provide equipment capable of producing air of the quality and volume required by the above referenced standards as applied to the job site conditions and crew size. Comply with provisions of this specification if more stringent than the governing standard.
- b. Face piece and Hose: Provide respirator face piece and air delivery hose provided by the same manufacturer that has been approved by NIOSH/MSHA as an approved Type C respirator assembly operating in Pressure Demand mode with a positive-pressure face-piece.
- c. Auxiliary backup system: In atmospheres which contain sufficient oxygen (greater than or equal to 19.5% oxygen) provide a Pressure-Demand full face piece supplied-air respirator equipped with an emergency back up HEPA filter.
- d. Escape air supply: In atmospheres which are oxygen deficient (less than 19.5% oxygen) provide a Pressure-Demand full face piece supplied-air respirator incorporating an auxiliary self-contained breathing apparatus (SCBA) which automatically maintains an uninterrupted air supply in Pressure-Demand mode with a positive-pressure face piece.
- e. Backup air supply: Provide a reservoir of compressed Grade D Breathing Air located outside the Work Area which will automatically supply a continuous, un- interruptible source of air to each connected face piece and hose assembly in the event of compressor shut-down, contamination of air delivered by compressor, power loss or other failure. Provide sufficient capacity in the back-up air supply to allow a minimum escape time of one-half hour times the number of connections available to the Work Area. Air requirement at each connection is the air requirement of the respirators in use plus the air requirement of an average sized adult male engaged in moderately strenuous activity. Contractor may submit to the Owner other escape respirator protection means.
- f. Warning Device: Provide a warning device. Locate so that the alarm is clearly audible above the noise level produced by equipment and Work procedures in use in all parts of the Work Area and at the compressor. No remediation procedure will commence until warning devices are **fully** operational . Connect alarm to warn of:
 1. Compressor shut down or other fault requiring use of backup air supply.
 2. Carbon Monoxide (CO) concentrations in excess of 5 PPM/v.



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- g. Carbon Monoxide (CO) Monitor: Place the CO monitors in the air line between the compressor and back-up air supply and between the backup air supply and workers. Connect the monitors so that they also sound an alarm as specified under "Warning Devices".
- h. Compressor Shut Down: Interconnect monitors, alarms, and compressor so that compressor is automatically shut down and the alarms sounds if any of the following occur:
 - 1. Carbon Monoxide (CO) concentrations exceed 5 PPM/v in the air line between the filter bank and backup air supply.
 - 2. Compressor temperature exceeds normal operating range.
- i. Compressor Location: Locate the compressor in a location that will not impede access to the building and that will not cause a nuisance by virtue of noise or fumes to occupied portions of the building. Location of the compressor must be approved by the site administrator as well as the Department of Environmental Management.
- j. Air Intake: Locate air intake remotely from any source of vehicle exhaust or any exhaust from buildings.
- k. After Cooler: Provide an after-cooler at the entry to filter system which is capable of reducing temperatures to outside ambient air temperatures.

PART 3 - EXECUTION

3.01 GENERAL:

- a. Respiratory Protection Program: Comply with OSHA 29 CFR 1910.134, and 29 CFR 1926.1101, and other applicable regulations and guidelines.
- b. Require that respiratory protection shall be used at all times that there is any possibility of disturbance of asbestos-containing materials, mold-contaminated materials, or other contaminant exposures, whether intentional or accidental.
- c. Require that a respirator shall be worn by anyone in the Work Area at all times, regardless of activity, during the period starting with any operation which could disturb contaminants until the area has been cleared for re-occupancy.
- d. Regardless of airborne fiber concentrations on asbestos removal projects, the minimum level of respiratory protection used within the work area during gross removal shall be Powered Air Purifying Respirators unless prior approval is obtained from the Owner's Representative. Half-face air purifying respirators can be worn during prepping, pre-cleaning, mastic removal, final clean-up, glovebag operations



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and the handling and loading out of bags or drums into dumpster, truck or trailers if approved by the Department of Environmental Management.

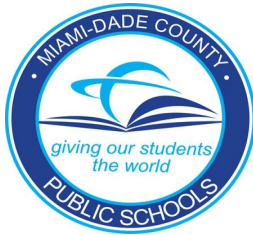
- a. For mold remediation projects and other contaminant removal projects, the minimum level of respiratory protection shall be half-face air purifying respirators with HEPA filters. As required by the specific contaminants involved, combination cartridge filters may need to include organic vapor filters, acid gas, or other specialty filters.
- b. All persons wearing respirators shall have been cleared to wear the respirator by a qualified physician, been properly fit tested on the specific respirator, and received respiratory protection training from a qualified person. Training must provide information on the need for respiratory protection, types of respirators and their protection factors, and the proper procedures for use and maintenance of respirators.
- c. IDLH Atmospheres will require use of pressure demand supplied air respirator (Type C) with auxiliary self-contained air supply or full face piece pressure demand SCBA certified by NIOSH with a minimum service life of thirty (30) minutes.

3.02 FIT TESTING:

- a. Provide fit testing of respirators for all personnel at least annually, in accordance with OSHA Standards 29 CFR 1910.134. Refit respirators for any individuals that undergo physical changes such as significant weight loss or gain, or other conditions that may affect respirator fit. Fit test upon issuance of a new respirator.
- b. Employees shall wear only respirators for which they have been properly fit tested. Maintain on site current fit test documents for all employees present, for the respirators actually being used.
- c. Fit Testing for negative pressure respirators (PF-10) shall be qualitative type. Fit testing for all other respirators with a protection factor of 50 or above shall be quantitative type tests.
- d. Upon Each Wearing: Require that each time an air-purifying respirator is put on, it be checked for fit with a positive and negative pressure fit check in accordance with the manufacturer's instructions and applicable regulations.

3.03 TYPE OF RESPIRATORY PROTECTION REQUIRED:

- a. Fibers: For purposes of this Section fibers are defined as all fibers regardless of composition as counted using the OSHA Reference Method (ORM) or NIOSH 7400 procedures or asbestos fibers of any size as counted using a Transmission Electron Microscope.



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- b. Mold and Other Contaminants: No regulatory requirements currently govern exposure to airborne mold and its spores. However, EPA Guidelines recommend the use of a half-face, HEPA filtered respirator as a minimum, which is hereby made a requirement by these Specifications, together with appropriate eye protection. In lieu of half-face respirator and goggles, a full-face HEPA filtered respirator may be substituted.
- c. Provide Respiratory Protection in accordance with OSHA Standards and these specifications. All asbestos jobs involving a friable material should be started utilizing a minimum protection factor of 1000. The level of respiratory protection which supplies an airborne fiber concentration inside the respirator below, 0.01 fibers per cubic centimeters (flee) is the minimum level of protection allowed on asbestos projects. Determine the proper level of protection by dividing the expected or actual airborne fiber concentration in the Work Area by the "Protection Factors" of each type of respirator.
- d. **Respiratory Standards for this Contract:** For M-D.C.P.S./D.E.M. term contract for asbestos removal, the following guidelines will be followed:
 - 1. For all friable materials, including ceiling tile, surfacing materials, and non-glove-bag friable thermal system insulation, Type "C" (pressure demand) respirators **will** be utilized until a Negative Exposure Assessment, according to 1926.1101, has been established.
 - 2. For floor tile, P.A.P.R. respirators will be utilized.
 - 3. For Asbestos projects, during preparation of the work area that may disturb the materials, during glove-bag removal and load-out activities outside containment -1/2 face negative pressure respirators shall be utilized.
 - 4. For Mold projects, a minimum of half-face negative pressure respirators shall be used.
 - 5. Respiratory protection for projects not listed above must comply with regulations applicable to the type of contaminant, which will be reviewed by the Owner, prior to potential approval.
 - 6. Downgrading of respiratory protection will require submittal of personal exposure test records for the workers, taken during execution of the work, which demonstrate that actual exposures permit a lower protection factor.



3.04 AIR PURIFYING RESPIRATORS:

1. Negative pressure - half or full face mask: Supply a sufficient quantity of respirator filters approved for asbestos, so that workers can change filters during the work day.
2. Powered air purifying (PAPR) - half- or full-face piece mask: Supply a sufficient quantity of high efficiency (HEPA) respirator filters approved for asbestos so that workers can change filters at any time that flow through the face piece decreases to the level at which the manufacturer recommends filter replacement. Provide an appropriate flow verification device on-site for use by employees. Require that the HEPA elements in filter cartridges be protected from wetting during showering. Require entire exterior housing of respirator including blower unit, filter cartridges, hoses, battery pack, face mask, belt and cords to be decontaminated each time a worker leaves the Work Area.

3.05 TYPE C RESPIRATOR SYSTEM:

1. Air Systems Monitor: Continuously monitor the air system operation including the compressor operation, filter system operation, backup air capacity and all warning and monitoring devices at all times that system is in operation. Assign an individual trained in the use of the supplied air system, to monitor the system at all times it is in use. Assign no other duties to this individual which will take him away from monitoring the system.

3.06 VISITOR PROTECTION:

1. Contractor shall make available at least two PAPR respirators (in excellent condition) for any authorized visitors, inspectors or emergency personnel and provide all protective gear necessary for their exclusive use at any time. Whenever the respiratory protection factor is higher than PAPR, the Contractor shall also make available to authorized visitors, at least two (2) sets of respiratory equipment equivalent to that being utilized for the work.

END OF SECTION



SECTION 01563

DECONTAMINATION UNITS/TUNNELS

PART 1 - GENERAL

1.01 RELATED WORK:

- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.
- b. Refer to Section 01503 "Temporary Facilities" for requirements concerning connection of the decontamination unit to existing building systems such as water, sewer and electrical.
- c. Refer to Section 01526 "Regulated Areas" for containment barrier requirements.

1.02 DESCRIPTION OF WORK:

- a. Provide Decontamination Units for projects as specified in the JOF. Require that the Decontamination Unit be the only means of entry to and exit from the Work Area, except for any required emergency exits as described in Section 01526.
 1. Provide master keyed-alike locks at all project sites under this term contract. Combination locks will not be accepted.
 2. Provide ten master keys for the Decontamination unit locks to the Owner's Representative as required or when the initial locks are changed.
- b. Provide Tunnels for access between work areas, when needed or specified in the JOF.
- c. Provide Portable Building Enclosure Barriers when needed for abatement of portable exterior wall materials.

1.03 SUBMITTALS:

- a. As part of the General Term Bid Submittals, submit product data and/or shop drawings of the typical decontamination unit and tunnel to the Owner for review. Do not begin work until these submittals are approved by the Owner's.



- b. As part of specific project Pre-job Submittals, submit any additional details required to accommodate special site conditions encountered.

PART 2 – PRODUCTS

2.01 POLYETHYLENE SHEETING:

- a. Standard Polyethylene Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, 6.0 mil thickness, clear, frosted or black as indicated.

2.02 DUCT TAPE

- a. Provide duct tape in 2" or 3" widths as indicated, with an adhesive which is formulated to adhere to sheet polyethylene.

2.03 SPRAY CEMENT:

- a. Provide spray cement which is specifically formulated to adhere to sheet polyethylene.

2.04 SHOWER:

- a. Where required, provide a one-piece, leak-proof, prefabricated shower pan, approximately 3'-0" x 3'-0", a minimum of 6" high on all sides. Shower pan shall be at least 1/8" thick fiberglass, 18 gauge stainless steel with welded seams, 1/4" rigid PVC., or approved equal. Shower edges shall be smooth, without sharp elements. Shower bottom shall be slip-resistant or provided with a well-fitted impervious drain grate.
- b. Shower assembly shall provide soap holder and safety grab bar.

2.05 SHOWER HEAD AND CONTROLS:

- a. Provide a factory-made shower head that delivers a spray of water which can be adjusted for spray size and intensity. Feed shower with water mixed from hot and cold-water supply lines. Arrange the controls so that water temperature, flow rate and shut off is from inside the shower. Provide sump pump if required for proper operation.



2.06 FILTERS:

- a. Provide a filtration system on drain lines from showers or any other water source carrying asbestos-contaminated or lead-contaminated water from the Work Area and Decontamination Units. Provide units with disposable filter elements capable of filtering asbestos fibers to 5 microns, as indicated below. Connect so that discharged water passes primary filter and output from primary filter passes through secondary filter.
 1. Primary Filter - Passes particles sized 20 microns and smaller.
 2. Secondary Filter - Passes particles sized 5 microns and smaller.
- b. Provide any sump or booster pumps required for proper operation of the filtration system.

2.07 SHOWER WALLS:

- a. Shall be rigid, waterproof, continuous and cleanable with no visible cracks joints, or crevices to allow accumulation of waste or similar matter. The walls shall be substantial, sturdy, and capable of resisting any outward pressures occurring in the normal course of work. Structurally support shower walls as necessary for stability.
- b. Provide a soap holder and safety grab bars at each shower.

2.08 WATER HEATER:

- a. See Section 01503, Paragraph 2.03, of these Specifications.

2.09 PLYWOOD:

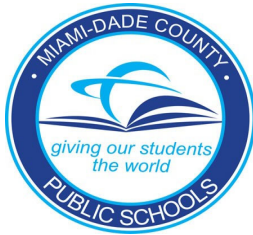
- a. 4' 0" x 8' 0" x 5/8" plywood panels conforming to PS-1 Standard, exterior grade, "CDX", in good condition.

2.10 LUMBER:

- a. 2 x 4 or 2 x 6 pressure-treated framing lumber, conforming to PS-20 Standard, stud grade or better, as required for the application.

2.11 MISCELLANEOUS:

- a. Provide nails, screws, sealants, and other items as required.



PART 3 - EXECUTION

3.01 GENERAL CONSTRUCTION CRITERIA:

- a. Decontamination Units and Tunnels shall be freestanding, self-supporting structures, constructed of plywood paneling on 2 x 4 wood framing, capable of supporting their own dead loads and of withstanding lateral dynamic loads (including winds to 35 mph) that can be expected during the Work. At exterior locations, secure units to building or provide wind bracing and make units waterproof from the exterior side (in addition to internal airtight containment barriers/seals).

The height and width of all decontamination units, tunnels, and portable building enclosures shall conform to these specifications and to the drawings included in Appendix B. Tunnels must have a height of 8'-0" to 10'-0", and a width of 4'-0" clear inside.

- b. Decontamination Units and Tunnels shall be sealed airtight using polyethylene sheeting and duct tape, applied to floors and to the interior surface of wall and ceiling panels. Use 2 layers (minimum) of 6 mil thick polyethylene sheeting to cover floors, walls and ceilings. At contractor's option, a polyethylene drop cloth may be added on top of the floor sheets, to protect the sheets from debris and damage.
- c. Subdivide decontamination units into multiple chambers and separate units and tunnels from work areas using doors/flaps made of polyethylene sheeting. Fabricate from two 6 mil polyethylene sheets, arranged so that each sheet fully overlaps the other and opens at opposite side of the adjacent sheet. Put arrows on the sheets to indicate direction of overlap and/or travel.
- d. Where the area adjacent to the decontamination unit is accessible to students, staff, or the public, ensure that the exterior side of walls are free from nails, splinters, and other elements that could cause damage and injury.
- e. Entrance/Exit Doors:
 1. Entrance doors to decontamination units shall be substantial, solid, and fully operational units, simultaneously providing adequate access and security. Doors shall be solid core, or at a minimum, made from 5/8" plywood panels and shall be secured using standard builder's hardware, of quantity, type and quality as required by the application. Nailing door to decontamination unit is unacceptable.



2. Provide a minimum of 2 hinges at each door; provide heavy-duty latch and hasp sets with vandal resistant heavy duty locks. All locks for this contract shall be master-keyed alike; provide 10 master keys to Owner with the General Term Bid Submittals. Reinforce plywood door as necessary for installation of hardware and for proper operation.
 3. Post required asbestos warning sign, Ten-Day Notification (stamped by DERM), and all emergency phone numbers and procedures, on the outside of the Decontamination Unit door. Post the decontamination procedures and personnel monitoring results in the Clean Room.
 4. Provide a standard, overlapping polyethylene flap immediately behind the door, to serve as back-up airflow and sight control closure. Post an asbestos warning sign on the outer side of this flap.
- f. Alternate methods of providing decontamination facilities and tunnels may be substituted if approved by the Department of Environmental Management. Submit manufacturer's product data and shop drawings to the department for review, in accordance with provisions of Section 01301. Do not proceed with such method(s) without prior authorization of the Owner's Representative. Portable decontamination units must meet the minimum standards specified herein.

3.02 DECONTAMINATION UNITS (PERSONNEL):

- a. Decontamination units shall be subdivided in a serial arrangement of spaces separated by polyethylene sheet bulkheads and access flaps.
 1. Units for projects involving remediation of friable asbestos materials shall be "Five-Stage Decontamination Units", containing a Clean Room, Shower, and Equipment Room separated by Air Locks (See Appendix B for drawing details).
 2. Units for projects involving remediation of non-friable asbestos materials, and on specific mold other environmental contaminant remediations (when called for in the JOF) shall be "Three-Stage DRY or WET Decontamination Units", (See Appendix B for drawing details for Three-Stage Decon Unit).
 3. On projects involving standard mold remediations or various cleanup activities, a Two-Stage "Mini Decontamination Unit", containing a Clean Room and an Equipment Room, may be used. (See Appendix B for drawing details).



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4. On minor projects, when specified in the JOF, a wash pad 6' x 6' or a One-Stage "Mini Decontamination Unit" may be used. Both include wash bucket and towels for personal decontamination.
- b. All decontamination units shall be a minimum of 4'-0" wide and 8'-0" high, and each individual subdivided space shall be 4'-0" minimum in length. Therefore, 5-stage units will be a minimum of 20 feet in length and 3-stage units will be a minimum of 12 feet in length, 2-stage Mini-Decon units will be a minimum of 8 feet in length. Material Decontamination Units to be a minimum of 12 feet in length.
- c. Clean Room:
 1. The Clean Room is the first chamber of the decontamination unit, serving as the entrance/exit access and as a changing area to put on protective clothing. This room must be physically and visually separated from the rest of the building.
 2. On jobs requiring a shower, provide individual secure storage in the Clean Room for workers' and authorized visitors' valuables and street clothes. Provide a storage locker for employee and two visitor lockers.
 3. Locate the temporary power panel and the manometer in the Clean Room, to prevent tampering and to protect them from the elements.
 4. Maintain in the Clean Room an adequate supply of protective disposable suits and disposable towels. Provide a full-length, plastic mirror in the Clean Room. Require all persons to visually check their protective equipment in mirror before entering the Work Area.
- d. Shower Room:
 1. The Shower Room must be located in such manner that all persons leaving the work area are forced to travel through the shower. Workers headed out of the Work Area must remove contaminated clothing in the Equipment Room, shower and remove the respirator in the Shower Room, and dress in street clothes in the Clean Room. Separate the Shower Room from both the Clean Room and the Equipment Room by Air Locks, with standard overlapping polyethylene flaps.
 2. Construct the Shower Room by providing a shower pan and shower walls in a configuration that will cause water running down walls to drain only into the pan. At the two access openings, provide heavy-duty, opaque rubber curtains that overlap the shower curb and channel water into the pan;



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curtains must have enough weight to hang vertically against the pull of the negative pressure and ensure that water from showering does not splash into the Clean or Equipment Rooms or the Air Locks.

3. Install a free flowing floor drain in the shower pan with an integral grating cover. Provide flexible shower head with independent hot and cold water controls. Shower must be fully operable at all times during removal phase of the Work.
4. Unit must have controllable, hot and cold running water as well as drainage, as necessary for a complete and operable shower; temporarily extend building water service and provide water heating equipment as required for site conditions. As part of the specific General Term Contract Submittals, indicate proposed method and equipment for water supply, heating, and disposal, and obtain Owner's approval. Coordinate with Asbestos Project Inspector, prior to start of work, for acceptable service connections and locations for equipment.
5. Pump waste water from shower drain through 20 micron and 5 micron waste water filters prior to discharge into building's sanitary system. Replace filters as necessary. Alternately, pump wastewater into drums lined with disposal bags, adding water absorbing/solidifying granules to the bags. Dispose of drummed/bagged wastewater as asbestos waste.
6. Provide a continuously adequate supply of soap and maintain in a sanitary condition. Provide a continuously adequate supply of disposable towels. Locate towels immediately adjacent to the shower in the "clean" air lock, hung on towel bars or other suitable holders to keep supply dry and orderly.

e. Equipment Room:

1. The Equipment Room is the chamber used to access the Work Area; it is a transition space that is considered part of the contaminated area. The Equipment Room shall contain a receptacle lined with a disposal bag for discarding of contaminated protective clothing prior to entering the Shower Room. All disposal items including disposal suits used in the Work Area shall be placed in the disposal bag located in the Equipment Room prior to proceeding to the shower. All equipment removed shall be washed in the shower or load out before removing from the decon
2. The Equipment Room is the portion of the Decontamination Unit that abuts the existing building (Work Area). Provide non-destructive attachment to the building as required for stability.



Seal airtight, with polyethylene and duct tape, the joint between the unit and the existing building. Provide a standard triple flap access door at the opening to the Work Area.

3.03 MATERIAL DECONTAMINATION UNITS:

- a. When indicated in the JOF or requested by the Owner's Representative, the contractor will provide a separate Material and Equipment Decontamination Unit (Load-out Unit), for decontamination and removal of equipment, materials, and bagged waste from the Work Area.
- b. The Material Decontamination Unit shall be a three-stage unit of same construction and details as the Personnel Decontamination Unit, and shall be subdivided in a serial arrangement of spaces separated by polyethylene sheet bulkheads and access flaps. It shall contain a Clean Room, Holding Room, and a Wash Room . (See Appendix B for drawing details).
- c. The Material Decontamination Unit shall be a minimum of 4'-0" wide and 8'- 0" high, and each individual subdivided space shall be 4• 0• minimum in length.
- d. When site conditions permit, locate the Material Decontamination Unit at opposite side of Work Area from the Personnel Decontamination Unit. When that arrangement is not possible, the Material Decontamination Unit may be located adjacent to the Personnel unit and accessed from the Equipment Room (See Appendix B for drawing details).
- e. When site conditions are very limited, preventing construction of a separate Material Decontamination Unit, decontamination and load out of waste may be made through the Personnel Decontamination Unit, upon prior approval by the Owner's Representative. In such cases, the Shower will act as a Wash Room, except that for Three Stage Units, a wash pan must be placed in the Equipment Room, both for the decontamination of materials and to permit decontamination of suits and respirators using an airless sprayer.
- f. Do not allow personnel to enter or exit work area through the Material Decontamination Unit.
- g. Wash Room:
 1. Provide Wash Room for cleaning outside of single-bagged or wrapped asbestos-containing waste materials passed from the work area. Separate this room from the Work Area or Equipment Room, as well as from Holding Room, by standard polyethylene overlapping flaps.



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2. Provide a one-piece, leak-proof wash pan with 6" high curbs/sides inside the Wash Room to hold waste water from material decontamination by airless sprayer. Wash pan size should be an adequate size to perform loadout.
3. Provide sufficient space to permit workers to handle and wash each bag and insert same in a clean second bag after washing.

h. Holding Room:

1. Provide a Holding Room as a buffer and storage location for decontaminated, double bagged asbestos waste being passed from the Wash Room.
2. Separate the Holding Room from adjacent rooms by standard polyethylene overlapping flaps, to prevent waste from being carried directly to Clean Room.

i. Clean Room:

1. Provide a Clean Room to serve as an air lock, to separate the Holding Room from the building exterior.
2. Control Clean Room entrance/exit with a lock-able, solid door and polyethylene single flap as specified for standard Decontamination Unit entrances above.

3.04 TUNNELS:

- a. When the project involves remediation of multiple adjacent rooms that are not directly interconnected, a Tunnel may be erected to consolidate all spaces into a single Work Area, as designed by the Department of Environmental Management and requested by the Job Order Form.
- b. Tunnels shall be a minimum of 4'-0" wide and 8'-0" high, and shall be self-supporting, constructed of plywood on wood framing and sealed airtight with polyethylene sheeting as specified herein above. Tunnels shall be separated from each connecting Work Area by standard overlapping flaps.
- c. The Owner's Representative will review site conditions at each project location. When directed by the Owner's Representative, or if tunnel length exceeds 100', provide an emergency exit door from the tunnel to outside of containment. The door shall be operable only from the inside, without the use of special tools, except for cutting of the polyethylene barrier as outlined for "Emergency Exits" in Section 01526 of these Specifications.



3.05 APPROVAL OF LAYOUT:

- a. If the Contractor wishes to employ prefabricated units or to modify the unit layout in any way, then he/she must submit a proposal with backup information as part of the Plan of Action, in the Term Bid Submittal or in the specific project's Pre-Job Submittals. Provide data and details as outlined in Section 01301 and the General Conditions. Submittal of data does not guarantee department approval; only approved units may be used.

3.06 CLEANING OF DECONTAMINATION UNITS:

- a. Clean debris and residue from inside all rooms of the Decontamination Units daily. Wash and clean debris from the shower pan and drain daily. Wipe all surfaces of the Shower Room and the Clean Room with a disinfectant on a daily basis.
- b. If the Clean Room portion of the Decontamination Unit becomes contaminated with asbestos-containing debris, or if air monitoring reveals that airborne fiber levels reach the PEL, all work shall cease immediately until cleanup procedures are completed. The contractor shall erect a temporary mini-decontamination unit, as outlined in Section 13283 of these Specifications, immediately outside of the Clean Room, to provide a buffer between the contaminated space and the rest of the building. After cleanup is complete and air clearance successfully passed, tear down the temporary unit and resume work.

3.07 SIGNS:

- a. Post a commercially manufactured warning sign at each entrance to the Work Area, on both the solid outer door and the inner polyethylene flap. Sign shall conform to Paragraph 3.03 of Section 01526 of these Specifications.
- b. Signs shall be provided in all languages regularly spoken in the community where the project is located. The contractor shall post and maintain warning signs on all accessible sides of the decontamination unit, material decontamination unit and tunnels, as well as any hard barriers separating the work area from occupied portions of the building.

END OF SECTION



SECTION 01632

PRODUCT AND PROCEDURE SUBSTITUTIONS

PART 1 - GENERAL

1.01 SUMMARY:

- a. This Section specifies administrative and procedural requirements for handling requests for substitutions made after award of the Contract.
- b. The Contractor's Schedule of Submittals are included under Section 01301 - Submittal Requirements.
- c. Standards: Refer to Section 01091 - "Definitions and Standards" for applicability of industry standards to products specified.

1.02 DEFINITIONS:

- a. Definitions: Used in this Section are not intended to negate the meaning of other terms used in the Contract Documents.
- b. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions". The following are not considered substitutions:
 1. Substitutions requested by Bidders during the bidding period and accepted in writing prior to award of Contract are considered as included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.
 2. Revisions to the Contract Documents requested by the Owner or Owner's Representative.
 3. Specified options of products and/or construction methods included in Contract Documents.
 4. The Contractor's determination of, and compliance with, governing regulations and orders issued by governing authorities.



