BLOCK 1421 LOT 14 QUALIFICATION CODE _____ ADDRESS (SITE) 2282 Lanes Mill Road PERMIT NO. 09-1985

BERKELEY TOWNSHIP
P.O. Box "B"
Bayville, NJ 08721

NEW JERSEY UNIFORM CONSTRUCTION CODE

CONSTRUCTION PERMIT APPLICATION

C09-002851

Applicant Completes: Sections I, II, III (optional), IV, VI, and VII

I. IDENTIFICATION

1. Propsed Work Site at: Herbertsville Elementary School 2282 Lanes Mill Road Brick
2. Name of Owner in Fee: Brick Township BOE Tel. (732) 262 2629
   Address 101 Hendrickson Ave (street) Brick (municipality) NJ 08724 (zip code)
3. Ownership in Fee: Public ✓ Private _____
4. Principal Contractor: Guardian Contracting Inc Tel. (732) 349-9932
   Address 1889 Rte 9 Unit 61 Toms River NJ 08755
   License No. OR, if new home, Builder Reg. No. 00624 Exp. Date 3/27/10
   Federal Employee No. 223563796 FAX: (732) 557-0984
5. Architect or Engineer Briggs Associates Tel. (609) 298-5520
   Address 3 Crosswicks St Bordentown NJ 08505 Contact Mike Hoodak
6. Responsible Person in Charge once Work has Begun Mike Hoodak
   Tel. (609) 298-5520 FAX: (609) 298-5477

Asbestos removal

V. FEE SUMMARY (for office use only)

			Update	Update
1.	Building	$	X ✓	
2.	Electrical			
3.	Plumbing			
4.	Fire Protection			
5.	Elevator Devices			
6.	Subtotal	$		
7.	Less 20% for State Plan Review			
8.	Subtotal	$		
9.	State Permit Surcharge Fee			
10.	Subtotal	$		
11.	Cert. of Occupancy			
12.	Other			
13.	TOTAL	$		

Exempt

VI. BUILDING/SITE CHARACTERISTICS

		(office use only)
1.	Number of Stories	
2.	Height of Structure ft.	
3.	Area — Largest Floor sq. ft.	
4.	New Building Area sq. ft.	
5.	Volume of New Structure cu. ft.	
6.	Construction Classification	
7.	Total Land Area Disturbed sq. ft.	
8.	Flood Hazard Zone	
9.	Base Flood Elevation ft.	
10.	Wetlands yes / no	
11.	Max. Live Load	
12.	Max. Occupancy Load	

II. PROPOSED WORK

OPTIONAL (for office use only)

		Est. Cost	Plans Rec'd by	Date Rec'd	Rejection Date	Approval Date	Re-viewer	Resubmission Dates Approval	Resubmission Dates Rejection	Re-viewer
1.	☐ Minor Work									
2.	☐ New Building									
3.	☐ Addition									
4.	☐ a. Repair									
	☐ b. Alteration									
	☐ c. Renovation									
	☐ d. Reconstruction									
5.	☐ Fire Protection									
6.	☐ Plumbing									
7.	☐ Electrical									
8.	☐ Elevator Devices									
9.	☒ Asbestos Abat. Subch. 8			8/10/09		8-13-09	JL			
10.	☐ Lead Hazard Abatement									
11.	☐ Demolition									
	TOTAL COSTS									

VII. DESCRIPTION OF BUILDING USE

COMMERCIAL

E

A. RESIDENTIAL
1. State Specific Use:
2. Use Group:
3. Change in Use Group, Indicate Former:
4. No. of dwelling units:

	All Units	Income-restricted
Before Construction		
After Construction		
Net Gain or Loss		

B. NON-RESIDENTIAL
1. State Specific Use:
2. Use Group:
3. Change in Use Group, Indicate Former:

III. DO YOU WANT: (optional)

1. ☐ Partial Releases
2. ☐ Prototype Processing

IV. DOES OR WILL YOUR BUILDING CONTAIN ANY OF THE FOLLOWING?

1. ☐ Elevators/Escalators/Lifts/Dumbwaiters/Moving Walks
2. ☐ High Pressure Boilers
3. ☐ Pressure Vessels
4. ☐ Refrigeration Systems
5. ☐ Cross-Connections/Backflow Preventers
6. ☐ Hazardous Uses/Places of Assembly
7. ☐ Sprinklers
8. ☐ Smoke Control Systems in Open Wells
9. ☐ Underground Storage Tanks
10. ☐ Swimming Pools, Spas and Hot Tubs

CERTIFICATION IN LIEU OF OATH

I. OWNER SECTION (to be completed if the applicant is the owner in fee)

I hereby certify that I am the owner in fee of the property listed on Page 1.

Mark the following applicable boxes:

A. ( ) I further certify that a new home (private residence) will be constructed on this property for my own use and occupancy. This dwelling is to be occupied by myself and is not to be used for any purpose other than single family residential use. I attest that all construction, plumbing, or electrical work will be done, in whole or in part, by me or by subcontractors under my supervision, in accordance with all applicable laws; and, I further acknowledge that said new home is not covered under the New Home Warranty and Builders Registration Act (N.J.S.A. 46:3B-1 et seq.) and that such fact shall be disclosed to any person purchasing this property within ten years of the date of issuance of a certificate of occupancy.

I UNDERSTAND THAT IN MARKING BOX A, I ACKNOWLEDGE THAT I AM ASSUMING RESPONSIBILITY FOR THE WORK DONE ON SAID PROPERTY, THE CONDITION OF THE PROPERTY PRIOR TO, DURING, AND AFTER ANY WORK PERFORMED, AND FOR THE PERFORMANCE OF THE SUBCONTRACTORS I HIRE, EMPLOY, OR OTHERWISE CONTRACT OR WITH WHOM I MAKE AGREEMENTS TO PERFORM WORK. I AM VOLUNTARILY AND KNOWINGLY ASSUMING THIS RESPONSIBILITY.

B. ( ) I further certify the following as required by the New Jersey Uniform Construction Code, N.J.A.C. 5:23-2.15(e)1.vii:

I personally prepared the plans submitted for: 1) the new home referred to in A.; or, 2) an addition, alteration, renovation, or repair to an existing single family residence owned and occupied by myself and located on the property listed on Page 1; or, 3) a new structure that will be physically separate from, but that will be deemed part of, an existing single family residence that is owned and occupied by myself and located on the property listed on Page 1.

C. ( ) I further certify that I will perform or supervise the following work:
C.1. ( ) Building C.2. ( ) Fire Protection

I further certify that I will perform the following work:
C.3. ( ) Electrical C.4. ( ) Plumbing

D. ( ) I agree to advise all contractors on this project that they are required to be registered with the New Jersey Division of Taxation and to comply with all New Jersey tax laws.

I further certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(a)5: All required State, county, and local prior approvals have been given, including such certification as the construction official may require.

I understand that if any of the above statements are willfully false, I am subject to punishment.

Signature _____ Date _____

II. AGENT SECTION (to be completed if the applicant is not the owner in fee)

I hereby certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(d): the proposed work is authorized by the owner in fee; and I have been authorized by the owner in fee to make this application as his agent.

I further certify the following as required by the Uniform Construction Code, N.J.A.C. 5:23-2.15(a)5: All required State, county, and local prior approvals have been given, including such certification as the construction official may require.

I agree to advise all contractors on this project that they are required to be registered with the New Jersey Division of Taxation and to comply with all New Jersey tax laws.

I understand that if any of the above statements are willfully false, I am subject to punishment.

(X) Check if contractor.

Agent Name Guardian Contracting Inc
Address 1889 Rte 9 Unit 6P
Toms River NJ 08755
Telephone (732) 349-9932
Signature Michal Fenn

III. ( ) LEAD HAZARD ABATEMENT: Include Homeowner or Building Owner Affidavit as per N.J.A.C. 5:17.

CONSTRUCTION PERMIT

Date Issued 8/14/09
Control # C-09-002851
Permit # 07-485-

IDENTIFICATION Block: 1421 Lot: 14 Qualifier
Work Site Location: 2282 LANES MILL RD. , NJ
Owner in Fee: BRICK TOWNSHIP BOARD OF EDUCATION
101 HENDRICKSON AVENUE BRICK NJ 08724
Telephone: (732) 262-2629

Contractor: GUARDIAN CONTRACTING INC
Address: 1889 ROUTE 9 UNIT 61 TOMS RIVER NJ 08755-
Telephone: (732) 349-9932
Lic. No. or Bldrs. Reg. No.
Federal Employee. No. 22-3563796

Is hereby granted permission to perform the following work:

- [x] BUILDING
- [ ] PLUMBING
- [ ] LEAD HAZARD ABATEMENT
- [ ] ELECTRICAL
- [ ] FIRE PROTECTION
- [ ] DEMOLITION
- [ ] ELEVATOR DEVICES
- [ ] ASBESTOS ABATEMENT (Subchapter 8 only)
- [ ] OTHER

DESCRIPTION OF WORK:
ALTERATION - -COMMERCIAL REMOVAL AND DISPOSAL OF APPROXIMATELY 90 LF OF ASBESTOS PIPE INSULATION.

Note: If constuction does not commence within one (1) year of date of issuance, or if construction ceases for a period of six (6) months, this permit is void.

Estimated Cost of Work $1

Construction Official Date 8-13-09

U.C.C. F170
equiv (rev 8/03)

PAYMENTS (Office Use Only)

Building	$0
Electrical	$0
Plumbing	$0
Fire Protection	$0
Elevator Devices	$0
Other	$0.00
DCA Training Fee	$0
CO Fee	
Other	$0
Total	$0
Check No.	
Cash	$0
Credit	$0
Collected By	

1 WHITE - INSPECTOR 2 CANARY - OFFICE 3 PINK - TAX ASSESSOR 4 GOLD - APPLICANT

REQUIRED INSPECTIONS

Construction work must be inspected in accordance with the State Uniform Construction Code Regulations N.J.A.C. 5:23-2.18. This agency will carry out such periodic inspections during the progress of work as are necessary to insure that the work installed conforms with the requirements of the Uniform Construction Code.

The owner or other responsible person in charge of work must notify this agency when work is ready for any required inspections specified below. Requests for inspections must be made at least 24 hours prior to the time the inspection is desired. Inspections will be performed within three business days of the time for which they are requested. The work must not proceed in a manner which will preclude the inspection until it has been made and approval granted.

- [ ] Required inspections for all subcodes for one- and two-family dwellings are as follows:
  1. The bottom of footing trenches before placement of footings, except that in cases of pile foundations, inspections shall be made in accordance with the requirements of the building subcode.
  2. Foundations and all walls up to grade level prior to back filling.
  3. All structural framing, connections, wall and roof sheathing and insulation; electrical rough wiring, panel and service installation; rough plumbing. The framing inspection shall take place after the rough electrical and plumbing inspections and after the installation of the heating, ventilation and /or air conditioning duct system. The insulation inspection shall be performed after all other subcode rough inspections and prior to the installation of any interior finish material.
  4. Installation of all finished materials, sealings of exterior joints, plumbing piping, trim and fixtures; electrical wiring, devices and fixtures; mechanical systems equipment.

  Additional required inspections for all subcodes of construction, for other than one- and two-family dwellings, are fire suppression systems, heat producing devices and Barrier Free subcode accessibility, if applicable.

- [ ] Required special inspections. The applicant by accepting the permit will be deemed to have consented to these requirements:

- [ ] A final inspection is required for each applicable subcode area before a final Certificate of Occupancy or Approval may be issued. The final inspections include the installation of all interior and exterior finish materials, sealing of exterior joints, mechanical system and other required equipment; electrical wiring, devices and fixtures; plumbing pipes, trim and fixtures; tests required by any provision of the adopted subcodes, Barrier Free accessibility, if applicable; and verification of compliance with NJAC 5:23-3.5, "Posting structures".

- [ ] A complete copy of released plans must be kept on the job site.

If you do not understand any of this information, please ask.

Brick Township
401 Chambersbridge Rd
Brick, NJ 08723

Date Issued 09/22/2009
Control Number C-09-002851
Permit Number 09-1985
Permit Issue Date 08/14/2009
Certificate Number 09-1985

Certificate

Construction Code Division

(Certificate of Approval)

Identification

Work Site Location: 2282 LANES MILL RD. , NJ Block: 1421 Lot: 14 Qual:

Owner in Fee: BRICK TOWNSHIP BOARD OF EDUCATION

Owner Address: 101 HENDRICKSON AVENUE BRICK NJ 08724

Telephone: (732) 262-2629

Contractor GUARDIAN CONTRACTING INC

Address 1889 ROUTE 9 UNIT 61 TOMS RIVER NJ 08755-

Telephone: (732) 349-9932 Fax: (732) 557-0984

License Number or Builders Registration Number: Federal Emp. Number: 22-3563796

Home Warranty Number:

Type of Warranty Plan: ☐ State ☐ Private

Use Group: E Construction Classification:

Maximum Live Load: 0 Maximum Occupancy Load: 0

Description of Work/Use: ALTERATION - -COMMERCIAL REMOVAL AND DISPOSAL OF APPROXIMATELY 90 LF OF ASBESTOS PIPE INSULATION.

Certificate Comments:

☐ **Certificate of Occupancy**
This serves notice that said building or structure has been constructed in accordance with the New Jersey Uniform Construction Code and is approved for occupancy.

☑ **Certificate of Approval**
This serves notice that the work completed has been constructed or installed in accordance with the New Jersey Uniform Construction Code and is approved. If the permit was issued for minor work, this certificate was based upon what was visible at the time of inspection.

☐ **Certificate of Continued Occupancy**
This serves notice that based on a general inspection of the visible parts of the building there are no imminent hazards and the building is approved for continued occupancy.

☐ **Temporary Certificate of Compliance**
The following conditions must be met no later than
or the owner will be subject to fine or order to vacate:
This certificate has an expiration date of:
Conditions to be met:

☐ **Certificate of Clearance - Lead Abatement 5:17**
This serves notice that based on written certification, lead abatement was performed as per NJAC5:17 to the following extent.

☐ Total removal of lead-based paint hazards in scope of work
☐ Partial or limited time period (years); see file

☐ **Certificate of Clearance - Asbestos Abatement**
This serves notice that based on written certification, asbestos abatement was performed to the following extent.

☐ Total removal of asbestos hazards in scope of work
☐ Partial or limited time period (years); see file

☐ **Certificate of Compliance**
This serves notice that said potentially hazardous equipment has been installed and/or maintained in accordance with the New Jersey Uniform Construction Code and is approved for use until

☐ **Temporary Certificate of Occupancy**
The following conditions must be met no later than:
or the owner will be subject to fine or order to vacate:
This certificate has an expiration date of:
Conditions to be met:

Construction Official

Fee: $0.00
Check Number:
Collected By:

Date Printed: 09/22/2009 U.C.C. F260 (rev. 08/05)

BUILDING SUBCODE
TECHNICAL SECTION

Date Received
Control # 09-1985

Date Issued
Permit # 8/14/09

A. IDENTIFICATION—APPLICANT: COMPLETE ALL APPLICABLE INFORMATION. WHEN CHANGING CONTRACTORS, NOTIFY THIS OFFICE. CALL UTILITY DIG NO: 1-800-272-1000.

Block 1421 Lot 14 Qualification Code

Work Site Location Herbertsville Elementary School
2282 Lanes Mill Road Brick

Owner in Fee: Brick Township BOE

Tel. (732) 262-2629 e-mail

Address 101 Hendrickson Ave (street) Brick (municipality) NJ 08724 (zip code)

Contractor: Guardian Contracting Inc Tel. (732) 349-9932

Address 1889 Rte 9 Unit 61 e-mail
Toms River NJ 08755

Contractor License No. or Builder Registration No. 00624 Exp. Date 3/27/10

Home Improvement Contractor Registration No. or Exemption Reason (if applicable):

Federal Emp. ID No. 223563796 FAX: (732) 557-0984

JOB SUMMARY (Office Use Only)

PLAN REVIEW	Date	Initial
[ ] No Plans Required		
[✓] All	8-13-09	JM
[ ] Footings/Foundations		
[ ] Structural/Framework		
[ ] Exterior		
[ ] Interior		

Joint Plan Review Required:
[ ] Elec. [ ] Plumb. [ ] Fire [ ] Elevator

SUBCODE APPROVAL for PERMIT
Date:
Approved by:

SUBCODE APPROVAL for CERTIFICATE
[ ] CO [ ] CCO [X] CA
Date: 9/2/09
Approved by: JM

INSPECTIONS Type:	Failure	Failure	Approval	Initial
		Dates (Month/Day)		
Footing				
Footing Bonding				
Foundation				
Slab				
Frame				
Truss Sys./Bracing				
Barrier-Free				
Insulation				
Finishes -Base Layer				
Finishes -Final			8/25/09	JM
Energy				
Mechanical				
TCO				
Other				
Final				
Barrier-Free				

B. BUILDING CHARACTERISTICS

Use Group Present _____ Proposed _____
No. of Stories
Height of Structure ft.
Area — Largest Floor sq. ft.
New Bldg. Area/All Floors sq. ft.
Volume of New Structure cu. ft.
Max. Live Load
Max. Occupancy Load

Constr. Class Present _____ Proposed _____
If Industrialized Building:
State Approved _____ HUD _____

Est. Cost of Bldg. Work:
1. New Bldg. $
2. Rehabilitation $
3. Total (1+ 2) $

C. CERTIFICATION IN LIEU OF OATH

I hereby certify that I am the (agent of) owner of record and am authorized to make this application.