1.03 SUBMITTALS:

- a. Substitution Request Submittal: Requests for substitution will be considered if received within 2 weeks prior to beginning Work affected by the substitution. Requests received less than 2 weeks before commencement of affected Work may be considered or rejected at the discretion of the Owner's Representative
- b. Submit 2 copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required in Section 01301 - Submittal Requirements, and the requirements listed below in item (c).
- c. Identify the product, or the fabrication or installation method to be replaced in each request. Include the related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
 1. Product Data, including Drawings and descriptions of products, fabrication, installation procedures, and manufacturer's instructions for use.
 2. Samples, where applicable or requested.
 3. A detailed comparison of significant qualities of the proposed substitution with that specified; significant qualities may include elements such as size, weight, durability, performance, and visual effect.
 4. Coordination information, including a list of changes or modifications needed for other parts of the Work and for construction performed by the Owner and separate contractors that will become necessary to accommodate the proposed substitution.
 5. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution, and an indication of the effect of the proposed substitution on overall Contract Time.
 6. Accurate cost data comparing proposed substitution with products specified.
 - a) Amount of Net Change to Contract Sum.
 7. Certificate by the Contractor that the substitution proposed is in every significant respect equal to or better than the required by the Contract Documents, and that it will perform adequately in the application indicated.



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- a) It is hereby understood that the Contractor hereby waives all rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.
- 8. Owner's Action: Within one week of receipt of the request for substitution, the Department of Environmental Management shall request additional information or documentation necessary for evaluation of the request. Within 2 weeks of receipt of the request, or one week after receipt of the additional information or documentation, whichever is later, the Department of Environmental Management will notify the Contractor of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified in G-ENV/TB-2021-GR/N-C-S.

PART 2 – PRODUCTS

2.01 SUBSTITUTIONS:

- a. Conditions: The Contractor's substitution request will be received and considered by the Department of Environmental Management when all applicable conditions outlined below are satisfied, as determined by the Owner; otherwise, requests will be returned without action except to record non-compliance with these requirements.
 - 1. Extensive revisions to Contract Documents are not required.
 - 2. Proposed changes are in keeping with the general intent of the Contract Documents.
 - 3. The request is timely, fully documented, and properly submitted.
 - 4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.
 - 5. The specified equipment, product or method of construction cannot be provided within the Contract Time. The request will not be considered if it is the result of the Contractor's failure to pursue the Work promptly or coordinate activities properly.
 - 6. The specified equipment, product or method of construction cannot be provided in a manner that is compatible with other materials, and the Contractor certifies that the substitution will overcome the incompatibility.



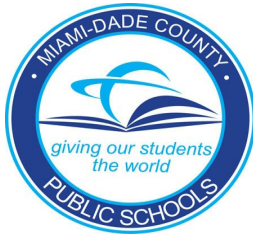
- b. The Contractor's submittal and Owner acceptance of Product Data or Samples that relate to activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.
- c. Prior to use of any product or equipment not specified herein, Contractor shall submit product data and specifications to the Department of Environmental Management for review and consideration. The Contractor will be notified in writing of the Department's decision.

PART 3 - EXECUTION

3.01 PROCEDURES AND SAFEGUARDS

- a. No abatement/remediation activities may deviate from the procedures and safeguards specified herein without prior submittal for consideration, as outlined herein above. Submittal of alternated procedures or methods does not guarantee approval by the Owner. All considerations regarding regulatory requirements, safety of occupants, potential for exposure to contaminants and other criteria will be taken into account before deciding the validity of alternate methods

END OF SECTION



SECTION 01711

PROJECT DECONTAMINATION/ASBESTOS

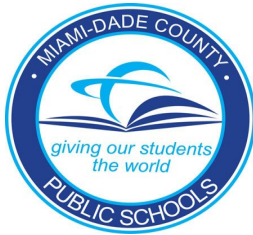
PART 1 - GENERAL

1.01 RELATED WORK:

- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.
- b. Negative Pressure System Section 01513
- c. Regulated Areas Section 01526
- d. Worker Protection Section 01561
- e. Respiratory Protection Section 01562
- f. Work Area Clearance Section 01714
- g. Removal of Asbestos-Containing Materials Section 13281
- h. Disposal of Asbestos-Containing Waste Materials Section 13282

1.02 SUMMARY

- a. This Section outlines procedures for decontamination of spaces exposed to asbestos fibers, as follows:
 - 1. Decontamination of the remediation work area, after completion of gross removal (all visible debris) and bagging of the waste.
 - 2. Decontamination of adjacent spaces, when there has been potential contamination by asbestos fibers from the work area.
 - 3. Decontamination of spaces where asbestos materials may have been disturbed (fiber release cleanup), after removal of all visible debris.
- b. The decontamination effort involves the cleanup of all exposed surfaces, equipment and objects and the filtering of the air, in the subject spaces, to remove potential microscopic fibers.



1.03 ENVIRONMENTAL CONDITIONS

- a. Air Circulation: Maintain temporary pressure differential system in operation at all times during decontamination operations, until Final Air Clearance has been issued to the Contractor. System shall provide a minimum of four (4) air changes per hour in the spaces being decontaminated.
- b. Temporary Lighting: Provide a minimum of 80 foot candles of lighting in all areas being decontaminated

PART 2 – PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- a. Amended Water: Water-surfactant mixture, at a rate of 1 oz. of surfactant to 5 gal. of water. Surfactant to be a 50% polyethylene ester and 50% polyethylene ether mix, or approved equivalent product.
- b. Airless Sprayer: Hand-pump pressurized, can-type garden sprayer or electric airless sprayer, equipped with a spray wand and hose, capable of delivering a spray jet of fine particles of amended water or lockdown sealer.
- c. HEPA Vacuum Equipment: Electric vacuum equipment manufactured with a High Efficiency Particulate Air (HEPA) filtration system (99.997% effective to 0.3 microns particulate size).
- d. Cleaning Rags: Clean cloth rags, commercially distributed, of a fabric that will readily absorb water and withstand abrasion without losing weave integrity and shedding filaments.
- e. Lockdown Sealer (Encapsulant): Non-combustible, copolymer latex coating or latex emulsion, formulated for water dispersion, designed for encapsulation of asbestos-containing materials or lockdown of asbestos fibers. American Coatings Corp. - ACC 22P Powerlock, Fiberlock Technologies, Inc. - ABC Asbestos Binding Compound, or approved equal.
- f. Other Materials: For specifications of polyethylene barriers, decontamination unit construction, and other materials that may be needed during fiber release cleanup not related to an remediation project, refer to the appropriate Sections of these Specifications.
- g. Contaminated Equipment: It is the Contractor's responsibility to arrive on site at the start of the job with equipment that is either "asbestos free", or with contamination "secured", e.g., sealed in an airtight plastic bag. The contractor's equipment



surfaces will be inspected for surface mold contamination at the start of the job, periodically throughout, and at the end of the job. Inspection may also include the collection of surface (strip tape) samples by the Owner on any equipment that appears to be contaminated.

1. Typical equipment to be inspected can include respirators, hoses, vacuums, shower units, ladders and scaffolding, shovels and scrapers, negative air machines, and vehicles (truck bed). Equipment that is difficult to decontaminate properly should be sealed in bags and not opened until the bags are placed within a work area.
2. If equipment appears to be contaminated with asbestos at the time of arrival of the contractor on the job site, the Owner may deem it unacceptable for use (refuse it entry to the job site). Contractor will be responsible for any additional costs incurred due to delays or schedule changes

PART 3 - EXECUTION

3.01 GENERAL CLEANING PROCEDURES:

- a. When performing cleaning, begin with any loose objects and furniture, if applicable, that are to be decontaminated and removed from the contaminated area.
 1. HEPA vacuum the horizontal surfaces and wet-wipe all solid, impervious surfaces of said objects.
 2. Objects that are fabric covered shall be thoroughly HEPA vacuumed, or discarded as un-cleanable if so designated.
 3. Perform cleaning in a designated Wash area and remove clean objects to a designated holding space.
 4. Items designated by the Owner's Representative as "un- cleanable" shall be bagged or wrapped in polyethylene and duct tape, and disposed of as asbestos-containing waste.
- b. After removal of loose objects, always work from the top down, starting at ceilings, proceeding to walls and fixed objects and finishing at floor surfaces.
- c. Clean surfaces by wet-wiping, using clean cloth rags and amended water. Use each surface of a rag only once and thereupon dispose of as contaminated waste. Do not perform dry dusting or dry sweeping.



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- d. HEPA vacuum horizontal surfaces by overlapping passes across the surface until complete. Then, turn at 90° and repeat the operation. Wet mop floors using a similar procedure.
- e. When the decontamination is complete and the work area has been accepted by the ERPI, lock down any microscopic fibers that may remain by applying a lockdown sealer to the removal substrate, the enclosure and decontamination unit polyethylene barriers, and to any other exposed surfaces in the work area. Apply the lockdown sealant using an airless sprayer. Purge the sprayer lines of any water prior to spraying the surfaces to be sealed, to prevent dilution of the sealer.
- f. At the Owner's option, Final Air Testing will not proceed until the Pressure Differential system has performed 96 air changes of the work area atmosphere. This interval will allow reduction of airborne fiber concentrations and permit the lockdown sealant to dry. Use oscillating fans as necessary, to ensure adequate circulation of air to all parts of the Work Area during this period. This interval may be shortened at the Owner's direction.

3.02 WORK AREA DECONTAMINATION

- a. After completion of the gross removal of the asbestos-containing materials, including all visible debris to the satisfaction of the Environmental Remediation Project Inspector, and after load out of all bagged/wrapped waste, begin the decontamination of the work area.
- b. First Cleaning: Decontaminate all exposed surfaces in the work area, including polyethylene barriers, exposed building surfaces, tools, ladders, scaffolding and other equipment. Perform the HEPA vacuuming, mopping, and wet-wiping following the procedures outlined in Paragraph 3.01 and in accordance with EPA and OSHA regulations. Continue cleaning until there is no visible residue on plastic sheeting or other surfaces.
- c. Upon completion of first cleaning, request a visual inspection by the ERPI, to verify adequacy of the work prior to removal of the outer polyethylene barrier.
- d. Second Cleaning: After removal of the first barrier, perform a second decontamination cleaning of the work area, including wet wiping the remaining polyethylene barrier. On certain non-friable asbestos removal projects, where a single polyethylene barrier is permitted (refer to Section 01526 "Temporary Enclosures"), omit first barrier removal and second cleaning and proceed to "e."
- e. When the cleaning is complete, inspect the work area to ascertain that no visible residue remains. If the decontamination is adequate, request the Final Visual Inspection and Final Air Clearance Testing, by 24-hour notice to the ERPI and completion of the Request Form. For detailed requirements, refer to Sections 01714 and 01718 of these Specifications.



3.03 FIBER RELEASE DECONTAMINATION

- a. Perform decontamination of spaces that have been contaminated by asbestos fibers, including but not limited to:
 1. Building spaces adjacent to the work area, when there has been a breach of containment and potential contamination by asbestos fibers.
 2. Existing building spaces where asbestos materials may have been disturbed by construction activities, vandalism, or natural phenomena (fiber release).
- b. Immediately secure the contaminated area, locking all doors and windows, and posting asbestos warning signs to establish a regulated area. Construct a five-stage decontamination unit with shower and a separate material decontamination unit, as described in Section 01563 of these Specifications.
- c. Provide all personnel with appropriate respiratory protection, in accordance with Section 01562, during all regulated area preparation and cleanup activities.
- d. Install critical seals at all openings and A/C vents per Section 01526 and activate Pressure Differential System per Section 01513.
- e. Perform cleanup of all exposed surfaces in the contaminated areas. HEPA vacuum, wet wipe, and mop following the procedures outlined in Paragraph 3.01 above. Dispose of all materials used for cleaning, as well as personal protection equipment (suits) and polyethylene barriers, as specified in Section 13284.
- f. When no remediation follows the emergency cleanup, request Final Visual Inspection and Final Air Testing of the spaces upon completion of the cleanup.
- g. When the asbestos-containing materials will be abated following the cleanup, post-pone the Final Air Clearance and begin preparation of the work area, installing the polyethylene barriers. Perform the preparation work using the appropriate respiratory protection based on baseline test results from fiber release as a minimum level of protection.
- h. Perform remediation, all required cleaning, and load out of asbestos waste from the work area as specified in their respective sections of these Specifications. Decontaminate the work area as outlined herein above.
- i. When required, remove all polyethylene barriers from the work area, except for the critical seals. Perform the final cleaning of all remaining polyethylene poly barriers. Request the Final visual acceptance inspection from the ERPI for the work area. Upon acceptance of the work area by the ERPI, the contractor will be authorize to encapsulate the work area. The ERPI then will arrange the required Final Air Clearance Testing.



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3.04 O & M CLEANING/DECONTAMINATION

- a. If required, perform O & M Cleaning in strict accordance with the procedures specified in Section 13281 of these Specifications.

END OF SECTION



SECTION 01712

PROJECT DECONTAMINATION/OTHER CONTAMINANTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.
- b. Negative Pressure System Section 01513
- c. Regulated Areas Section 01526
- d. Worker Protection Section 01561
- e. Respiratory Protection Section 01562
- f. Remediation of Mold-Contaminated Materials Section 13283
- g. Remediation of Other Environmental Contaminants Section 13281

1.02 DESCRIPTION OF THE WORK:

- a. This Section outlines procedures for decontamination of surfaces and/or spaces, visibly or potentially contaminated by mold or other contaminants, as follows:
 - 1. Decontamination/cleaning of contaminated surfaces where it has been determined by MDCPS that the surface to be cleaned is not structurally damaged and the contamination has not penetrated the material.
 - 2. Fine cleaning/decontamination of materials/surfaces in work area after removal of visible gross contamination.
 - 3. Cleaning of existing surfaces/spaces with no visible contamination, but potentially exposed to mold spores or other microscopic contaminants.
 - 4. Encapsulation/protection of clean surfaces with approved biocide or anti-microbial paint.



- b. The decontamination effort involves the cleanup of all surfaces, equipment and objects and the filtering of the air, in the subject spaces, to remove potential microscopic mold spores and other contamination.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- a. Amended Water: Provide water to which a surfactant has been added. Use a mixture of one ounce of a surfactant as specified above, mixed with five gallons of water.
- b. Airless Sprayer: An airless sprayer, suitable for misting the air with water, and for application of anti-microbial paint. Sprayer shall be electric or manual, equipped with a wand at the end of a hose, capable of delivering a stream, a spray, or a mist of liquid.
- c. Vacuum Equipment: All vacuum equipment utilized in the Work Area shall utilize HEPA filtration systems which are rated 99.97% efficient to 0.3 microns particulate size.
- d. Disposal Bags: Provide 6-mil thick minimum, leak-tight polyethylene bags.
- e. Anti-Microbial Paint:
 - 1. Latex-based paint coating that contains a manufacturer-mixed fungistat that inhibits fungal growth, such as Portersept 3830, Fosters 4020, or approved equal.
 - 2. Organosilane Quaternary Amine based biostat coating that disrupts mold cell membranes (Aegis Microbe Shield or approved equal).
- f. Biocide:
 - 1. Chemical solution formulated to neutralize and eliminate viral, bacterial, and/or fungal contamination from surfaces. Specific product shall be appropriate for the type of contamination encountered. Products must be safe for human exposure after drying.
 - 2. Submit MSDS information for each product to be used in this contract as part of the General Term Contract Submittals.



- g. **Contaminated Equipment:** It is the Contractor's responsibility to arrive on site at the start of the job with equipment that is either "contaminant free", or with contamination "secured", e.g., sealed in an airtight plastic bag. The contractor's equipment surfaces will be inspected for surface mold contamination at the start of the job, periodically throughout, and at the end of the job. Inspection may also include the collection of surface (strip tape) samples by the Owner on any equipment that appears to be contaminated.
1. Typical equipment to be inspected can include respirators, hoses, vacuums, shower units, ladders and scaffolding, shovels and scrapers, negative air machines, and vehicles (truck bed). Equipment that is difficult to decontaminate properly should be sealed in bags and not opened until the bags are placed within a work area.
 2. If equipment appears to be contaminated with asbestos or other toxins at the time of arrival of the contractor on the job site, the Owner may deem it unacceptable for use (refuse its entry to the job site). Contractor will be responsible for any additional costs incurred due to delays or schedule changes.

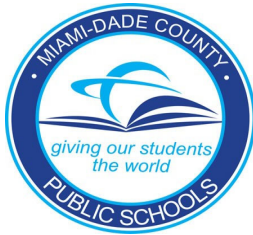
PART 3 - EXECUTION

3.01 GENERAL:

- a. These work guidelines apply to remediation of microbial, fungal, or other contamination, throughout Miami-Dade County Public Schools and include the cleanup and decontamination of all contaminated materials. The provisions detailed in these guidelines are intended to prevent fungi and other contaminants from migrating to areas outside of the work area during remediation/cleanup activities.
- b. Clean non-porous (e.g., metals, glass, and hard plastics) and semi-porous (e.g., wood and concrete) materials that are structurally sound using a detergent solution or a biocide product and amended water. All materials to be reused should be dry and visibly free from mold. Owner will conduct inspections to confirm the completion and effectiveness of the cleanup/decontamination.
- c. The use of gaseous ozone or chlorine dioxide is prohibited.

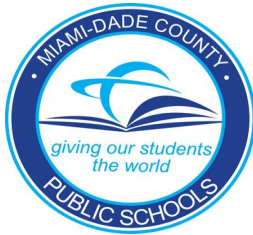
3.02 CLEANING AND DECONTAMINATION PROCEDURES

- a. General/Mold and Other Contaminants:



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1. Areas/rooms to be cleaned and decontaminated shall be unoccupied. Prior to start of cleanup activities, protect the work area and adjacent spaces in accordance with the criteria outlined in Sections 13283 and 13281 of these Specifications, based on the size/area of the contamination. Provide containment barriers, critical seals, drop cloths, decontamination units, warning signs, barricade tape and other items to properly demarcate and/or isolate the work area as outlined therein.
2. Provide adequate personal and respiratory protection to all personnel performing or supervising the work, in compliance with OSHA regulations, EPA Mold Remediation Guidelines, all other applicable regulations, and the prevalent industry standards.
3. Provide air filtration devices as described in Section 01513. When required by the extent of the contamination, place the work area under negative pressure as described therein.
4. Cleaning/decontamination shall always proceed from top to bottom of spaces/surfaces. Areas of highest concentration shall be cleaned of gross contamination prior to the fine cleaning of all surfaces.
5. To prevent cross-contamination of surfaces and ensure removal of the micro-organisms, cleaning rags and water shall be changed often. Rags shall be wet with the cleaning solution and used for one pass and then folded with dirty side inward. The folded rag shall be used for a second pass and folded again for a final pass. The rag shall then be discarded in a disposal bag and replaced with a new clean rag.
6. HEPA-filtered vacuum equipment shall be free of mold-contamination. The Project Inspector will reject equipment that appears contaminated. HEPA vacuums shall be equipped with head attachments lined with rubber guards to prevent scarring or scratching of surfaces being cleaned.
7. Contaminated materials, such as rags, mops, and HEPA vacuum filters and collected debris, shall be placed in sealed plastic disposal bags. There are no special requirements for the disposal of moldy materials; debris and cleaning discards shall be disposed of as construction debris in an approved landfill. No on-site disposal shall be permitted.
8. All cleaned areas shall be left dry and visibly free from contamination and debris. At completion of Cleaning/Decontamination, the



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contractor shall notify the Environmental Remediation Project Inspector (ERPI), who will conduct an inspection of the area to determine if acceptable. Upon on ERPI's assessment that the area is acceptable, the ERPI will give the contractor the clearance to tear down containment. At the Owner's discretion, based on specific circumstances of individual projects, applicable clearance testing may be performed. If such test fails, the contractor shall re-clean the area

b. Decontamination/Cleaning of Mold-Contaminated Surfaces:

1. Before start of cleaning operations, mist all work area surfaces with an approved biocide disinfectant. Wait sufficient time to allow product to neutralize contaminants based on manufacturer's bridging time recommendations.
2. Provide a 6 mil. polyethylene drop cloth immediately below the work surfaces, to 6 feet out from the walls, in order to contain and collect gross contamination.
3. Surfaces exhibiting visible mold growth shall be cleaned using a detergent solution or an approved biocide product. The gross contamination shall be removed by wiping of the surface using rags dampened with a detergent solution, cleaning from top to bottom as described above.
4. After gross contamination is removed and the surfaces have dried, carefully and thoroughly HEPA vacuum horizontal surfaces and re-wipe the vertical surfaces.
5. The Project Inspector will conduct a visual inspection of the disinfected surfaces, to determine if the area is acceptable; if debris or contamination is found, the surfaces shall be re-vacuumed or fine cleaned using rags and the detergent solution.
6. Upon completion and acceptance of cleaning by the ERPI, fully decontaminate floor surfaces by mopping with a detergent or approved biocide solution.

c. Decontamination of Animal Waste and Other Contaminants:

1. Before start of cleaning operations, mist all work area surfaces with an approved biocide disinfectant. Wait sufficient time to allow product to



neutralize contaminants based on manufacturer's bridging time recommendations.

2. Provide a 6 mil. polyethylene drop cloth immediately below the work surfaces, to 6 feet out from the walls, in order to contain and collect gross contamination.
3. Remove gross debris from surfaces with shovels, squeegees, and/or other tools, collecting debris in 6-mil waste bags for disposal.
4. Clean contaminated surfaces using a strong detergent solution and/or an approved biocide product.
5. After gross contamination is removed and the cleaned/disinfected surfaces have dried, carefully and thoroughly HEPA vacuum the horizontal surfaces.
6. The Project Inspector will conduct a visual inspection of the disinfected surfaces, to determine if the area is acceptable; if debris or contamination is found, the surfaces shall be re-vacuumed or fine cleaned using rags and the detergent solution.
7. Upon completion and acceptance of cleaning, fully decontaminate floor surfaces by mopping with a detergent or approved biocide solution.

c. Fine Cleaning/Decontamination of Surfaces:

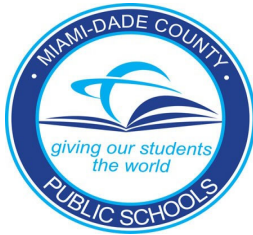
1. Fine cleaning of surfaces where no visible mold or other contamination is observed, but only suspected, shall follow the procedures outlined herein.
2. Carefully HEPA vacuum all horizontal surfaces and wipe with detergent or approved biocide the vertical surfaces, as directed. Work shall proceed from the top to bottom, from the top of walls to the floor. Where ceiling tiles have been removed due to mold or other contamination, the remaining metal grid shall be HEPA vacuumed and wet wiped as outlined herein above. Carpets shall be removed and discarded, unless otherwise directed by the Owner. If indicated to remain, carpets shall be shampooed and vacuumed using water extractors equipped with HEPA filtration systems.
3. Perform fine cleaning of surfaces using damp rags and detergent or approved biocide solution as specified herein above.



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4. Upon completion and acceptance of cleaning, fully decontaminate floor surfaces by mopping with a detergent or approved biocide solution.
- d. Encapsulation of Surfaces With Antimicrobial Coating or Sanitizing Agent:
1. After cleaning of surfaces, and where directed by the JOF, encapsulate designated surfaces with an approved antimicrobial coating or anti-bacterial sanitizing agent.
 2. Apply coating using an airless sprayer. Sprayer shall be completely dry prior to application of coating to prevent dilution of the product. Product shall be applied full-strength, or as recommended by the manufacturer for the specific application, and shall not be diluted further.
 3. Spray the surfaces with smooth even passes, applying a thin, even layer of the material. Continue the application until manufacturer's recommended film thickness is achieved. Application shall be uniform throughout the surface, including any surface irregularities, joints, nooks and other hard to reach areas, to ensure complete coverage/protection of the surface/material. If a second coat is required for proper coverage, wait sufficient time to allow product to dry, based on manufacturer's bridging time recommendations.

END OF SECTION



SECTION 01714

WORK AREA CLEARANCE

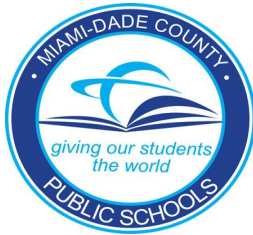
PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.
- b. Visual Inspection: Prerequisite to air testing: Sections 01711, 01712
- c. Air Monitoring: By Independent Test Laboratory: Section 01410

1.02 SUMMARY:

- a. This Section sets forth clearance criteria to establish the completion of the remediation work and to determine that the work area is safe for re-occupancy. The Contractor must comply with the requirements and limits of this Section.
- b. For Asbestos Abatement projects, this section establishes maximum permissible post-remediation airborne asbestos concentrations in the Work Area and describes testing procedures the Owner will use to measure these concentrations, in compliance with EPA NESHAP and AHERA regulations.
- c. For Mold and Other Contaminant remediations, clearance shall be based on the visual inspection and assessment conducted by the Environmental Remediation Project Inspector (ERPI). On specific projects, based on the type of contaminant, the Owner may require a clearance test applicable to the particular contaminant and project conditions.
- d. Final Testing on Asbestos projects shall be done utilizing the AHERA - T.E.M. or P.C.M. methodology as delineated in 40 CFR 763 or PCM methodology as specified in NIOSH Method 7400. Refer to Air Monitoring Section 01410 Criteria Table for applicability.
- e. The Work is Complete when each Work Area is visually clean and accepted by the ERPI. On Asbestos projects, the Work is Complete when Final Clearance testing has demonstrated that airborne fiber concentrations in the Work Area are equal to or below Release Criteria levels.



1.03 FINAL VISUAL INSPECTION:

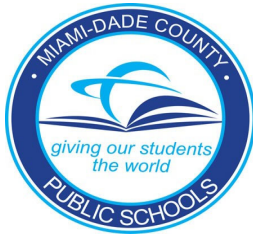
- a. A Final Visual Inspection, described herein below shall be performed by the Environmental Remediation Project Inspector to determine whether the work area is safe for re-occupancy (on Asbestos projects, the inspection will determine whether the work area is ready for AHERA final air testing).

1.04 FINAL AIR CLEARANCE TESTING/ASBESTOS ABATEMENT:

- a. The Owner's Testing Laboratory will conduct the Final Air Clearance Test to determine if airborne fiber concentrations in the work area meet clearance levels, as specified under AHERA regulations. Upon notification by the ERPI, the Testing Laboratory will collect air samples from the work area and analyze them in accordance with the criteria outlined in Air Monitoring Section 01410 Criteria Table.
- b. Phase Contrast Microscopy (PCM) Testing will be conducted in accordance with NIOSH 7400 Method and Transmission Electron Microscopy (TEM) Testing will be conducted in accordance with Appendix A to Subpart E 40 CFR 763 (AHERA).
- c. Final Clearance Testing will be conducted using aggressive sampling techniques. The Owner's Testing Laboratory will aggr ess the air using fans, blowers or other methods to ensure that sample results accurately depict fiber concentrations found in the work areas.