Signature

D. TECHNICAL SITE DATA

DESCRIPTION OF WORK

Removal + disposal of approximately 90 Lf of asbestos pipe insulation

*Non UCC

COMMERCIAL

TYPE OF WORK:
[ ] New Building
[ ] Addition
[ ] Rehabilitation
[ ] Roofing
[ ] Siding
[ ] Fence _____ Height (exceeds 6')
[ ] Sign _____ Sq. Ft.
[ ] Pool
[ ] Retaining Wall _____ Sq. Ft.
[X] Asbestos Abatement Subchapter 8
[ ] Lead Haz. Abatement NJAC 5:17
[ ] Radon Remediation
[ ] Other _____
[ ] Demolition

FEE (Office Use Only)
$

Extra

Administrative Surcharge $
Minimum Fee $
State Permit Surcharge Fee $
TOTAL FEE $

U.C.C. F110
(rev. 12/07)

1 White = Inspector Copy 2 Canary = Office Copy
3 Pink = Office Copy 4 Gold = Applicant Copy

Briggs Associates
A Division of H & R Environmental Services, Inc.

CERTIFICATE OF COMPLETION

Building Name: HERBERTSVILLE SCHOOL

Address: 2282 LAKES MILL ROAD, BRICK, NJ

Location: ROOM #8, GIRLS/BOYS ROOM

Date(s): 8/21/09

Abatement Contractor: GUARDIAN CONTRACTING

Work Performed: REMOVAL/DISPOSAL OF 94 LFT ASBESTOS PIPE INSULATION

This is to certify that a final inspection was conducted at the above location, air clearance samples collected, and all criteria satisfactorily achieved for compliance with local, state and federal asbestos regulations. This certificate represents formal request that the administrative authority having jurisdiction proceed with issuance of Certificate of Occupancy.

MICHAEL HOODAK
Project Inspector

Signature

8/21/09
Date

3 Crosswicks Street, Bordentown, NJ 08505 609-298-5520 *fax* 609-298-5477

Briggs Associates

3 Crosswicks Street, Bordentown, NJ 08505
(609) 298-5520 • (609) 298-5477

Date: 8/21/09
Job #
Client: BRICK TWP SCHOOLS
Location: HERBERTSVILLE SCHOOL
Contractor: GUARDIAN CONTRACTING

ASBESTOS MONITORING DATA SHEET

Sampled By: MIKE HUDDAK
Calibrator Used: ROTOMETER
Date Last Calibrated:

Analyzed By: MIKE HUDDAK
Date: 8/21/09
Cassette Lot #:

Check One Only
PCM-7400 A ☒
TEM ☐
SEM ☐
Other ☐

#	Sample Location / Description / Pump #	Pre	Post (L/Min)	Avg	Start	Stop	Time (Min)	Vol (L)	Results F/100	Results F/CC
1	FINAL - GIRLS ROOM	15.0	15.0	15.0	~~1615~~ 1550	1710	80	1200	3	<0.010
2		15.0	15.0	15.0	1550	1710	80	1200	4	<0.010
3		15.0	15.0	15.0	1550	1711	80	1200	2	<0.010
4		15.0	15.0	15.0	1550	1710	80	1200	2	<0.010
5		15.0	15.0	15.0	1550	1710	80	1200	5	<0.010
6	FINAL - BOYS ROOM	15.0	15.0	15.0	1553	1713	80	1200	2	<0.010
7		15.0	15.0	15.0	1553	1713	80	1200	2	<0.010
8		15.0	15.0	15.0	1553	1713	80	1200	3	<0.010
9		15.0	15.0	15.0	1553	1713	80	1200	2	<0.010
10		15.0	15.0	15.0	1553	1713	80	1200	4	<0.010

1. Chain of Custody

From	To
Name	Name
Company	Company
Date/Time	Date/Time
	Signature

2. Chain of Custody

From	To
Name	Name
Company	Company
Date/Time	Date/Time
	Signature

3. Chain of Custody

From	To
Name	Name
Company	Company
Date/Time	Date/Time
	Signature

Briggs Associates

3 Crosswicks Street, Bordentown, NJ 08505
(609) 298-5520 • (609) 298-5477

Date: 8/21/09
Job #
Client: BRICK TWP SCHOOLS
Location: HERBERTSVILLE SCHOOL
Contractor: GUARDIAN CONTRACTING

ASBESTOS MONITORING DATA SHEET

Sampled By: MIKE HOUDAK
Calibrator Used: ROTAMETER
Date Last Calibrated:

Analyzed By: MIKE HOUDAK
Date: 8/21/09
Cassette Lot #:

Check One Only
PCM-7400 A ☒
TEM ☐
SEM ☐
Other ☐

#	Sample Location / Description / Pump #	Pre	Post (L/Min)	Avg	Start	Stop	Time (Min)	Vol (L)	Results F/100	Results F/CC
11	FINAL - ROOM # 8	15.0	15.0	15.0	1620	1740	80	1200	4	LD.010
12		15.0	15.0	15.0	1620	1740	80	1200	6	LD.010
13		15.0	15.0	15.0	1620	1740	80	1200	7	LD.010
14		15.0	15.0	15.0	1620	1740	80	1200	7	LD.010
15		15.0	15.0	15.0	1620	1740	80	1200	5	LD.010
16	BLANK								0	
17	BLANK								0	

1. Chain of Custody

From	To
Name	Name
Company	Company
Date/Time	Date/Time
	Signature

2. Chain of Custody

From	To
Name	Name
Company	Company
Date/Time	Date/Time
	Signature

3. Chain of Custody

From	To
Name	Name
Company	Company
Date/Time	Date/Time
	Signature

BUILDING SUBCODE
TECHNICAL SECTION

Date Received
Control # 09-1985

Date Issued
Permit # 8/14/09 KI

A. IDENTIFICATION—APPLICANT: COMPLETE ALL APPLICABLE INFORMATION. WHEN CHANGING CONTRACTORS, NOTIFY THIS OFFICE. CALL UTILITY DIG NO: 1-800-272-1000.

Block 401 Lot 14 Qualification Code

Work Site Location Herbertsville Elementary School
2282 Lanes Mill Road Brick

Owner in Fee: Brick Township BOE

Tel. (732) 262-2629 e-mail

Address 101 Hendrickson Ave Brick NJ 08724
(street / municipality / zip code)

Contractor: Guardian Contracting Inc Tel. (732) 349-9932

Address 1884 Rte 9 Unit 61 e-mail
Toms River NJ 08755

Contractor License No. or Builder Registration No. 00624 Exp. Date 3/27/10

Home Improvement Contractor Registration No. or Exemption Reason (if applicable):

Federal Emp. ID No. 223563796 FAX: (732) 557-0984

JOB SUMMARY (Office Use Only)

PLAN REVIEW	Date	Initial
[ ] No Plans Required		
[✓] All	8-13-09	JM
[ ] Footings/Foundations		
[ ] Structural/Framework		
[ ] Exterior		
[ ] Interior		

Joint Plan Review Required:
[ ] Elec. [ ] Plumb. [ ] Fire [ ] Elevator

SUBCODE APPROVAL for PERMIT
Date:
Approved by:

SUBCODE APPROVAL for CERTIFICATE
[ ] CO [ ] CCO [ ] CA
Date:
Approved by:

INSPECTIONS Type:	Failure	Failure	Approval	Initial
	Dates (Month/Day)			
Footing				
Footing Bonding				
Foundation				
Slab				
Frame				
Truss Sys./Bracing				
Barrier-Free				
Insulation				
Finishes -Base Layer				
Finishes -Final				
Energy				
Mechanical				
TCO				
Other				
Final				
Barrier-Free				

B. BUILDING CHARACTERISTICS

Use Group Present _____ Proposed _____
No. of Stories _____
Height of Structure _____ ft.
Area – Largest Floor _____ sq. ft.
New Bldg. Area/All Floors _____ sq. ft.
Volume of New Structure _____ cu. ft.
Max. Live Load _____
Max. Occupancy Load _____

Constr. Class Present _____ Proposed _____
If Industrialized Building:
State Approved _____ HUD _____

Est. Cost of Bldg. Work:
1. New Bldg. $ _____
2. Rehabilitation $ _____
3. Total (1+ 2) $ _____

C. CERTIFICATION IN LIEU OF OATH

I hereby certify that I am the (agent of) owner of record and am authorized to make this application.

Richard Tomm
Signature

D. TECHNICAL SITE DATA

DESCRIPTION OF WORK

Removal & disposal of approximately 90 Lf of asbestos pipe insulation

TYPE OF WORK:
[ ] New Building
[ ] Addition
[ ] Rehabilitation
[ ] Roofing
[ ] Siding
[ ] Fence _____ Height (exceeds 6')
[ ] Sign _____ Sq. Ft.
[ ] Pool
[ ] Retaining Wall _____ Sq. Ft.
[X] Asbestos Abatement Subchapter 8
[ ] Lead Haz. Abatement NJAC 5:17
[ ] Radon Remediation
[ ] Other _____
[ ] Demolition

FEE (Office Use Only)
$ _____

Administrative Surcharge $ _____
Minimum Fee $ _____
State Permit Surcharge Fee $ _____
TOTAL FEE $ _____

1 White = Inspector Copy 2 Canary = Office Copy
3 Pink = Office Copy 4 Gold = Applicant Copy

U.C.C. F110
(rev. 12/07)

BUILDING SUBCODE
TECHNICAL SECTION

NEW JERSEY UNIFORM CONSTRUCTION CODE

Date Received 69-1985
Control #

Date Issued 8/14/09
Permit #

A. IDENTIFICATION—APPLICANT: COMPLETE ALL APPLICABLE INFORMATION. WHEN CHANGING CONTRACTORS, NOTIFY THIS OFFICE. CALL UTILITY DIG NO: 1-800-272-1000.

Block [illegible] Lot [illegible] Qualification Code ______

Work Site Location [illegible]

Owner in Fee: [illegible]

Tel. (732) [illegible] e-mail ______

Address [illegible] (street) [illegible] (municipality) [illegible] (zip code)

Contractor: [illegible] Tel. (732) 591-7932

Address [illegible] e-mail ______

[illegible] 08155

Contractor License No. or Builder Registration No. [illegible] Exp. Date [illegible]

Home Improvement Contractor Registration No. or Exemption Reason (if applicable): ______

Federal Emp. ID No. [illegible] FAX: (732) 591-0934

C. CERTIFICATION IN LIEU OF OATH

I hereby certify that I am the (agent of) owner of record and am authorized to make this application.

[signature]
Signature

D. TECHNICAL SITE DATA

DESCRIPTION OF WORK

Removal and disposal of approximately 90 LF of asbestos pipe insulation

JOB SUMMARY (Office Use Only)

PLAN REVIEW	Date	Initial
[ ] No Plans Required		
[✓] All	[illegible]	[illegible]
[ ] Footings/Foundations		
[ ] Structural/Framework		
[ ] Exterior		
[ ] Interior		

Joint Plan Review Required:

[ ] Elec. [ ] Plumb. [ ] Fire [ ] Elevator

SUBCODE APPROVAL for PERMIT

Date: ______

Approved by: ______

SUBCODE APPROVAL for CERTIFICATE

[ ] CO [ ] CCO [ ] CA

Date: ______

Approved by: ______

INSPECTIONS Type:	Failure	Failure	Approval	Initial
Footing				
Footing Bonding				
Foundation				
Slab				
Frame				
Truss Sys./Bracing				
Barrier-Free				
Insulation				
Finishes -Base Layer				
Finishes -Final				
Energy				
Mechanical				
TCO				
Other				
Final				
Barrier-Free				

(Dates (Month/Day))

B. BUILDING CHARACTERISTICS

Use Group Present ______ Proposed ______

No. of Stories ______

Height of Structure ______ ft.

Area — Largest Floor ______ sq. ft.

New Bldg. Area/All Floors ______ sq. ft.

Volume of New Structure ______ cu. ft.

Max. Live Load ______

Max. Occupancy Load ______

Constr. Class Present ______ Proposed ______

If Industrialized Building:

State Approved ______ HUD ______

Est. Cost of Bldg. Work:

1. New Bldg. $ ______
2. Rehabilitation $ ______
3. Total (1+ 2) $ ______

TYPE OF WORK:

- [ ] New Building
- [ ] Addition
- [ ] Rehabilitation
- [ ] Roofing
- [ ] Siding
- [ ] Fence ______ Height (exceeds 6')
- [ ] Sign ______ Sq. Ft.
- [ ] Pool
- [ ] Retaining Wall ______ Sq. Ft.
- [✓] Asbestos Abatement Subchapter 8
- [ ] Lead Haz. Abatement NJAC 5:17
- [ ] Radon Remediation
- [ ] Other ______
- [ ] Demolition

FEE (Office Use Only)

$ ______

Administrative Surcharge $ ______
Minimum Fee $ ______
State Permit Surcharge Fee $ ______
TOTAL FEE $ ______

U.C.C. F110
(rev. 12/07)

1 White = Inspector Copy 2 Canary = Office Copy
3 Pink = Office Copy 4 Gold = Applicant Copy

State of New Jersey

NOTIFICATION OF ASBESTOS ABATEMENT

(Pursuant to NJAC 8:60 and 12:120)

Date of Notification (1)	Name of Building Owner/Operator (2)
August 3, 2009	Brick Township Public School District ch 17124

Agencies Notified	Type of Notification	Street Address	
[x] EPA [ ] DEP [x] DOL [x] DOH [X] DCA	[x] Initial Notification [ ] Amended Notification Amendment #_____ [ ] Emergency (including justification) [ ] Cancellation	101 Hendrickson Avenue	
		City, State, Zip Code: Brick, New Jersey 08724	
		Name of Contact: Tom Frese	Telephone Number: 732-262-2629

FACILITY INFORMATION

Name of Facility Where Abatement is Taking Place (3)	Type of Facility (4)
Herbertsville Elementary School	[x] School (k-12) [ ] Subchapter 8 (other than k12) [ ] Other (i.e., private & commercial buildings, homes, etc.)
Street Address: 2282 Lanes Mill Road	

City	County (6)	County Code (7) (STATE USE ONLY)	Square feet	# of Floors	Bldg. Age
Brick	Ocean		30,000 sf	1	60

Current Use (Prior if being demolished): School

Name of Monitoring Firm Hired by Building Owner (8)	ASCM No.	Name of Abatement Contractor (9)
Briggs Associates	00004	Guardian Contracting, Inc.
Street Address: 3 Crosswicks Street		Street Address: 1889 Route 9, Unit 61
City, State, Zip Code: Bordentown, New Jersey 08505		City, State, Zip Code: Toms River, New Jersey 08755-1271
Project Manager for Monitoring Firm: Rod Richardson	Telephone Number: 609-298-5520	Telephone Number: 732-349-9932 / License Number: 00624
Scheduled Start Date (10): 8/21/09	Scheduled Completion Date (11): 8/24/09	Name of OSHA Monitor: E.M.S.L. Analytical
Occupancy Status During Abatement (Check only one) [x] Facility Closed/Vacated During Entire Period of Abatement [ ] Abatement Performed Outside of Normal Facility Hours [ ] Other – Describe after 4:00		Street Address: 1056 Stelton Road City, State, Zip Code: Piscataway, New Jersey 08854

Scope of Work (Check all that apply)

[x]	>3 sf or ≥3 lf	[x]	Renovation	[ ]	Full Containment with Negative Pressure
[ ]	≥160 sf or ≥260 lf	[ ]	Demolition	[ ]	Mini-Enclosure
				[x]	Glovebag Procedure
				[ ]	Non-Exempted (*) and Non-Friable Procedure

Location of Asbestos-Containing Material (ACM) TO BE ABATED in facility (13)	Is Location Normally used Solely by Maintenance/Custodial Staff (12) YES	NO	N/A	Description of Asbestos-Containing Material (ACM) (i.e., thermal systems insulation, surfacing, VAT, or other miscellaneous)	Amount (Specify SF or LF)	Abatement Type: REMOVAL	REPAIR	ENCAPSULE	ENCLOSURE
Restroom		X		Asbestos pipe insulation	70lf	X			
Room #8		X		Asbestos pipe insulation	24 lf	X			

Name of Registered Waste Hauler	NJDEP Waste Hauler ID No.	Cubic Yards of Waste	Name of Registered Landfill
Guardian Contracting, Inc.	20223	3	T.R.R.F.

City, State	Disposal Date	City, State
Toms River, New Jersey	8/25/09	Tullytown, Pennsylvania

Completed by (Print or Type)	Title	Signature	Date
Nicholas Fernicola	Project Manager	Nichol Fern	8/3/2009

Do not use this form for asbestos licensure exempted activities.

GUARDIAN CONTRACTING, INC.
1889 ROUTE 9
SUITE 61
TOMS RIVER, NEW JERSEY 08755

Date Received

DEMOLITION / RENOVATION NOTIFICATION

Operator Project #:		Postmark:	Notification:
I. TYPE OF NOTIFICATION (O- Original R- Revised C- Cancelled): O			II. IS ASBESTOS PRESENT? (Yes/No): Y
III. FACILITY INFORMATION (identify owner, removal contractor and her operator)			
OWNER NAME: Brick Township Public School District			
Address: 101 Hendrickson Avenue			
City: Brick	State: New Jersey	Zip: 08724	
Contact: Tom Frese		Tel: 732-262-2629	
REMOVAL CONTRACTOR: Guardian Contracting, Inc.		NJ License: 00624	
Address: 1889 Route 9, Unit 61			
City: Toms River	State: New Jersey	Zip: 08755	
Contact: Nicholas Fernicola		Tel: 732-349-9932	
OTHER OPERATOR (if different)		NJ License:	
Address:			
City:	State:	Zip:	
Contact:		Tel:	
IV. TYPE OF OPERATION (D - Demo O - Ordered Demo R - Renovation E- Emergency Renovation): R			
V. FACILITY DESCRIPTION (Including building name, number and floor or room number)			
Building Name: Herbertsville Elementary School			
Address: 2282 Lanes Mill Road			
City: Brick	State: New Jersey	County: Ocean	
Site Location: Restroom & room #8			
Building Size: 30,000 sf	# of Floors: 1	Age in Years: 60	
Present Use: School	Prior Use: School		
VI. PROCEDURE, INCLUDING ANALYTICAL METHOD, IF APPROPRIATE, USED TO DETECT THE PRESENCE OF ASBESTOS MATERIAL:			
IS MATERIAL ASSUMED TO BE ASBESTOS?			

VII. APPROXIMATE AMOUNT OF ASBESTOS INCLUDING: 1. Regulated ACM to be removed 2. Category I ACM not removed 3. Category II ACM not removed	RACM To Be Removed	LOCATION	Nonfriable Asbestos Material Not To Be Removed	
			Cat I	Cat II
Pipes (Linear feet): 94 lf	Asbestos pipe insulation	Restroom & room #8		
Surface Area (Square feet):				
RACM Off Facility Component (Cubic feet):				

VIII. SCHEDULE DATES ASBESTOS REMOVAL (MM/DD/YY)	Start:	8/21/09	Complete:	8/24/09

NOTIFICATION OF DEMOLITION AND RENOVATION (continued)

x. DESCRIPTION OF PLANNED DEMOLITION OR RENOVATION WORK, AND METHOD(S) TO BE USED

xi. DESCRIPTION OF WORK PRACTICES AND ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS OF ASBESTOS AT THE DEMOLITION AND RENOVATION SITE:

Removal to take place using negative pressure glovebag method. Prior to removal, work area to be isolated, negative air units to be put in place. All asbestos insulation will be saturated with a surfactant/water mix. All waste to be double bagged, sealed and affixed with appropriate warning labels and placed in closed/locked container for disposal. Encapsulation of all surfaces where removal took place. All materials to be kept wet during the entire operation. Final cleaning will consist of HEPA vacuuming and/or wet wiping of all surfaces..

xii. WASTE TRANSPORTER #1 Name: Guardian Contracting, Inc.

Address: 1889 Route 9, Unit 61

City: Toms River | State: New Jersey | Zip: 08755

Contact Person: Nicholas Fernicola

WASTE TRANSPORTER #2 Name:

Address:

City: | State: | Zip:

Contact Person:

xiii. WASTE DISPOSAL SITE Name: T.R.R.F.

Location: Bordentown Road

City: Tullytown | State: Pennsylvania | Zip: 19007

Telephone: 215-943-9732 | Permit #: 101494

xiv. IF DEMOLITION ORDERED BY A GOVERNMENT AGENCY, PLEASE IDENTIFY THE AGENCY BELOW AND ATTACH COPY OF ORDER

Name: | Title:

Authority:

Date of Order (MM/DD/YY): | Date Ordered to Begin (MM/DD/YY):

xv. FOR EMERGENCY RENOVATIONS

Date and Hour of Emergency (MM/DD/YY):

Description of the Sudden, Unexpected Event:

Explanation of how the event caused unsafe conditions or would cause equipment damage or an unreasonable financial burden:

xvi. DESCRIPTION OF PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED ASBESTOS IS FOUND OR PREVIOUSLY NONFRIABLE ASBESTOS MATERIAL BECOMES CRUMBLED, PULVERIZED, OR REDUCED TO POWDER

xvii. I CERTIFY THAT AN INDIVIDUAL TRAINED IN THE ROVISIONS OF THIS REGULATION (40 CFR PART 61, SUBPART M) WILL BE ONSITE DURING THE DEMOLITION OR RENOVATION AND EVIDENCE THAT THE REQUIRED TRAINING HAS BEEN ACCOMPLISHED BY THIS PERSON WILL BE AVAILABLE FOR INSPECTION DURING NORMAL BUSINESS HOURS. (Required after November 20, 1991)

Nicholas Fernicola / Project Manager (Printed Name/Title) — Nichol Fer (Signature of Owner/Operator) — August 3, 2009 (Date)

xviii. I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT.

Nicholas Fernicola / Project Manager (Printed Name/Title) — Nichol Fer (Signature of Owner/Operator) — August 3, 2009 (Date)

Certificate Number
604376

Registration Date: 10/02/2008
Expiration Date: 10/01/2010

State of New Jersey

Department of Labor and Workforce Development
Division of Wage and Hour Compliance

Public Works Contractor Registration Act

Pursuant to N.J.S.A. 34:11-56.48, et seq. of the Public Works Contractor Registration Act, this certificate of registration is issued for purposes of bidding on any contract for public work or for engaging in the performance of any public work to:

2008

Guardian Contracting, Inc.

Responsible Representative(s):
Nicholas Fernicola, President

David J. Socolow, Commissioner
Department of Labor and Workforce Development

NON TRANSFERABLE

This certificate may not be transferred or assigned and may be revoked for cause by the Commissioner of Labor and Workforce Development.

STATE OF NEW JERSEY
DEPARTMENT OF LABOR & WORKFORCE DEVELOPMENT
DIVISION OF PUBLIC SAFETY & OCCUPATIONAL SAFETY & HEALTH
ASBESTOS CONTROL AND LICENSING SECTION

ASBESTOS LICENSE

LICENSE NUMBER: 00624

ISSUE DATE: 3/26/09

EXPIRATION DATE: 3/27/10

THIS LICENSE has been issued in accordance with and is subject to the provisions of the Asbestos Control and Licensing Act, N.J.S.A. 34:5A-32 et seq.

EMPLOYER: Guardian Contracting Inc.

ADDRESS: 1889 Route 9
Unit #61
Toms River NJ 08755-1271

Type "A" LICENSE to perform any type of asbestos work

RESPONSIBLE PERSON: Nicholas Fernicola, President

This license is VALID ONLY FOR THE EMPLOYER NAMED HEREIN and must be readily available at the work site for inspection by the Commissioners of Labor & Workforce Development and Health & Senior Services and the contracting agency.

Commissioner

ACL-4 (7-07)

14535

Briggs Associates
A Division of H & R Environmental Services, Inc.

PROJECT MANUAL

For

ASBESTOS ABATEMENT

BRICK TOWNSHIP PUBLICSCHOOL DISTRICT

Brick, New Jersey 08724

At

HERBETSVILLE ELEMENTARY SCHOOL
Brick, New Jersey 08724

Reviewed and Released by

Michael Hoodak
Project Designer

BRIGGS PROJECT NO. 09053

July 29, 2009

3 Crosswicks Street, Bordentown, NJ 08505 609•298•5520 *fax* 609•298•5477

TABLE OF CONTENTS

SECTION 01013 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division - 1 Specification Sections, apply to work of this section.

1.2 RELATED SECTIONS SPECIFIED ELSEWHERE:

A. Asbestos abatement project requirements to be completed prior to start of the work of this section are set forth in the following sections:

1. 01503 Temporary Facilities - Asbestos Abatement
2. 01513 Temporary Pressure Differential & Air Circulation System
3. 01526 Temporary Enclosures
4. 01560 Worker Protection - Asbestos abatement
5. 01562 Respiratory Protection
6. 01563 Decontamination Units

B. Asbestos abatement project requirements to be completed at completion of the work of this section are set forth in the following sections:

1. 01711 Project Decontamination

C. Amended water and removal encapsulant are specified in Section 02081 Removal of Asbestos-Containing Materials.

1.3 SUMMARY:

A. Contractor s Duties: The Contractor's duties shall include the following:

1. Unless specifically noted, provide and pay for labor, materials and equipment, tools, construction equipment and machinery, utilities required for Abatement, other facilities and services necessary for proper execution and completion of work.
2. Legally required sales, consumer and use taxes.
3. Secure and pay for required permits, fees and licenses necessary for proper execution and completion of work, as applicable at time of receipt of bids.
4. Give required notices.
5. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities, which bear on performance of work.
6. Promptly submit written notice to Consultant of observed variance of contract documents from legal requirements. Assume responsibility for work known to be contrary to such requirements

without notice. Any required procedural variances will be obtained by the abatement contractor prior to the commencement of asbestos abatement activities.

7. Enforce strict discipline and good order among employees. Do not employ on work any persons not skilled in assigned task.

B. Description of work: The Contractor shall supply all labor, materials, services and equipment required to perform all of the work as herein described.

Scope of Work: Removal and disposal of asbestos containing pipe insulation from the Herbertsville SchoolSchool.

1. The following is a detailed scope of work:

Location	Materials	Quantity	Abatement Method
Restroom	Pipe Insulation	70 lft	Glovebag Procedure
Room 8	Pipe Insulation	24 lft	Glovebag Procedure

2. Preparation: The Contractor shall prepare the work areas in the following manner:

a. Pipe and fitting insulation shall be removed by the glovebag procedure as outlined in N.J.A.C. 5:23-8 and project specifications. This shall include, but not be limited to the following procedures:

1. Each glovebag abatement work area shall be sealed with the construction of tent enclosures. The tent enclosures shall be constructed utilizing a minimum of one layer of six mil polyethylene plastic.

2. One air exchange every 15 minutes shall be provided in each tent enclosure.

3. The following list of equipment and tools required to perform the glovebag method- glovebags, two-three gallon garden sprayer, wetting agent, six mil bags, vacuum with capillary tube, small scrub brush, utility knife, stapler, wire cutters, bone saw, tin snips, duct tape, tinted encapsulant, and wetable cloths.

4. The glovebag abatement shall be performed by two man teams as one worker removes the material the other shall keep it saturated with amended water.

5. At the conclusion of the abatement, the glovebag shall be collapsed with a HEPA vacuum and the bottom portion containing the ACM twisted and sealed.

6. Each glovebag removal tent enclosure shall be cleared with Phase Contrast Microscopy.

C. General Notes for Work Area

1. Contractor shall install critical barriers on doorways and entrances to hallways, classrooms, offices, and maintenance rooms to seal the work area(s).

2. Contractor shall apply a tinted, approved encapsulant to all surfaces from which asbestos-containing pipe insulation material has been removed.

3. Electrical connections for power shall be made by a licensed electrical contractor subcontracted by the Contractor.

4. Contractor shall be responsible for requesting that the Owner deactivate the fire/heat detection system, if any, and the electrical systems in each work area and the confirmation of same prior to the start of this work.

5. Contractor shall provide proper negative pressure engineering controls in accordance with Section 01513 — Temporary Pressure Systems.

D. Related Work

1. OSHA compliance personnel air monitoring is required during all asbestos abatement work.

2. Contractor shall comply with applicable federal, state and local fire protection codes. Only fire-rated construction materials shall be used for all isolation/enclosure work on this project.

3. Contractor shall repair or replace all wall, floor, ceiling or other existing finishes and fixtures damaged as a result of abatement activities.

4. Contractor shall be responsible for the security of all materials, equipment, etc. left at the site during the course of the project.

5. Contractor shall provide fire extinguishers for use throughout the active work area. Fire extinguishers shall be of the appropriate class for materials present in the work area.

6. Contractor shall comply with all rules, directives, and requirements of the

7. The Owner and the Owner's security personnel and representatives shall have the right to investigate theft or allegations of theft and search the Contractor, and the Contractor's employees, subcontractors, equipment, and vehicles as deemed necessary.

1.4 ASBESTOS-CONTAINING MATERIALS:

A. The Work of this contract involves activities that will disturb asbestos-containing materials (ACM). The location and type of ACM known to be present at the worksite is set forth in the Schedule of Asbestos-Containing Materials at the end of this section. If any other ACM or PACM is found, notify the owner, other employers and employees about the location and quantity of the ACM or PACM within 24 hours of the discovery.

1.5 ASBESTOS HEALTH RISK:

A. The disturbance or dislocation of ACM may cause asbestos fibers to be released into the building's atmosphere, thereby creating a potential health risk to workers and building occupants. Apprise all workers, supervisory personnel, subcontractors and consultants who will be at the job site of the seriousness of the risk 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 ACM, take appropriate continuous measures as necessary to protect all building occupants from the risk of

exposure to airborne asbestos. Such measures shall include the procedures and methods described herein, and compliance with regulations of applicable federal, state and local agencies.

1.6 QUALITY ASSURANCE:

A. Use adequate number of skilled workmen who are thoroughly trained and experienced in asbestos abatement and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section. All workers must have a valid asbestos worker permit issued by the New Jersey Department of Labor.

B. All work shall be performed as described herein and as indicated on the accompanying drawings. All work shall be performed in strict accordance with all applicable federal, state and local regulations, including the New Jersey Asbestos Hazard Abatement Subcode N.J.A.C. 5:23-8 (Subchapter 8), as revised. Work area isolation shall be as specified in Section 01526, and as indicated on the accompanying drawings. Worker protection, asbestos removal, work area decontamination and waste disposal are as specified herein. Work area clearance is as specified in Section 01714 and N.J.A.C. 5:23-8.21.

1.7 CONTRACTOR USE OF PREMISES

A. General: During the construction period the Contractor shall have full use of the premises for construction operations, including use of the site. The Contractor's use of the premises is limited only by the Owner's right to perform work or to retain other contractors on portions of the Project.

B. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.

C. Use of the Existing Building: Maintain the existing building in a weather tight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period.

1. Smoking: Smoking or open fires will not be permitted within the building enclosure or on the premises.

2. Toilet Rooms: Except for toilet rooms designated for use by the Contractor's personnel, use of existing toilets within the building, will not be permitted.

1.8 OCCUPANCY REQUIREMENTS (Not Applicable)

1.9 CONCURRENT CONSTRUCTION (Not Applicable)

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION - 01013

SECTION 01097 - REFERENCE STANDARDS AND DEFINITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division°1 Specification Sections, apply to this Section.

1.2 DEFINITIONS

A. General: Basic contract definitions are included in the Conditions of the Contract.

1. "Indicated": The term "indicated" refers to graphic representations, notes, or schedules on the Drawings, or other paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the reader locate the reference. Location is not limited.

2. "Directed": Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean directed by the Designer, requested by the Designer, and similar phrases.

3. "Approved": The term "approved," when used in conjunction with the Designer's action on the Contractor's submittals, applications, and requests, is limited to the Designer's duties and responsibilities as stated in the Conditions of the Contract.

4. "Regulations": The term "regulations" includes laws, ordinances, statutes, 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.

5. "Furnish": The term "furnish" means supply and deliver to the Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.

6. "Install": The term "install" describes operations at the Project Site including the actual unloading, unpacking, assembly, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

7. "Provide": The term "provide" means to furnish and install, complete and ready for the intended use.

8. "Installer": An installer is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, or similar operations. Installers are required to be experienced in the operations they are engaged to perform.

a. The term "experienced," when used with the term "installer," means having a minimum of 5 previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of authorities having jurisdiction.

b. Trades: Using terms such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades persons of the corresponding generic name.

c. Assigning Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in those operations. The specialists must be engaged for those activities, and their assignments are

requirements over which the Contractor has no option. However, the ultimate responsibility for fulfilling contract requirements remains with the Contractor.
This requirement shall not be interpreted to conflict with enforcing building codes and similar regulations governing the Work. It is also not intended to interfere with local trade-union jurisdictional settlements and similar conventions.

9. "Project Site" is the space available to the Contractor for performing construction activities, either exclusively or in conjunction, with others performing other work 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 on which the Project is to be built.

10. "Testing Agencies": A testing agency 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.

11. "Designer": This is the entity described as the "Architect" in AIA Document A201 "General Conditions of the Contract for Construction," or is the entity described as "Engineer" in Engineers Joint Contract Document Committee (EJCDC) Document 1910-8 "Standard General Conditions of the Construction Contract." All references to Architect or Engineer in the Contract Documents in all cases refer to the Designer. The Designer will represent the Owner during construction and until final payment is due. The Designer will advise and consult with the Owner. The Owner's instructions to the Contractor will be forwarded through the Designer.

12. Stop Work Order: is a written order to cease asbestos removal, encapsulation or enclosure activities. The Contractor must maintain work area enclosure, pressure differential isolation and ventilation of the work area, and decontamination units during the period that a Stop Work Order is in affect.

13. "General Superintendent": This is the Contractor's Representative at the work site. This person must be a Competent Person as defined by OSHA in 29 CFR 1926.

B. Definitions Relative to Asbestos Abatement:

1. Abatement: Procedures to control fiber release from asbestos-containing materials. Includes removal, encapsulation, enclosure, repair, demolition and renovation activities.

2. Adequately Wet: means to sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from the asbestos-containing material (ACM), then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wetted.

3. Aerosol: A system consisting of particles, solid or liquid, suspended in air.

4. Aggressive Method: Means removal or disturbance of building material by sanding, abrading, grinding or other methods that breaks, crumbles, or disintegrates intact ACM.

5. Air Cell: Insulation normally used on pipes and ductwork that is comprised of corrugated cardboard, which is made asbestos, combined with cellulose or refractory binders.

6. Airlock: A serial arrangement of rooms whose door s are spaced a minimum of four (4) feet apart so as to permit ingress or egress through one (1) room without interfering with the next and constructed in such a manner as to prevent or restrict the free flow of air in either direction.

7. Air Monitoring: The process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure utilized for asbestos follows the NIOSH Method 7400. For clearance air monitoring, electron microscopy methods may be utilized for lower detectability and specific fiber identification.

8. Amended Water : Water to which a surfactant has been added.

9. "Asbestos": The asbestiform varieties of chrysotile (serpentine), amosite (cummingtonite-grunerite), crocidolite (riebeckite), tremolite, anthophyllite, actinolite, and any of these minerals that has been chemically treated and/or altered. For purposes of the contract documents materials described in the contract documents as asbestos are to be considered as asbestos.