1.05 FINAL CLEARANCE RELEASE CRITERIA/ASBESTOS ABATEMENT:

- a. Phase Contrast Microscopy (PCM): Decontamination of the Work Area is complete when every Work Area sample is equal to or below 0.01 fibers per cubic centimeter (flee). If any sample is above this level, then the decontamination is incomplete and re-cleaning per Section 01711 is required. Costs of re-cleaning and re-sampling shall be at the Contractor's expense, unless failure is determined to be the result of causes beyond his control. (For removals < 160 SF / 260 LF)
- b. Transmission Electron Microscopy (TEM): Decontamination of the Work Area is complete when the arithmetic mean concentration of asbestos of the five Work Area Clearance Samples is below 70 s/mm² for volumes of 1199 L or greater. If the concentration is higher than 70 s/mm² or volume is less than 1199 L, clearance requires passing the Z-test calculation shown in Appendix A of the AHERA regulation. If samples do not meet this criteria, then the decontamination is incomplete and re-cleaning per Section 01711 is required. Costs of re-cleaning and re-sampling shall be at the Contractor's expense unless failure determined to be the result of causes beyond his control. (For removals > 160 SF / 260 LF)



PART 2 - PRODUCTS (NOT APPLICABLE)

3.01 FINAL VISUAL INSPECTION:

- a. When the final cleaning is complete, the Environmental Contractor's on-site Supervisor will perform a visual inspection of the work area to verify completion prior to requesting the Final Visual Inspection from the ERPI. The contractor's on-site supervisor shall then notify the ERPI at least twenty-four (24) hours in advance that the area is ready for Final Visual Inspection and/or Final Clearance Testing. On Asbestos Abatement Projects, the "Request for Final Air Clearance Testing" form must be received on-site by the ERPI prior to conducting the Final Visual Inspection. The Final Visual Inspection will be performed by both the Contractor's Supervisor and the ERPI. Upon ERPI approval, the work area will be encapsulated as directed. On Asbestos projects, the required AHERA final testing will then be scheduled by the ERPI. If the work area is found to be "unacceptable," the contractor's supervisor shall reclean/decontaminate work area and reschedule the Final Visual Inspection and Final Air Clearance Testing. The contractor will be responsible for any expenses incurred by the Owner as a result of failed inspections and/or final air testing. The contractor on-site supervisor shall notify the Owner's Representative at least twenty-four (24) hours in advance of the time the area will be ready for Re-inspection of work area(s), Final Visual Inspection and/or Final Clearance Testing.

3.02 WORK AREA CLEARANCE:

- a. Final Clearance Test/Asbestos Projects: After successful Visual Inspection and Owner's Authorization, the Owner's Testing Laboratory will perform the Final Air Clearance Test of the Work Area. The Contractor shall provide power cords, and personal protection equipment as required to conduct the test. Upon analysis and acceptable results, the Laboratory will inform the Owner's Representative and will issue the Work Area Clearance Certification.
- b. Work Area Clearance Certification/Asbestos Projects: The Owner's Testing Laboratory will provide certification of air clearance together with the test results. This Work Area Clearance Certification, along with the Laboratory Analysis will be issued to the Asbestos Contractor through the Department of Environmental Management.
- c. Work Area Clearance Authorization/All Projects: After satisfactory completion of the Visual Inspection, (and after receipt of the Final Air Clearance Testing Results indicating that the area has met all passing criteria for Asbestos Projects), the ERPI will authorize the Contractor to complete the remediation and remove the identified containment enclosure(s) from the work area, using the Work Area Clearance Authorization Form.
- d. The date of Substantial Completion shall be the date that the ERPI determines the completion of the work based on the successful Visual Inspection (Mold and Other Contaminants) or that the laboratory results establish that the work area has passed the clearance criteria (Asbestos), as outlined in Section 01718, Project Closeout, and in the General Conditions of the Contract.



3.03 REMOVAL OF WORK AREA ISOLATION (TEAR-DOWN):

- a. After all requirements of Sections 01711, 01712, and this Section have been met:
 1. Shut down and remove the Pressure Differential System. Seal the HEPA filtered fan units (Inlet and Supply), HEPA vacuums and similar equipment with 6 mil thick polyethylene sheet and duct tape to form a tight seal at intakes end before being moved from the Work Area.
 2. Remove the Critical Barriers separating the Work Area from the rest of the building. Remove any quantities of residual material found upon removal of the plastic sheeting by wet wiping or HEPA filtered vacuum cleaners. Dispose any residual materials in accordance with Sections 13282, 13283, and all applicable regulations.
 3. Remove the Decontamination unit.
 4. Remove all equipment, materials, debris from the work site.
 5. Dispose of all asbestos-containing waste materials resulting from the teardown as specified in Section 13282 "Disposal of Asbestos Containing Waste Material". Dispose all mold-contaminated materials as general construction debris. Dispose animal waste and other contaminants in accordance with Sections 13282, 13283 and applicable regulations, guidelines, industry standards, and best human health and sanitation practices.
 6. Contractor must tear-down work area containment and return work area to the Owner within (24) Twenty-Four hours of notification of Work Area Clearance (Final Air Clearance for Asbestos projects).

END OF SECTION



SECTION 01718

PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.
- b. Substantial & Final Completion General Conditions
- c. Final Inspection/Work Area Clearance Section 01714

1.02 SUMMARY:

- a. This Section specifies administrative and procedural requirements for Project Closeout, including but not limited to:
 - 1. Prerequisites to Substantial Completion
 - 2. Prerequisites to Final Completion and Final Acceptance
 - 3. Project Closeout Documents
 - 4. Final Restoration and Cleaning of Project Site
- b. Definition: Project Closeout is the term used to describe certain collective project requirements indicating completion of the Work, that are to be fulfilled near the end of the Contract time, in preparation for final acceptance and occupancy of the Work by the Owner. Project Closeout forms the basis for the Final Payment to the Contractor and termination of the Contract. Specific requirements for completion of individual areas of work are included in their respective Specification Sections.
- c. Time of Project Closeout is directly related to "Substantial Completion"; therefore, the time of Closeout may be either a single time period for the entire Work, or a series of time periods for individual elements of the Work (multiple phases or work areas), which have been certified as substantially complete at different dates. This time variation, if any, shall be applicable to the other provisions of this Section.

1.03 PREREQUISITES TO SUBSTANTIAL COMPLETION:

- a. The Contractor shall complete the specified removal, cleaning and waste disposal, and performed a visual inspection of the work area to verify completion, prior to



requesting the Owner's Representative (ERPI) to perform the Final Visual Inspection (all projects) and request Final Air Clearance Testing (Asbestos projects), for either the entire Work or for portions of the Work.

1. When Contractor considers that the removal of asbestos-or mold-containing materials, or of other contaminants, as well as the decontamination of the work area, are complete, the Contractor shall verify completion and provide at least 24-hours in advanced notice to the Environmental Remediation Project Inspector (ERPI), requesting the Final Visual Inspection. For Asbestos projects only, the Contractor must complete the Final Air Clearance Testing Form and submit to (ERPI) on site prior to the (ERPI) conducting the Final Visual Inspection.
 2. The ERPI will inspect the Project to determine if it is ready for tear-down, or in Asbestos projects, for Final Air Clearance Testing. If ready, the ERPI will advise the Contractor and issue the Work Area Clearance Authorization on mold and other contaminant projects. If the work area (Asbestos project) is ready, the ERPI will arrange for the Final Air Clearance Test. If not ready, the ERPI will advise Contractor of corrections needed.
 3. The Contractor shall make all necessary corrections and, when complete, shall resubmit its request. If on the second inspection the ERPI determines that the removal has not achieved completion, the ERPI will again advise the Contractor of deficiencies.
 4. The Contractor shall make all corrections before submitting a new request for Work Area Clearance and/or Final Air Clearance Testing. The Contractor shall bear the costs incurred by the Owner for all subsequent Final Visual Inspections and for repeating of any failed Final Air Clearance Tests.
- b. The Substantial Completion date will be the date the ERPI issue the Work Area Clearance for Mold and Other Contaminant projects, or the date the laboratory results establish that the work area has passed the AHERA Final Air Clearance Test (per work area when the project consists of multiple phases/areas), for Asbestos projects. The ERPI will confirm the work area clearance by issuance to the Contractor of a Work Area Clearance Authorization Form. The ERPI will further make note, via a Punch List, of any damages to existing surfaces, components or equipment that need repairs, and any other work that must be completed prior to Final Completion.
1. The Contractor will have fourteen (14) days from the date of Substantial Completion to address Punch List items and completely restore all surfaces, finishes and systems to original working conditions, and thereafter to request final walk-through to inspect and accept the work area.



2. Final Project Completion must be achieved no later than fourteen (14) days from the Substantial Completion date.
- c. Upon Substantial Completion of the Work and upon application by Contractor and approval by D.E.M., the Board may, at its option and without prejudice to other remedies it may have, reduce the retainage withheld to an amount equivalent to three (3) times the value of the Work determined to be defective and/or incomplete.

1.04 PREREQUISITES TO FINAL COMPLETION AND FINAL ACCEPTANCE:

- a. Final Project Completion: After receiving the Work Area Clearance and achieving Substantial Completion, the Contractor shall complete all remediation and tear-down Work, including all items identified by Punch List, and shall completely restore the area to a fully functional condition, acceptable to the Owner.
 1. When the Contractor considers that the work area has been restored to such a condition, he/she shall request a walk-through inspection.
 2. The Owner's Representative(s) will inspect the work area and, if acceptable, will declare the Work Finally Complete. If not acceptable, the Owner's Representative(s) will note any Punch List items not accepted. The Contractor shall have an additional fourteen (14) days to finalize all corrections to the Owner's satisfaction. Failure to complete the corrections and obtain Final Completion shall constitute cause for activation of the Liquidated Damages provisions of the General Conditions of the Contract.
 3. If Final Completion, including the Punch List work, is not achieved within fourteen days after Substantial Completion without good cause, liquidated damages, in accordance with Section 6 - Scope of Work of the General Conditions of the Contract, shall be deducted for each day of delay, from the fifteenth day after Substantial Condition until the date of Final Completion.
- b. Final Acceptance: The Contractor shall submit to the Owner all Project Closeout Documents, outlined herein below, within thirty (30) days of the Substantial Completion of the project.
 1. Certain documents included in the Project Closeout Documents are required by federal asbestos regulations and must be maintained by the Owner as part of the permanent project record and/or the AHERA Asbestos Management Plan for the specific facility. Other Documents evidence
 2. The Owner reserves the right to withhold retainage and/or the Final Project Payment until submittal of said documents is made by the Contractor.



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3. When the Contractor has achieved Final Completion, and has submitted all required Project Closeout Documents, the Owner will grant Final Acceptance of the project and release all retainage and other payments to the Contractor.

1.05 PROJECT CLOSEOUT DOCUMENTS

- a. The Project Closeout Documents must be submitted to the Department of Environmental Management, in accordance with procedures outlined in Section 01301 "Submittal Requirements", at the end of each project. Submittal of the Closeout Documents is a prerequisite to Final Acceptance. Project Closeout Documents shall be as follows herein below.
- b. Specific Post-Job Submittals, as outlined in Section 01301 of these Specifications.
- c. **Final Project Documents (break-out section)**, in accordance with Section 01301 and as indicated below: * All documents must include the JOF Project Number
 1. **Final signed JOF** (Original or Final Revision JOF Section #6)
 2. **Final Closeout Certificate** (JOF Section # 7).
Environmental Contractors Certificate of Completion
 3. **DERM Notification** (Final Revision) - DERM stamp required for closeout (Asbestos projects – Fee based or Courtesy Notices).
 4. **Waste Disposal Documentation** - Waste Shipment Record(s) (WSR) with:
 - *Signatures of all Transporters - #10 & #11
 - *Signatures/Waste Disposal Site - #12 & #13
 - *Complete Section #5 Description of Materials / Containers/No. Type / Total Qty. (required per work area/facility) (Asbestos projects).
- d. Final Payment Request, including cost of all JOF revisions (extras and credits), with any supporting receipts or invoices, and accompanied by Final Releases from the Contractor and any Subcontractors that performed work on the project(s).

PART 2 - PRODUCTS (NOT APPLICABLE)



PART 3 – EXECUTION

3.01 COMPLETION:

- a. The Prerequisites to Substantial and Final Completion include the restoration of existing building areas to original and/or functional condition, acceptable to the Owner. That restoration includes the repair and/or refinish of any damaged building surfaces, the repair or replacement of equipment, and the final cleaning of the Work site and adjacent areas.
- b. Additional restoration and cleaning requirements are included in the General Conditions and other Sections of these Specifications. The procedures outlined below are included as a general guide, are not all-inclusive, and do not relieve the Contractor from his/her responsibilities under the Contract.

3.02 REPAIRS:

- a. Existing finishes and surfaces that have been impacted by project activities shall be repaired and refinished to match adjacent existing surfaces. All materials used for repairs shall be new and of equivalent quality, performance, and appearance to the existing building materials they are replacing. All repairs shall be made by personnel qualified and experienced in the specific trade(s) involved and all workmanship must be of best quality, in accordance with industry standards, and acceptable to the Owner.
- b. Make repairs to existing surfaces in accordance with specified procedures and best trade practices, including but not necessarily limited to the following:
 1. Replace damaged sodding and/or landscaping to match existing. Replacement materials shall be healthy, growing specimens of same species and quality as original landscaping.
 2. Repair and/or reinstall any fence sections removed to accommodate the Work or damaged by Contractor's activities. Replace new any components not subject to repair.
 3. Repair plaster and stucco surfaces with spackling compound or filler appropriate for the application, finishing patch flush with adjacent surfaces. Match existing texture and appearance. Repaint surface as indicated herein below.
 4. Remove stains from finish flooring to remain, to the satisfaction of the Owner. Replace portions where stains remain visible, or which are otherwise damaged, with identical products matching dye lot, texture and appearance to the satisfaction of the Owner. Owner reserves the right to require full replacement of unrepairable sections.



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5. Reinstall any doors or window segments removed to accommodate the Work. Replace any damaged hardware or glass to match existing. Level and adjust installed components for smooth and functional operation.
6. Replace damaged acoustical ceiling tiles with products matching quality, performance, fire-rating, design and appearance of existing ceiling panels. Repair any damaged grid sections to remain to the satisfaction of the Owner or replace with new to match. Provide hold-down clips to maintain fire-rating of existing ceiling systems where applicable.
7. Replace any damaged light fixtures, alarm sensors, or other electrical components with new products to match existing. Products must meet National Electric Code requirements and bear Underwriter's Laboratories (U.L.) or Factory Mutual (FM) labels.
8. Upon removal of temporary electrical panel connection, restore Owner's electrical service and panel to original condition. Replace breakers and other service components damaged by Contractor with approved matching components in compliance with the National Electric Code.

3.03 CLEANING:

- a. Prior to Final Completion and Acceptance, perform a Final Cleaning of the Work site, to restore the premises to a clean functional condition. Clean all existing finishes and surfaces that have been impacted by project activities, in accordance with general industry standards and acceptable to the Owner.
- b. Clean existing surfaces in accordance with specified procedures and normal maintenance practices, including but not necessarily limited to the following:
 1. If any residual asbestos-containing mastic or other contaminant material is found during Final Cleaning, follow procedures outlined in Section 01714 of these Specifications.
 1. Remove any residual tape glue and spray cement, remaining from the containment barriers, from all existing surfaces, interior and exterior.
 2. Clean work area, and adjacent spaces affected by the Work, of construction debris, trash, and dust generated by Contractor activities. Leave area in broom-clean condition, free of oils, adhesives, and other foreign deposits.



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3. Clean grounds adjacent to work area, including landscaped areas, of litter and foreign substances left during the course of the Work. Sweep paved areas to a broom-clean condition; remove stains, oils and other foreign deposits. Rake grounds which are neither planted nor paved, to a smooth, even-textured surface where they have been disturbed by the Work.

END OF SECTION



SECTION 13281

REMOVAL OF ASBESTOS-CONTAINING MATERIALS

PART 1 - GENERAL

1.01 RELATED WORK:

- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

- a. Temporary Pressure Differential System Section 01513.
- b. Regulated Areas Section 01526.
- c. Decontamination Units/Tunnels Section 01563.
- d. Project Decontamination/Asbestos Section 01711.
- e. Work Area Clearance Section 01714.
- f. Disposal of Asbestos-Containing Waste Materials Section 13282.

1.03 SUBMITTALS:

- a. Refer to Section 01301 for Submittal Requirements.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT:

- a. Amended Water: Water to which a surfactant has been added to reduce the size of the water particles, in order to ensure more thorough penetration of the water into the asbestos materials (wetting) and reduce the amount of fiber release during execution of the Work.



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1. Surfactant- 50/50 mix of polyoxyethylene ester and polyoxyethylene ether, or equal.
 2. Water Mixture- One ounce of surfactant to five gallons of water.
- b. Removal Encapsulant: Tinted, penetrating-type encapsulant designed specifically for use in removal of asbestos-containing material. Use an encapsulant that provides more effective wetting of asbestos-containing materials (ACM) and reduction of fiber release than the amended water.
 - c. Lockdown Sealant: Non-combustible, copolymer latex coating or latex emulsion, formulated for water dispersion, designed for encapsulation/lockdown of asbestos-containing materials. American Coatings Corp. - ACC 22P Powerlock, Fiberlock Technologies, Inc. -ABC Asbestos Binding Compound, or approved equal.
 - d. Polyethylene Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, 6.0 mil thick as specified for the application, clear, frosted, or black as indicated.
 - e. Flame-Resistant Polyethylene Sheet: Flame resistant polyethylene film that conforms to requirements of the National Fire Protection Association's Standard No. 701 "Small Scale Fire Test for Flame-Resistant Textiles and Films". Provide the largest size possible to minimize seams, 6.0 mil thick as specified for the application, frosted or black as indicated.
 - f. Reinforced Polyethylene Sheet: Nylon fiber-reinforced polyethylene film in the largest size possible to minimize seams, 6.0 mil thick, as specified for the application, frosted or black as indicated.
 - g. Duct Tape: 2" or 3" wide duct tape, with an adhesive formulated to adhere to sheet polyethylene.
 - h. Disposal Bags: Minimum 6 mil. clear polyethylene flexible plastic bags, of leak tight construction. Bags shall be preprinted with DOT classification labels for asbestos waste.
 - i. Glove Bags: Minimum 6 mil. thick clear flexible plastic bag with seamless bottom, with two factory-sealed, inward projecting, long-sleeved rubber or flexible plastic gloves.
1. Glove bags shall be preprinted with the same warning and identification



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notice as disposal bags and shall be equipped with a tool storage pouch and shall have designated locations for attachment of HEPA vacuum and spray wand.

2. Glove bags shall be of sufficient capacity size for related work to hold removed materials and permit air evacuation and sealing prior to disposal.
- j. Airless Sprayer: Electric or manual liquid sprayer equipped with a wand at the end of a hose, that can deliver a stream and a spray of water, as selected in the equipment settings.
- k. HEPA Vacuum Equipment: Electric vacuum equipment manufactured with a High Efficiency Particulate Air (HEPA) filtration system (99.997% effective to 0.3 microns particulate size).
- l. Rags: Clean cloth rags, commercially distributed, of a fabric that will readily absorb water and withstand abrasion without losing weave integrity or shedding filaments.
- m. Absorbent/Solidifier: Loose, granular, inert material capable of absorbing a variety of liquids of different viscosities, including bituminous and oil based solutions. Material shall be fiber and dust free, containing no free silica, and not subject to secondary leaching or seeping. Wyk's Safety Sorbent, Deycon's Magic Sorb, EnviroSorb's Granular Universal Sorbent, or approved equal. If rags are used, a layer of clean rags will be placed inside the bottom of each disposal bag to absorb any seeping. No paper-style products, wood-based products or fibrous materials will be permitted.
- n. Mastic Remover/Solvent: Organic, low odor, solvent effective in removal of asphalt cutback adhesives and mastics. Product shall have a high flashpoint and shall not produce toxic vapors during application or thereafter.
- o. Ground Sealer: Serpiflex Shield Ground Sealer/Formula #6, or equivalent, for crawl spaces and other contaminated soil areas. Material must be used in accordance with manufacturers recommendations and instructions.
- p. Other Tools and Equipment: The Contractor shall provide other suitable tools for the stripping, removal, and disposal activities including but not limited to: hand-held scrapers, squeegees, rounded edge shovels, wire brushes and carts. No mechanical removal devices will be permitted on MDCPS asbestos remediation projects, unless specifically accepted in writing by the Department of Environmental Management.

PART 3 – EXECUTION

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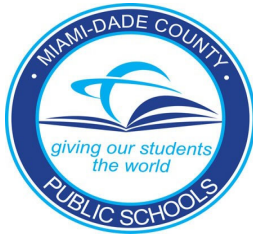


3.01 INSPECTIONS

- a. Without prejudice to any remedies under the Contract and without relieving the Contractor of his/her responsibilities for the execution of the Work, the Owner shall conduct periodic inspections, to verify compliance of the Work procedures with the Specifications and with all applicable asbestos regulations.
- b. Owner inspections will be performed by the Environmental Remediation Project Inspector (ERPI) and/or other qualified Owner's representatives. The inspections will be performed before, during and after the execution of the Work between the hours of 8:30 am and 4:30 pm., and include, but are not necessarily limited to:
 - 1. Verification that 10-day Notice, worker training certificates, medical exams, respirator fit tests, MSDS data sheets, and other site documents are on site, current, and valid.
 - 2. Verification that all equipment and personal protective gear, as well as safety equipment such as fire extinguishers, are available in proper quantities and in good working order.
 - 3. Verification that the critical seals, temporary enclosure, decontamination unit(s), pressure differential system, signage, and other required elements of the regulated area are properly installed and fully functional, as a prerequisite to the start of removal Work.
 - 4. Periodic inspections during execution of the Work, to verify compliance with Specifications and regulations, and when required prior to start of a different phase of the Work (i.e.: mastic removal, load out of bagged materials, and decontamination of the work area).
 - 5. Final Visual Inspection, at completion of the project decontamination and as a prerequisite to lockdown/encapsulation and Final Air Clearance Testing.
 - 6. Walk-through inspection prior to Final Completion and Acceptance.

3.02 SPECIAL PROVISIONS

- a. All non-asbestos materials with porous, non-impervious surfaces, that are exposed to friable asbestos-containing materials, shall be considered contaminated and shall be removed as asbestos-containing materials. All fabrics, including carpets, which are



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glued to asbestos containing floor tiles, mastics or other asbestos-containing materials, or which have been exposed to friable materials, shall also be considered contaminated and shall be removed as asbestos-containing materials.

- b. Light fixtures, exit signs, A/C grilles, and other fixed items that cannot be removed, shall be decontaminated and sealed airtight with a layer of 6-mil polyethylene. No surfaces of these objects will be left uncovered. No objects shall be discarded unless directed by the Owner's Representative.
- c. If suitable storage areas are unavailable on-site, the Owner will provide portable storage units and locks for the storage of the facility's existing furniture, fixtures and supplies. No storage of Contractor materials or equipment will be permitted in such containers.

3.03 GENERAL REMOVAL PROCEDURES:

- a. Adequately wet all asbestos-containing materials prior to removing or disturbing, in accordance with 40 CFR 61, Subpart M(NESHAP), Section 61.141 and the Contract Specifications. Wet the materials by applying a fine spray (mist) of amended water or removal encapsulant using the airless sprayer. The use of hoses or large quantities of water is prohibited.
- b. Periodically spray the asbestos materials during the Work, to maintain a wet condition. Perforate any impervious outer covering on the ACM in order to allow complete penetration of amended water or removal encapsulant.
- c. Remove asbestos-containing building materials (ACBM) using methods and tools that minimize breakage, abrasion, or other damage which could cause release of fibers. Whenever feasible, disconnect, dismantle, or separate asbestos materials from building surfaces or components, rather than forcefully prying, ripping or demolishing the ACBM.
- d. Do not drop or throw the asbestos materials after removal. Carefully lower panels, sections, and other solid components to staging surfaces or the floor. Do not permit materials or loose debris, such as ceiling tiles, spray-on materials or pipe insulation, to fall over 8 feet without intermediate platforms or inclined chutes.
- e. Remove ACM in manageable quantities. Bag removed ACM as the remediation work progresses or periodically stop remediation to perform bagging of debris. Do not allow removed material and debris to accumulate in the work area. Do not walk or step on asbestos debris.



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- f. Do not allow ACM debris to dry out. Spray removed materials and debris, to keep wet until bagged. While asbestos-containing materials are still wet, place in disposal bags, twist and gooseneck all bags, and seal with duct tape. Hold in the containment area, assuring the integrity and security of the single-bagged ACM waste until moving to the material decontamination unit for double-bagging and load out. Refer to Section 13282 "Disposal of Asbestos Containing Waste", for load out procedures.
- g. After completion of removal Work, perform project decontamination in accordance with Section 01711 of these Specifications. Upon successful decontamination of the work area, as verified by the ERPI. The Contractors' on-site supervisor shall request the Final Visual Inspection and the Final Air Clearance Testing in accordance with Section 01714. Apply Encapsulant (lock-down sealer) as required only after ERPI authorization.

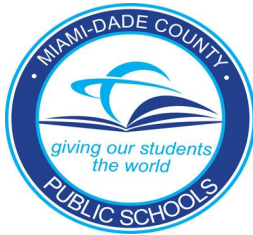
3.04 SPECIFIC REMOVAL PROCEDURES - UNDER CONTAINMENT:

- a. General: The following provisions outline procedures to be followed during removal of specific asbestos-containing materials. All Work under this Subsection shall be performed in an enclosed, negative pressure, regulated area (containment).
- b. Ceiling Tile Removal:
 - 1. Removal of Acoustical Tile Ceilings shall entail either the complete removal of the ceiling system, including tile, grid, trim, and supports, or the removal of the asbestos-containing tiles only and decontamination of the grid and support system. The exact scope of the Work for each individual project shall be specified in the Job Order Form (JOF).
 - 2. Irrespective of the extent of the removal Work, all existing surfaces above or below the ceiling space shall be decontaminated, including beams, pipes, A/C ductwork, and other surfaces.
 - 3. Clean ceiling-mounted objects, such as light fixtures, smoke detectors, alarm sensors and other items; seal same watertight with polyethylene sheeting and duct tape prior to start of remediation activities. Unless specifically directed otherwise by the Owner's Representative, such items shall remain connected and operational.
 - 4. If the fixtures and sensors have been identified to be disconnected and removed, the ERPI will arrange for in-house qualified personnel to perform disconnection and re-connection. Any unremovable plates that remain attached to the ceiling tile or grid shall be cleaned and saved by the Contractor for reinstallation by the Owner. Store at a location designated by the ERPI and the site administrator.



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5. Remove ceiling tiles carefully to minimize breakage. Lightly mist tiles with amended water prior to removal, but do not wet excessively to prevent loss of panel integrity. Bag tiles for disposal as outlined herein above and in Section 13282 of these Specifications.
 6. If ceiling grid is to remain, wash all visible debris from all tees, trim, joints and supports using an airless sprayer and amended water and thoroughly wet wipe all grid and support surfaces. If grid is to be removed, disconnect from support wires in a controlled manner to prevent collapse. Lower each component, group into orderly, manageable packages, and double wrap with polyethylene sheeting and duct tape for disposal as asbestos containing waste. Double wrapped waste requires attachment of ACM Warning Labels and DOT Classification labels as per Section 13282 Disposal of ACM Waste. Alternatively, wash and decontaminate all grid and trim components and dispose of as construction debris.
- c. Removal of Fireproofing, Spray-on Insulation, Acoustical Plaster and Other Asbestos-Containing Surfacing Materials:
1. Removal of Surfacing Materials shall entail either the scraping of the asbestos materials from a substrate to remain or the complete removal of the material and substrate, with or without the substrate's suspension system. The exact scope of the Work for each individual project shall be specified in the Job Order Form.
 2. Irrespective of the removal scope of work, when an existing acoustical tile ceiling is located below the asbestos surfacing material, the ceiling tile and grid shall be considered contaminated and shall be treated as asbestos- containing materials. Removal of such ceiling shall follow the procedures outlined in Paragraph b., above; the full scope of the work shall be as indicated in the Job Order Form.
 3. When the surfacing material is to be removed from a substrate to remain, wet the asbestos-containing materials as indicated above. Allow time for amended water or removal encapsulant to completely saturate the material.
 - (a) Scrape the material off the substrate while saturated and control its descent to the staging or floor below. Do not permit material to fall more than 6 feet without intermediate catching devices.
 - (b) Remove any remaining visible residue from the substrate using a stiff nylon-bristled hand brush. If a removal encapsulant is used, remove all visible residue completely before encapsulant dries.