10. "Asbestos-Containing Material (ACM)": Any material containing more than 1% asbestos as determined using the methods specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy.

11. "Asbestos-Containing Waste Material": any waste that contains asbestos. This term includes filters or other materials contaminated with asbestos. This term also includes regulated asbestos-containing material waste and materials contaminated with asbestos including disposable equipment and clothing.

12. "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.

13. Asbestos Hazard Abatement Project : The removal, enclosure, or encapsulation of more than 25 square feet of asbestos-containing materials used on any equipment or surface area such as wall, or ceiling area; or the removal or encapsulation, of more than 10 linear feet of asbestos-containing material on covered piping.

14. Asbestos Safety Control Monitor (ASCM) : A business entity authorized pursuant to N.J.A.C. 5:23-8 to ensure compliance with the Asbestos Hazard Abatement Subcode (Subchapter 8).

15. Asbestos Safety Technician (AST) : Person certified by New Jersey Department of Community Affairs, hired by the Asbestos Safety Control Monitor who continuously monitors and inspects the asbestos abatement work pursuant to Subchapter 8. This person shall be required to be on the job site during the time the asbestos abatement work is taking place and perform all duties and responsibilities established by Subchapter 8.

16. Authorized Personnel : The Owner, the Owner s representative, asbestos abatement contractor personnel, asbestos safety control monitor personnel, emergency personnel, or a representative of any Federal, State or local regulatory agency or other personnel under contract for or having jurisdiction over the project.

17. Barrier : Any surface that seals off the work area to inhibit the movement of fibers.

18. Breathing Zone : A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.

19. Category I Non-Friable Asbestos-Containing Material (ACM) : Asbestos-containing packings, gaskets, resilient floor covering and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy.

20. Category II Non-Friable ACM : Any material, excluding Category I non-friable ACM, containing more than 1 percent asbestos as determined using the methods specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

21. Certificate of Completion : The certificateissued by the asbestos safety control monitor signifying that the asbestos hazard abatement work has been completed in conformance with N.J.A.C. 5:23-8.

22. "Certified Industrial Hygienist (C.I.H.)": one certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.

23. Class I Asbestos Work : Means activities involving the removal of TSI and surfacing ACM and PACM.

24. Class II Asbestos Work : Means activities involving the removal of ACM, which is not thermal system insulation, or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

25. Class III Asbestos Work : Means repair and maintenance operations, where ACM , including thermal system insulation and surfacing material, is likely to be disturbed.

26. Class IV Asbestos Work : Means maintenance and custodial activities during which employees contact ACM and PACM and activities to clean up waste and debris containing ACM and PACM.

27. Clean Room : An uncontaminated are or room that is a part of the worker decontamination enclosure system with provisions for storage of worker s street clothes and clean protective equipment.

28. Competent person : an individual who meets the requirements of OSHA as a competent person for the specific activity involved in the work. The competent person must meet the requirements of 29 CFR 1926.32(f), and 29 CFR 1926.1101.

29. Critical Barrier : two individual layers of nominal six (6) mil polyethylene sheeting that completely seal off the work area to prevent the distribution of fibers to the surrounding area, such as the opening between the top of a wall and the underside of ceiling construction, electrical outlets, non-removable lights, HVAC systems, windows, doorways, entranceways, ducts, grilles, grates, diffusers, wall clocks, speaker grilles, floor drains, sink drains, etc.

30. Curtained Doorway : A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms, typically constructed by placing three (3) weighted overlapping sheets of plastic over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of the two outer sheets along one vertical side of the doorway and securing the vertical edge of the middle sheet along the opposite vertical side of the doorway.

31. Decontamination Enclosure System : A series of connected rooms, separated from the work area and from each other by air locks, for the decontamination of workers and equipment.

32. Disposal Bag : 6 mil thick leak-tight plastic bags used for transporting asbestos waste from work and to disposal site. Each is labeled as follows:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUCT
CANCER AND LUNG DISEASE HAZARD
AVOID BREATHING AIRBORNE ASBESTOS FIBERS
AND
ASBESTOS NA 2212, RQ

Each bag shall contain the U.S. DOT Class 9 (miscellaneous) hazardous material label. Contractor shall label all disposal bags and/or containers with the name of the waste generator (Owner) and the location from which the waste was generated; all in accordance with the EPA NESHAPS regulation — 40 CFR Part 61, Subpart M.

33. Encapsulant : A liquid material which can be applied to asbestos containing material which controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).

34. Enclosure : The application of an encapsulant, to asbestos-containing materials, to control the release of asbestos fibers into the air.

35. Equipment Room : A contaminated area or room that is part of the worker decontamination enclosure system with provisions for storage of contaminated clothing and equipment.

36. "Filter": A media component used to remove solid or liquid particles from air and water.

37. Flame-Resistant Polyethylene Sheeting : A single polyethylene film in the largest sheet size possible to minimize seams, nominal six (6) mil thick, conforming to requirements set forth by the National Fire Protection Association Standard 701, Small scale Fire Test for Flame-Resistant Textiles and Films.

38. "Friable Asbestos": any asbestos-containing material that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

39. Glove-bag Technique : A method with limited applications for removing small amounts of friable asbestos-containing material from HVAC ducts, short piping runs, valves, joints, elbows, and other non-planar surfaces in a non-contained (plasticized) work area. The glove-bag assembly is a manufactured or fabricated device consisting of a glove-bag (typically constructed of 6-mil transparent polyethylene plastic), two inward projecting sleeves, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glove-bag is constructed and installed in such a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process. All workers who are permitted to use the glove-bag technique must be highly trained, experienced and skilled in this method.

40. "Grinding": to reduce to powder or small fragments and includes manual or mechanical chipping or drilling.

41. "HEPA Filter": A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97% of all mono-dispersed particles of 0.3 microns in diameter.

42. "HEPA Filter Vacuum Collection Equipment (or vacuum cleaner)": High efficiency particulate air filtered vacuum collection equipment with a HEPA filter.

43. High-Efficiency Filter : A filter which removes from air 99.97% or more of monodisperse dioctyl phthalate (DOP) particles having a mean particle diameter of 0.3 micrometer.

44. "Intact": that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix.

45. "Leak-tight": that solids or liquids cannot escape or spill out. It also means dust-tight.

46. Negative Pressure : Air pressure lower than surrounding areas, generally caused by exhausting air from a sealed space (work area).

47. "Negative Pressure Enclosure(NPE)": A pressure differential and ventilation system where the work area is maintained at a negative pressure relative to air pressure outside the work area.

48. 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.

49. Negative Pressure Ventilation System : A local exhaust system, utilizing HEPA filtration capable of maintaining a negative pressure inside the work area and a constant air flow from adjacent areas into the work area and exhausting that air outside the work area.

50. "Nonfriable Material": any material that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure and has not been rendered friable.

51. Occupied Building : A building or structure where occupancy is permitted in certain areas outside of the required containment during an asbestos hazard abatement project.

52. Operations and Maintenance Activity : Corrective action not intended as asbestos abatement. The amount of friable asbestos containing material that can be abated per year per project is 25 square feet or less or, if covering piping, 10 linear feet or less.

53. Outside Air : the air outside buildings and structures.

54. Personal Monitoring : Sampling of the asbestos fiber concentrations within the breathing zone of an employee.

55. Plasticize : To cover floors and walls with plastic sheeting as herein specified.

56. 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.

57. "Personal Monitoring": Sampling of the asbestos fiber concentrations within the breathing zone of an employee.

58. Regulated Asbestos-Containing Materials (RACM) : (a) Friable asbestos material, (b) Category I non-friable ACM that has become friable, Category I non-friable ACM that will be subjected to sanding, grinding, cutting, or abrading, or (d) Category II non-friable ACM that has a probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition r renovation operations.

59. Removal : The stripping of any asbestos containing material from surfaces or components of a facility.

60. Removal Encapsulant : a penetrating encapsulant specifically designed for removal of asbestos-containing materials rather than for enclosing encapsulation.

61. Renovation : Alternating in any way one or more facility components. Operations in which load-supporting structural members are wrecked or taken out are excluded.

62. Repair : Means overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM or PACM attached to structure or substrates.

63. Respirator : A device designed to protect the wearer from the inhalation of harmful atmospheres.

64. Separation Barrier : A solid wall constructed to isolate the clean and/or occupied areas of a building from the work area and to support the polyethylene sheeting. Separation Barriers are of rigid construction consisting construction consisting of normal 2 x4 wood or metal studs spaced 16 on center and covered with a minimum of 1/2 plywood or gypsum board.

65. Shower Room : A room between the clean room and the equipment room in the worker decontamination enclosure with hot and cold water running water controllable at the tap and suitably arranged for complete showering during decontamination.

66. Staging Area : Either the holding area or some area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the work area.

67. "Surfacing material": material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).

68. Surfactant : A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

69. "Thermal system insulation (TSI)": insulation applied to pipes, fittings, boilers, breeching, tanks, ducts or other components to prevent heat loss or gain.

70. "Time Weighted Average (TWA)": The average concentration of a contaminant in air during a specific time period as determined by the method prescribed in Appendix A of 29 CFR part 1926.1101.

71. "Visible Emissions": Any emissions containing particulate material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

72. Waste Shipment Record : Waste handling and disposal record, or manifest, which documents the proper handling and disposal of asbestos containing waste materials. Documents shall be in compliance with EPA Regulation 40 CFR, Part 61, Subpart M (NESHAPS).

73. Water Column (W.C.) : A unit of measurement for pressure differential.

74. Wet Cleaning : The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils which have been dampened with amended water or diluted removal encapsulant and afterwards thoroughly decontaminated or disposed of as asbestos contaminated waste.

75. Work Area : Designated rooms, spaces, or areas of the project in which asbestos abatement actions are to be undertaken or which may become contaminated as a result of such abatement actions. A contained work area is a work area, which has been sealed, plasticized, and equipped with a decontamination enclosure system.

76. Worker Decontamination Enclosure : A decontamination system consisting of a clean room, a shower room, and an equipment room separated from each other and from the work area by airlocks and curtained doorways. This system is used for all worker entrances and exists to and from the work area and for equipment pass out for small jobs.

77. "Working Day": Monday through Friday and includes holidays that fall on any of the days Monday through Friday as indicated in the notification requirements.

1.3 SPECIFICATION FORMAT AND CONTENT EXPLANATION

A. Specification Format: These Specifications are organized into Divisions and Sections based on CSRF's 16-Division format and MasterFormat's numbering system.

B. Specification Content: This Specification uses certain conventions regarding the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:

1. Abbreviated Language: Language used in Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be interpolated as the sense requires. Singular words will be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Streamlined Language: The Specifications generally use the imperative mood and streamlined language. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subjective language is used for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor or by others when so noted.

1.4 INDUSTRY STANDARDS

A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with the standards in effect as of the date of the Contract Documents.

C. Conflicting Requirements: Where compliance with 2 or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer to the Designer before proceeding for a decision on requirements that are different but apparently equal, and where it is uncertain which requirement is the most stringent.
1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum acceptable. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to the Designer for a decision before proceeding.

D. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
1. Where copies of standards are needed to perform a required construction activity, the Contractor shall obtain copies directly from the publication source.

E. Standards: which apply to asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

1. American National Standards Institute (ANSI)
1430 Broadway
New York, New York 10018
(212) 354-3300

a. Fundamentals Governing the Design and Operation of Local Exhaust Systems Publication Z9.2
b. Practices for Respiratory Protection Publication Z88.2

2. American Society for Testing and Materials (ASTM)
100 Bar Harbor Drive
West Conshocken, PA 19428-2959
(610) 832-9585

a. Safety and Health Requirements Relating to Occupational Exposure to Asbestos E°849
b. ASTM Standard Practice for Encapsulants for Spray-or-Trowel-Applied Friable Asbestos-Containing Building Materials E1494
c. ASTM Standard Practice for Visual Inspection of Asbestos Abatement Projects E1368

F. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. The following acronyms or abbreviations, as referenced in the Contract Documents, are defined to mean the associated names. Names and addresses are subject to change and are believed, but are not assured, to be accurate and up-to-date as of the date of the Contract Documents.

1. ACI American Concrete Institute
P.O. Box 19150
Detroit, MI 48219 (313) 532-2600

2. ACIL American Council of Independent Laboratories
1629 K St., NW
Washington, DC 20006 (202) 887-5872

3. ACPA American Concrete Pipe Assoc.
8300 Boone Blvd., Suite 400
Vienna, VA 22182 (703) 821-1990

4. ACGIH American Conference of Governmental Industrial Hygienists
1330 Kemper Meadow Dr.
Cincinnati, OH 45240 (513) 742-2020

5. AIA The American Institute of Architects
1735 New York Ave., NW
Washington, DC 20006 (202) 626-7300

6. AIHA American Industrial Hygiene Assoc.
2700 Prosperity Ave., Suite 250
Fairfax, VA 22031 (703) 849-8888

7. ANSI American National Standards Institute
11 West 42nd St., 13th Floor
New York, NY 10036 (212) 642-4900

8. ASHRAE American Society of Heating,
Refrigerating and Air-Conditioning Engineers
1791 Tullie Circle, NE
Atlanta, GA 30329 (404) 636-8400

9. ASME American Society of Mechanical Engineers
345 East 47th St.
New York, NY 10017 (212) 705-7722

10. ASPE American Society of Plumbing Engineers
3617 Thousand Oaks Blvd., Suite 210
Westlake, CA 91362 (805) 495-7120

11. ASTM American Society for Testing and Materials
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959 (610) 832-9585

12. CGA Compressed Gas Assoc.
1725 Jefferson Davis Highway, Suite 1004
Arlington, VA 22202-4100 (703) 412-0900

13. FM Factory Mutual Systems
1151 Boston-Providence Turnpike
P.O. Box 9102
Norwood, MA 02062 (617) 762-4300

14. GA Gypsum Association
810 First St., NE, Suite 510
Washington, DC 20002 (202) 289-5440

15. IEEE Institute of Electrical and Electronic Engineers
345 E. 47th St.
New York, NY 10017 (212) 705-7900

16. IETA International Electrical Testing Assoc.
P.O. Box 687
Morrison, CO 80465 (303) 697-8441

17. IRI Industrial Risk Insurers
P.O. Box 5010
85 Woodland St.
Hartford, CT 06102-5010 (203) 520-7300

18. ISA Instrument Society of America
P.O. Box 12277
67 Alexander Dr.
Research Triangle Park, NC 27709 (919) 549-8411

19. ISO International Standards Organization

20. NEC National Electrical Code (from NFPA)

21. NECA National Electrical Contractors Assoc.
3 Bethesda Metro Center, Suite 1100
Bethesda, MD 20814 (301) 657-3110

22. NEMA National Electrical Manufacturers Assoc.
2101 L St., NW, Suite 300
Washington, DC 20037 (202) 457-8400

23 NESHAPS The National Emission Standards for
Hazardous Air Pollutants (40 CFR Part 61)

24 NFPA National Fire Protection Assoc.
One Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101 (617) 770-3000 (800) 344-3555

25 NRCA National Roofing Contractors Assoc.
10255 W. Higgins Rd., Suite 600
Rosemont, IL 60018-5607 (708) 299-9070

26 NVLAP National Voluntary Laboratory Accreditation Program
100 Bureau Drive, Stop 2140
Gaithersburg, MD 20899-2140 (301) 975-4016

27 RFCI Resilient Floor Covering Institute
966 Hungerford Dr., Suite 12-B
Rockville, MD 20805 (301) 340-8580

28 UL Underwriters Laboratories
333 Pfingsten Rd.
Northbrook, IL 60062 (708) 272-8800

29 White Lung Association
PO Box 1483
Baltimore, MD 21203

G. Federal Government Agencies: Names and titles of federal government standard-or Specification-producing agencies are often abbreviated. The following acronyms or abbreviations referenced in the Contract Documents indicate names of standard- or Specification-producing agencies of the federal government. Names and addresses are subject to change and are believed, but are not assured, to be accurate and up-to-date as of the date of the Contract Documents.

1. CE Corps of Engineers
(U.S. Department of the Army)
Chief of Engineers - Referral
Washington, DC 20314 (202) 272-0660

2. CFR Code of Federal Regulations
(Available from the Government Printing Office)
N. Capitol St. between G and H St., NW
Washington, DC 20402 (202) 783-3238
(Material is usually first published in the "Federal Register")

3. CPSC Consumer Product Safety Commission
5401 Westbard Ave.
Bethesda, MD 20207 (800) 638-2772

4. CS Commercial Standard
(U.S. Department of Commerce)
Government Printing Office
Washington, DC 20402 (202) 783-3238

5. DOC Department of Commerce
14th St. and Constitution Ave., NW
Washington, DC 20230 (202) 482-2000

6. DOT Department of Transportation
400 Seventh St., SW
Washington, DC 20590 (202) 366-4000

7. EPA Environmental Protection Agency
401 M St., SW
Washington, DC 20460 (202) 260-2090

8. FS Federal Specification (from GSA)
Specifications Unit (WFSIS)
7th and D St., SW
Washington, DC 20407 (202) 708-9205

9. GSA General Services Administration
F St. and 18th St., NW
Washington, DC 20405 (202) 708-5082

10. MIL Military Standardization Documents
(U.S. Department of Defense)
Naval Publications and Forms Center
5801 Tabor Ave.
Philadelphia, PA 19120

11 NIOSH The National Institute for Occupational Safety and Health
Building J.N.E. Room 3007
Atlanta, GA 30333

12 NIST National Institute of Standards and Technology
(U.S. Department of Commerce)
Gaithersburg, MD 20899 (301) 975-2000

13 OSHA Occupational Safety and Health Administration
(U.S. Department of Labor)
200 Constitution Ave., NW
Washington, DC 20210 (202) 219-6091

14 PS Product Standard of NBS
(U.S. Department of Commerce)
Government Printing Office
Washington, DC 20402 (202) 783-3238

15 USPS U.S. Postal Service
475 L'Enfant Plaza, SW
Washington, DC 20260-0010 (202) 268-2000

PART 2 - PRODUCTS °(Not Applicable)

PART 3 - EXECUTION °(Not Applicable)

END OF SECTION 01097

SECTION 01098 - CODES, REGULATIONS AND STANDARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this section.