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- (c) Pick up asbestos debris using squeegees and shovels and place and seal in disposal bags. Do not allow removed material and debris to accumulate in the work area.
 - (d) Hold bagged materials in the containment area, assuring the integrity and security of the double-bagged ACM waste, until moving to the material decontamination unit for additional bagging and load out. Refer to Section 13282 "Disposal of Asbestos Containing Waste", for load out procedures.
 - 4. When the project entails the removal of ACM and substrate, thoroughly wet the asbestos-containing materials as indicated above. Do not over saturate to cause excess dripping.
 - (a) If the substrate is plaster on wire lath, start at edge or expansion joint and cut the wire lath into maximum 4' x 4' sections; support section, cut hanger wires, and lower section to staging or floor. Do not remove suspended substrate in larger sections or cut support wires of more than one section, to prevent collapse of the suspended substrate.
 - (b) If the substrate is gypsum board or lath, remove in 4' x 8' panels; support each panel, cut suspension wires, and lower as indicated above, maintaining the integrity of the structure.
 - (c) Wrap each section of substrate and asbestos-containing surfacing airtight, using polyethylene sheeting and duct tape with appropriate warning labels, for disposal as asbestos-containing waste. Refer to Section 13282 "Disposal of Asbestos Containing Waste", for load out procedures.
 - (d) After removal of lath and asbestos-containing material, remove any overspray on decking and structure above, using a stiff nylon brush. After completion of all removal work, wash and decontaminate all surfaces above or below the initial removal plane, including beams, pipes, A/C ductwork, and other surfaces.
- d. Floor Tile Removal:
 - 1. Full containment for floor tile removal is required utilizing single layer of 6 mil poly for all critical seals, walls and ceilings. For approved demolition projects, containment may be achieved by critical seals at all openings and vents and a 4' wainscot-height with a single layer of 6-mil. polyethylene sheeting sealed to the building walls, in lieu of complete containment barriers.



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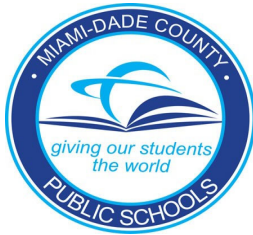
2. Saturate the floor with amended water and keep tile material wet throughout the removal process and until bagged.
3. Remove floor tile in as large pieces as possible, by prying from substrate using spud bars or other hand tools. If hammers or hatchets are used to assist in the removal, exercise care to minimize damage to substrate.
4. If the Contractor wishes to use mechanical or power operated equipment for floor tile or mastic removal, provide product data and performance information, including costs and any credits due to the Owner, shall be submitted to the Owner for review, prior to use. The Owner will provide the Contractor a decision within 7 days of receipt of submittal. If Owner determines that the specific equipment to be used will not render the asbestos materials friable and will not cause damage to building components, the Owner will provide the contractor an acceptance notice and the equipment may be used. Repair any damage that occurs during removal operations, using appropriate patch material for the application.
5. Pick up tile debris using squeegees and shovels and place and seal in disposal bags. After gross removal of floor tile is complete, fine clean visual debris from all surfaces, corners, and joints. Complete the removal of all floor tile in the work area prior to initiation of mastic removal activities.
6. Remove all floor tile mastics, residual materials, floor patches and adhesives down to the substrate using approved solvents to dissolve mastic. All liquid waste including mastics must be solidified with an approved absorbent/solidifier/rags prior to being collected. Pick up solidified mixture using squeegees and shovels until surface is free of all material and residue. Place and seal solidified materials in double disposal bags and hold in the containment area, assuring the integrity and security of the double-bagged ACM waste until moving to the material decontamination unit for additional bagging and load out. Refer to Section 13282 "Disposal of Asbestos Containing Waste", for load out procedures.
7. When mastic removal is to be performed above occupied spaces, Contractor must verify that substrate is solid, without joints or cracks that would permit liquified materials to seep out of the work area. If substrate is not watertight, apply mastic remover in controlled amounts and pick up as quickly as practical. Perform Work in 6' x 6' sections and provide critical



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barriers above the ceiling of the room below as necessary to prevent contamination. When directed by the Owner, perform such Work after school hours.

8. Do not sand resilient flooring, backing or adhesives.
 9. Eye and foot protection shall be required during all phases of tile removal.
 10. When the asbestos-containing floor tile and mastic have been overlayed by carpet that is laid loose or with tack and pad installation, and if the tile is undamaged, remove the carpet and dispose of as non-asbestos waste. After removal of the carpet, proceed with removal of the tile and mastic as specified herein.
 11. When the asbestos-containing floor tile and mastic have been overlayed by carpet installed by direct glue-down method, the carpet must be considered contaminated and must be removed under containment. Pull up the carpet from the tile, cut into manageable sections, roll together with any adhered tile segments, and double wrap for disposal as asbestos-containing waste. After removal of the carpet, proceed with removal of the tile and mastic as specified herein.
 12. When non-asbestos tile that is installed with asbestos-containing mastic is to be removed, the tile must be considered contaminated by the mastic and must be removed as asbestos-containing material, in accordance with the provisions of this Section.
- e. Pipe Insulation Removal (Under Containment):
2. Spray insulation with a mist of amended water allowing it to saturate material down to substrate.
 3. Cut bands or wire holding straight runs of pipe insulation and open any jackets at seams. Remove the insulation material and place directly in disposal bags.
 4. While still wet, remove job molded fitting insulation (mudded fittings) in chunks by hand and place in disposal bags. Do not drop to the floor. Remove any residue on pipe or fitting with stiff-bristled nylon hand brush.
 5. At locations where fitting insulation is removed from pipes with straight



sections that are insulated with fibrous glass or other non-asbestos containing fibrous material, remove said fibrous material a minimum of 6" from the point where it made contact with the asbestos-containing fitting insulation. Such materials shall be considered contaminated and disposed of as asbestos-containing waste. Refer to Section 13282 "Disposal of Asbestos Containing Waste", for loadout and disposal procedures.

3.05 SPECIFIC REMOVAL PROCEDURES - AMBIENT AIR:

- a. General: These provisions outline procedures to be followed during remediation of specific asbestos-containing materials that are to be removed in a non-containment regulated area under ambient air conditions. The following are general procedures that apply to all Work under this Subsection:
 1. Prior to start of the work, establish a regulated area, demarcating its boundaries using nylon construction barriers, polyethylene fencing, and/or barricade tape that has been factory-printed with asbestos warnings. Support the tape at waste level by securing to appropriate temporary supports, existing building appurtenances and other supports that will not damage the existing premises. Place asbestos warning signs at strategic locations surrounding the regulated area where they will be clearly visible to approaching persons.
 2. When Ambient Air removals are performed inside building spaces, the HVAC system servicing the work area shall be shut down, sealed and shall remain inoperative until the asbestos activities are deemed complete by the Department of Environmental Management. If work is to proceed in an enclosed area, such as a classroom, a mechanical room, or other enclosure, provide 6-mil. polyethylene flaps with asbestos warning signs at the entrance to the work area to limit air movement and control access.
 3. Place 2 layers of 6 mil polyethylene sheeting on the floor of the established regulated area, at least 6 feet beyond the area where the removal is to be performed. Assemble tools, equipment and supplies in the regulated area prior to start of the work.
 4. Place a separate sheet of polyethylene, at least 6' by 6', adjacent to the work area. Provide airless sprayer, towels and other materials, for decontamination of personnel.

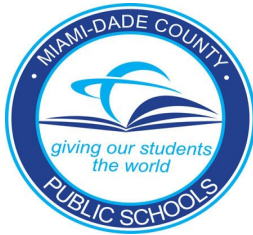


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5. Adequately wet asbestos-containing materials with amended water prior to removal or disturbance. Remove materials in whole sections to minimize damage and potential fiber release. Place and seal in clear, double 6-mil disposal bags or double-wrap airtight with 6-mil polyethylene sheeting and duct tape, with appropriate warning labels. Refer to Section 13282 "Disposal of Asbestos Containing Waste", for disposal procedures.

b. Transite Panel Removal:

1. This section applies to removal of transits panel siding, fascia, window spandrel panels, and other transits applications. Transite is a recognized trade name for a type of cementitious panel reinforced with asbestos fibers.
2. Using an airless sprayer, apply amended water to transits panels prior to disturbance and during removal procedures and wrapping operations, to minimize fiber release.
3. Examine transits panels to determine fastening and support methods; make every effort to unfasten panels from supporting elements rather than to pry by force.
4. Exercise due care to prevent breakage of the panels. If panels break or crack during removal, stop all work immediately and encapsulate broken or cracked panels with approved lock-down sealer, to ensure that the asbestos fibers do not become airborne.
5. Where specific conditions warrant, due to surface deterioration or anticipated breakage, adhere a 6-mil polyethylene sheet to exposed surface of panels, using spray adhesive, prior to panel disengagement and removal.
6. After removal, wrap panels in 2 layers of 6 mil polyethylene, with appropriate warning labels, and dispose of in accordance with Section 13282 of these Specifications.
7. At window spandrel applications, transits or another asbestos core material may be covered by light gauge enameled metal facing, preventing an assessment of the condition of the asbestos. Due to accidental impact and vandalism, those panels may have been damaged during their installed



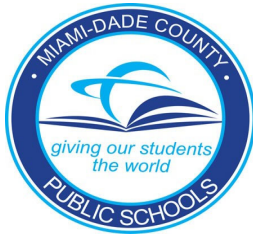
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life and the core may be in a significantly damaged and friable state.

- (a) Place a 6-mil polyethylene drop cloth over floor poly, adjacent to the window frame and panel, prior to removal.
- (b) After uninstalling glazing beads, remove panel carefully, wetting panel edges as they become free of the window framing, and place on poly drop cloth. Remove caulking material with hand tools and HEPA vacuum.
- (c) Fold drop cloth over panel immediately, to form part of the airtight double wrapping. Apply appropriate warning/disposal labels and dispose of in accordance with Section 13282.
- (d) HEPA vacuum and wet wipe remaining window frame to fully decontaminate of microscopic asbestos fibers.

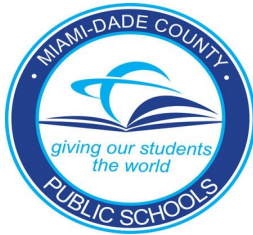
c. Cooling Tower Remediation:

- 1. Cooling Tower remediation activities may be performed in a designated area at ground level, after lowering from the roof by others, or at the existing roof location prior to removal. The Job Order Form will indicate the specific job conditions for each project.
- 2. In each case, power and water supplies to the unit will be disconnected by other contractors or by the Owner's own forces. The Asbestos Contractor must coordinate with the ERP! and comply with all project schedules and milestones, which will impact the work of other contractors and the Owner's operations.
- 3. Cooling Towers contain asbestos materials at various possible locations, such as siding or roof panels, louver vents, and honeycomb eliminators. In addition, wood slats and the water and sludge contained at the bottom of cooling towers must be considered contaminated and treated as asbestos-containing materials. The Job Order Form will indicate the specific job scope for each project.
- 4. Provide 6-mil polyethylene protective barrier on the ground or roof below the Cooling Tower prior to start of any remediation work. Extend barrier 8 feet on all sides of the Tower, as site conditions permit. Place a 6-mil polyethylene drop cloth over the barrier to cover the area where remediation is being performed.
- 5. Remove any roofing or siding transite panels using procedures described in Paragraph b. above.



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6. Cooling Tower eliminators are generally considered friable materials. Powered Air Purifying Respirators shall be the minimum respiratory protection permitted during removal of the asbestos-containing eliminators. Refer to Section 01562 "Respiratory Protection" for detailed requirements.
 7. Remove the honeycomb or tubular-drift eliminators by disassembly of each section, exercising due care to prevent damage or breakage during removal. Immediately encapsulate with lockdown sealer any section that brakes or is damaged, to prevent asbestos fibers from becoming airborne. Bag or wrap eliminators while still wet and seal for disposal.
 8. Remove array of wood slats, located behind the eliminators, from the cooling tower. Bundle slats into orderly, manageable packages and double wrap with polyethylene sheeting and duct tape for disposal as asbestos-containing waste, applying required warning labels.
 9. Scrape and remove excess debris and residue on Cooling Tower, including "build-up" on the framework and body of the tower, as well as any sludge and water in the bottom pans of the unit. Solidify any liquids with approved absorbent/solidifier prior to bagging. Place materials in double disposal bags, applying required warning labels.
 10. Decontaminate all tower surfaces and regulated area poly barriers, using airless sprayer and wet wiping, in accordance with Section 01711 of these Specifications.
 11. Refer to Section 13282 "Disposal of Asbestos Containing Waste", for disposal procedures.
- d. Removal of *NC* Duct and Equipment Mastic:
1. The Work entails the scraping and removal of asbestos-containing mastics from Air Conditioning metal ducts and equipment to remain, and/or the cutting and removal of sections of non-asbestos insulation covered with ACM mastic from *NC* metal ducts to remain. The Job Order Form will indicate the specific job scope for each project.
 2. When the mastic is specified to be scraped, adequately wet the asbestos-containing mastic and proceed with scraping operation. Upon completion of gross removal, fine clean surface of duct and/or equipment by wiping with approved mastic solvent to remove all visible residue. Decontaminate work surfaces and regulated area in accordance with Section 01711.

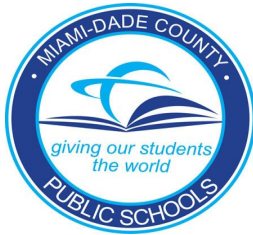


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3. When the mastic is applied to non-asbestos insulation to be removed, adequately wet the asbestos-containing mastic and, if possible, cut the insulation at locations not covered with mastic and unwrap from ductwork. If cut must be made into the mastic, wet the mastic and cut mastic and insulation using a sharp blade.
 4. Double wrap the sections of insulation and mastic for disposal as asbestos-containing waste, applying required warning labels. Decontaminate work surfaces and regulated area in accordance with Section 01711.
- e. Chalkboard Removal:
1. Spray the surface of chalkboards with wetting agent. Apply a double layer of 6 mil polyethylene sheet to the surface of the chalkboard, fasten with spray glue and seal with duct tape perimeter frame.
 2. Detach the chalkboard from the wall, working from the perimeter toward the center. Spray the wetting agent to the back surface of the chalkboard during removal procedures to reduce fiber release.
 3. Caution must be exercised to avoid breaking the chalkboard surface. Place the removed chalkboard on polyethylene drop cloth and wrap and seal the entire board with two layers of 6 mil polyethylene sheet.
 4. If chalkboard was secured with asbestos-containing mastic, remove mastic from wall by scraping and wiping with solvent. Upon removal of board and any mastic, decontaminate all surfaces around the area where the chalkboard was removed in accordance with Section 01711.
 5. Refer to Section 13282 "Disposal of Asbestos Containing Waste", for disposal procedures.

3.06 GLOVE BAG REMOVALS:

- a. General: The Glovebag Removal Method, will be specified in the Job Order Form (JOF) by the Department of Environmental Management trained/certified personnel when specific conditions and asbestos material characteristics make it a feasible alternative to full containment for removal of the ACM. These provisions outline procedures to be followed during glovebag removal in general, as well as for its application for specific asbestos-containing materials.



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1. Although the glovebag functions as a localized containment enclosure, removal by the Glovebag method shall still require establishment of a regulated area and isolation of HVAC systems, following procedures outlined herein above for ambient air removal.
 2. During glovebag removal within enclosed spaces, provide HEPA filtered fan units in the immediate area of work, to filter the air and minimize potential fiber concentrations. Exhaust air from the HEPA units must be evacuated to the exterior unless otherwise authorized by the Department of Environmental Management.
 3. Cover the floor barrier beneath the glove bag operations with a drop cloth consisting of a single layer of 6-mil. polyethylene sheeting. Drop cloth shall extend a minimum of ten feet from the glovebag area and all furniture or equipment within that perimeter shall be moved or protected with 6-mil. polyethylene sheets.
 4. Glovebag removal shall require a minimum of two persons per bag. When multiple glovebag units are installed, two-person crew may proceed working along the tandem installation. All glove bags shall be smoke-tested by the Contractors on-site supervisor with ERPI present to verify adequate seal.
 5. Use only glovebags meeting the requirements of these Specifications and all applicable regulations. For removal of continuous segments of adjacent materials, factory-made, multiple glovebags are permitted, provided they are attached in compliance with the requirements of 1926.1101 and are properly sealed. Field connection of multiple single glovebags and/or sliding of glovebags for reuse are strictly prohibited.
 6. Glovebag shall not be considered a disposal bag. Contractor will be required to double bag the glovebag and asbestos material.
- b. Removal Procedures:
1. Before beginning the operation, any loose and/or friable material adjacent to the glovebag location shall be wrapped and sealed in two layers of 6 mil plastic and duct tape, encapsulated with approved lockdown sealer, or otherwise rendered intact.
 2. When glovebags are to be installed on hot water or steam lines, the system



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must be shut off and the lines must be allowed to cool prior to installation. Standard Glovebags shall not be used on surfaces whose temperature exceeds 150°F.

3. Seal the glovebag to the pipe, insulation, equipment, wall, or other existing surfaces, to completely enclose the designated pipes, fittings, and/or ACM materials indicated to be removed or worked on. When seal must be made directly to the asbestos-containing material, such as the insulation on a pipe, the ACM must be in good condition and well-adhered to its substrate, to ensure the adequacy of the glovebag installation. If installation of the glovebag must be made to non-intact insulation or other material, the material must be stabilized as specified in Paragraph 1. above, prior to attachment of the glovebag.
4. After installation of glovebags and before start of the removal work, Contractor must inspect and smoke test for leaks, in accordance with 1926.1101. ERPI to be present and will confirm installation and smoke testing, and if acceptable, will give permission to start removal. No removal work may commence until ERPI/Owner's representative acceptance.
5. Removal requires two asbestos workers per bag! Thoroughly wet the material to be removed, inside the glovebag, with amended water. Cut and remove the asbestos-containing materials while keeping them wet by periodic spraying, but do not fill the bag to more than ½ full with waste or excessive amounts of water. Carefully place the material at the bottom of the bag; do not permit materials to drop.
6. Remove non-asbestos pipe wrap and insulation materials 6" from the point it contacts asbestos-containing insulation being removed, to allow complete decontamination of pipe surfaces surrounding the removal area. When removing fittings, remove all insulation on straight runs a minimum of 6" beyond fitting. All removals shall be performed using glovebag methods.
7. After removal of pipe insulation, plaster from walls, or other gross removals, thoroughly clean and wash surface of pipe, wall, or other substrate so that no visible asbestos residue remains. Wash interior of glovebag to permit visual inspection of removal area by ERPI. Ensure the integrity of the glove-bag seal throughout the entire glovebag removal operation.
8. Request a Final Visual Inspection prior to lockdown of abated surfaces and



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evacuation of glovebags. If ERPI deems the removal complete and acceptable, wash all tools inside glovebag, pull washed tools inside a glove pulling same inside out, twist the glove and seal with duct tape. Lockdown all pipe, wall or other surfaces and interior of glovebag enclosure with approved lockdown/sealer to the satisfaction of the ERPI.

9. Upon acceptance by the ERPI and completion of lockdown procedures, the Contractor shall:
 - (a) Insert and seal HEPA vacuum attachment through designated area of bag and evacuate air from glove bag, twist bag and seal with duct tape, while continuing to evacuate until full bag collapse.
 - (b) Cut off glove with tools from the glove bag. Uninstall bag from pipe by cutting from top and turning inward as bag is removed. Place glovebags in double asbestos disposal bags. Each bag to be sealed and double-bagged separately.
10. Refer to Section 13282 "Disposal of Asbestos Containing Waste", for disposal procedures.

c. Removal of ACM-insulated Pipe Systems (Entire Assembly):

1. Prior to making any cuts through insulated piping system, perform glovebag removal as described above. Remove approximately a one-foot long section of insulation at designated cut locations and seal ends of remaining insulation with duct tape and/or lockdown sealer
2. Upon acceptance of glovebag removals as outlined above, wrap each segment of insulated pipe with two layers of 6 mil polyethylene and duct tape, sealing each segment airtight.
3. Candy-stripe poly-wrapped pipe with duct tape to ensure that integrity of seal will be maintained during cutting, removal and disposal operations. Cut pipe at exposed locations exercising care not to disturb insulation wrapping and seal.
4. Request from ERPI a Final Visual Inspection of work area and of bagged/wrapped debris prior to removal from regulated area and completion of the work.



5. Refer to Section 13282 "Disposal of Asbestos Containing Waste", for disposal procedures.

3.07 ADDITIONAL ACBM REMOVAL/DISTURBANCE OPERATIONS:

- a. The following removal work or activities that disturb existing ACBM shall be performed under containment, under ambient air procedures, in glovebags or disposal bags, based on the scope, complexity and quantity of the work, condition of the materials, and other job specific circumstances. The exact removal methods and regulated area preparations shall be specified in the Job Order Form.
- b. Removal of ACM-Insulated Wiring:
 1. The Work entails removal of sections of asbestos-insulated wiring, or removal and disposal of fixtures containing such wiring.
 2. Regardless of the removal method specified, a regulated area shall be established prior to start of any removal activities. Refer to appropriate paragraphs for descriptions of procedures to set up a regulated area under containment or under ambient air/glovebag conditions.
 3. Prior to start of any cutting or removal of the wiring or fixtures, verify with the ERPI that power has been locked-out/tagged-out for the removal area and subject wiring. In addition, use a volt-amp meter to confirm that the wires to be removed are no longer energized or "live".
 4. Cut and remove the asbestos insulated wires and place in double disposal bags. When the work entails removal of fixtures, remove same after disconnection and either dispose of as asbestos-containing materials, or remove internal wiring, decontaminate fixture, and save for Owner reuse, in accordance with instructions given in the JOF.
 5. Notify the ERPI upon completion of the activity for Final Visual Inspection, prior to lockdown and Final Air Clearance Testing.
- c. Hole Drilling Activities: Ambient or Containment(s):
 1. The Work entails drilling holes into existing asbestos- containing materials, such as plaster, stucco, or transite panels, when required by Owner construction or maintenance operations.



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2. Regardless of the control method specified, a regulated area shall be established prior to start of any drilling activities. Refer to appropriate paragraphs for descriptions of procedures to set up a regulated area under containment, under ambient air, or disposal bag or glovebag procedures.
3. Place a polyethylene drop cloth under the location where drilling will occur. Provide ground fault interrupters for all electrical receptacles/circuits to be used, in accordance with Section 01503 "Temporary Facilities".
4. Hole drilling shall require a minimum of two persons at each location. One person will operate the drill; the second person will assist with the HEPA vacuum and airless sprayer operation.
5. Hole-drilling Ambient/Enclosure or Containment - (all types, all sizes)
 - (a) For Holes drilled from one side - intact ACM - Ambient.
 - (b) For Holes drilled from one side - non-intact ACM - Disposal bag or Glovebag as required by JOF.
 - (c) For Thru-Wall Holes - intact ACM – Ambient.
 - (d) For Thru-Wall Holes - non-intact ACM - Disposal bag or Glovebag drilling as required by JOF.
6. Ambient Drilling:
 - (a) Adequately wet the surface at the marked drilling location; continue to wet the location periodically while drilling.
 - (b) Run the HEPA vacuum continuously to immediately contain material expelled by the drilling process. Place the end of the vacuum hose directly under drilling operation until required depth of hole is achieved.
 - (c) Vacuum out drilled holes, wet wipe the existing wall or panel surface at drilling location and surrounding area, and encapsulate the holes with lockdown sealer.



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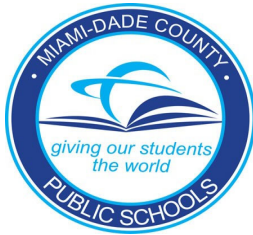
- (d) When hole is to be drilled completely through the wall, seal a disposal bag to the opposite surface, in the anticipated area of penetration, to contain any debris pushed through by the drill. After drilling, seal and remove the bag and decontaminate the wall surface and the floor area below the opening.
- (e) Decontaminate and remove regulated area after ERPI's Final Visual Inspection. Place and seal all contaminated waste in double disposal bags and dispose of in accordance with Section 13282.

7. Disposal Bag Drilling:

- (a) Attach and seal a disposal bag to the wall or panel surface at the designated drilling location. Insert drill and drill bit to just behind the chuck and seal bag to the drill casing (exhaust vents for drill must remain outside of bag).
- (b) Insert end of HEPA vacuum hose and seal to the bag (optional). Drill hole to designated depth. Upon completion, evacuate the bag using the vacuum until it collapses on itself (if needed, cut and insert vacuum hose at this time).
- (c) Carefully remove drill and vacuum hose; fold the bag in and dispose of in another disposal bag. Decontaminate the drill and bit.
- (d) Vacuum drilled hole, wet wipe the existing wall or panel surface at drilling location, and encapsulate the hole with lockdown sealer.
- (e) When hole is to be drilled completely through the wall, seal a disposal bag to the opposite surface, in the anticipated area of penetration, to contain any debris pushed through by the drill. After drilling, seal and remove the bag and decontaminate the wall surface and the floor area below the opening.
- (f) Decontaminate and remove regulated area after ERPI's Final Visual Inspection. Place and seal all contaminated waste in double disposal bags and dispose of in accordance with Section 13282.

8. Glovebag Drilling:

- (a) Attach and seal a glovebag to the wall or panel surface at the designated



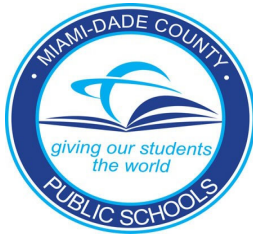
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drilling location. Insert end of drill and drill bit and seal to the bag, having placed in the bag any other tools that will be required for the job. Seal glovebag in accordance with OSHA 29 CFR 1926.1101. Insert and seal drill in such manner to leave motor and any openings to inside of drill out of glovebag, to prevent wetting of electrical connections.

- (b) Insert and seal vacuum hose (optional) and airless sprayer wand or tip of spray bottle at locations designated on glovebag. Adequately wet the surface at the marked drilling location; continue to wet the location periodically while drilling.
- (c) Vacuum or wash drilled hole, wet wipe the existing wall or panel surface at drilling location, and encapsulate the hole with lockdown sealer.
- (d) Isolate equipment in glovebag, vacate and seal glovebag and remove from surface as outlined in the glovebag removal specifications herein above. Twist and seal section of glovebag ahead of drill end and remove drill from bag.
- (e) When hole is to be drilled completely through the wall, seal a disposal bag to the opposite surface, in the anticipated area of penetration, to contain any debris pushed through by the drill. After drilling, seal and remove the bag and decontaminate the wall surface and the floor area below the opening.
- (f) Decontaminate and remove regulated area after ERPI's Final Visual Inspection. Place and seal all contaminated waste in double disposal bags and dispose of in accordance with Section 13282.