1.2 SUMMARY

A. This section sets forth governmental regulations, 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 work.

1. Requirements include adherence to work practices and procedures set forth in applicable codes, regulations and standards.

2. Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with codes, regulations, and standards.

1.3 CODES, REGULATIONS AND STANDARDS

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 and regulations 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 work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State, and local regulations. The Contractor shall hold the Owner and Designer harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of the contractor, the contractor s employees, or subcontractors.

C. Federal Requirements: which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

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

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

b. Respiratory Protection
Title 29, Part 1910, Section 134 of the Code of Federal Regulations
Title 29, Part 1926, Section 103 of the Code of Federal Regulations

c. Personal Protective Equipment for General Industry
Title 29, Part 1910, Section 132 of the Code of Federal Regulations
Title 29, Part 1926, Sections 95 - 107 of the Code of Federal Regulations

d. Access to Employee Exposure and Medical Records

Title 29, Part 1926, Section 33 of the Code of Federal Regulations

e. Hazard Communication
Title 29, Part 1926, Section 59 of the Code of Federal Regulations

f. Specifications for Accident Prevention Signs and Tags
Title 29, Part 1910, Section 145 of the Code of Federal Regulations

g. Permit Required Confined Space
Title 29, Part 1910, Section 146 of the Code of Federal Regulations

h. Construction Industry
Title 29, Part 1910, Section 1001 of the Code of Federal Regulations
Title 29, Part 1926, Section 1101 of the Code of Federal Regulations

i. Construction Industry - General Duty Standards
Title 29, Part 1926, Sections 20 through 35 of the Code of Federal Regulations

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

a. Hazardous Substances
Title 49, Part 171 and 172 of the Code of Federal Regulations

b. Hazardous Material Regulations
General Awareness and Training Requirements for Handlers, Loaders and Drivers
Title 49, Parts 171-180 of the Code of Federal Regulations

c. Hazardous Material Regulations
Editorial and Technical Revisions
Title 49, Parts 171-180 of the Code of Federal Regulations

3. EPA: U. S. Environmental Protection Agency (EPA), including but not limited to:

a. Asbestos Hazard Emergency Response Act (AHERA) Regulation
Title 40, Part 763, Sub-part E of the Code of Federal Regulations

b. EPA Model Accreditation Plan - Asbestos Containing Materials Final Rule & Notice
Title 40, Part 763, Sub-part E, Appendix C of the Code of Federal Regulations

c. National Emission Standard for Hazardous Air Pollutants (NESHAP)
National Emission Standard for Asbestos
Title 40, Part 61, Sub-part A, and Sub-part M (Revised Sub-part B) of the Code of Federal Regulations

D. State Requirements: which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

1. State of New Jersey, including but not limited to:

a. N.J.A.C. 5:23-8 — Asbestos Hazard Abatement Subcode, latest revision

b. N.J.A.C. 5:16 and 8:60 — Asbestos Licenses & Permits

c. N.J.A.C. 12:120 — Department of Labor

d. New Jersey Department of Environmental Protection regulation 7:26.

E. Local Requirements: which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to the following:

1. Abide by all local requirements, which govern asbestos abatement work or hauling and disposal of asbestos waste materials.

1.4 NOTICES:

A. Contractor shall postmark or hand deliver written notification as required by USEPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Asbestos Regulations (40 CFR 61, Subpart M) to the regional Asbestos NESHAP Contact at least 10 working days prior to beginning any work on asbestos-containing materials (ACM). Send notification to the following address:

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION II:
Asbestos NESHAP Contact
Air & Waste Management Division
USEPA
26 Federal Plaza
New York, NY 10007
(212) 264-9627

1. Written notification sent to NESHAPS contact shall include the following:

a. Indication whether the notification is the original or revised notification
b. Name, address, and telephone number of owner or operator.
c. Name, address, and telephone number of contractor.
d. Type of Operation (demolition or renovation)
e. Description of the facility or affected part of the facility being demolished or renovated, including the size (square feet [square meters], number of floors), age, present and prior use of the facility.
f. Estimate of the approximate amount of RACM to be removed from the facility in terms of linear meters [linear feet] of pipe, and surface area in square meters [square feet] of other facility components. Also estimate the approximate amount of Category I and Category II nonfriable ACM in the affected part of the facility that will not be removed before demolition.
g. For facilities in which the amount of friable asbestos materials less than 80 linear meters (260 linear feet) on pipes and less than 15 square meters (160 square feet) or 1 cubic meter (35 cubic feet) if the length and width could not be measured. On other facility components, explain techniques of estimation.
h. Location and street address (including building number or name and floor or room number, if appropriate), city, county, and state, of the facility being demolished or renovated.
i. Scheduled starting and completion dates of asbestos removal work (or any other activity, such as site preparation that would break up, dislodge, or similarly disturb asbestos material) in a demolition or renovation; planned renovation operations involving individual nonscheduled operations shall only include the beginning and ending dates of the report period as described in paragraph (a)(4)(iii) of 40 CFR 61.145.
j. Scheduled starting and completion dates of demolition or renovation.
k. Nature of planned demolition or renovation and method(s) to be used, including demolition or renovation techniques to be used and description of affected facility components.
l. Procedures to be used to comply with the requirements of USEPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Asbestos Regulations (40 CFR 61 Subpart M).
m. Name and location of the waste disposal site where the asbestos containing waste material will be deposited.
n. A certification that at least one person trained as required by paragraph (c)(8) of 40 CFR 61.145 will supervise the stripping and removal described by this notification.

o. For facilities being demolished under an order of a State or local governmental agency, issued because the facility is structurally unsound and in danger of imminent collapse, the name, title, and authority of the State or local governmental representative who has ordered the demolition. A copy of the order shall be attached to the notification

p. For emergency renovations described in paragraph (a)(4)(iv)of 40 CFR 61.145, the date and hour that the emergency occurred, a description of the sudden, unexpected event, and an explanation of how the event caused an unsafe condition, or would cause equipment damage or an unreasonable financial burden.

q. Description of procedures to be followed in the event that the unexpected RACM is found or Category II nonfriable ACM becomes crumbled, pulverized, or reduced to powder.

r. Name, address, and telephone number of the waste transporter.

B. STATE AND LOCAL AGENCIES:

1. Send written notification as required by state and local regulations prior to beginning any work on ACM. These agencies may include, but are not limited to the following:

a. New Jersey Department of Health & Senior Services
Consumer & Environmental Health Services
Lead & Asbestos Program
PO Box 360, 210 South Broad Street
Trenton, New Jersey 08625-0360

b. New Jersey Department of Labor
Asbestos Control & Licensing Section
1 John Fitch Plaza, 3rd Floor
PO Box 949, Trenton, NJ 08625-0949

c. New Jersey Department of Environmental Protection
Division of Solid and Hazardous Waste
PO Box 414, 401 East State Street
Trenton, New Jersey 08625-0414

d. New Jersey Department of Community Affairs
Asbestos Control Unit
PO Box 816, 101 South Broad Street, 4th Floor
Trenton, New Jersey 08625-0816

1.5 PERMITS:

A. Permit: All asbestos containing waste is to be transported by an entity maintaining a current "Industrial waste hauler permit" specifically for ACM, as required for transporting of waste ACM to a disposal site.

B. Contractor is responsible for obtaining any demolition, building, renovation or other permits, and for paying application fees, if any, where required by State or Local jurisdiction.

1.6 LICENSES:

A. Licenses: Maintain current licenses as required by applicable state or local jurisdictions for the removal, transporting, disposal or other regulated activity relative to the work of this contract. Contractor shall maintain a valid New Jersey asbestos abatement license for the duration of this project. An original, or certified, gold seal duplicate shall be posted prominently at the site.

1.7 POSTING AND FILING OF REGULATIONS

A. Posting and Filing of Regulations: Post all notices required by applicable federal, state and local regulations. Maintain two (2) copies of applicable federal, state and local regulations and standards. Maintain one copy of each at job site. Keep on file in Contractor's office one copy of each.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION — 01098

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SECTION 01410 - AIR MONITORING - ASBESTOS SAFETY CONTROL MONITOR (ASCM)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division°1 Specification Sections, apply to this Section.

1.2 SUMMARY:

A. Air monitoring carried out by the ASCM to verify that the building beyond the work area and the outside environment remain uncontaminated.

B. Establishing airborne fiber levels both inside and outside the work area as action levels.

C. Action required by the Contractor if an action level is met or exceeded.

1.3 WORK BY OTHERS:

Air monitoring required by OSHA to be conducted by the employer is the Contractor's responsibility and is not covered in this section.

1.4 RELATED SECTIONS:

Section 01714 - Work Area Clearance: air monitoring required.

1.5 AIR MONITORING:

A. The Owner has contracted with an ASCM for air monitoring. Air monitoring may be conducted both outside and inside of the work area during the work, and for clearance sampling at the end of the project

1. Outside of the Work Area: The AST may sample air outside of the work area to detect faults in the work area isolation such as:

a. Contamination of the building outside of the work area with airborne asbestos fibers,

b. Failure of filtration or rupture in the differential pressure system,

c. Contamination of air outside the building envelop with airborne asbestos fibers.

2. Inside the Work Area: The AST may monitor airborne fiber counts in the Work Area. The purpose of this air monitoring is to detect airborne asbestos concentrations which may challenge the ability of the Work Area isolation procedures to protect the balance of the building or outside of the building from contamination by airborne fibers.

B. Should any of the above occur the Contractor shall immediately cease asbestos abatement activities until the fault is corrected. Work shall not recommence until authorized by the Asbestos Safety Technician (AST).

C. Work area clearance: Clearance air sampling by the AST at the completion of asbestos abatement work is described in Section 01711 Project Decontamination.

D. Air monitoring required by OSHA is work of the Contractor and is not covered in this section

1.6 SCHEDULE OF AIR SAMPLES BY AST:

A. Sample cassettes: Samples will be collected on 25 mm. cassettes as follows:

1. PCM: 0.8 micrometer mixed cellulose ester.

2. TEM: 0.45 micrometer mixed cellulose ester or 0.40 micrometer polycarbonate, with 5.0 micron mixed cellulose ester backing filter.

B. Number and Volume of Samples: The number and volume of air samples given in the schedules is approximate. The exact number and volume of samples collected by the AST may vary depending upon job conditions and the analytical method used.

C. Sample Volume and Sensitivity:

1. PCM: The sample volumes collected by the AST will be determined by the following formula:

$$\text{Volume} = \frac{\left(\frac{\text{Number of Fibers}}{\text{Area of 100 Fields}}\right) \times \text{Total Filter Area}}{\left(\frac{\text{Limit Value}}{4}\right)}$$

Where:

Number of fibers	=	5 fibers/100 fields
Area of 100 fields	=	0.785mm^2
Total Filter Area	=	385mm^2
Limit Value	=	as specified in the schedules of samples below

a. For purposes of this specification, the sample volume calculated above will be considered to be of sufficient size so that there is a 95% level of confidence that the value measured by each individual sample at the limit of detection (LOD) is less than or equal to the limit values specified below.

b. For purposes of this specification, the Limit of Detection (LOD) is defined as 7 fibers/mm^2 on the filter or 5 fibers/100 fields.

c. For purposes of this specification overloaded samples will be considered as exceeding the applicable limit value.

2. TEM: Analytical Sensitivity of 0.05 structures/cc as set forth in the AHERA regulation.

D. Base Line:

1. Before Start of Work: The AST will secure air samples to establish a base line.

2. PCM Samples

Location Sampled	Number of Samples	Limit Value (Fibers/cc)	Approx. Volume (Liters)	Rate (Liters/ Minute)
Each Work Area	5	0.01	*<1,000>*	1-10
Work Area Perimeter	5	0.01	*<1,000>*	1-10
Outside Building	5	0.01	*<1,000>*	1-10

3. TEM Samples:

Location Sampled	Number of Samples	Analytical Sensitivity (Struct./cc.)	Approx. Volume (Liters)	Rate (Liters/ Minute)
Each Work Area	1	0.005	1,300	1-10
Work Area Perimeter	1	0.005	1,300	1-10
Outside Building	1	0.005	1,300	1-10

4. Base Line: a level expressed in fibers per cubic centimeter which is twenty-five percent greater than the largest of the following:

   a. Average of the PCM samples collected outside each Work Area

   b. Average of the PCM samples collected outside the building

   c. 0.01 fibers per cubic centimeter

E. Daily:

1. From start of work of Section 01526 Temporary Enclosures through the work of Section 01711 Project Decontamination, the AST may take samples.

2. Sample volume and sensitivity: inside the work area may vary depending upon conditions in the work area. If samples are overloaded at the sample volume required for a limit value equal to the Stop Action Levels or Immediate Stop Action Levels given later in this section, the level is considered to have been exceeded.

3 PCM Samples:

Location Sampled	Number of Samples	Limit Value (Fibers/cc)	Approx. Volume (Liters)	Rate (LPM)
Each Work Area	2	*<0.1>*	*<100>*	1-10
Work Area Perimeter	1	0.01	*<1,000>*	1-10
Clean Room	1	0.01	*<1,000>*	1-10
Equipment Decon	1	0.01	*<1,000>*	1-10
Outside Building	1	0.01	*<1,000>*	1-10
Output of AFD	1	0.01	*<1,000>*	1-10

F. Additional samples may be taken at Owner's or Designer s discretion. If airborne fiber counts exceed allowed limits additional samples may be taken as necessary to monitor fiber levels.

G. The AST will conduct air monitoring throughout the course of the project.

H. Air sampling shall be performed in occupied buildings as follows:

1. At a minimum, one (1) sample at the beginning of each work shift, one (1) every four (4) hours thereafter, and one (1) at the end of the Contractors work day/shift for every 10,000 square feet of occupied space adjacent to the work area shall be collected and analyzed. Air samples shall be taken in areas where the greatest potential for fiber migration exists. In addition to the requirements noted above, air samples shall be taken at the entrance(s) to the work area and any other interior spaces from which make-up air is drawn. Additional samples shall be taken for all

areas such as stairwells, communicating shafts, elevators, plenums, ducts that pass through the work area and which are in service, and unusual room and building configurations. If air levels exceed the permitted fiber count, the applicable requirements of the contingency plan shall be followed.

2. At least one (1) air sample shall be collected and analyzed during the work shift inside the work area. The results of this test will not, however, trigger the requirements of the contingency plan.

3. A representative number of air samples shall be collected and analyzed along the entire waste removal route through the building if the route of travel is to be used by building occupants following waste removal activities. Acceptable air levels shall be achieved prior to allowing building occupants use of this area. If air levels exceed the permitted fiber count, the applicable requirements of the contingency plan shall be followed.

1.7 STOP ACTION LEVELS:

A. Inside Work Area: Maintain an average airborne count in the work area of less than the Stop Action Level given below for the type of respiratory protection in use. If the fiber counts rise above this figure for any sample taken, revise work procedures to lower fiber counts. If the Time Weighted Average (TWA) fiber count for any work shift or 8-hour period exceeds the Stop Action Level, stop all work except corrective action, leave pressure differential and air circulation system in operation and notify Designer. After correcting cause of high fiber levels, do not recommence work for 24 hours unless otherwise authorized, in writing, by Designer.

STOP ACTION LEVEL (f/cc)	IMMEDIATELY STOP LEVEL (f/cc)	MINIMUM RESPIRATOR REQUIRED	PROTECTION FACTOR
0.1	0.5	Half face	10
0.5	2.5	PAPR	50
1.0	5.0	Supplied Air Pressure Demand	100

1. If airborne fiber counts exceed Immediate Stop Level given above for type of respiratory protection in use for any period of time cease all work except corrective action. Notify Designer. Do not recommence work until fiber counts fall below Stop Action Level given above for the type of respiratory protection in use. After correcting cause of high fiber levels, do not recommence work for 24 hours unless otherwise authorized, in writing, by Designer.

B. Outside Work Area: If any air sample taken outside of the Work Area exceeds the base line established in Part 1 of this section, immediately and automatically stop all work except corrective action. The Designer will determine the source of the high reading and so notify the Contractor in writing.

1. If the high reading was the result of a failure of Work Area isolation measures initiate the following actions:

   a. Immediately erect new critical barriers as set forth in Section 01526 Temporary Enclosures to isolate the affected area from the balance of the building. Erect Critical Barriers at the next existing structural isolation of the involved space.
   b. Decontaminate the affected area in accordance with Section 01711 Project Decontamination.

c. Require that respiratory protection as set forth in Section 01562 Respiratory Protection be worn in affected area until area is cleared for re-occupancy in accordance with Section 01711 Project Decontamination.

d. Leave Critical Barriers in place until completion of work and insure that the operation of the pressure differential system in the Work Area results in a flow of air from the balance of the building into the affected area.

e. If the exit from the clean room of the personnel decontamination unit enters the affected area, establish a decontamination facility consisting of a Shower Room and Changing Room as set forth in Section 01563 Decontamination Units at entry point to affected area.

f. After Certification of Visual Inspection in the Work Area remove critical barriers separating the work area from the affected area. Final air samples will be taken within the entire area as set forth in Section 01711 Project Decontamination.

C. Effect on Contract Sum: Complete corrective work with no change in the Contract Sum if high airborne fiber counts were caused by Contractor's activities. The Contract Sum and schedule will be adjusted for additional work caused by high airborne fiber counts beyond the Contractor's control.