3.08 REMOVAL OF ASBESTOS-CONTAINING ROOFING MATERIALS

- a. The Work entails the removal of limited quantities of ACM Roofing, when required to allow performance of roofing repairs. Major roofing removal work shall be separately bid and awarded. Within the limited scope of the Work, removal may be performed on incidental intact flashings, intact roofing membranes, or friable roofing materials. The specific scope of the Work shall be specified in the individual Job Order Form; the exact material conditions, at the time of the Work, shall be assessed by the Department of Environmental Management prior to start of removal.
- b. Maintain the existing building in a watertight condition during execution of roofing



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Work. At no time shall areas be left unprotected against the elements after the existing roofing or flashing have been cut and/or removed. Temporary work, if required to maintain the building in a watertight condition, shall be part of the Contract.

- c. Contractor shall exercise care during the Work to ensure that roofing to remain is protected from damage. The contractor shall carefully execute all work avoiding any unnecessary damage to the substrate.
- d. Roofing materials shall be removed with hand held non-mechanical tools. There will be no sawing or any other type of mechanical removal method that might increase the chance of fiber release or render the material non-intact. The material must not be sanded, abraded or ground. Removal of flashing shall extend a minimum of one (1) foot from the edge, vertical wall, VTR penetration, curb, or other flashed element. Remove roofing materials and flashing down to the substrate unless otherwise directed by the Owner.
- e. Remove abated roofing materials from the roof daily, at the end of the work shift. Lower materials to the ground by hand, hoists or chutes. Do not allow materials to drop for a distance greater than five (5) feet.
- f. Removed materials which remain non-friable, shall be disposed of as construction debris. Friable materials must be disposed of as asbestos waste, properly bagged and sealed, as specified below.
- g. When materials to be removed are designated non-intact (friable), or if intact materials become non-intact during the Work, the following additional provisions apply:
 - 1. Dry removal of non-intact asbestos roofing is prohibited. Spray the asbestos material with amended water to prevent release of airborne fibers, using either an airless or hand-held sprayer capable of applying a fine mist.
 - 2. Cut the roofing material in sections not greater than four feet by four feet and HEPA vacuum the cut area(s) prior to removing the roofing sections.
 - 3. Place the removed materials in double disposal bags or double wrap in polyethylene immediately after removal. Bagged/wrapped materials must be removed from roof daily, at the end of each work shift and must be disposed of as asbestos-containing waste, in accordance with the requirements of Section 13282.

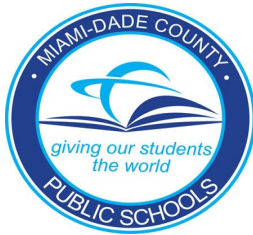


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4. At completion of the Work, clean roof deck of all visible asbestos debris. Deck (or existing insulation surface) shall be cleaned to the extent that the surface is free of materials that cause irregularities. All surfaces must be smooth to prevent damage to new materials and free of any substances which would prevent proper application of new materials.
5. Apply two coats of lockdown sealer to roof deck after all asbestos containing materials have been removed, roof work area has been cleaned, and ERPI has inspected the adequacy of the work.

3.09 REMOVAL OF ASBESTOS -CONTAMINATED SOIL:

- a. The following procedures shall be used, unless authorization to modify said procedures are received from the Owner. The procedures set forth in this section shall be used if a contaminated dirt floor in a room or crawl space is encountered as part of the work area. These procedures shall also be used if the contractor contaminates the soil through the course of the work.
 1. Wet Soils: The Temporary Pressure Differential, as described in Section 01513, will be achieved using critical barriers only. Contaminated soil must be bagged as it is removed. "Buildup of," or "piles," of contaminated soil will not be permitted. Start removal at the point of work farthest from the entrance to the soil enclosure area and proceed toward the entrance. Do not permit traffic onto the area that has been cleaned. **Arrange Pressure Differential System so that air flow is at the starting point of work toward the entrance.** Contractor will be required to submit plan of action including arrangement of the pressure differential system set-up.
 2. Prior to the start of work Owner's testing laboratory will determine the depth of contamination using bulk sampling. Once the depth of contamination is determined, contractor will be required to remove one inch below said contamination. For example, if bulk sampling indicates the depth of contamination to be 3", the contractor **will** be required to remove 4" of soil. Compensation for work is based on CF of contaminated soil removed.
 3. Final clearance of the work area will be determined using bulk sampling and TEM analysis as follows: Upon completion of the removal phase, the Owner's testing laboratory will resample (same locations) the soil. Should any contaminated soil remain, the contractor will be required to remove one additional layer of soil to ensure all contamination is removed. The contractor will bear all costs associated



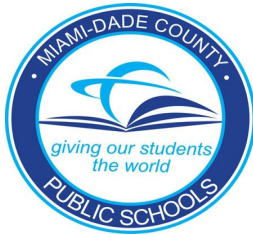
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with the additional removal, if required. Cost of re-cleaning and re-sampling will be at the contractor's expense. Upon completion of removal of all contaminated soil, and verification by bulk sampling, the Contractor will be authorized to encapsulate the Work Area. All surfaces within the work area will be encapsulated. TEM analysis will follow. Deviation from above procedures must be approved by the Department of Environmental Management.

4. Dry Soils: Use the same procedure for dry soils, except saturate with amended water or removal encapsulant as specified in other sections of this Term Bid. If a removal encapsulant is used, use in accordance with manufacturer's instructions. Saturate soil beyond the inch of soil currently being removed. Keep the surface of the soil continuously wet throughout removal and decontamination.
5. If the contaminated soil is in an outside area, and approval is received from the Department of Environmental Management, the Temporary Pressure Differential requirements may be omitted

3.10 ASBESTOS FIBER CLEANING PROCEDURES

- a. The Work entails the cleaning of room spaces, surfaces, furnishings, equipment and incidentals to remove potential asbestos fiber concentrations. The fibers are microscopic and mostly invisible, requiring specific methodologies to ensure their capture and removal and the proper decontamination of the spaces. Cleanup activities may involve two main types of contamination causes or conditions, as described herein below. The exact scope and conditions of the Work shall be specified in the individual Job Order Form.
 1. "O & M Cleaning", as defined in the AHERA regulation, of existing building spaces with exposed friable asbestos materials, to remove potential asbestos fiber concentrations.
 2. "Fiber Release Cleaning" to remove contamination resulting from the disturbance of asbestos-containing materials, either during the course of the building use or due to fiber escape from an asbestos removal project containment.
- b. O & M Cleaning will be performed in occupied spaces. Prior to start of the Work, the Contractor's Supervisor shall inspect the work area, and if necessary, shall take record photographs of the existing conditions and objects located in the room.



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1. All exposed horizontal surfaces (i.e.: cabinet tops & shelves, furniture, floors, loose objects) and contact spaces within the area shall be cleaned. Existing movable objects shall be cleaned, moved to permit cleaning of the area beneath them, and returned to their location. When applicable (i.e.: at Mechanical Rooms), cleaning shall include top surfaces of A/C ducts, beams, pipes, equipment and any other contact surfaces.
2. O & M cleaning is performed in "clean spaces" to prevent build-up of asbestos fibers. It is assumed that the areas being cleaned are not contaminated. Consequently, the contractor shall be required to use clean/dedicated HEPA vacuum and pressure differential equipment for O & M cleaning activities. No work shall begin until ERPI inspects the equipment to be used. If requested, provide evidence of the equipment maintenance schedule. If any equipment is not accepted by the ERPI, the contractor will immediately remove from site and replace with acceptable equipment.
3. Preparation Activities:
 - (a) O & M Cleaning projects shall generally be performed on weekends, holidays, and after school hours. The contractor shall review each individual JOF and coordinate with the ERPI for exact work schedules and start times.
 - (b) Each individual space to be cleaned must be started and completed within the same work period, prior to re-occupancy by Owner. Do not start work that cannot be completed within a work period.
 - (c) A regulated area shall be established for the Work, in accordance with the provisions for Ambient Air Removals specified herein above.
 - (d) Prior to entering the work area, a 6' X 6' area of floor, immediately inside the entry point into the work area, shall be HEPA vacuumed and wet wiped, and a 6' x 6' section of 6-mil. polyethylene sheeting shall be placed as a drop cloth over the clean area. This area shall be designated for personnel decontamination.
 - (e) Set up pressure differential equipment and exhaust as indicated by the ERPI.



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- (f) Designate one employee to remain outside the work area during cleaning activities, to prevent unauthorized entry and to assist the cleaning personnel.

4. Cleaning Procedures:

- (a) Perform all cleaning activities starting from the highest point in the work area and work down from that point. The final step of cleaning shall be HEPA vacuuming and wet-wiping (mopping) of the floor.
- (b) Do not disturb any friable asbestos containing materials that may be present in the spaces, during the wipe down operations.
- (c) HEPA vacuum all exposed, existing horizontal (top) surfaces and wet-wipe using clean rags. Use each surface of each rag only once and discard rag after both surfaces have been used, to avoid spreading fibers throughout the area.
- (d) After all surfaces above the floor plane have been cleaned, HEPA vacuum and mop the floors. Once the Work is complete, clean all tools and materials prior to removal from the area.
- (e) Double bag all debris, filters, mop heads, and cleaning rags and dispose of asbestos-containing waste, in accordance with the requirements of Section 13282.
- (f) Notify the ERPI upon completion of the cleaning activities for Final Visual Inspection. If ERPI encounters any dust or dirt, the Contractor shall continue to clean the area until acceptance.

- c. Fiber-Release Cleaning will generally be performed as an emergency, to remove unintended contamination from spaces that were open to the public prior to the release occurrence and to prevent exposure to building occupants at other areas. Consequently, the first priority will be to isolate the contaminated spaces, preventing entry, posting warning signs, isolating/sealing the HVAC system openings and placing all critical seals.

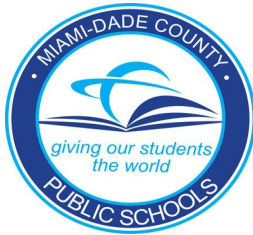
- 1. Prior to start of the Work, the Contractor's on-site Supervisor shall inspect the work area, and if necessary, shall take record photographs of the existing conditions and objects located in the room.



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2. After a fiber release, all exposed horizontal surfaces (i.e.: cabinets, furniture, floors, loose objects) and vertical surfaces (i.e.: walls, faces of cabinets a& furniture, fascias, etc.) and all other contact surfaces/spaces within the area shall be cleaned.
3. Existing non-porous movable objects shall be cleaned and moved out of the work area. Existing porous objects shall be discarded and disposed of as asbestos-containing waste.
4. When exposed to the contaminated space, cleaning shall include all surfaces of A/C ducts, beams, pipes, equipment and any other contact surfaces.
5. Preparation and Cleaning Activities shall be performed as specified in Section O1711 of these Specifications.

END OF SECTION



SECTION 13282

DISPOSAL OF ASBESTOS-CONTAINING WASTE

PART 1 - GENERAL

1.01 RELATED WORK:

- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

- | | | |
|----|--|----------------|
| a. | Submittal Requirements | Section 01301. |
| b. | Worker Protection | Section 01561. |
| c. | Respiratory Protection | Section 01562. |
| d. | Decontamination Units/Tunnels | Section 01563. |
| e. | Project Decontamination/Asbestos | Section 01711. |
| f. | Removal of Asbestos-Containing Waste Materials | Section 13281. |

1.03 DESCRIPTION OF THE WORK:

- a. This Section describes the disposal of Asbestos-Containing Waste Materials. Disposal includes the packaging of the asbestos-containing waste, as well as the decontamination and proper handling of the waste bags. This Section also describes decontamination procedures for contractor materials, supplies, and equipment to be reused, to be performed prior to removing them out of the work area. Materials not designated for reuse, can be thoroughly decontaminated and disposed of as non- asbestos debris. If this material is not thoroughly decontaminated, it shall be treated as asbestos waste.

1.04 STORAGE:

- a. No storage of asbestos-containing waste shall be permitted outside of the Work Area.
- b. At no time will the Asbestos Contractor be allowed to store or dispose of ACM waste generated from an outside source other than M-DCPS/Facilities, at any M-DCPS/Facilities.



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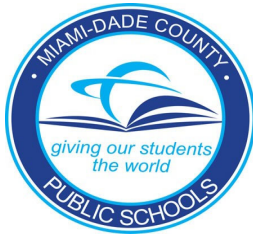
- c. The Department of Environmental Management (DEM) reserves the right to require the contractor to provide an approved asbestos dumpster for any project involving removal of asbestos containing material in quantities greater than 5,000 SF. The dumpster requirement and location shall be verified by the, Asbestos Contractor at the pre-construction meeting with the ERPI, and site administrator.

1.05 SUBMITTALS:

- a. Refer to Section 01301 for submittal requirements.

1.06 TRANSPORTATION OF REMOVED ACM WASTE (M-DCPS):

- a. All A.C.M. shall be properly transported in accordance with all Federal, State and Local Regulations. The transporter must obtain all appropriate licenses and fees to meet all applicable regulations and shall properly manifest all material. Provide the Waste Shipment Record (WSR), signed through "Transporter 1", to the ERPI upon removal of ACBM from the M-DCPS site location (use WSR form found in Appendix A). The contractor will be required to attach a Waste Generator Label to the M-DCPS/WSR Field form and the Asbestos Contractors' Waste Shipment Record (WSR-Landfill).
- b. If the WSR is not received by the Asbestos Contractor within **30 days**, the Asbestos Contractor shall contact the Waste Disposal Facility to determine status of waste shipment and demand signed WSR. Notify the Department of Environmental Management in writing of your efforts to obtain required disposal documentation. If a signed copy of the WSR is not received by M-DCPS/DEM within **35 days** of the waste leaving the M-DCPS site, notice by M-DCPS/DEM will be sent to the Asbestos Contractor demanding said WSR and information regarding the shipment. If a signed copy of the WSR is not received by M-DCPS/DEM within **45 days** of the waste leaving the site, notice by M-DCPS/DEM will be sent to the EPA Region IV office per 40 CFR 61 (NESHAPS) Part.151.4.
- c. Provide (24 hr.) twenty-four hour notice to the Owners Representative/ERPI when ACM waste generated at one location (M-DCPS Facility) is to be transported to another (M-DCPS/Facility) for on-site disposal in the Asbestos Contractor's asbestos enclosed dumpster. The Asbestos Contractor **will** be required to maintain a Waste Disposal Manifest (Form in Appendix A-Forms) when ACM waste generated at one location/M-DCPS (Facility) is transported to another M-DCPS(Facility). The Contractor will also be required to use an acceptable (Waste Shipment Record) WSR form, accepted by the Waste Disposal Facility, in accordance with EPA-NESHAP, Section 40 CFR 61.150. No asbestos waste may be removed from the Facility/Site Location unless the WSR is filled out and signed through "Transporter 1" (the entity removing the asbestos) and presented to the ERPI. **Within 35 days**, the Asbestos Contractors' WSR Form must be completed in its entirety and signed by the appropriate transporters and dump/landfill facility.



- d. Final payment on any asbestos abatement project will not be processed until receipt of all Post Submittal project documents, including all required WSRs.

PART 2 - PRODUCTS:

2.01 DISPOSAL BAGS: Provide 6 mil thick, leak-tight, pre-printed, clear polyethylene bags with labels as follows:

- a. Provide all Class 9 labels in accordance with U.S. Department of Transportation regulations on hazardous waste marking (49 CFR parts 100-199. Hazardous Substances: Final Rule. Published November 21, 1986 and revised August 20, 1993.). Main label shall read:

ASBESTOS, NA-2212, RQ

All bags shall also have Class 9 symbols as required by law.

- b. Provide a Waste Generator Label, in accordance with the provisions of 40 CFR 61.150. Affix label on the outside of each outer ACM waste disposal bag or wrapped ACM waste, indicating the name of the waste generator, location where the waste was generated, JOF Number, and Name of Asbestos Removal Contractor. Label shall read:

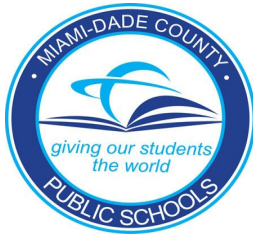
**OWNER'S NAME AND ADDRESS (MDCPS)
SCHOOL/FACILITY NAME AND ADDRESS
JOF NUMBER
NAME OF ASBESTOS CONTRACTOR**

2.02 DRUMS: Provide 55-gallon fiberboard or steel drums with sealed locking ring tops as approved by Owner, for the transport of asbestos waste bags when an asbestos dumpster will not be used on site. Provide required DOT labels identifying Class 9 waste, Placard ID Number - NA-2212, RQ (ASBESTOS), Asbestos Containing Material Warning Labels and Waste Generator Label on exterior side of Drums.

PART 3 - EXECUTION

3.01 GENERAL:

- a. Provide (24 hr.) twenty-four notice to the ERPI for the removal (bag out) of ACM waste from the work area. Load-out activities will not commence until all equipment, transportation vehicle or on site enclosed Asbestos dumpster(s) and WSR are on site, and have been verified by the ERPI. Load-out procedures will not begin until authorization is given by the ERPI.

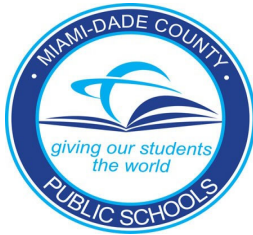


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- b. Carefully load properly packaged and labeled A.C.M. disposal bags into approved prepped (6 mil poly walls, ceilings and entrance flaps, Section 3.04 of this section) for enclosed asbestos dumpster, trucks, or other appropriate vehicles with required Asbestos Warning Signs/Placard for transport. Exercise care before and during transport to ensure that no unauthorized persons have access to the ACM material. Approved asbestos dumpsters/trucks used to transport A.C.M. shall be properly locked at all times and sealed except during load-out operations.

3.02 EQUIPMENT OR MATERIAL DECONTAMINATION:

- a. Prepare loadout/decontamination station for ACM loadout of waste. Demarcate (controlled access) loadout wash area boundaries with Asbestos Warning Tape and Signage.
- b. Take all equipment or material from the Work Area through the Shower or Loadout Decontamination Unit according to the following procedures:
 - 1. **For Decon shower unit loadout:** thoroughly wet-clean exterior contaminated equipment or sealed single polyethylene bags/wrapped material utilizing shower components. After cleaning is complete, pass equipment/waste into the next airlock/or room for double bagging, sealing with duct tape and waste generator labels. Hold waste in the Clean room until authorized by ERPI to move to approved on site Asbestos Dumpster or loadout vehicle. * Do not spray water into 2nd clean bag after double bag process.
 - 2. **For Loadout Decon (equipment room):** thoroughly wet-clean exterior contaminated equipment or sealed single polyethylene bags/wrapped material utilizing a wash pan with an airless sprayer. After cleaning is complete, pass into the next airlock/or room for double bagging, sealing with duct tape and attachment of the Waste Generator Labels. Hold waste in the Clean room until authorized by ERPI to move to approved on site Asbestos Dumpster or loadout vehicle.* Do not spray water into 2nd clean bag after double bag process.
 - 3. **Workers** (equipped with respiratory protection and disposable clothing) from the building exterior side shall enter the airlock from the Clean Room and remove decontaminated equipment and/or containers for disposal. At no time is the "outside worker" to go beyond the airlock, or open the flaps to the shower. Require all "outside workers" to wear full protective clothing and appropriate respiratory protection while handling bags or other materials being loaded out. For Respiratory Protection refer to Section 01562.
 - 4. **The Equipment Decontamination/Load-out Unit** is solely for removal of equipment and material from Work Area. Do not allow personnel to enter or exit work area containment through Equipment Decontamination Unit.



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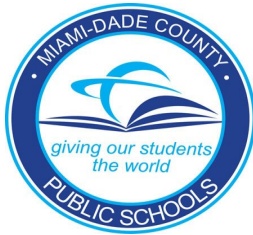
5. Decontaminated bagged/wrapped ACM material shall be immediately loaded into enclosed: lined 6 mil poly carts for transport to on-site asbestos dumpster, or loaded into drums, or containers with sealed locking ring tops, then directly onto a vehicle, for transportation to the landfill or to a lockable secure dumpster at another approved location. Enclosed carts to have a 6 mil poly top cover with Asbestos Warning Signs to cover waste while transporting ACM waste from work area to on-site loadout location.
6. Keep Decon poly flaps closed/maintained during the decontamination process to maintain the required minimum static pressure -0.02.

Keep all unauthorized personnel clear of the Equipment Decontamination Unit, Asbestos Dumpster and Asbestos Contractors' vehicle during the loadout of ACM waste.

Filter all waste water per Section 01563

3.03 MINOR/AMBIENT WORK, EQUIPMENT OR MATERIAL DECONTAMINATION:

- a. Minor/Ambient Work, Equipment or Material Decontamination: Require that the following procedure be used in removing equipment and double wrapped or bagged debris from the Work Area:
 1. All equipment or material is required to be sealed completely in the Work Area, use double 6 mil thick sheet poly or double asbestos 6 mil Disposal Bags prior to the Equipment/Material Decontamination process.
 2. Prepare loadout/decontamination station for ACM loadout of waste. Demarcate (controlled access) loadout wash area boundaries with Asbestos Warning Tape and Signage, relocate sealed equipment or wrapped/bagged ACM material to the wash pan with a 6 mil drop poly under the pan to collect overspray during the decontamination process. Once in wash pan, wash with an airless sprayer the wrapped/bagged ACM material and or equipment until clean. Pass cleaned waste to a 2nd. 6 mil drop poly (use appropriate drop poly size for removal activity) for holding and attachment of the Asbestos warning labels and Waste Generator Label. Hold ACM waste in this location until loadout is authorized by ERPI for transport to the on-site enclosed asbestos dumpster or transport vehicle on site. Filter waste water as per Section 01563.
 3. Workers from the building exterior can enter the loadout/decontamination station and remove decontaminated equipment and/or containers for disposal. These workers are to wear full protective clothing and wear appropriate respiratory protection. At no time is a worker from an uncontaminated area to enter the work area during the removal process without the proper PPE.



3.04 STORAGE AND TRANSPORTATION OF ACM WASTE:

- a. The transport vehicle should be able to back up directly to the clean room opening or the Equipment Decontamination/Load-out Unit. If this arrangement is impossible due to space restrictions, bagged/wrapped materials must either be transported in enclosed carts lined with 1 (one) layer of 6 mil polyethylene to the vehicle, or to an enclosed asbestos dumpster. Enclosed carts to have a 6 mil poly top cover with Asbestos Warning Signs to cover waste while transporting ACM waste from work area to on-site loadout location.
- b. Load all asbestos-containing waste material in leak-tight drums lined with one 6-mil polyethylene asbestos disposal bag, sealed with locking ring tops. All materials are to be contained in one of the following as approved by the Owner's Representative as part of the Plan of Action:
 1. Two 6-mil thick clear class 9, NA2212 Asbestos disposal bags within a locked approved enclosed asbestos dumpster, or fiberboard or steel drums, sealed with locking ring tops. Attach Asbestos Warning Labels and DOT Waste Classification Labels in accordance with 40 CFR-61.150 to outside of drums. Attach waste generator labels to bagged/wrapped ACM waste or exterior drums.
 2. All liquid waste must be solidified, using proper absorbent products, and triple-bagged with 6-mil thick clear class 9, NA2212 polyethylene asbestos disposal bags and placed in a leak-tight drums lined with one (1) six-mil polyethylene asbestos disposal bag with sealed locking ring tops for transportation to approved landfill. Contractor will be required to triple bag all asbestos containing waste when removal of ACM from the work area involves carrying waste up/down stairs (greater than one floor).
- c. Protect interior of enclosed truck or approved enclosed asbestos dumpster with Critical and Primary Barriers as described in Section 01526- "Regulated Areas". Provide a single polyethylene 6 mil on all ceilings walls and floors of trucks or approved asbestos dumpsters. Provide 6-mil polyethylene sheets in an overlapping method to create flaps at the rear entrance of the transportation vehicles and approved enclosed asbestos dumpster, post an "asbestos warning" sign on the outside flap. Do not store bagged waste material adjacent to the Work Area. Take bags from the Work Area directly to a sealed truck to be transported in sealed drums with locking ring tops or approved asbestos dumpster. No material, other than properly packaged ACM waste, shall be placed in the approved enclosed asbestos dumpster.
- d. The Contractor shall affix and maintain appropriate warning signs on all sides of the approved enclosed asbestos dumpster and it shall be properly locked. Carefully load containerized waste in fully enclosed asbestos dumpsters, trucks or other appropriate vehicles for transport. **Loadout/Loading shall occur after school/facility hours or when the building is least occupied.** Do not leave the decon/load-out unit, vehicles or approved enclosed asbestos dumpster unattended during load-out operations. Maintain presence



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until load-out operations are completed, decon/load-out unit, vehicles or approved enclosed asbestos dumpster are locked. All approved enclosed asbestos dumpsters, including transportation vehicles, shall remain locked at all times while containing ACM waste. Exercise care during storage and transport, to ensure that no unauthorized persons have access to the material. Do not transport disposal bagged materials on open trucks. Label drums with same warning labels as bags and include the name of the waste generator and the location where the waste was generated. Uncontaminated drums may be reused. If a drum appears contaminated, it shall not be reused. Treat drums, which have been contaminated, as asbestos-containing waste and dispose of in accordance with this specification.

- e. All disposal materials transported off-site shall be performed in accordance with NESHAPS (40 CFR, Part 61.150, Subpart M) and procedures properly followed to conform with the latest revisions of this rule.

Provide M-DCPS/WSR Field form with the JOF Number and Work Area locations whenever ACM material is removed from a M-DCPS/Facility. Final signed landfill WSR is required with Specific Post Job-Submittals per Section 01301.

END OF SECTION



SECTION 13283

REMEDIATION OF MOLD-CONTAMINATED MATERIALS

PART 1 - GENERAL

1.01 RELATED WORK:

- a. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

- | | | |
|----|--|----------------|
| a. | Temporary Pressure Differential System | Section 01513. |
| b. | Regulated Areas | Section 01526. |
| c. | Worker Protection | Section 01561. |
| d. | Decontamination Units/Tunnels | Section 01563. |
| e. | Project Decontamination/Other Contaminants | Section 01712. |

1.03 SUBMITTAL:

- a. Refer to Section 01301 for Submittal Requirements.

PART 2 - PRODUCTS

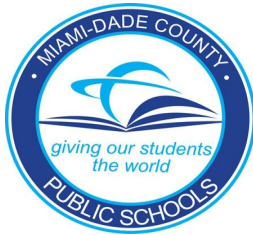
2.01 MATERIALS AND EQUIPMENT

- a. Surfactant: 50/50 mix of polyoxyethylene ester and polyoxyethylene ether, or equal.
- b. Amended Water: Provide water to which a surfactant has been added. Use a mixture of one ounce of a surfactant as specified above, mixed with five gallons of water.
- c. Anti-Microbial Paint: provide a fungicidal anti-microbial coating designed specifically for treatment of surfaces to retard and/or inhibit growth of mold. White-Foster 40-20 or equal. Clear-Foster 40-51 or equal.