1.8 STOP WORK:

A. If the Owner, Designer, AST presents a written stop work order, immediately and automatically conform to that stop work order, while maintaining temporary enclosures and pressure differential. Do not recommence abatement work until authorized in writing by Owner, Designer or AST.

B. Immediately initiate the following actions: After being presented with a stop work order immediately:

1. Cease all asbestos removal activities, or any other activities that disturbs ACM.

2. Repair any fallen, ripped or otherwise failed work area isolation measures.

3. Maintain in operation all work area isolation measures including those required by Sections 01526 Temporary Enclosures, 01513 Pressure Differential & Air Circulation System, 01563 Decontamination Units.

4. Maintain all worker protections including those required by Sections 01560 Worker Protection - Asbestos Abatement, and 01562 Respiratory Protection.

5. Fog the air in the work area with a mist of amended water to reduce airborne fiber levels.

C. Do not recommence work until authorized in writing by the Owner, Designer or AST.

1.9 FIBERS COUNTED:

A. The following procedure will be used to resolve any disputes regarding fiber types when a project has been stopped due to excessive airborne fiber counts. "Airborne Fibers" referred to above include all fibers regardless of composition as counted in the NIOSH 7400A Procedures.

B. If elevated fiber concentrations are detected outside the work area, these results may also be confirmed via TEM analysis. In the event that TEM analysis results confirm that the asbestos fiber concentration has exceeded the limits stated above, the contractor shall be responsible for the cost of the TEM testing as well.

C. Transmission Electron Microscopy which may be utilized for this purpose will be performed using the analysis method set forth in the AHERA regulation 40 CFR Part 763 Appendix A.

1.10 AIR SAMPLES

A. The number and volume of air samples taken by AST will be as required to document acceptable execution of the work and to ensure compliance with Federal, State and local regulations. Sample volumes collected may vary depending upon site conditions and the analytical method used.

B. Additional samples may be taken at the discretion of the AST or his designee. If airborne fiber counts exceed allowed limits additional samples will be taken as necessary to monitor fiber levels.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 PERSONAL MONITORING

The Contractor Shall Provide For Air Monitoring As Required To Meet OSHA Requirements For Maintenance Of Time Weighted Average (TWA) Fiber Counts For Types Of Respiratory Protection Provided.

END OF SECTION 01410

SECTION 01513 - PRESSURE DIFFERENTIAL AND AIR CIRCULATION SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to work of this section.

1.2 SUMMARY

A. This section covers the set-up and operation of negative air filtration equipment required during asbestos abatement. The primary function of negative air filtration equipment is to create negative air pressure inside the work area to prohibit the spread of contamination to uncontaminated areas.

1.3 QUALITY ASSURANCE:

A. Monitor pressure differential at Personnel and Equipment Decontamination Units with a differential pressure meter equipped with a continuous recorder. Meter shall be equipped with a warning buzzer, which will sound if pressure differential drops below 0.03 inch of water.

B Provide HEPA filtered fan units, which pass visual inspection by the Owner s Consultant for all parameters defined in this section and which pass a quantitative challenge test at the work site. Use portable velometer to determine air-moving capacity of each unit. Any unit showing more than 0.3% of the intake reading at the exhaust side shall be considered defective and shall not be approved for use until the problem is corrected.

PART 2 - PRODUCTS

2.1 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: Constructed of durable materials able to withstand damage from rough handling and transportation. The width of the cabinet should be less than 30 inches [0.76 meters] to fit through standard-size doorways. Provide units whose cabinets are:

1. Factory-sealed to prevent asbestos-containing dust from being released during use, transport, or maintenance.

2. Arranged to provide access to and replacement of all air filters from intake end.

3. 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.

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 um dioctylphthalate (DOP) particles when tested in accordance with Military Standard Number 282 and Army Instruction

Manual 136-300-175A. 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.

4. 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:

   a. First-stage pre-filter: low-efficiency type (e.g., for particles 100 um and larger)
   b. Second-stage (or intermediate) filter: medium efficiency (eg. effective for particles down to 5 um)
   c. Provide units with pre-filters and intermediate filters installed either on or in the intake grid of the unit and held in place with special housings or clamps.

E. Instrumentation: Provide 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 changed.

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 changed, noting Cubic Feet per Minute (CFM) (Liters / Second (LPS)) air delivery at that point.

3. Elapsed time meter to show the total accumulated hours of operation.

F. Safety and Warning Devices: Provide units with the following safety and warning devices:

1. Electrical (or mechanical) lockout to prevent fan from operating without a HEPA filter.

2. Automatic shutdown system to stop fan in the event of a rupture in the HEPA filter or blocked air discharge.

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.

G. 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.

H. Manufacturers: Subject to compliance with requirements, manufacturers offering products, which may be incorporated in the work, include, but are not limited to, the following:

I. Manufacturer: Subject to compliance with requirements, provide products of the following:

1. HEPA filtered Fan Units: The following machines are standard 2000 CFM machines used in typical asbestos abatement jobs.

Aerospace America, Inc. "Aero-Clean 2000"

900 Truman Parkway
P.O. Box 189
Bay City, Michigan 48707
(517) 684-2121

Abatement Technologies "HEPA-AIRE 1990 and HEPA-AIRE 2000"
3305 Breckinridge Blvd. #118
Deluth, GA 30136
(800) 634-9091 or (404) 925-2761

Global Consumer Services, Inc.
4615-1U E. Industrial St.
Sims Valley, CA 93063
(805) 579-0230

M-Tec Corp. Micro-Trap
1300 W. Steel Rd. Alumina II
Unit #2
Morrisville, PA 19067
(215) 295-8208

2. Large Capacity: The following are large capacity 5000-6000 CFM machines used on large asbestos abatement jobs.

Abatement Technologies "HEPA-AIRE 5000"
3305 Breckinridge Blvd. #118 model H5000C
Deluth, GA 30136
(800) 634-9091 or (404) 925-2761

3. Hazardous Locations: The following are pneumatically powered machines for use in asbestos abatement jobs in hazardous locations where electric motors are prohibited.

Abatement Technologies "HEPA-AIRE PNEUMATIC"
3305 Breckinridge Blvd. #118 model H2000P
Deluth, GA 30136
(800) 634-9091 or (404) 925-2761

2.2 PRESSURE DIFFERENTIAL METER:

A. General: Provide a pressure differential meter, which is recommended by its manufacturer for the intended purpose and has sufficient accuracy and resolution (minimum 0.005 H_2O) to perform as specified herein.

B. Integral Recording Device: Provide a meter, which has an integral recording device, which has equal accuracy and resolution to the meter.

C. Calibration: Meter shall have initial and periodic calibrations in accordance with the manufacturer s recommendations. Record of such shall be with the meter at all times.

D. Zero Adjustment: Meter shall be equipped with zero adjustment for both the meter and chart recorder.

PART 3 - EXECUTION

3.1 PRESSURE DIFFERENTIAL ISOLATION

A. Isolate the Work Area from all adjacent areas or systems of the building with a Pressure Differential that will cause a movement of air from outside to inside at any breach in the physical isolation of the Work Area.

B. Relative Pressure in Work Area: 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:

1. 0.03 inches (0.75 mm) of water.

C. 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, the seal at barriers, and required air circulation. 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 required air circulation in the work area, personnel and equipment decontamination units.
2. Establish isolation by increased pressure in adjacent areas or as part of seals where required.
3. Exhaust a sufficient number of units from the work area to develop the required pressure differential.
4. The required number of units is the number determined above plus one additional unit.
5. Vent HEPA filtered fan units to outside of building unless authorized in writing by Designer.
6. Mount units to exhaust directly or through disposable ductwork.
7. Use only new ductwork except for sheet metal connections and elbows.
8. Use ductwork and fittings of same diameter or larger than discharge connection on fan unit.
9. Use inflatable, disposable plastic ductwork in lengths not greater than 100 feet (30 meters).
10. Use spiral wire-reinforced flex duct in lengths not greater than 50 feet (15 meters).
11. Arrange exhaust as required to inflate duct to a rigidity sufficient to prevent flapping.
12. If direction of discharge from fan unit is not aligned with duct use sheet metal elbow to change direction. Use six feet (2 meters) of spiral wire reinforced flex duct after direction change.

D. Isolation of elevators, stair towers, and return air intakes: 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.

1. Fabricate seal by first sealing door with duct tape and 6 mil (0.15 mm) polyethylene. Construct a barrier from 2" (13mm) CDX plywood supported by 2" X 4" (51 mm x 102 mm) wood studs at 16" (410 mm) on centers. Space face of barrier a minimum of 3" (76 mm) from face of door. Seal barrier with 6 mil (0.15 mm) sheet plastic and duct tape.

2. Use plywood and framing lumber that is treated to be fire resistant.

3. Pressurize space with exhaust from HEPA filtered fan unit. Continuously maintain a pressure differential with this space a minimum of 0.03 inches of water higher in static pressure than any adjacent space.

4. Locate HEPA filtered fan unit outside of 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: Pressurize chases and enclosed stairs with HEPA filtered air so that it is at a pressure greater than any adjacent work area.

1. Pressurize space with exhaust from HEPA filtered fan unit. Continuously maintain a pressure differential with this space a minimum of 0.03 inches of water higher in static pressure than any adjacent work area.

F. Isolation of return air ductwork: Return air ductwork, which must be kept, operating is located in the Work Area. This ductwork is to be isolated from the Work Area by an enclosure forming an annular space around the duct which is positively pressurized with HEPA filtered air.

1. Wrap the duct with 6 mil (0.15 mm) polyethylene. Seal all polyethylene seams with spray glue and duct tape.

2. Enclose wrapped duct with two layers of polyethylene. Fabricate inner layer from 6 mil (0.15 mm) polyethylene with all seams sealed with spray glue and duct tape. Arrange outer layer to support inner layer. Fabricate out of reinforced sheet plastic with seams sealed with spray glue and duct tape and reinforced with staples. Support outer layer with a frame work fabricated from 2" x 4"s (51 mm x 102 mm) at 24" (610 mm) on center. Enclosures less than 2'-6' in diameter may be reinforced with box strapping in lieu of wood framing.

3.2 AIR CIRCULATION IN THE WORK AREA:

A. Air Circulation: For purposes of this section air circulation refers to either the introduction of outside air to the Work Area or the circulation and cleaning of air within the Work Area.

B. 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 the worker protection program.

C. Determining the Air circulation Requirements: The air flow volume (cubic meters per minute) exhausted (removed) from the workplace must exceed the amount of makeup air supplied to the enclosure. Provide a fully operational air circulation system supplying a minimum of the following air circulation rate:

1. 8 air changes per hour

D. 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. Determine total air circulation requirement in cubic feet per minute (CFM) for the work area by dividing this volume by 60 and multiplying by the air change rate.
2. Air Circulation Required in Cubic Feet of Air per Minute (CFM) =

$$\frac{\text{Volume of work area (cu. ft.)}}{\text{60 (minutes per hour)}} \times \text{Number of air changes per hour}$$

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.

4 Number of Units Needed =

$$\frac{\text{Air circulation Requirement (CFM)}}{\text{Capacity of Unit with Loaded Filters (CFM)}}$$

5. Add one (1) additional unit as a backup in case of equipment failure or machine shutdown for filter changing.

3.3 AIR CIRCULATION IN DECONTAMINATION UNITS:

A. Pressure Differential Isolation: Continuously maintain the pressure differential required for the work area in the:

1. Personnel Decontamination Unit: across the Shower Room with the Equipment Room at a lower pressure than the Clean room.

2. Equipment Decontamination Unit: Across the Holding Room with the Wash Room at a lower pressure than the Clean Room.

B. Air Circulation: Continuously maintain air circulation in Decontamination Units at same level as required for Work Area.

C. Air Movement: Arrange air circulation through the Personnel Decontamination Unit so that it produces a movement of air from the Clean Room through the Shower Room into the Equipment Room. At each opening, the airflow velocity must be sufficient to provide visible indications of air movement into the work area. The velocity of airflow within the enclosure must be adequate to remove airborne contamination from each worker's breathing zone without disturbing the asbestos-containing material on surfaces.

3.4 USE OF THE PRESSURE DIFFERENTIAL AND AIR CIRCULATION SYSTEM:

A. General: Each unit shall be serviced by a dedicated minimum 115V-20A 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 fan units.

B. Air Flow Tests: Airflow patterns will be checked before removal operations begin, at least once per operating shift and any time there is a question regarding the integrity of the enclosure. The primary test for airflow is to trace air currents with smoke tubes or other visual methods. Flow checks are made at each opening and at each doorway to demonstrate that air is being drawn into the enclosure and at each worker's position to show that air is being drawn away from the workers location and toward the HEPA filtration unit.

C. Demonstrate Condition of Equipment for each HEPA filtered fan unit and pressure differential monitoring equipment including proper operation of the following:

1. Squareness of HEPA Filter
2. Condition of Seals
3. Proper operation of all lights
4. Proper operation of automatic shut down if exhaust is blocked
5. Proper operation of alarms
6. Proper operation of Magnehelic gauge
7. Proper operation and calibration on pressure monitoring equipment

D. Demonstrate Operation of the pressure differential system to the Designer will include, but not be limited to, the following:

1. Plastic barriers and sheeting move lightly in toward Work Area,
2. Curtain of decontamination units move lightly in toward Work Area,
3. There is a noticeable movement of air through the Decontamination Unit.
4. Use smoke tube to demonstrate air movement from Clean Room through Shower Room to Equipment Room.
5. Use smoke tubes to demonstrate a definite motion of air across all areas in which work is to be performed.
6. 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.
7. Modify the Pressure Differential System as necessary to demonstrate successfully the above.

E. Use of System During Abatement Operations:

1. Start fan units before beginning work (before any asbestos-containing material is disturbed). After abatement work has begun, run units continuously to maintain a constant pressure differential and air circulation until decontamination of the work area is complete. Do not turn off units at the end of the work shift or when abatement operations temporarily stop.

2. Monitoring Pressure Within the Enclosure: After the initial airflow patterns have been checked, the static pressure must be monitored within the enclosure. Monitoring may be made using manometers, pressure gauges, or combinations of these devices. It is recommended that they be attached to alarms and strip chart recorders

3. Do not shut down air pressure differential system during encapsulating procedures, unless authorized by the Designer in writing. Supply sufficient pre-filters to allow frequent changes.

4. Start abatement work at a location farthest from the fan units and proceed toward them. If an electric power failure occurs, immediately stop all abatement work and do not resume until power is restored and fan units are operating again.

5. Corrective Actions: If the manometers or pressure gauges demonstrate a reduction in pressure differential below the required level, work should cease and the reason for the change investigated and appropriate changes made. The airflow patterns should be retested before work begins again.

6. At completion of abatement work, allow fan units to run as specified under section 01711, to remove airborne fibers that may have been generated during abatement 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 abatement work.

F. Dismantling the System:

1. When a final inspection and the results of final air tests indicate that the area has been decontaminated, fan units may be removed from the Work Area. Before removal from the Work Area, remove and properly dispose of pre-filter, decontaminate exterior of machine and seal intake to the machine with 6 mil (0.15 mm) polyethylene to prevent environmental contamination from the filters.

END OF SECTION - 01513

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SECTION 01526 - TEMPORARY ENCLOSURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this section.

1.2 SUMMARY:

A. This section covers the furnishing of all labor and materials necessary to construct temporary enclosures for asbestos abatement. ***Before work area preparation proceeds, the Contractor and Asbestos Safety Technician shall document existing damage to finishes, equipment and/or fixtures in area of the work.***

B. After completion of all work area preparation activities, the Contractor shall request a pre-commencement inspection by the Asbestos Safety Technician. No asbestos removal work shall begin until the AST and a representative of the New Jersey Department of Community Affairs (DCA) has completed the pre-commencement inspection.

PART 2 - PRODUCTS

2.1 SHEET PLASTIC:

A. Polyethylene Sheet: A single polyethylene film in the largest sheet size possible to minimize seams, 6.0 mil (0.15 mm) thick, clear, frosted, or black as indicated.

B. Polyethylene Sheet: Provide flame-resistant polyethylene film that conforms to requirements set forth by the National Fire Protection Association Standard 701, Small Scale Fire Test for Flame-Resistant Textiles and Films. Provide largest size possible to minimize seams, 6.0 mil (0.15 mm) thick frosted or black as indicated.

2.2 MISCELLANEOUS MATERIALS:

A. Duct Tape: Provide duct tape in 2 inch or 3 inch (50 mm or 75 mm) widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene and the surface it is applied.

1. Damages to building finishes caused by application or removal of the duct tape must be repaired and refinished to the satisfaction of the Owner and at no additional cost to the Owner.

B. Spray Adhesive: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

1. Damages to building finishes caused by application or removal of the spray adhesive must be repaired and refinished to the satisfaction of the Owner and at no additional cost to the Owner

2.3 LUMBER

A. Lumber: Provide fire-resistant dried lumber, any grade, 2 x4 wood stud framing in lengths appropriate for wall construction.

B. Plywood Sheathing: Provide fire-resistant plywood sheathing (1/2 thick) shall be used at all locations called for in the project manual and indicated on the contract drawings. This may include, but not limited to, separation barriers, occupancy separation barriers, exhaust manifolds and personnel and waste/equipment decontamination units.

PART 3 - EXECUTION

3.1 SEQUENCE OF WORK:

A. Carry out work of this section sequentially. Complete each of the following activities in accordance with requirements before proceeding to the next.

1. Provide emergency exits and emergency lighting.
2. Control access
3. Provide respiratory and worker protection.
4. Provide Critical Barriers.
5. Prepare Area.
6. Provide Primary Barriers.
7. Provide Isolation Areas as required.
8. Provide Secondary Barrier.