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- d. Biocide: Chemical solution capable of killing mold, bacteria, and viruses, while remaining safe to human health. Bio-Cide 100 or equal.
- e. Polyethylene Sheet: Provide polyethylene sheet as specified in Section 01526.
- f. Duct Tape: Provide duct tape as specified in Section 01526.
- g. Spray Cement: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.
- h. Caulking: Provide silicone caulking for sealing edges.
- i. Disposal Bags: Provide 6-mil thick minimum, leak-tight polyethylene bags.
- j. Disposable Clothing: Clothing shall consist of coverall, head cover and foot cover. Enough personal protective equipment for workers and all Authorized Visitors.
- k. Airless Sprayer: An airless sprayer, suitable for misting the air with water, and for application of anti-microbial paint. Sprayer shall be electric or manual, equipped with a wand at the end of a hose, capable of delivering a stream, a spray, or a mist of liquid.
- l. Negative Air Filtration Units: Air filtration devices shall utilize High Efficiency Particulate Absolute (HEPA) filtration systems, 99.97% efficient to 0.3 microns particulate size. The negative air filtration unit shall be equipped with the following:
 - 1. Magnehelic gauge to monitor the unit's air pressure difference across the filters and be able to interpret magnehelic readings to cfm.
 - 2. Automatic shut off for filter failure or filter absence.
 - 3. Audible alarm with flashing red light for unit shutdown.
 - 4. Amber flashing warning light for filter loading.
 - 5. Must have safety system that prevents unit from being operated with the HEPA filter in backwards.
- m. Scaffolding: Scaffolding, as required to accomplish the specified Work, shall meet all applicable safety regulations.
- n. Vacuum Equipment: All vacuum equipment utilized in the Work Area shall utilize HEPA filtration systems which are rated 99.97% efficient to 0.3 microns particulate size.



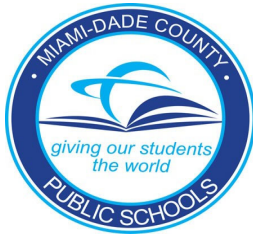
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- o. HEPA-filtered water extractor: All HEPA-vacuuming of carpeting or other fabric shall be performed using a HEPA-filtered water extractor.
- p. Other Tools and Equipment: The Contractor shall provide other suitable tools for the stripping, removal, and disposal activities including but not limited to: hand-held scrapers, squeegees, sponges, rounded edge shovels, wire brushes and carts. No brooms shall be allowable in any containment area.
- q. Contaminated Equipment: It is the Contractor's responsibility to arrive on site at the start of the job with equipment that is "asbestos free", and is "mold free" or with contamination "secured", e.g., sealed in an airtight plastic bag. The contractor's equipment surfaces **will** be inspected for surface mold contamination at the start of the job, periodically throughout, and at the end of the job. Inspection may also include the collection of surface (strip tape) samples by the Owner on any equipment that appears to be contaminated.
 - 1. Typical equipment to be inspected can include respirators, hoses, vacuums, shower units, ladders and scaffolding, shovels and scrapers, negative air machines, and vehicles (truck bed). Equipment that is difficult to decontaminate properly should be sealed in bags and not opened until the bags are placed within a work area (controlled environment).
 - 2. If equipment appears to be contaminated with asbestos/mold at the time of arrival of the contractor on the job site, the Owner may deem it unacceptable for use (refuse it entry to the job site). Contractor will be responsible for any additional costs incurred due to delays or schedule changes.

PART 3 - EXECUTION

3.01 GENERAL:

- a. These work guidelines apply to microbial remediation projects throughout Miami-Dade County Public Schools and include the removal and disposal, or the cleanup and decontamination, of microbially contaminated materials. The provisions detailed in these guidelines are intended to prevent fungi from migrating to areas outside of the work area during remediation activities.
- b. Non-porous (e.g., plaster, metals, glass, and hard plastics) and semi-porous (e.g., wood and concrete) materials that are structurally sound and are visibly moldy shall be cleaned and reused. Cleaning shall be done using a detergent solution. Porous materials such as ceiling tiles and insulation, and wallboards with more than a small area of contamination shall be removed and discarded. Porous materials with limited contamination will be reviewed by the Owner and their disposition or cleaning will be specified in the JOF. All materials identified to be reused should be dry and visibly free from mold. Owner will conduct inspections to confirm the effectiveness of remediation work.



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- c. The use of gaseous ozone or chlorine dioxide for cleaning purposes is prohibited. The Contractor shall submit Material Safety Data Sheets to the Owner for the biocide and/or detergent products to be used for mold decontamination. No product will be used until Owner acceptance is obtained.
- d. Establish work area-controlled access to prevent unauthorized entry into the Work space. The Contractor shall maintain a written log of all persons entering and exiting the Work Area, including personal protection. As required, provide additional construction barriers (fences) as needed to keep foot traffic away from work area.
- e. Erect pre-printed warning signs and warning tape around the workspace and at every point of potential entry from the outside. The warning signs shall be a bright color (NO BLACK COLOR COPIES) so that they will be easily noticeable and shall comply with requirements of Section 01526 of these Specifications.

3.02 WORKER PROTECTION:

- a. Before beginning Work with any material for which a Material Safety Data Sheet has been submitted, provide workers with the required training and protective equipment. Require that appropriate protective equipment be used at all times.
- b. Respiratory protection shall be in accordance with EPA's "Mold Remediation In Schools & Commercial Buildings" and the OSHA Respiratory Protection Standard (29 CFR 1910.134).
- c. Personnel must be trained in the handling of hazardous materials and equipped with required respirators with HEPA filter cartridges. Workers shall wear a single protective suit, gloves, eye and respiratory protection. The minimum respiratory protection shall be a ½ face respirator, N95 face mask are not acceptable.
- d. For Worker protection – Training / Medical Examinations / Fit Testing / Workers Acknowledgment requirements, reference Section 01561.

3.03 GENERAL CLEANING PROCEDURES/SURFACE CLEANING:

- a. **Surface Cleaning Work** – The Environmental Contractor will be required to perform Mold Surface Cleaning Activities on Horizontal and Vertical Surfaces as required in the JOF.
- b. When performing cleaning, begin with any loose objects and furniture, if applicable, that are to be decontaminated or removed from the area.
 - 1. The work area shall be unoccupied.
 - 2. The ERPI will monitor the remediation activities. No work shall proceed until the Inspector has reviewed the preparation of the work area and has given visual to start.



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3. Provide controlled access with zipper or double flap entrance, demarcation with warning signs and tape. Provide a 6-mil polyethylene sheet to be used as a drop-cloth on the floor at the area of work. The drop cloth shall be of sufficient size to prevent debris and overspray to contaminate the floor. Adequate Negative Air Filtration Unit(s) shall be activated immediately adjacent to the work area and maintained in operation during execution of the work. Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are required.
 4. HEPA vacuum all surfaces (horizontal and vertical) before wet-wiping all solid, impervious surfaces with a biocide for said objects as required by JOF.
 5. Objects that are fabric covered shall be thoroughly HEPA vacuumed, or discarded as un-cleanable if so designated by JOF.
 6. Items designated by the Owner's Representative as "un-cleanable" shall be single bagged or wrapped in polyethylene and duct tape, and disposed of as general construction debris.
- c. After removal of loose objects, always work from the top down, starting at ceilings, proceeding to walls and fixed objects and finishing at floor surfaces.
 - d. HEPA vacuum all surfaces prior to wiping of surfaces with a biocide solution. Start by overlapping passes across the surface until complete. Then, turn at 90° and repeat the operation. Wet mop floors using a similar procedure. Clean surfaces by wet-wiping, and using an approved biocide with clean cloth rags. Use each surface of a rag only once and then dispose of as contaminated waste. Do not perform dry dusting or dry sweeping.
 - e. When required in the JOF, provide a fungicidal anti-microbial coating designed specifically for treatment of surfaces to retard and/or inhibit growth of mold. White-Foster 40-20 or equal. Clear-Foster 40-51 or equal.
 - f. **Final Inspection Acceptance/Surface Cleaning**
 - (1) After the work area decontamination is complete, request the final acceptance inspection from the ERPI. When specified in the JOF, fog the entire work area with a biocide solution and continue negative air in work area for 24 hours. Seal all exterior doors to work areas with 6 mil poly.
 - (2) At the Owner's option, Final Air Testing maybe required to establish owner acceptance and project demobilization.

3.04 REMOVAL (MINOR):

- a. **Minor Work** - The Environmental Contractor will be required to perform Mold Remediation Activities on small isolated surface removal areas of various building components, not limited to: ceiling tiles, small spot areas on walls, bulletin boards, FF&E etc.



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1. The work area shall be unoccupied.
2. The ERPI will monitor the remediation activities. No work shall proceed until the Inspector has reviewed the preparation of the work area and has given visual to start.
3. Provide controlled access with zipper or double flap entrance, demarcation with warning signs and tape. Provide a 6-mil polyethylene sheet to be used as a drop-cloth on the floor at the area of work. The drop cloth shall be of sufficient size to prevent debris and overspray to contaminate the floor. Adequate Negative Air Filtration Unit(s) shall be activated immediately adjacent to the work area and maintained in operation during execution of the work. Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are required.
4. Removal of small sections of contaminated surfaces - Workers shall seal the contamination by placing a single layer of polyethylene sheeting over an area slightly larger than the contamination and secure it with duct tape. One worker will then cut out or remove the contaminated material beyond the duct tape while a second worker uses the nozzle of a HEPA vacuum next to the cut. The contaminated piece will be placed in a 6 mil plastic or 6 mil disposal bags for disposal.
5. If additional scope of work is discovered by concealment, workers shall immediately stop and notify ERPI of additional discovered work. The Department of Environmental Management representative will perform an assessment and advise the Environmental Contractor on how to proceed.
6. Contaminated materials that cannot be cleaned should be removed from the building in sealed 6 mil plastic or 6 mil disposal bags. There are no special requirements for the disposal of moldy materials, but all contaminated materials shall be disposed of as construction debris by the Environmental Contractor in an approved landfill. "Do not dispose remediation waste at facility on site".
7. The work area and areas used by remediation workers for egress should be cleaned with a damp cloth and/or mop and a detergent solution as required.
8. All areas should be left dry and visibly free from contamination and debris
9. Before exiting the containment, workers shall thoroughly HEPA-vacuum their protective suits, gloves, and respirators. The suits and gloves shall be removed at the decontamination wash station, while another worker holds the HEPA-vacuum nozzle near the worker removing the suit. Used suits and gloves will be immediately placed in bags for disposal. Respirators are to remain until suits and gloves are sealed within the disposal bags.



10. When required in the JOF, provide a fungicidal anti-microbial coating designed specifically for treatment of surfaces to retard and/or inhibit growth of mold. White-Foster 40-20 or equal. Clear-Foster 40-51 or equal.

b. Final Inspection Acceptance/Minor Work

- (1) After the work area decontamination is complete, request the final acceptance inspection from the ERPI. When specified in the JOF, fog the entire work area with a biocide solution and continue negative air in work area for 24 hours. Seal all exterior doors to work areas with 6 mil poly.
- (2) At the Owner's option, Final Air Testing maybe required to establish owner acceptance and project demobilization.

3.05 REMOVAL (MAJOR):

- a. Major Work** - The Environmental Contractor will be required to perform Mold Remediation Activities on Large areas or isolated surface removal areas of various building components.

1. The work area shall be unoccupied.
2. The ERPI will monitor the remediation activities. No work shall proceed until the Inspector has reviewed the preparation of the work area and has given visual to start.
3. Provide controlled access with a minimum one or two stage decontamination unit as specified in the JOF. Provide a zipper or double flap entrance, demarcation with warning signs and tape. Provide a 6-mil polyethylene sheet to be used as a drop-cloth on the floor at the area of work as required. The drop cloth shall be of sufficient size to prevent debris and overspray to contaminate the floor. A Negative Air Filtration Unit shall be activated immediately adjacent to the work area and maintained in operation during execution of the work. Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are required.

(a) Construction of Barriers

- (1) Care must be taken not to disturb gypsum board or vinyl wall covering of exterior or interior microbially-contaminated walls while isolating work areas, to prevent the release of fungal spores.
- (2) Ventilation ductwork and AHU's undergoing insulation removal work must be isolated from other sections of ventilation



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ductwork by the use of airtight barriers within the interior cross-sectional area of the ductwork. Isolation barriers shall be a minimum of one layers of 6-mil polyethylene sheeting or equivalent barrier system.

- (3) Workers shall wear PPE with respirators when installing isolation barriers if microbially contaminated surfaces (microbially contaminated perimeter walls, water-damaged ceiling tiles, any surface with visible settled dusts) are likely to be disturbed. Full exhaust shall be in operation if disturbance is likely.

(b) **Gypsum Wallboard**

- (1) Gypsum board with attached vinyl wall coverings should be taken down intact, leaving the vinyl wall covering attached to the gypsum board, and cutting out both materials as one piece to reduce the amount of spores released during demolition. All gypsum board and drywall screws shall be removed with care without damaging metal studs or metal furring. Note that one entire side of all contaminated partitions may require removal (even if contamination does not extend the full height of the partition) to allow adequate cleaning of wall cavity surfaces.
 - (2) Workers shall wrap manageable sections of contaminated gypsum board in one layer of 6-mil polyethylene sheeting securely taped to form an airtight seal. Debris and small pieces shall be placed in single 6-mil polyethylene bags.
 - (3) Painted gypsum board shall be removed according to these procedures. When wallboard contamination extends through to both surfaces, seal the exterior surface with approved removal encapsulant or with polyethylene sheeting, prior to removal.
 - (4) Remove and bag all porous insulation found in the contaminated wall cavities, such as fiberglass batt insulation or polystyrene bead board, prior to cleanup of the wall cavity.
- (c) **Wood:** All fungal-contaminated wood, if discovered during demolition, shall be removed and double-wrapped in 6-mil polyethylene at the direction of the Owner.



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- (d) **Carpeting:** Carpeting shall be removed, cut, and rolled in manageable sections and wrapped in one layer of 6-mil polyethylene sheeting. The wrapping shall be securely taped and HEPA-vacuumed before it is removed from the containment area.
- (e) **Contaminated materials** that cannot be cleaned should be removed from the building in sealed plastic bags or wrapped poly. The outside of the bags should be cleaned with a damp cloth and a detergent solution or HEPA vacuumed in the decontamination chamber prior to their transport to uncontaminated areas of the building. There are no special requirements for the disposal of moldy materials, but all remediation debris shall be disposed as construction debris in an approved landfill.
- (f) **The contaminated area** and decontamination room should be HEPA vacuumed and cleaned with a damp cloth and/or mop with a detergent solution and be visibly clean prior to air clearance and the removal of isolation barriers.
- (g) **Ceiling Panels** regardless of extent of area of contamination, removal of moldy, lay-in ceiling panels shall be performed in accordance with the following procedures: Provide a drop cloth below the area of ceiling tiles to be removed. Drop cloth shall be of sufficient size to contain debris dropping from the ceiling removal area.
 - (1) Provide a negative air filtration unit immediately adjacent to the removal area.
 - (2) Visually contaminated or water-stained ceiling panels (tiles) shall be taken down intact and placed immediately in 6-mil polyethylene bags.
 - (3) HEPA vacuum and wet wipe the remaining ceiling suspension grid components from which the panels were removed. Use a detergent solution or approved biocide.
 - (4) Upon completion of removal in one area, pick up drop cloth and dispose in 6-mil. poly bag. HEPA vacuum floor below the drop cloth and mop with detergent solution.
 - (5) Repeat procedures at each ceiling removal area.
 - (6) Wet wipe impervious surfaces with visible mold growth using a detergent solution or approved biocide/fungicide. Work from top to bottom, using each side of rag only once. Discard rag after using both sides.



- (7) After cleaning, there shall be no visible mold growth on the surfaces.
- (h) When required in the JOF, provide a fungicidal anti-microbial coating designed specifically for treatment of surfaces to retard and/or inhibit growth of mold. White-Foster 40-20 or equal. Clear-Foster 40-51 or equal.

4. **Final Inspection Acceptance/Major Work**

- (1) After the work area decontamination is complete, request the final acceptance inspection from the ERPI. When specified in the JOF, fog the entire work area with a biocide solution and continue negative air in work area for 24 hours. Seal all exterior doors to work areas with 6 mil poly.
- (2) At the Owner's option, Final Air Testing maybe required to establish owner acceptance and project demobilization

END OF SECTION



SECTION 15890

DUCT WORK - DUCT CLEANING

PART 1 - GENERAL

1.01 RELATED WORK:

- A. The General Provisions of the Contract, including the General and Supplementary Conditions, and all forms and documents of Division O and the Appendices, apply to the work of this section.
- B. Related Work Specified Elsewhere:
 - 1. Additional Services - Duct Cleaning Section 01013

1.02 SUMMARY

- A. This section specifies criteria for HVAC Ductwork, and applies when performing Additional Services for Duct Cleaning. The cutting of access openings in existing ductwork, the installation of new access doors to re-seal said openings, and the installation of flexible insulated ducts to replace existing contaminated flexible ducts shall all comply with the provisions of this section.

1.03 REFERENCES

- A. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA), latest edition:
 - 1. HVAC Duct Construction Standards (Metal and Flexible).
 - 2. High Velocity Duct Construction Standards.
- B. National Fire Protection Association (NFPA):
 - 1. NFPA 45 Standard on Fire Protection for Laboratories Using Chemicals.
 - 2. NFPA 90A Standard for the Installation of Air-conditioning and Ventilating Systems of Other than Residence Type.
- C. American Society of Heating, Refrigerating, and Air-conditioning Engineers, Inc. (ASHRAE) 62 - Ventilation for Acceptable Indoor Air Quality.



1.04 SYSTEM DESCRIPTION

- A. Provide double walled ducts with interior insulation for the first 15 feet from an AHU to provide for sound attenuation.
- B. All ductwork shall be sealed to comply with SMACNA:
 - 1. Seal Class A.
 - 2. Leakage Class 6 for rectangular ducts.
 - 3. Leakage Class 3 for round and oval ducts.
- C. Use of fiberglass or components containing coated or exposed fiberglass within airstreams is prohibited.

PRODUCTS

2.01 MANUFACTURERS

- A. Flexible: Genflex or Flexible Technologies
- B. Ductwork and Fittings:
 - 1. Metalaire.
 - 2. Semco.
 - 3. Spiramatic.
 - 4. United Sheet Metal
- C. Medium Pressure Ductwork Adhesive Sealing Compound:
 - 1. Benjamin Foster #30-02.
 - 2. 3M Hardcast

2.02 MATERIALS

- A. Ductwork and patches shall be fabricated and installed according to the SMACNA Standards, except as shown on drawings or specified.
- B. Ductwork shall have manufacturer's gage stamp intact.



2.03 LOW PRESSURE DUCTWORK

- A. Includes ductwork from low pressure air handlers, exhaust, and outside and return air ductwork. Velocities shall not exceed 1,300 fpm and static pressures not to exceed 2 inches WG.
- B. Provide galvanized steel ductwork and/or duct patches, designed, constructed, installed and tested according SMACNA - "HVAC Duct Construction Standards" and as shown on drawings. Ductwork to have manufacturer's gage stamp. Provide cross-breaking or beading to prevent flexing, but do not reduce gage of metal below that required for flat ductwork sheets.
- C. Provide galvanized steel saddles at points of support.
- D. The following ductwork and plenums shall be insulated, unless noted otherwise.
 - 1. Return air ductwork in non-conditioned spaces, including mechanical rooms and space above ceilings.
 - 2. Return air transfer boots.
 - 3. Return/outside air plenums at airhandlers.
- E. Plenums:
 - 1. Galvanized steel with the largest dimension of 30 inches and larger shall be 18 gauge.
 - 2. Plenums shall be constructed, designed, installed, and tested according to SMACNA as specified. Joints shall be angle reinforced pocket type. Provide fully gasketed joints between plenums and filter sections.
 - 3. Provide plenum access doors where indicated on drawings. Doors shall be constructed according to Figure 6-12 of SMACNA - HVAC Duct Construction Standards.



F. Flexible Insulated Ductwork:

1. Lightweight duct, core of corrosion resistant reinforcing wire helix permanently bonded within fabric, insulated with 1-1/2" thick, 3/4 lb. density fiberglass flexible insulation and covered with a vapor barrier of aluminum metalized polyester film laminated to glass mesh, elastomer back coated. Duct shall meet NFPA 90A requirements and be listed as Class 1 Air Duct Material, UL 181.
2. Manufacturers:
 - a. Atco Rubber Products.
 - b. Genflex.
 - c. Thermaflex II.
 - d. Venture Type VTKC.
 - e. Wiremold Co.

G. Ductwork and splitter dampers within the ductwork shall be made of the same material.

H. Turning vanes shall be provided in square elbows and shall be of same material as the ductwork. Turning vanes shall be of airfoil type, double thickness factory fabricated.

I. Filter Sections (Air Handlers): Filter section casing shall be constructed of mill galvanized steel of 18 gauge. Casing shall be sized to house filters indicated on drawings.

2.04 MEDIUM PRESSURE DUCTWORK

A. Includes ductwork from discharge of medium pressure air handlers up to and including flexible ductwork connection to medium pressure variable air volume boxes. Velocities above 2000 fpm and static pressures above 2 inches WG.

B. Provide galvanized steel ductwork, designed, constructed, installed and tested according to latest edition of SMACNA "HVAC Duct Construction Standards" and as shown on drawings. Ductwork shall have manufacturer's gage stamp.

C. Ductwork and Fittings:

1. Round and oval ductwork shall be factory fabricated spiral type. Take offs shall be conical, 90 degrees except where 45 degree conicals are indicated on plans. Ninety degree elbows shall be constructed of not less than 5 sections. Laterals also to be conical. Oval duct reinforcing shall be by exterior stiffener angles on flat surface restrained by rods or angle sections; stiffener spacing to be based on 6 inches WG. Ductwork and fittings shall be the product of 1 manufacturer.



M-DCPS - Technical Specifications
15890-G-ENV/TB-2021-GR/N-C-S

2. Rectangular medium pressure ductwork shall be fabricated and installed per SMACNA "High Velocity Duct Construction Standards." Joints shall be sealed and reinforced, and seams and corners shall be sealed with sealant and angles as required for airtightness. Welded construction shall be as required for pressure classification of each system. Turning vanes shall be factory fabricated double thickness airfoil type.
- D. Flexible ducts at variable air volume boxes shall be of high pressure type, 4 feet long (maximum). Core and insulation shall be as specified.

PART 3 - EXECUTION

3.01 GENERAL

- A. Install low and medium velocity ductwork as shown on drawings. 90 degree bends shall not be made in medium pressure flexible ducts.
- B. Before systems are tested and balanced, ducts shall be thoroughly cleaned and blown out.
- C. Where interferences arise during construction, make transition or division of ductwork on basis of pressure drop equivalent to original size. Obtain approval from A/E before fabrication.

3.02 INSTALLATION

- A. Install ductwork materials and accessories according to the latest edition of SMACNA Low Velocity Duct Construction Standards as specified. These written specifications shall take precedence in case of conflict.

3.03 LOW PRESSURE DUCTWORK

- A. Seams and joints in ductwork shall be made airtight. Seal duct joints with sealer as specified for field sealing of high pressure ductwork. Make exhaust ducts passing through return air chases airtight.
- B. Flexible ductwork shall be installed in sizes to match diffuser necks. Duct length shall be not less than 5 feet and no longer than 7 feet. Duct shall be adequately supported to prevent kinks and sharp bends. Install according to manufacturer's recommendations.

3.04 MEDIUM PRESSURE DUCTWORK

- A. Seal medium pressure ductwork seams, joints, connections, rivets, and screw



M-DCPS - Technical Specifications
15890-G-ENV/TB-2021-GR/N-C-S

heads well with an adhesive sealing compound of synthetic rubber type. Adhesive sealer shall be UL listed conforming with NFPA 90A. The entire system shall be airtight.

- B. Sharp metal edges are not allowed to extend into air stream. Air inlet collars on VAV boxes shall conform to and be flush with flexible tubing or other inlet conditions. Duct joints shall be lapped in direction of airflow.
- C. Sealing Duct Joints: Shop procedure for sealing high pressure duct joints is as follows:
 - 1. Before fittings and joints are assembled, apply sealer to rivets, groove seams, and tap off collars on internal side of metal. Pittsburgh lock pocket must be flooded with sealer, and duct assembled.
 - 2. Brush sealer around reinforcing rod washers, corners, rivets, notches, and tap-off collars after ducts are assembled.
 - 3. Coat inside of connecting joint and duct surface with sealers, where possible, sealing on inside of ductwork.
- D. Field procedure for sealing duct joints is as follows:
 - 1. Spread sealer on inside of joints of duct to be assembled. Immediately after joints are assembled, apply sealer around outside of joints.
 - 2. After 24 hours, spread a second coat of sealer over joints and allow to dry for 24 hours before testing.
 - 3. Where joints are not accessible for proper sealing, cut hand holes in duct and seal joints from inside. Take special care to seal all duct corners.
 - 4. When testing ducts for leaks, mark leaks and reseal without pressure in duct and allow to dry for 24 hours.

3.05 DUCTWORK SUPPORTS AND HANGERS

- A. Provide support and hangers according to SMACNA HVAC Duct Construction Standards.
- B. Hangers shall be galvanized steel hung from inserts or clip angles secured to structure with expansion bolts in shear or tension as follows:



M-DCPS - Technical Specifications
15890-G-ENV/TB-2021-GR/N-C-S

1. Roof Slab: In tension.
2. Structural Beams: In shear, 12 inches minimum from bottom of beam.
3. Joists: Use existing forming bolts openings only. Hangers shall be bent under ductwork at least 2 inches. Hangers for ducts over 48 inches wide shall be secured to bottom and sides of duct.

3.06 DUCT PENETRATIONS TO FLOOR AND FIRE WALLS

- A. Joints around duct penetrations shall be packed with fire rating insulation and sealed with fire and smoke barrier caulk as specified in Section 07270, Firestopping and Fire and Smoke Barrier Caulking.

END OF SECTION

EMERGENCY TELEPHONE NUMBERS



Date: _____

School/ Facility _____ JOF# _____

In case of an Emergency, call 911. For non-life threatening Emergencies, contact the appropriate project related personnel listed below. In addition, the emergency telephone numbers of other vital agencies are listed as shown. All key personnel should have a filled-out copy of this form and a copy should be posted at the job site.

	Business	Mobile
Contractor's Project Manager: _____	_____	_____
Contractor's Superintendent: _____	_____	_____
_____	<u>(305) 995-4595</u>	_____
MDCPS Environmental Remediation Project Inspector		

OTHER EMERGENCY TELEPHONE NUMBERS

OSHA REPRESENTATIVE.....	_____
FIRE (Local)	_____
AMBULANCE.....	_____
EMERGENCY MEDICAL	_____
POLICE (Local)	_____
GAS COMPANY.....	_____
ELECTRICCOMPANY.....	_____
WATER COMPANY.....	_____
TELEPHONE COMPANY	_____
INSURANCE CARRIER.....	_____
OTHER.....	_____

ETN(TB-2021)

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT



SCHOOL/ FACILITY: _____ **DATE:** _____

CONTRACTOR: _____ **JOF#:** _____

EMPLOYEE: _____

DRIVERS LICENSE #: _____ **or JLA- ID Badge #:** _____

WORKING WITH ASBESTOS OR OTHER ENVIRONMENTAL HAZARDS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PERSON.
PROJECT TYPE: _____ **ASBESTOS** _____ **MOLD** _____ **OTHER:** _____

Your employer's contract with the Owner for the above project requires that: You will be supplied with the proper respirator and be trained in its use. You will be trained in safe work practices and in the use of the equipment found on the job. You will receive a medical examination. These things are to have been done at no cost to you.

RESPIRATORY PROTECTION: I have been trained in the proper use of respirators, and informed of the type respirator to be used on the above referenced project. I have a copy of the written respiratory protection manual issued by my employer. **I have been equipped at no cost with the respirator to be used on the above project. I have been Fit Tested within the past twelve (12) months.**

TRAINING COURSES: I have been trained on the above referenced Environmental project type. I have also completed an asbestos training course of not less than four days. I have been trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. The topics covered in the course included the following:

- Physical characteristics of asbestos and Health hazards associated with asbestos Respiratory protection
- Use of personal protective equipment
- Pressure Differential Systems
- Work practices including hands-on or on-the-job training
- Personal decontamination procedures
- Air monitoring, personal and area
- Physical effects of smoking cigarettes and breathing asbestos fibers

MEDICAL EXAMINATION: I have had a medical examination within the past 12 months which was paid for by my employer. This examination included: health history, pulmonary function tests and may have included an evaluation of a chest x-ray. My employer has provided me an opportunity to attend a stop smoking clinic at no cost.

By signing this document you are acknowledging only that the Owner of the building you are about to work in has advised you through this document of your rights to training and protection relative to your employer, the Contractor.

Printed Name: _____

Employee Signature: _____ **DATE:** _____

Contractor Signature (Witness): _____ **DATE:** _____

The logo of Miami-Dade County Public Schools is a circular emblem. It features a blue outer ring with the text "MIAMI-DADE COUNTY" at the top and "PUBLIC SCHOOLS" at the bottom, separated by two small white dots. In the center of the circle is a stylized graphic of an open book with a blue and white sail-like shape rising from its pages. Below the book, the tagline "giving our students the world" is written in a blue, lowercase, sans-serif font.

JOF#: _____

ENTER WORKER INFORMATION:

NAME

WORKER
ACKNOWLEDGMENT
(DATE)

MEDICAL
(ANNUAL)

AHERA
CERTIFICATE
(ANNUAL)

FIT
TEST
(ANNUAL)

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.



**MIAMI-DADE COUNTY PUBLIC SCHOOLS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**

GENERAL ENVIRONMENTAL REMEDIATIONS

JOB ORDER FORM

Control # DRAFT

JOF: DRAFT-2021-GR- N-C-S

1. FACILITY INFORMATION

Loc. # DRAFT
Site: DRAFT
Address: ,
Phone:
Principal:
Area/Reg.:
Built: 0
Size:
Floors: 1
Use: DRAFT
Designer: *
JOF Returned:
DERM Notice
Req.:
DERM Fee: \$0
NTC Date:
Mgt Plan
Closeout:
File Surrender:

2. PROJECT INFORMATION

Contract: *
Region: *
Env. Contractor:
Contact:
Initiator:
Reason for Removal:
Cause for Remediation
Maint. Contact:
Lab:
E.R.P.I.:
JOF Creation Date:
JOF Issue Date:
JOF Revised Date:
JOF Completed:
JOF Initial Cost: \$0.00
JOF Final Cost: \$0.00
Remediation of: *

Est. Hourly: 0
Act. Hourly: 0
Est. Proj. Duration (days): 0
Act. Proj. Duration (days): 0

Mr. James E. Munger, Supervisor II

**MIAMI-DADE COUNTY PUBLIC SCHOOLS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**

JOB ORDER FORM (JOF) PART 1
Section 3

3. SCOPE OF WORK:

SCOPE SUMMARY	LOCATION	QUANTITY SF/LF	% ASBESTOS

NOTE:

**MIAMI-DADE COUNTY PUBLIC SCHOOLS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**

JOB ORDER FORM (JOF) PART 1

Section 4

4. SPECIFIC JOF REQUIREMENTS OR PROCEDURES ARE AS FOLLOWS:

All work must be coordinated through Mr. James Valentine, Environmental Coordinator from this Department, and the Environmental Remediation Project Inspector (ERPI). This JOF is a contractual document, and not a Notice To Commence (NTC). A Notice to Commence will be issued by separate cover.

**MIAMI-DADE COUNTY PUBLIC SCHOOLS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**

JOB ORDER FORM (JOF) PART 1

Section 6

TO THE OWNER:

- a. The total price for this JOF, under the present scope of work, verified by field visit, will be \$ _____. If this amount differs from the total above, I have included itemized price adjustments in JOF Part II, submitted herewith.
- b. No further price changes will be requested unless unforeseen hidden work is discovered, or additional work is requested by the Owner, after start of the Work.
- c. The following list identifies Subcontractors to be used for this work and indicates the anticipated value of their respective work.

SUBCONTRACTOR

TRADE

M/WBE CERTIFICATE

\$ VALUE OF WORK

CONTRACTOR ACCEPTANCE:

Contractor: _____
NAME & TITLE

Date: _____

OWNER'S ACCEPTANCE:

Owner: _____
M-DCPS ENVIRONMENTAL COORDINATOR

Date: _____

Owner: _____
M-DCPS DEPARTMENT OF ENVIRONMENTAL, SUPERVISOR

Date: _____

**MIAMI-DADE COUNTY PUBLIC SCHOOLS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**

**JOB ORDER FORM (JOF) FINAL CLOSEOUT CERTIFICATE
SECTION 7**

CONTRACTOR'S CERTIFICATE OF COMPLETION

I, _____, Environmental Remediations Contractor for Contract No: ITB-21-052-PM - G-ENV/TB-2021-GR/N-C-S
Full Name of Principal or Qualifier

_____, hereby certify the following:
Full Name of Firm

a. All materials listed in the JOF have been abated and properly disposed of:

a. _____ Initials _____ Date

b. Waste Shipment Records completed and submitted with Post-Job Submittals:

b. _____ Initials _____ Date

c. All punch list items have been completed and all building services have been fully restored to the original condition:

c. _____ Initials _____ Date

d. Enclosed herewith, the Contractor submits Final Project Documents, in accordance with Section 01718 of the Contract Specifications. Also enclosed, or previously submitted, are the Final Payment Requisition and Final Release(s) of Lien.

All cost have been identified and assessed and no additional changes are required to project price.

d. _____ Initials _____ Date

Therefore, the Contractor hereby request Final Release of Retainage. _____
Signature of Principal or Qualifier

**MIAMI-DADE COUNTY PUBLIC SCHOOLS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**

**JOB ORDER FORM (JOF) CLOSEOUT VERIFICATION & ACCEPTANCE
SECTION 8**

ENVIROMENTAL REMEDIATION PROJECT INSPECTOR'S (ERPI) CLOSEOUT VERIFICATION

The Environmental Remediation Project Inspector, in accordance with the Contract provisions and based upon on-site observations, hereby verifies that the Work is complete including all Punch list items, that all required Project Submittals and Project Closeout Documents have been submitted and accepted, and that the Contractor's Request for Final Release of Retainage is acceptable.

Signature of Project Inspector (ERPI)

Project Closeout Date

ENVIROMENTAL PROJECT DESIGNER CLOSEOUT VERIFICATION

The Environmental Project Designer, verifies the above Scope of Work and Unit price items shown in the JOF-Cost Itemization, accurately reflect the Final total scope and value of the Work for this project.

Signature of Project Designer

Project Closeout Date

ENVIRONMENTAL COORDINATOR'S REVIEW & ACCEPTANCE

The Environmental Coordinator hereby acknowledges review of all Project Submittals, Project Accounting, and Project Closeout Documents and acceptance of Environmental Remediation Project Inspector's Verification. The Contractor's Request for Final Release of Retainage is hereby accepted.

Signature of Environmental Coordinator

Acceptance Date

**MIAMI-DADE COUNTY PUBLIC SCHOOLS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**

JOB ORDER FORM (JOF) PART II

Section 9

1. PROJECT INFORMATION

FACILITY: _____

LOCATION NO: _____

JOF NUMBER: _____

CONTRACT NO: ITB-21-052-PM

CONTRACTOR: _____

2. PRICE ADJUSTMENTS:

The following items delineate discrepancies in quantities, complexity, or procedures, resulting in differences in price, that the Contractor has found to differ from the scope and price outlined in Part I of the JOF. These cost items are hereby submitted for consideration and, if accepted, for revision of the JOF scope and price. No further price changes will be requested unless unforeseen hidden work is discovered, or additional work is requested by the Owner, after start of the Work.

<u>WORK SCOPE AND/OR ITEM</u>	<u>PRICE</u>	<u>MULTIPLIER</u>	<u>QUANTITY</u>	<u>TOTAL PRICE</u>
-------------------------------	--------------	-------------------	-----------------	--------------------

3. CONTRACTOR CERTIFICATION:

The above scope and/or price adjustments, together with the scope and price items shown in the JOF-Part I, accurately reflect the total scope and value of the Work for this project and will be performed in accordance with the contract documents and applicable regulations.

SUBMITTED BY: _____
Name & Title

Date



Superintendent of Schools
Dr. Jose L. Dotres

Miami-Dade County School Board
Perla Tabares Hantman, Chair
Dr. Steve Gallon III, Vice Chair
Lucia Baez-Geller
Dr. Dorothy Bendross-Mindingall
Christi Fraga
Dr. Lubby Navarro
Dr. Marta Pérez
Mari Tere Rojas
Luisa Santos

DATE ISSUED

NOTICE TO COMMENCE

FACILITY:	DRAFT	CONTRACT #:	ITB-21-052-PM
JOF #:	DRAFT	REG:	VENDOR:
JOF TOTAL:		CONTACT PERSON:	
START DATE:		INSPECTOR:	
EST COMPLETION DATE:		PROJECT TYPE:	G-ENV/TB-2021-GR/N-C-S
PROJECT DURATION:			

In accordance with the General Conditions for the General Environmental Remediation Services Contract Number ITB-21-052-PM, you may commence the work referenced above on _____. It is your responsibility to submit the required DERM notification, documentation, fees and/or RER Surcharge to Miami-Dade County Department of Regulatory and Economic Resources and comply with all regulatory requirements to perform the work detailed on the Job Order Form.

Prior to the commencement of work for this JOF DRAFT _____.
“If required”, submit the Ten Day DERM notice with Stamped Copy or Return Receipt (mail) Copy to Department of Environmental Management. As required in ITB-21-052-PM, Section 01301-5, 3.01 b. Specific Pre-Job Submittals.

No changes or revisions to the Scope of Work as detailed in the JOF will be accepted without the prior authorization of the Owner. Final payment will be contingent upon verification of completion of all work, punch list items, and delivery of all project submittals including closeout documents and lien wavers.

Department of Environmental Management

REQUEST FOR FINAL AIR CLEARANCE TESTING



SCHOOL/FACILITY: _____ JOF#: _____

CONTRACTOR: _____ WORK AREA: _____

CONTRACTOR'S
SUPERVISOR: _____ DATE OF REQUEST: _____

REQUESTED DATE: _____ REQUESTED INSPECTION TIME: _____

CONTRACTOR'S CERTIFICATION FOR ASBESTOS FINAL VISUAL INSPECTION AND TESTING

In accordance with the project documents, the Contractor hereby certifies that he has completed all Specified removal, required cleaning, removal of waste from work area, and has visually inspected the Work Area @!! surfaces including pipes, beams, ledges, walls, ceiling and floor, Decontamination Unit, sheet plastic, etc.) and has found no dust, debris, or residue. The Contractor hereby requests Final Visual Inspections and Final Air Clearance Testing.

by:(Signature) _____ Date: _____

(Print Name) _____ (Print Title) _____

OWNER'S REPRESENTATIVE'S FINAL VISUAL INSPECTION

The Owner's Representative hereby certifies that he has accompanied the Contractor on the Final Visual Inspection and verifies that this inspection has been thorough, and no visual evidence of contamination was noted.

_____ ACCEPTABLE _____ NON-ACCEPTABLE

by: (Signature) _____ Date: _____

(Print Name) _____ (Print Title) ERPI

_____ The Contractor is approved to encapsulate the Work Area.

The following Final Air Test has been scheduled:

() TEM PUMPS () PCM PUMPS

DATE/TIME: _____/_____

TESTING LABORATORY: _____

WORK AREA CLEARANCE CERTIFICATION



SCHOOL/FACILITY: _____ JOF#: _____

ASBESTOS CONTRACTOR: _____

OWNER: **Miami-Dade County Public Schools / Department of Environmental Management**

ENVIRONMENTAL REMEDIATION PROJECT INSPECTOR (ERPI): _____

WORK AREA(s): _____

Testing Laboratory Certification

The Owner's Air Testing Laboratory: _____, hereby certifies that all air samples have been collected by trained staff and analyzed by: _____, in accordance with Federal regulations, and the M-DCPS General Term Bid Technical Specifications and _____ **are equal**, _____ **are not equal** to the Clearance Level as defined in Section 01714, Work Area Clearance.

Testing Methodology: PCM _____ TEM _____ Number of Pumps _____

Certified by (Testing Laboratory): _____

By: (Signature) _____ **Date:** _____

(Print Name) _____

(Print Title) _____

_____ **Results Emailed to Department of Environmental Management (ERPI) on:** _____
Date

Department of Environmental Management Use Only (Work Area Clearance Notification to Asbestos Contractor)

_____ Work area has **PASSED** the required Final Air Testing, the Environmental Remediation Project Inspector, hereby authorizes removal of containment enclosures for the work area(s) specified on this Work Area Clearance Authorization Form.

_____, Work area has **FAILED** the required Final Testing, repeat the Final Cleaning and required decontamination procedures and request a new Final Visual Inspection and Final Air Clearance Testing.

By: (Signature) _____ **Date:** _____

(Print Name) _____

(Print Title) **ENVIRONMENTAL REMEDIATION PROJECT INSPECTOR**

_____ **Results Emailed to the Asbestos Contractor with a copy of the Laboratory results on:** _____
Date

PROJECT COMPLETION



SCHOOL/FACILITY: _____ JOF#: _____

CONTRACTOR: _____ INSPECTOR (ERPI): _____

CONTRACTOR'S
SUPERVISOR: _____ CLEARANCE RESULTS: _____
DATE

SUBSTANTIAL COMPLETION: _____ DATE
AIR TEST LAB: _____

The Environmental Contractors Representative (On Site Supervisor) has completed the required scope of work listed in the JOF and request authorization to remove all equipment and demobilize.

The Project will not be considered completed until all Punch-List Items if applicable, are completed.

WORK AREA(S)

PUNCH LIST: ____ YES ____ NO

PUNCH LIST COMPLETION DATE

C. SUPERVISOR SIGNATURE & DATE

PUNCH LIST ITEMS:

The contractor has 14 days per work area(s) from the substantial completion date to restore all services and surfaces of all building systems to their original condition.

Upon completion of punch list items, the contractor is required to notify the Inspector (ERPI) for the final acceptance inspection of the work area(s) within the specified time.

For the total release of project retainage amounts, the contractor must complete the Final Closeout Certificate and submit the required Final Project Documents.

CONTRACTOR SUPERVISOR

DATE

INSPECTOR (ERPI)

DATE

The logo of Miami-Dade County Public Schools is a circular emblem. The outer ring is blue with the text "MIAMI-DADE COUNTY" at the top and "PUBLIC SCHOOLS" at the bottom, separated by two small white dots. The center of the logo features a stylized blue and white graphic of an open book with a sailboat's sail rising from its pages. Below this graphic, the tagline "giving our students the world" is written in a blue, sans-serif font.

CONTRACTOR'S
SUPERVISOR: _____ DUMPSTER #: _____ / _____ of _____

[illegible]



WASTE SHIPMENT RECORD

GENERATOR

1. FACILITY NAME: _____ JOF#: _____

OWNER'S NAME: The School Board of Miami-Dade County, Florida - Department of Environmental Management
12525 NW 28TH AVE. MIAMI, FLORIDA 33167 **PHONE NO: 305/995-4595**

2. OPERATOR'S NAME AND ADDRESS: _____ PHONE NO: _____

3. WASTE DISPOSAL SITE (WDS): _____ PHONE NO: _____

4. NAME AND ADDRESS OF RESPONSIBLE AGENCY: _____ PHONE NO: _____

5. DESCRIPTION OF MATERIALS	6. CONTAINERS/ NO./TYPE	7. TOTAL QTY./ M3 (YD .3)
_____	_____	_____
_____	_____	_____
_____	_____	_____

8. SPECIAL HANDLING INSTRUCTIONS AND ADDITIONAL INFORMATION: _____

9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

_____	_____	_____
Printed/Typed Name/Title	Signature	Date

TRANSPORTER

10. **TRANSPORTER 1:** (ACKNOWLEDGES RECEIPT OF MATERIALS)

_____	_____	_____
Printed/Typed Name/Title	Signature	Date

11. **TRANSPORTER 2:** (ACKNOWLEDGES RECEIPT OF MATERIALS)

_____	_____	_____
Printed/Typed Name/Title	Signature	Date
_____	_____	_____
Address	Phone Number	Date

DISPOSAL SITE

12. DISCREPANCY INDICATION SPACE: _____

13. WASTE DISPOSAL SITE OWNER OR OPERATOR: I HEREBY ACKNOWLEDGE RECEIPT OF ALL MATERIALS AS LISTED HEREIN, WITH THE EXCEPTION OF ANY DISCREPANCY NOTED ABOVE IN ITEM 12.

_____	_____	_____
Printed/Typed Name/Title	Signature	Date

PUNCH LIST



SCHOOL/FACILITY: _____ JOF#: _____

CONTRACTOR: _____ INSPECTOR (ERPI): _____

CONTRACTOR'S SUPERVISOR: _____ PUNCH LIST CREATED: _____
DATE

SUBSTANTIAL COMPLETION: _____ PUNCH LIST FINISH: _____
DATE DATE

ITEM	LOCATION / CORRECTIONS NEEDED	COMPLETED Y/N
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
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_____	_____	_____
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_____	_____	_____
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_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____



NOTIFICATION OF NONCOMPLIANCE

NOTIFICATION ISSUED TO: _____ DATE: _____
Environmental Contractor

SCHOOL/FACILITY: _____ JOF#: _____

CONTRACTOR'S

SUPERVISOR: _____ INSPECTOR (ERPI): _____

DESCRIPTION OF NON-COMPLIANCE

DATE OF NON-COMPLIANCE: _____ TIME: _____ Work Area(s): _____

DESCRIPTION OF NON-COMPLIANCE

☐ **JOB SITE RECORDS:** __ DERM current Notice, __ DERM Notice Posted, __ Workers Acknowledgement, __ Worker Training Certificates(valid), __ OSHA Medical Clearance (PWO), __ Fit Test (respirator), __ JLA Clearance/Name Tag

☐ **WORKER PROTECTION:** __ Personal Air Samples, __ Respiratory Protection, __ Disposal Coveralls (goggles, gloves, footwear covers-boots, hard hat)
__ Improper Worker Decontamination – (Dry or Wet)

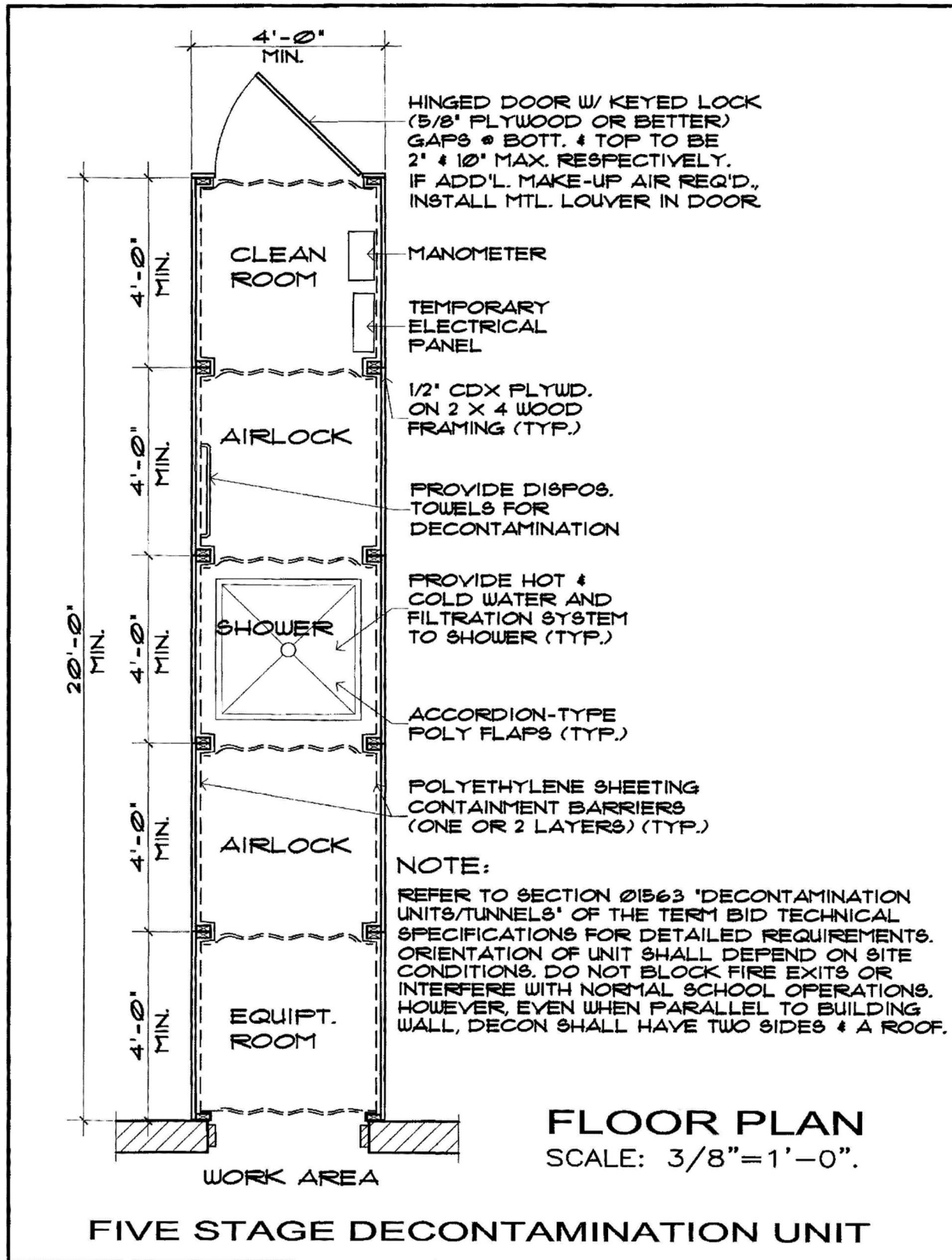
☐ **WORK AREAS:** __ Warning Signs/Barricade Tape, __ Electrical Temporary Panel (GFI) & (electric cords), __ Decontamination Unit or Wash Pad __ Decon/Lock and Key Access
__ Manometer (Min-0.02) __ Shower (W/Hot-Cold Water) (Soap/Disposal Towels) __ Filter Shower Water 2 Stage (20 Micron to 5 Micron), __ Load-Out/Wash Pan __ Fire Extinguishers __ Ladders/Scaffolding, __ Containment Barriers (6-mil) Friable 2 Layers - Non Friable 1 Layer
__ Critical Seals (6-mil) interior/exterior, __ Wash Bucket (5 gal) with water & towels

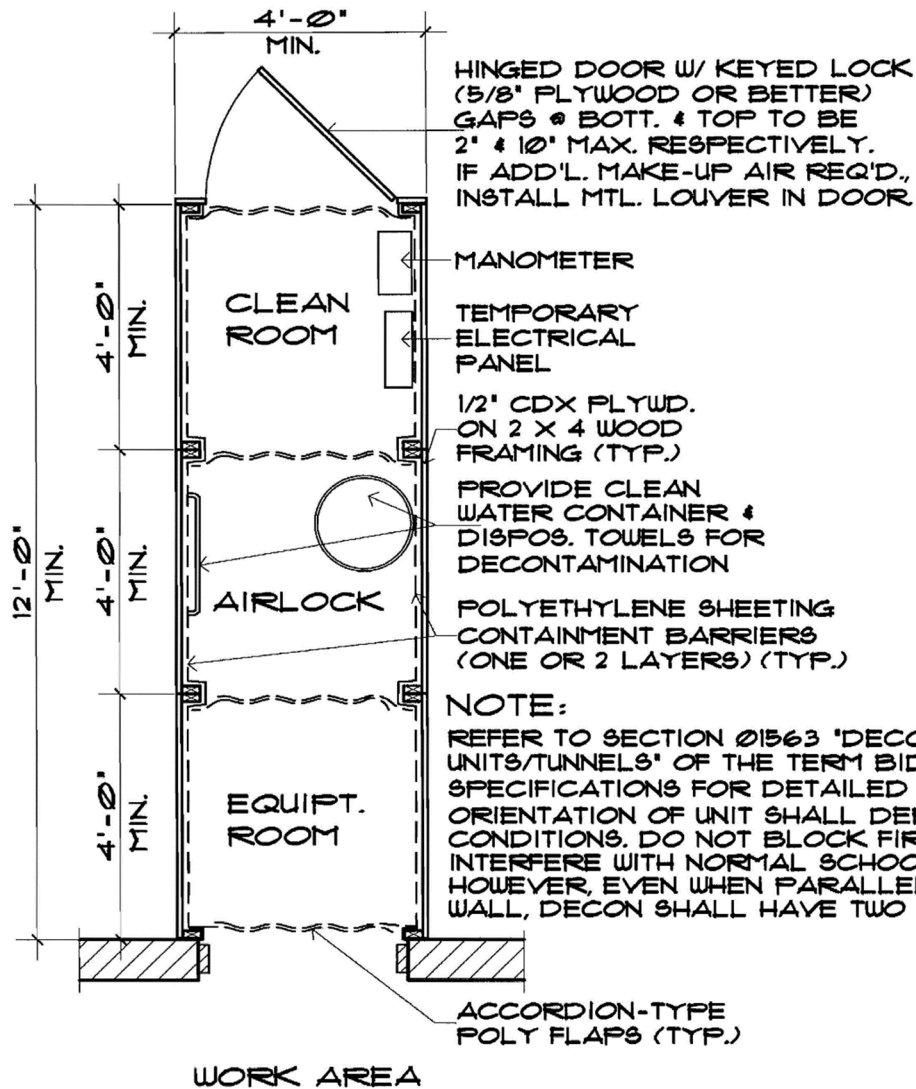
☐ **REMOVAL ACTIVITIES:** __ Critical Barriers, __ Containment Barriers, __ Dry removal, __ Airless (No Water), __ Class 9 NA2212 (6 mil Bags) __ ACM waste not bagged immediately or sealed wet, __ Improper Loadout/decon of waste, __ WSR/Gen-Lables, __ Smoke Test(G-bag)

☐ **OTHER:** _____

Term Bid Section of Specifications not complied with: _____

Corrective Action by Contractor's on-site Supervisor: _____

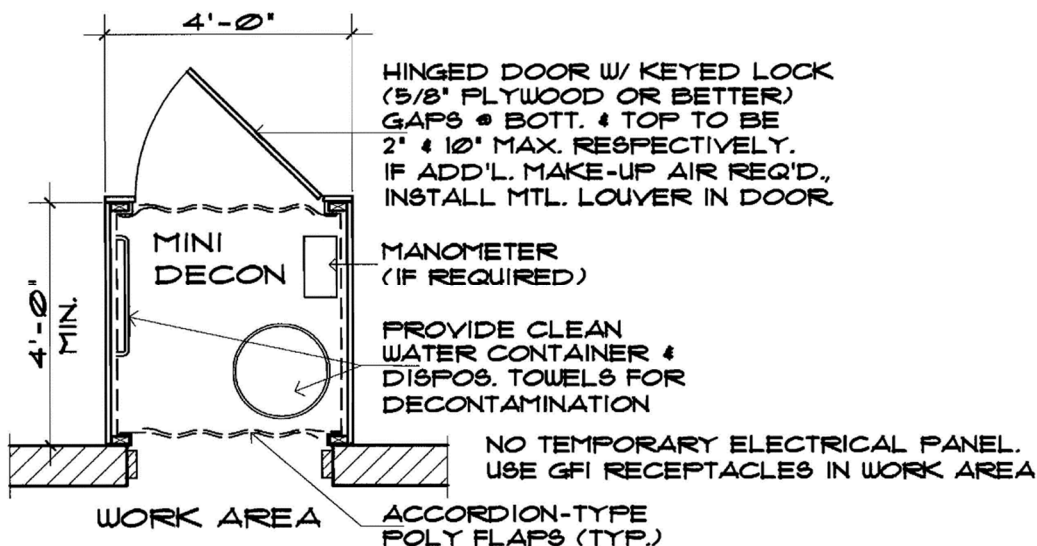




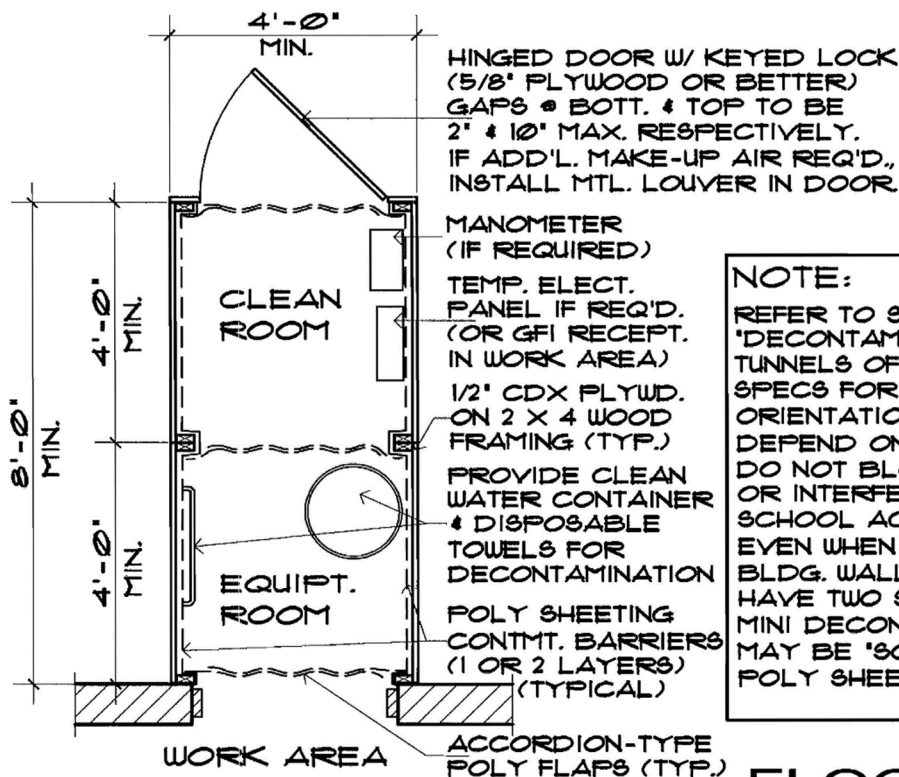
THREE STAGE DECONTAMINATION UNIT

FLOOR PLAN

SCALE: 3/8"=1'-0".