3.2 GENERAL:

A. Work Area: the location where asbestos abatement work occurs. The Work Area is a variable of the extent of work of the Contract. It 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, and decontaminated at the completion of the asbestos control work.

B. Completely isolate the Work Area from other parts of the building so as to prevent asbestos-containingdust or debris from passing beyond the isolated area. Should the area beyond the Work Area(s) become contaminated with asbestos-containing dust or debris as a 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 owner. Isolation conditions for an occupied building abatement project require that the work area be physically separated from occupied areas by separation barriers and/or Occupancy Separation Barrier of rigid construction consisting of nominal two inch by four inch (2 x4) studs spaced 16 inches on center and covered with a minimum of one half inch (1/2) gypsum board covering. All seams shall be caulked to render the barrier airtight before two (2) individual layers of 6-mil polyethylene sheeting are applied to both sides. The polyethylene shall overlap at the seams. All penetrations around conduits, pipes, ducts or other openings between the work area and adjacent spaces shall be sealed, using materials determined to be suitable in accordance with the applicable subcode.

C. Construct enclosures to provide an air-tight seal around ducts and openings into existing ventilation systems and around penetrations for electrical conduits, telephone wires, water lines, drain pipes, etc. Construct enclosures to be both airtight and watertight except for those openings designed to provide entry and/or air flow control.

D. Size: Construct enclosure with sufficient volume to encompass all of the working surfaces yet allow unencumbered movement by the worker(s), provide unrestricted air flow past the worker(s), and ensure walking surfaces can be kept free of tripping hazards.

E. Shape: The enclosure may be any shape that optimizes the flow of ventilation air past the worker(s).

F. Structural Integrity: The walls, ceilings and floors must be supported in such a manner that portions of the enclosure will not fall down during normal use.

G. Barrier Supports: Provide frames as necessary to support all unsupported spans of sheeting.

H. Openings: It is not necessary that the structure is airtight; openings may be designed to direct airflow. Such openings are to be located at a distance from active removal operations. They are to be designed to draw air into the enclosure under all anticipated circumstances. In the event that negative pressure is lost,

they are to be fitted with either HEPA filters to trap dust or automatic trap doors that prevent dust from escaping the enclosure. Openings for exits are to be controlled by an airlock or a vestibule.

I. Place all tools, scaffolding, staging, etc. necessary for the work in the area to be isolated prior to completion of Work Area isolation.

J. Areas Within an Enclosure: Each enclosure consists of a work area, a decontamination area, and waste storage area. The work area where the asbestos removal operations occur are to be separated from both the waste storage area and the contamination control area by physical curtains, doors, and/or airflow patterns that force any airborne contamination back into the work area.

K. Removing Mobile Objects: Clean movable objects and remove them from the work area before an enclosure is constructed unless moving the objects creates a hazard. Mobile objects will be assumed to be asbestos contaminated and are to be either cleaned with amended water and a HEPA vacuum and then removed from the area or wrapped and then disposed of as asbestos-contaminated waste.

L. Disabling HVAC Systems: The power to the heating, ventilation, and air conditioning systems that service the regulated area must be deactivated and locked out. All ducts, grills, access ports, windows and vents must be sealed off with two layers of plastic to prevent entrainment of contaminated air.

M. Operating HVAC Systems in the regulated Area: If components of a HVAC system located in the regulated area are connected to a system that will service another zone during the project, the portion of the duct in the regulated area must be sealed and pressurized. Necessary precautions include caulking the duct joints, covering all cracks and openings with two layers of sheeting, and pressurizing the duct throughout the duration of the project by restricting the return air flow. The power to the fan supplying the positive pressure should be locked "on" to prevent pressure loss.

1. If fan providing positive pressure fails for any reason, immediately stop asbestos removal work, mist the area to reduce airborne fiber levels. Notify the Project Administrator. Do not re-start asbestos removal work until authorized by the Designer.

N. Lockout power to Work Area by switching off all breakers serving power or lighting circuits in work area. A lock and tag shall be placed on each breaker used to de-energize circuits and equipment with notation "DANGER circuit being worked on". Lock panel and have all keys under control of authorized person who has applied the locks.

O. Lockout power to circuits running through work area wherever possible by switching off all breakers or removing fuses serving these circuits. Label breakers with tape over breaker with notation "DANGER circuit being worked on". Lock panel and have all keys under control of authorized person who applied locks. If circuits cannot be shut down for any reason, label at intervals 4 feet (1.22 m) on center with signs reading, "DANGER live electric circuit. Electrocution hazard." Label circuits in hidden locations but which may be affected by the work in a similar manner.

P. Inspection Windows: Install inspection windows in locations shown on the plans or as directed by the Designer. Each inspection window is to have a 24 inch X 24 inch (610 X 610 mm) viewing area fabricated from 1/4 inch (6.35 mm) acrylic or polycarbonate sheet. Install window with top at 6 feet-6 inches (1.98 m) above floor height in a manner that provides unobstructed vision from outside to inside of the Work Area. Protect window from damage from scratching, dirt or any coatings used during the work. A sufficient number of windows are to be installed to provide observation of all portions of the Work Area that can be made visible from adjacent areas. Inspection windows that open into uncontrolled area are to be covered with a removable plywood hatch secured by lock and key. Provide keys to Designer for all such locks.

3.3 EMERGENCY EXITS:

A. Provide emergency exits and emergency lighting as set forth below:

1. Emergency Exits: At each existing exit door from the Work Area provide the following means for emergency exiting:

2. Arrange exit door so that it is secure from outside the Work area but permits exiting from the Work Area.

3. Mark outline of door on Primary and Critical Barriers with luminescent paint at least 1 inch (25.4 mm) wide. Hang a razor knife on a string beside outline. Arrange Critical and Primary barriers so that they can be easily cut with one pass of razor knife. Paint words "EMERGENCY EXIT" inside outline with luminescent paint in letters at least one foot high and 2 inches (50.8 mm) wide.

4. Utilize existing emergency lighting signs, if this cab be accomplished in keeping with OSHA lockout requirements and is approved by the Contractor s licensed electrician.

3.4 CONTROL ACCESS:

A. Isolate the Work Area to prevent entry by building occupants into Work Area or surrounding controlled areas. Accomplish isolation by the following:

1. Lock all doors into Work Area, or, if doors cannot be locked, chain shut. Cover any signs that direct emergency exiting, either outside or inside of Work Area, to locked doors. Do not obstruct doors required for emergency exits from Work Area or from building.

2. Construct partitions or closures across any opening into Work Area.

3. Modify elevator controls to prevent elevators from stopping at doors in Work Areas. This work is to be performed by a qualified elevator technician.

4. Replace passage sets on doors required for exiting from Work Area with temporary locksets for duration of the project. Use entry type locksets that are key lockable from one side and always operable from inside. Install locksets with key side in stair tower and escape side on Work Area side. Provide one key to Owner and maintain one key in clean room of decontamination unit. After meeting Contractor release criteria set forth in Section 01711 Project Decontamination, reinstall original passage sets and adjust for proper operation.

B. Locked Access: Arrange Work Area so that the only access into Work Area is through lockable doors to personnel and equipment decontamination units.

1. If necessary, install temporary doors with entrance type locksets that are key lockable from the outside and always unlocked and operable from the inside. Do not use deadbolts or padlocks.

2. If able, replace locksets or passage sets on doors leading to decontamination units with temporary locksets for duration of the project. Remove any deadbolts or padlocks. Use entry type locksets that are key lockable from outside and always unlocked and operable from inside. After meeting contractor release criteria set forth in Section 01711 Project Decontamination reinstall original locks, passage sets and locksets and adjust for proper operation.

3. Provide one key for each door to Owner, and Designer and maintain one key in clean room of decontamination unit (3 total).

C. Visual Barrier: Where the Work Area is immediately adjacent to or within view of occupied areas, provide a visual barrier of opaque polyethylene sheeting at least 6 mil (0.15 mm) in thickness so that the work procedures are not visible to building occupants. Where this visual barrier would block natural light, substitute frosted or woven rip-stop sheet plastic in locations approved by the Designer.

D. Demarcation. Demarcate the regulated area in any manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne concentrations of asbestos. Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area.

E. Access. Limit access to regulated areas to authorized persons as defined by OSHA, and to the Owner, Designer, Project Administrator or a representative authorized by one of these entities.

F. Provide Warning Signs at each locked door leading to Work Area meeting the requirements of OSHA 29 CFR 1926.1101 (k) (6) at any location and approaches to a location where airborne concentrations of asbestos exceed or may likely exceed the permissible exposure level (PEL) as per OSHA or ambient background levels as per Subchapter 8. Signs shall be posted at a distance sufficiently far enough away from the work area to permit an employee to read the sign and take the necessary protective measures.

3.5 RESPIRATORY AND WORKER PROTECTION:

A.. Before proceeding beyond this point in providing Temporary Enclosures:

1. Provide Worker Protection per Section 01560

2. Provide Respiratory Protection per Section 01562

3. Provide Personnel Decontamination Unit per Section 01563

4. Provide Pressure Differential and Air Circulation System per Section 01513.

3.6 CRITICAL BARRIERS:

A. Completely Separate the Work Area from other portions of the building, and the outside by closing all openings with sheet plastic barriers of at least two securely attached individual sheets of 6 mil (0.15 mm) in thickness, or by sealing cracks leading out of Work Area with duct tape.

B. Individually seal all ventilation openings (supply and exhaust), lighting fixtures, clocks, doorways, windows, convectors and speakers, and other openings into the Work Area with duct tape alone or with two (2) independently attached layers polyethylene sheeting at least 6 mil (0.15 mm) in thickness, taped securely in place with duct tape. Maintain seal until all work including Project Decontamination is completed. Take care in sealing of lighting fixtures to avoid melting or burning of sheeting.

C. Provide Sheet Plastic barriers at least 6 mil (0.15 mm) in thickness as required to seal openings completely from the Work Area into adjacent areas. Seal the perimeter of all sheet plastic barriers with duct tape or spray cement.

D. Mechanically Support sheet plastic independently of duct tape or spray cement seals so that seals do not support the weight of the plastic. Following are acceptable methods of supporting sheet plastic barriers. Alternative support methods may be used if approved in writing by the Designer.

1. Plywood squares 6 inch x 6 inch x 3/8 inch (152 mm x 152 mm x 9.53mm) held in place with 1/6 smooth masonry nail or electro-galvanized common nail driven through center of the plywood and duct tape on plastic so that plywood clamps plastic to the wall. Locate plywood squares at each end, corner and at maximum 4 feet (1.22 m) on centers.

2. Nylon or polypropylene rope or wire with a maximum unsupported span of 10 feet (3.05 m), minimum 1/4 inch (6.35 mm) in diameter suspended between supports securely fastened on either side of opening at maximum 1 foot (304.8 mm) below ceiling. Tighten rope so that it has 2 inches (50.8 mm) maximum dip. Drape plastic over rope from outside Work Area so that a two foot long flap of plastic extends over rope into Work Area. Staple or wire plastic to itself 1 inch (25.4 mm) below rope at maximum 6 inches (152 mm) on centers to

form a sheath over rope. Lift flap and seal to ceiling with duct tape or spray cement. Seal loop at bottom of flap with duct tape. Erect entire assembly so that it hangs vertically without a "shelf" upon which debris could collect.

E. Thoroughly pre-clean all surfaces to which critical barriers or other seals are applied. Where required to properly isolate the work area or if specified in Section 01013, perform surgical removal of asbestos from any surface covered with ACM to which a barrier is to be applied.

3.7 PREPARE AREA:

A. Scaffolding: If fixed scaffolding is to be used to provide access HEPA vacuum and wet clean area prior to scaffolding installation.

B. Remove all electrical and mechanical items, such as lighting fixtures, clocks, diffusers, registers, escutcheon plates, etc. which cover any part of the surface to be worked on with the work.

C. Remove all general construction items such as cabinets, casework, door and window trim, moldings, ceilings, trim, etc., which cover the surface of the work as required to prevent interference with the work. Clean, decontaminate and reinstall all such materials, upon completion of all removal work with materials, finishes, and workmanship to match existing installations before start of work.

D. Clean all contaminated furniture, equipment, and or supplies with a HEPA filtered vacuum cleaner or by wet cleaning, as specified in Section 01712 Cleaning and Decontamination Procedures, prior to being moved or covered. All equipment furniture, etc. is to be deemed contaminated unless specifically declared as uncontaminated on the drawings or in writing by the Designer.

E. Clean All Surfaces In Work Area with a HEPA filtered vacuum or by wet wiping prior to the installation of primary barrier (Initial Cleaning).

F. Cleaning and Sealing Surfaces: After cleaning with water and a HEPA vacuum, surfaces of stationary objects should be covered with two layers of plastic sheeting. The sheeting should be secured with duct tape or an equivalent method to provide a tight seal around the object.

3.8 PRIMARY BARRIER:

A. Protect building and other surfaces in the Work Area from damage from water and high humidity or from contamination from asbestos-containing debris, slurry or high airborne fiber levels by covering with a primary barrier as described below.

1. Sheet Plastic: Protect surfaces in the Work Area with two (2) layers of plastic sheeting on floor and walls, or as otherwise directed on the Contract Drawings or in writing by the Designer. Perform work in the following sequence.

a. All seams in the sheeting should overlap, be staggered and not be located at corners or wall-to-floor joints.

b. Cover Floor of Work Area with 2 individual layers of clear polyethylene sheeting, each at least 6 mil (0.15 mm) in thickness, turned up walls at least 12 inches (305 mm). Form a sharp right angle bend at junction of floor and wall so that there is no radius, which could be stepped on causing the wall attachment to be pulled loose. Both spray-glue and duct tape all seams in floor covering. Locate seams in top layer six feet from, or at right angles to, seams in bottom layer. Install sheeting so that top layer can be removed independently of bottom layer.

c. Cover all walls and ***ceilings*** in Work Area including "Critical Barrier" sheet plastic barriers with one layer of polyethylene sheeting, at least 6 mil (0.15 mm) in thickness,

mechanically supported and sealed with duct tape or spray-glue in the same manner as "Critical Barrier" sheet plastic barriers. Tape all joints including the joining with the floor covering with duct tape or as otherwise indicated on the Contract Documents or in writing by the Designer.

d. Stairs and Ramps: Do not cover stairs or ramps with unsecured sheet plastic. Where stairs or ramps are covered with plastic, provide 3/4 inch (19.1 mm) exterior grade plywood treads securely held in place, over plastic. Do not cover rungs or rails with any type of protective materials.

e. Repair of Damaged Polyethylene Sheeting: Remove and replace plastic sheeting, which has been damaged by removal operations or where seal has failed allowing water to seep between layers. Remove affected sheeting and wipe down entire area. Install new sheet plastic only when area is completely dry.

3.9 STOP WORK:

A. If the Critical or Primary barrier falls or is breached in any manner stop asbestos removal work immediately and comply with Stop Work requirements of Section 01013 Summary of Work . Do not start work until authorized in writing by the Designer.

3.10 EXTENSION OF WORK AREA:

A. Extension of Work Area: If the Critical Barrier is breached in any manner that could allow the passage of asbestos debris or airborne fibers, then add affected area to the Work Area, enclose it as required by this Section of the specification and decontaminate it as described in Section 01711 Project Decontamination.

3.11 SECONDARY BARRIER:

A. Secondary layer of plastic as a drop cloth to protect the primary layer from debris generated by the asbestos abatement work is specified in the appropriate work sections.

3.12 EXTERIOR ENCLOSURES:

A. Construct exterior enclosures as a Critical Barrier as necessary to completely enclose the work. Fabricate from reinforced polyethylene sheeting and 2 inch x 4 inch (51mm X 102 mm) wood framework. Attach to existing building components or brace as necessary for lateral stability. Construct walls to meet all state and local regulations for construction of temporary buildings. Construct to resist a wind of 30 MPH (13.41 m/s), slope ceiling to permit drainage of rain water.

END OF SECTION — 01526

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SECTION 01529 - MINI ENCLOSURES AND GLOVEBAGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to work of this section.

1.2 DESCRIPTION OF THE WORK:

A. Work of this section consists of preparing a Regulated Area for work for which there is no negative exposure assessment or that involves drilling, cutting, abrading, sanding, chipping, breaking, or sawing of thermal system insulation or surfacing material. This is Class III OSHA work, and is limited in size to operations that generate small amounts of ACM, i.e., no more than can be contained in one standard (60 inch x 60 inch) glove or waste bag filled no more than 1/3 to 1/2 full.

1.3 SUBMITTALS:

A. Before Start of Work submit the following to the Designer for review. Do not begin work until these submittals are returned with the Designer's action stamp indicating that the submittal is returned for unrestricted use.

1. Surfactant: Submit product data, use instructions and recommendations from manufacturer of surfactant intended for use. Include data substantiating that material complies with requirements.

2. Removal Encapsulant: Submit product data, use instructions and recommendations from manufacturer of removal encapsulant intended for use. Include data substantiating that material complies with requirements.

3. NESHAP Certification: Submit certification from manufacturer of surfactant or removal encapsulant that, to the extent required by this specification, the material, if used in accordance with manufacturer's instructions, will wet ACM to which it is applied as required by the National Emission Standard for Hazardous Pollutants (NESHAP) Asbestos Regulations (40 CFR 61, Subpart M).

4. Material Safety Data Sheet: Submit Material Safety Data Sheet, or equivalent, in accordance with the OSHA Hazard Communications Standard (29 CFR 1910.1200) for each surfactant and encapsulating material proposed for used. Submit in the same manner as product data. Submittal is for information purposes only. Submittal will not be reviewed by Designer.