ONE-STAGE MINI DECONTAMINATION UNIT



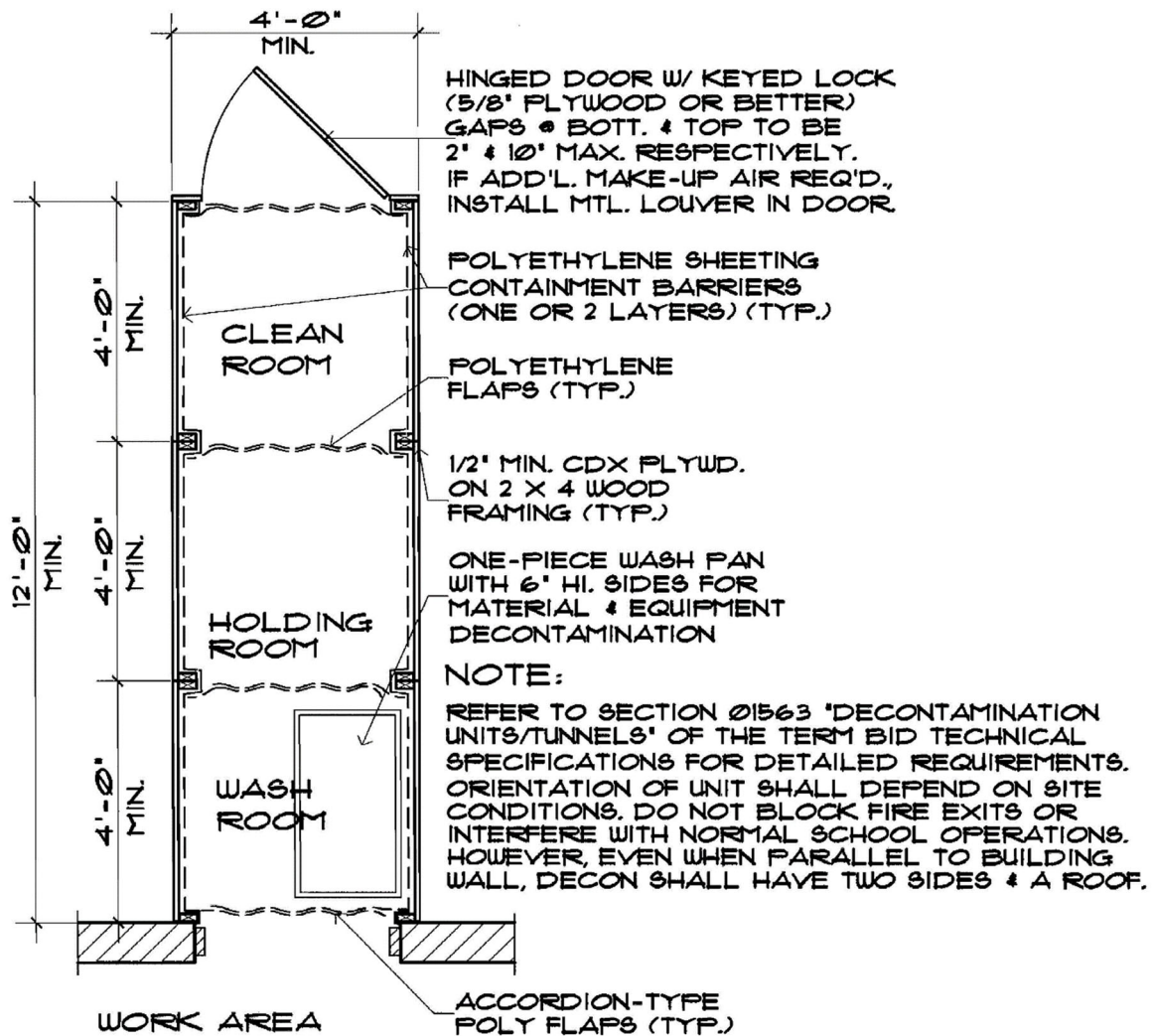
NOTE:

REFER TO SECTION 01563 'DECONTAMINATION UNITS AND TUNNELS OF THE TERM BID SPECS FOR DETAILED REQTS. ORIENTATION OF UNIT SHALL DEPEND ON SITE CONDITIONS. DO NOT BLOCK FIRE EXITS OR OR INTERFERE WITH NORMAL SCHOOL ACTIVITIES. HOWEVER, EVEN WHEN PARALLEL TO BLDG. WALL, DECON SHALL HAVE TWO SIDES & A ROOF. MINI DECONS, WHEN DIRECTED, MAY BE 'SOFT', WITH WALLS OF POLY SHEETS ON WD STUDS.

TWO-STAGE MINI DECONTAMINATION UNIT

FLOOR PLAN

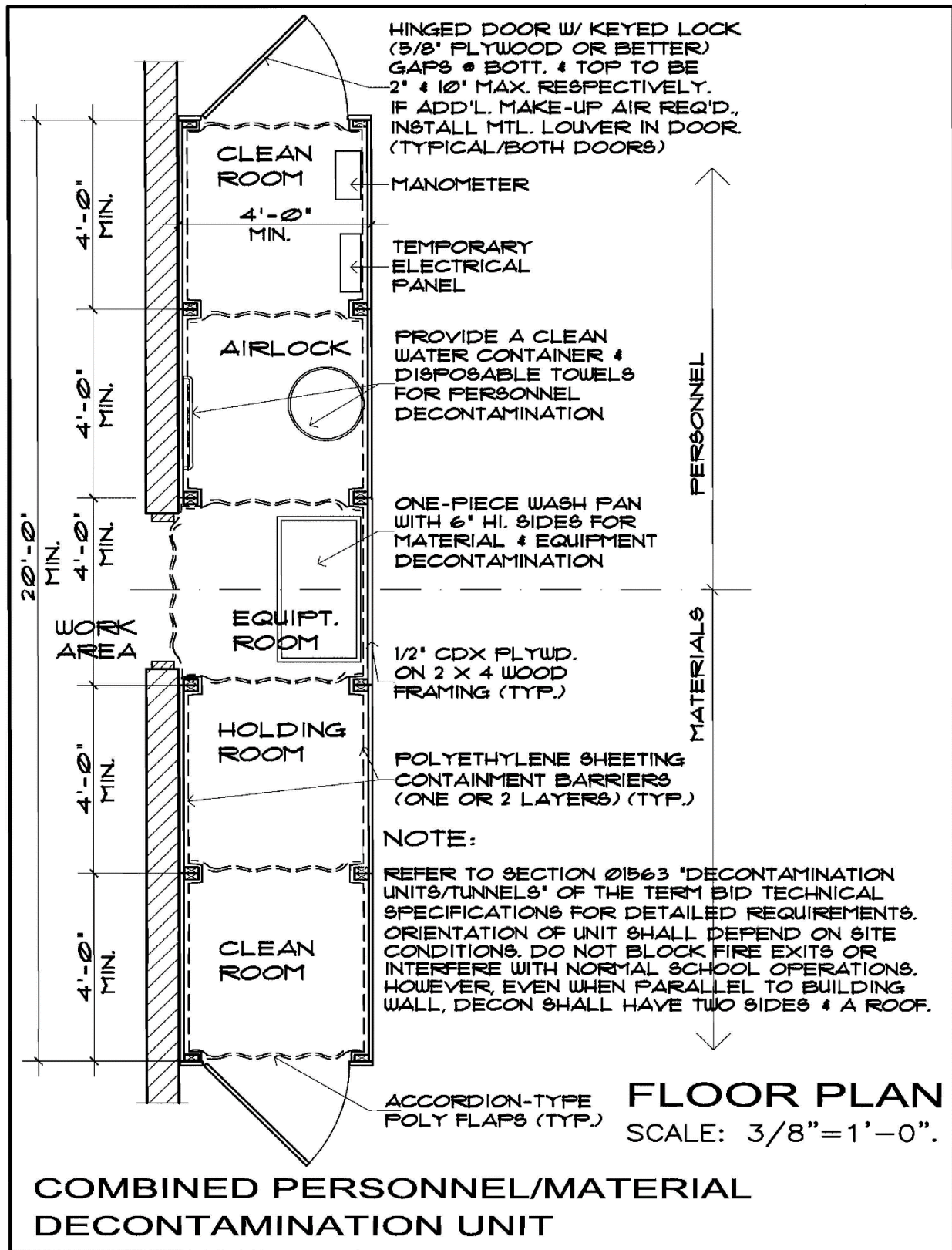
SCALE: 3/8"=1'-0".

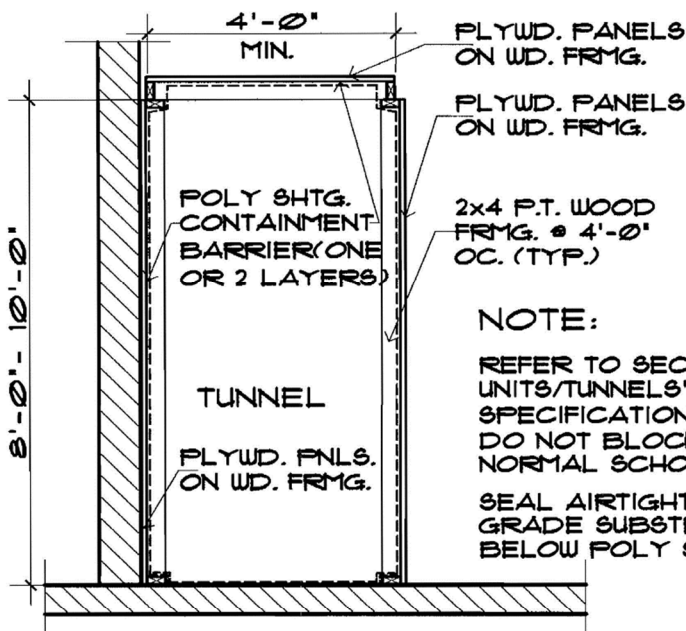


MATERIAL DECONTAMINATION UNIT

FLOOR PLAN

SCALE: 3/8"=1'-0".



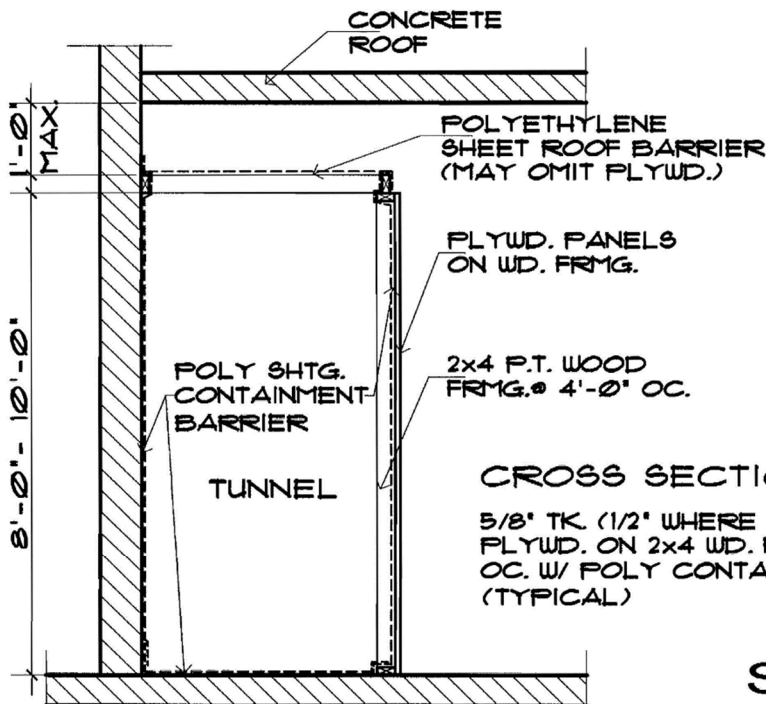


NOTE:

REFER TO SECTION 01563 "DECONTAMINATION UNITS/TUNNELS" OF THE TERM BID TECHNICAL SPECIFICATIONS FOR DETAILED REQUIREMENTS. DO NOT BLOCK FIRE EXITS OR INTERFERE WITH NORMAL SCHOOL OPERATIONS.

SEAL AIRTIGHT W/ POLY & DUCT TAPE. OVER GRADE SUBSTRATE, PROVIDE 5/8" PLYWD. BELOW POLY SHEET BARRIER

FULL TUNNEL-WOOD



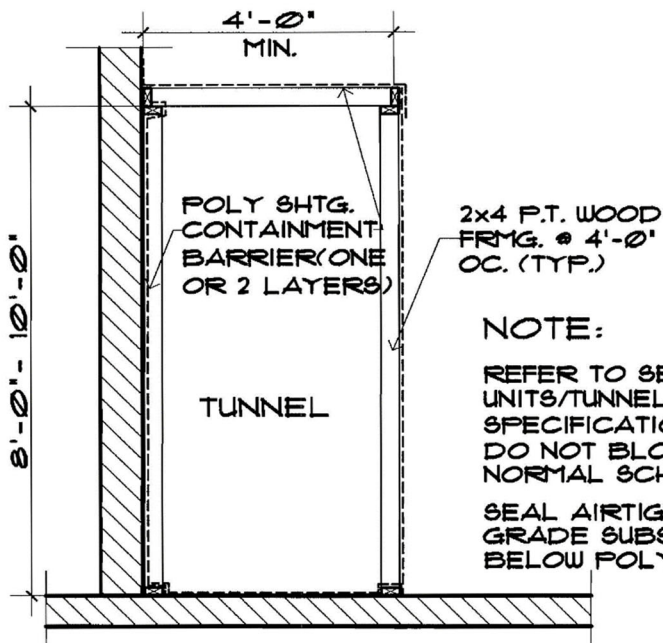
CROSS SECTION/WOOD:

5/8" TK. (1/2" WHERE ALLOWED) CDX . PLYWD. ON 2x4 WD. FRAMING @ 4'-0" OC. W/ POLY CONTAINMENT BARRIERS. (TYPICAL)

PARTIAL TUNNEL-WOOD

SECTIONS

SCALE: 3/8" = 1'-0".

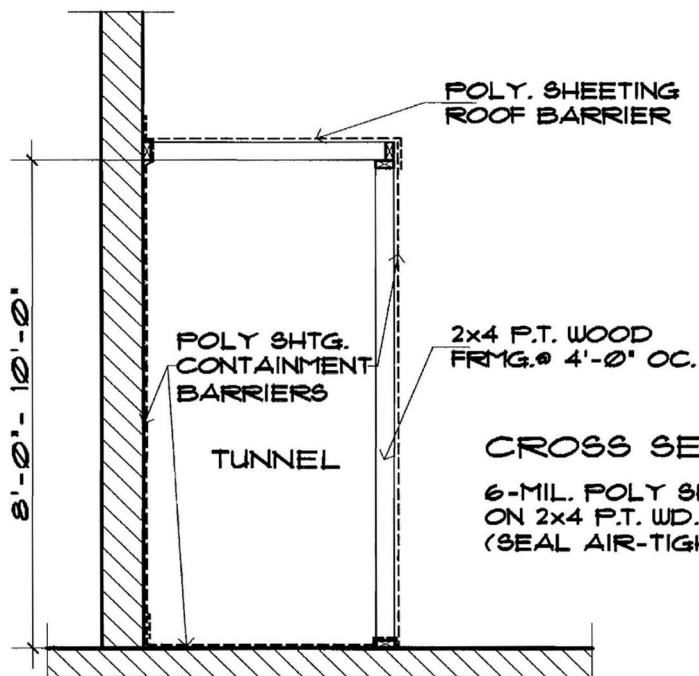


NOTE:

REFER TO SECTION 0563 'DECONTAMINATION UNITS/TUNNELS' OF THE TERM BID TECHNICAL SPECIFICATIONS FOR DETAILED REQUIREMENTS. DO NOT BLOCK FIRE EXITS OR INTERFERE WITH NORMAL SCHOOL OPERATIONS.

SEAL AIRTIGHT W/ POLY & DUCT TAPE. OVER GRADE SUBSTRATE, PROVIDE 5/8" PLYWD. BELOW POLY SHEET BARRIER.

FULL TUNNEL-SOFT



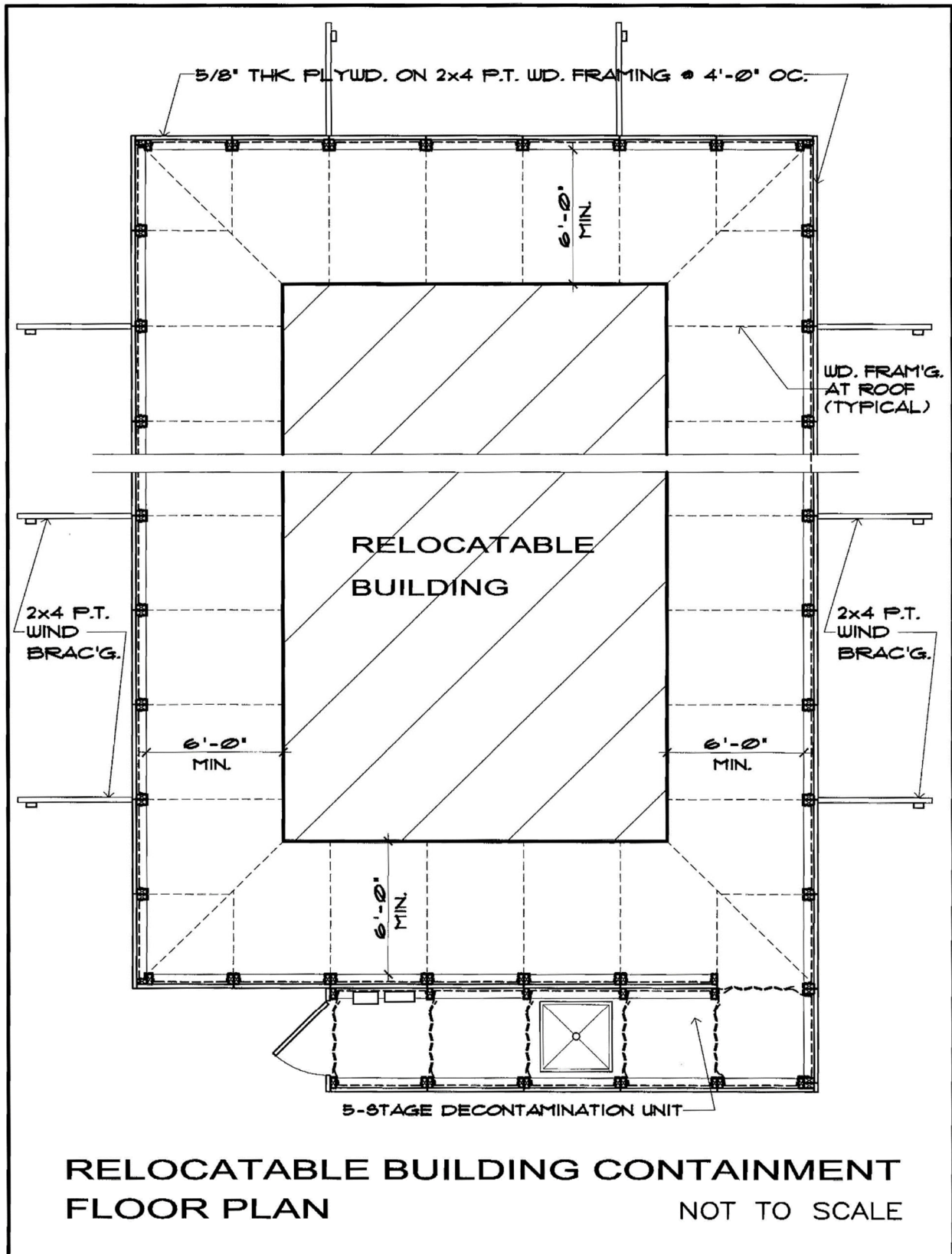
CROSS SECTION/SOFT:

6-MIL. POLY SHEETING (1 OR 2 LAYERS) ON 2x4 P.T. WD. FRAMING @ 4'-0" O.C. (SEAL AIR-TIGHT) (TYPICAL)

PARTIAL TUNNEL-SOFT

SECTIONS

SCALE: 3/8" = 1'-0".

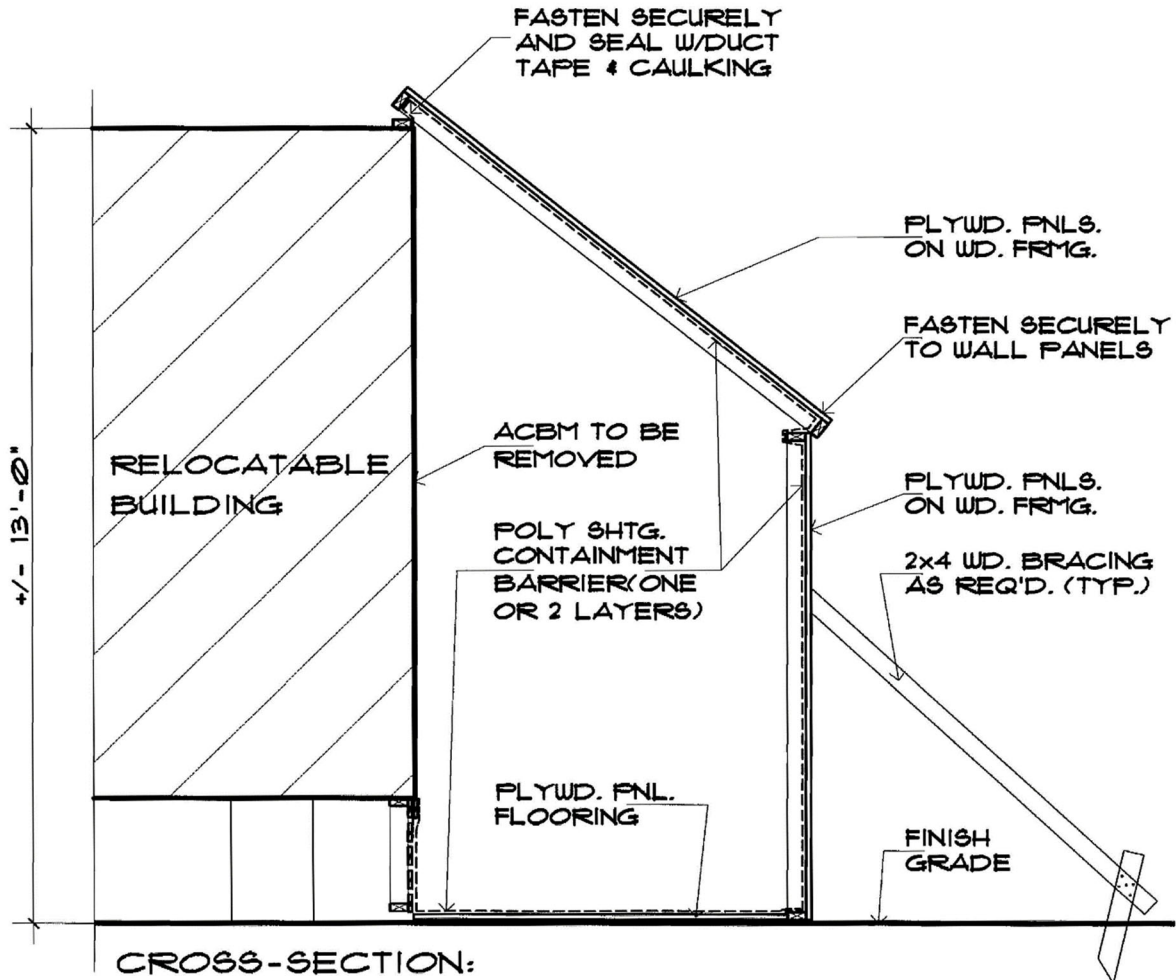




NOTES:

SEAL AIRTIGHT W/ POLY & DUCT TAPE. OVER GRADE SUBSTRATE, PROVIDE 5/8" PLYWD. FLOORING BELOW POLY SHEET BARRIER.

CONTAINMENT ROOF MAY USE ALTERNATING PLYWOOD & POLY SHEET PANELS TO ALLOW FOR NATURAL LIGHTING OF THE ENCLOSURE.



CROSS-SECTION:

5/8"x 4'-0"x 8'-0" (OR 10'-0") PLYWD. PANELS ON 2x4 P.T. WD. FRAMING @ 4'-0" O.C. SEAL W/ POLY CONTAINMENT BARRIERS FOR AN AIRTIGHT, WATERPROOF CONTAINMENT. (TYPICAL)

SECTION

SCALE: 3/8"=1'-0".

PORTABLE BUILDING CONTAINMENT