5. Spray Cement: Submit following:

   a. Product description including major components and solvents

   b. Manufacturer's installation instructions. Indicate portions applicable to the project

6. Sheet Plastic: For fire retardant plastic submit test reports on NFPA 701 test.

7. Glovebags: Submit product data.

8. HEPA Vacuums: Submit product data

9. Signs: Submit samples of signs to be used.

10. Mini-enclosure: Provide shop drawing of mini-enclosure arrangement to be used.

B. Before Start of Work submit the following to the Designer for review. Do not begin work until these submittals are returned with the Designer'saction stamp indicating that the submittal has been received and reviewed

1. Material Safety Data Sheet: Submit Material Safety Data Sheets, or equivalent, in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) for the following:

a. Surfactants.

b. Spray Cement.

c. Encapsulants.

PART 2 - PRODUCTS

2.1 GLOVE BAGS:

A. Glovebags: Provide minimum 6 mil (0.15 mm) thick polyethylene, polyvinyl chloride or equivalent plastic sack, with a seamless bottom, and two sealed inward projecting long sleeved gloves or mittens, preprinted with same warning notice as a disposal bag, equipped with a pouch for storage of tools, with designated location for wand or HEPA vacuum wand. Glove bag is to be not more than 60 inches by 60 inches in size.

2.2 SHEET PLASTIC:

A. Polyethylene Sheet: Provide flame resistant polyethylene film that conforms to requirements set forth by the National Fire Protection Association Standard 701, Small Scale Fire Test for Flame-resistant Textiles and Films. Provide largest size possible to minimize seams, 6.0 mil (0.15 mm) thick, frosted or black as indicated.

2.3 MISCELLANEOUS MATERIALS:

A. Duct Tape: Provide duct tape in 2 inch or 3 inch (51 mm or 76 mm) widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene.

B. Spray Cement: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

C. Wetting Materials: For wetting prior to disturbance of ACM use either amended water or a removal encapsulant:

1. Amended Water: Provide water to which a surfactant has been added. Use a mixture of surfactant and water which results in wetting of the ACM and retardation of fiber release during disturbance of the material equal to or greater than that provided by water amended with a surfactant consisting of one ounce of a solution of 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with five gallons of water.

2. Removal Encapsulant: Provide a penetrating type encapsulant designed specifically for removal of ACM. Use a material which results in wetting of the ACM and retardation of fiber release during disturbance of the material equal to or greater than that provided by water amended with a surfactant consisting of one ounce of a solution of 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with five gallons of water.

D. Encapsulants are specified in Section 09805.

E. Garden Sprayer: Provide a hand pump type pressure-can garden sprayer fabricated out of either metal or plastic, equipped with a metal wand at the end of a hose that can deliver a stream or spray of liquid under pressure.

PART 3 - EXECUTION

3.1 GENERAL:

A. Before Start of Work: Complete the following before start of work of this section:
1. 01527 Regulated Areas

3.2 WORKER PROTECTION:

A. Before beginning work with any material for which a Material Safety Data Sheet has been submitted provide workers with the required protective equipment. Require that appropriate protective equipment be used at all times.

3.3 GLOVE BAGS:

A. Complete requirements of the following:

1. 01562 Respiratory Protection

2. 01561 Worker Protection - Repair and Maintenance

B. Glovebag: Remove ACM inside a glove bag according to the following procedure:

1. Use at least two persons to perform glovebag removals operations.

2. Use each glovebag only once

3. Do not move glovebag once it has been mounted in place.

4. Do not use glovebag on surface whose temperature exceeds 150EF (65.6EC).

5. Check materials adjacent to locations where glovebag will be installed. Wrap damaged (broken lagging, hanging, etc.), loose or friable material in 2 layers of 6 mil (0.15 mm) plastic and "candy-stripe" with duct tape, or render material intact by some other method. Place one layer of duct tape around undamaged pipe at each location where the glove bag will be attached.

6. Slit top of the glove bag open (if necessary) and cut down the sides to accommodate the size of the pipe (about two inches longer than the pipe diameter) and allow additional so that the top of the glove bag will be clear of the pipe after installation.

7. Place necessary tools into pouch located inside glovebag. This will usually include: bone saw, utility knife, rags, scrub brush, wire cutters, tin snips and pre-wetted cloth.

8. Place a strip of duct tape along both edges of the open top slit of glove bag for reinforcement.

9. Place the glove bag around section of pipe to be worked on and staple top together through reinforcing duct tape. Staple down sides approximately6 inches so that top of the glove bag is clear of pipe. Seal top and sides with duct tape. Next, duct tape the ends of glove bag to pipe itself, where previously covered with plastic or duct tape.

10. Install glovebag so that it completely covers the circumference of pipe or other structures where the work is to be done.

11. Use smoke tube and aspirator bulb to test seal. Place tube into water sleeve (two-inch opening to glove bag) squeezing bulb and filling bag with visible smoke. Remove smoke tube and twist water sleeve closed. While holding the water sleeve tightly, gently squeeze glove bag and look for smoke leaking out, (especially at the top and ends of the glove bag). If leaks are found, tape closed using duct tape and re-test.

12. Insert wand from garden sprayer through water sleeve. Duct tape water sleeve tightly around the wand to prevent leakage.

13. Thoroughly wet material to be worked on with amended water or removal encapsulant and allow to soak in. Wet adequately to penetrate and soak material through to substrate.

14. One person places their hands into the long-sleeved gloves while the second person directs garden sprayer at the work.

15. Use bone saw, if required, to cut insulation at each end of the section to be removed. A bone saw is a serrated heavy gauge wire with ring-type handles at each end. Throughout this process, spray amended water or removal encapsulant on the cutting area to keep dust to a minimum.

16. Remove insulation using putty knives or other tools. Place pieces in bottom of bag without dropping.

17. Rinse all tools with water inside the bag and place back into pouch.

18. Using scrub brush, rags and water, scrub and wipe down the exposed pipe.

19. Thoroughly wash and wipe down interior of glovebag to a point below the location where the bag will be twisted and taped to seal waste in bottom of bag.

20. Remove water wand from water sleeve and attach the small nozzle from HEPA-filtered vacuum. Turn on the vacuum only briefly to collapse the bag.

21. Remove the vacuum nozzle, twist water sleeve closed and seal with duct tape.

22. From outside the bag, pull the tool pouch away from the bag. Place duct tape over twisted portion and then cut the tool bag from the glove bag, cutting through the twisted/taped section. Contaminated tools may then be placed directly into next glove bag without cleaning. Alternatively, tool pouch with the tools can be placed in a bucket of water, opened underwater, and tools cleaned and dried. Discard rags and scrub brush with asbestos waste.

23. With removed insulation in the bottom of the bag, twist the bag several times and tape it to seal material in the bottom during removal of the glove bag from the pipe.

24. Slip a 6 mil (0.15 mm) disposal bag over the glove bag (still attached to the pipe). Remove tape or cut bag and open the top of the glove bag and fold it down into disposal bag.

25. Clean all surfaces in the Work Area using disposable cloths wetted with water with surfactant or removal encapsulant added. When these surfaces have dried, clean with a HEPA filtered vacuum. Material adhered to a surface with removal encapsulant may require the application of additional removal encapsulant to facilitate cleaning.

26. Seal exposed ends of remaining pipe insulation in accordance with Section 15254.

27. Remove disposable suits and place these into bag with waste.

28. Collapse the bag with a HEPA vacuum twist top of bag, seal with at least 3 wraps of duct tape, bend over and seal again with at least 3 wraps of duct tape.

3.4 MINI-ENCLOSURES:

A. A mini enclosure is a small walk-in enclosure, which accommodates no more than two persons. Provide a fabricated or job-made enclosure constructed of 6 mil (0.15 mm) plastic or equivalent. Place the enclosure under negative pressure by means of a HEPA filtered vacuum or similar HEPA filtered ventilation unit.

B. Provide a remote personnel decontamination unit meeting requirements of Section 01563 Decontamination Units for worker decontamination.

C. Sequence of Work: Before beginning work of this sub-section complete the following:

1. Isolation of area in accordance with Section 01527 Regulated Area.
2. Construction of a personnel decontamination unit in accordance with Section 01563 Decontamination Units .

D. Work Room: Construct Work Room in the same manner as a Primary Barrier fabricated from 6 mil (0.15 mm) sheet plastic. Arrange so that Primary Barrier provides both a Critical and Primary Barrier. Line walls and floor of Work Room with a continuous Secondary Barrier.

E. Change Room: Provide an approximately 3 feet by 3 feet (0.9 m x 0.9 m) Change Room, with additional space as required for storage, attached to each Work Room. Fabricate Change Room from 6 mil (0.15 mm) sheet plastic in the same manner as a Primary Barrier. Locate so that access to Work Area is though Change Room.

F. Step Off Area: Cover floor in front of entry to Change Room with one layer of 6 mil (0.15 mm) sheet plastic. Securely anchor sheet plastic to prevent slipping.

G. Flapped Door Construction: Provide flapped door as entry to Change Room and entry from Change Room to Work Room. Fabricate each flapped door from overlapping contacting layers of sheet plastic. Fasten each layer on the top and one side. Each flap is to be 3 inches (76 mm) longer than door opening. Reinforce free side and bottom of each sheet with duct tape. Alternate sides that are fastened on each layer. Form arrows pointing to entry side from duct tape on inside and outside of door.

H. Signage: At entry to Change Room post an approximately 20 inch by 14 inch (508 mm x 356 mm) manufactured caution sign displaying the following legend with letter sizes and styles of a visibility required by 29 CFR 1926:

Legend

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA

1. Provide spacing between respective lines at least equal to the height of the respective upper line.

I. Complete requirements of the following:

1. Section 01560 Worker Protection - Asbestos Abatement

2. Section 01562 Respiratory Protection

3. Section 01513 Temporary Pressure Differential & Air Circulation System: HEPA filtered vacuum cleaner with vacuum in space outside Mini-Enclosuremay be used for compliance with this section. Provide a minimum of 8 air changes per hour in the Work Room.

J. Testing: The mini-enclosure shall be inspected for leaks and smoke tested to detect breaches, and breaches sealed.

K. Entry to Work Room: Require that any time a worker enter the Work Room the following procedure is followed.

1. Outside of Change Room remove all street clothes and don clean coveralls and respirator. A swimsuit or second disposable suit may be worn beneath outer coveralls.

2. Enter Change Room be sure that entry is completely closed.

3. Enter Work Room be sure that entry is completely closed.

L. Work Procedures: Arrange work area within the mini-enclosure so that during use air movement is directed away from the worker s breathing zone.

M. Worker Decontamination: Require that any time a worker leaves the mini-Enclosure the following procedure be followed.

1. Maintain a bucket of clean potable water in the Work Area. Do not amend with a wetting agent.

2. Remove contaminated suit inside the Work Area. Leave respirator in place.

3. Wash hands, face and surface of respirator with water and wet paper towels. Use caution to avoid breaking seal between respirator face-piece and face.

4. Proceed with respirator in place to Change Room.

5. Be sure that entry to Work Area is completely closed.

6. In Change Room don clean disposable suit leaving respirator in place.

7. Exit change room; be sure that entry to Change Room is completely closed. Proceed to next Mini-Enclosure, or a remote shower.

8. At end of workday decontaminate fully in accordance with procedures in appropriate specification section describing Worker Protection.

N. Material Decontamination: Require that the following procedure be used in removing equipment and bagged debris from the Work Room.

1. Three workers are required. One in the Work Room, one in the Change Room, and one on Step Off Area.

2. Equipment and bagged debris are to be removed from the Mini-Enclosure in separate operations.

3. Worker in Work Room cleans equipment and bagged debris and hands one piece of equipment or one bag of debris at a time to worker in Change Room.

4. Worker in Change Room wet cleans each piece of equipment or bag and stores them in Change Room. Equipment is sealed completely in 6 mil (0.15 mm) sheet plastic in the Change Room.

5. When the amount of stored material in the Change Room becomes large enough that the worker cannot clean incoming material without contacting previously cleaned material the door between the Work and Clean Room is closed.

6. The worker in the Changing Room then passes each item into a new disposal bag held open in the doorway between the Changing Room and Step Off Area by the worker on the Step Off Area. The Worker on the Step Off Area places each bag in a sealed cart for transport to the load out area. No bags are to be stored outside of the Mini-Enclosure.

7. All bags are to be transported through the building in clean sealed containers that have never been in an asbestos Work Area, Mini-Enclosure or decontamination unit.

O. Mini-Enclosure Decontamination: At completion of all work decontaminate the Work and Changing Rooms as set forth in Section 01711 Project Decontamination for non-friable materials.

END OF SECTION — 01529

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SECTION 01563 - DECONTAMINATION UNITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK:

A. Provide separate Personnel and Equipment Decontamination facilities. Require that the Personnel Decontamination Unit be the only means of ingress and egress for the Work Area. Require that all materials exit the Work Area through the Equipment Decontamination Unit.

1.3 RELATED WORK SPECIFIED ELSEWHERE:

A. Refer to Section 01503 Temporary Facilities - Asbestos Abatement for electrical requirements and requirements relative to connection of decontamination facilities to building systems such as water, sewer, and electrical.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Polyethylene Sheet: Provide flame resistant polyethylene film that conforms to requirements set forth by the National Fire Protection Association Standard 701, Small Scale Fire Test for Flame-resistant Textiles and Films. Provide largest size possible to minimize seams, 6.0 mil (0.15 mm) thick, frosted or black as indicated.

B. Reinforced Polyethylene Sheet: Where plastic sheet is the only separation between the Work Area and building exterior, provide translucent, nylon reinforced, laminated, flame resistant, polyethylene film that conforms to requirements set forth by the National Fire Protection Association Standard 701, Small Scale Fire Test for Flame-resistant Textiles and Films. Provide largest size possible to minimize seams, 6.0 mil (0.15 mm) thick, frosted or black as indicated.

C. Duct Tape: Provide duct tape in 2 inch or 3 inch (51mm or 76 mm) widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene.

D. Spray Adhesive: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

E. Shower Pan: Provide one-piece waterproof shower pan 4 feet x 8 feet x 6 inches deep (102 mm X 204 mm x 152 mm deep). Fabricate from seamless fiberglass minimum 1/16 inch (1.59 mm) thick reinforced with wood, 18 ga. stainless or galvanized steel with welded seems, copper or lead with soldered seams, or a seamless liner of minimum 60 mil (1.5 mm) thick elastomeric membrane.

F. Shower Walls: Provide 8 feet (2.44 m) long by approximately 7 feet (2.13 m) high walls fabricated from rigid, impervious, waterproof material, either corrugated fiberglass roofing or equivalent. Structurally support as necessary for stability.

G. Shower Head and Controls: Provide a factory-made shower head producing a spray of water, which can be adjusted for spray size and intensity. Feed shower with water mixed from hot and cold supply

lines. Arrange so that control of water temperature, flow rate, and shut off is from inside shower without outside aid.

H. Filters: Provide cascaded filter units on drain lines from showers or any other water source carrying asbestos-contaminated water from the Work Area. Provide units with disposable filter elements as indicated below. Connect so that discharged water passes primary filter and output of primary filter passes through secondary filter.

1. Primary Filter - Passes particles 20 microns and smaller
2. Secondary Filter - Passes particles 5 microns and smaller

I. Hose Bib: Provide heavy bronze angle type with wheel handle, vacuum breaker, and 3/4 inch (19.05 mm) National Standard male hose outlet.

J. Shower Stall: For Wash Down Station provide leak tight shower enclosure with integrated drain pan fabricated from fiberglass or other durable waterproof material, approximately 3 feet x 3 feet (0.91m x 0.91 m) square with minimum 6 feet (1.83 m) high sides and back. Structurally support as necessary for stability. Equip with hose bib, as specified in this section, mounted at approximately 4 feet (1.22 m) above drain pan. Connect drain to a reservoir, pump water from reservoir through filters to a drain or store and use for amended water. Mount filters inside shower stall on back wall beneath hose bib.

K. Lumber: Provide kiln dried lumber of any grade or species.

L. Sump Pump: Provide totally submersible waterproof sump pump with integral float switch. Provide unit sized to pump 2 times the flow capacity of all showers or hoses supplying water to the sump, through the filters specified herein when they are loaded to the extent that replacement is required. Provide unit capable of pumping debris, sand, plaster or other materials washed off during decontamination procedures without damage to mechanism of pump. Adjust float switch so that a minimum of 3 inch (76 mm) remains between top of liquid and top of sump pan.

PART 3 - EXECUTION

3.1 PERSONNEL DECONTAMINATION UNIT:

A. Provide a Personnel Decontamination Unit consisting of a serial arrangement of connected rooms or spaces, Changing Room, Drying Room, Shower Room, and Equipment Room. Require all persons without exception to pass through this Decontamination Unit for entry into and exiting from the Work Area for any purpose. Do not allow parallel routes for entry or exit. Do not remove equipment or materials through Personnel Decontamination Unit. Provide temporary lighting within Decontamination Units as necessary to reach a lighting level of 100 foot candles (1076 lumens / sq meter).

B. Changing Room (clean room): Provide a room that is physically and visually separated from the rest of the building for the purpose of changing into protective clothing.

1. Construct using polyethylene sheeting, at least 6 mil (0.15 mm) in thickness, to provide an airtight seal between the Changing Room and the rest of the building.

2. Locate so that access to Work Area from Changing Room is through Shower Room.

3. Separate Changing Room from the building by a sheet plastic flapped doorway.

4. Require workers to remove all street clothes in this room, dress in clean, disposable coveralls, and don respiratory protection equipment. Do not allow asbestos-contaminated items to enter

this room. Require Workers to enter this room either from outside the structure dressed in street clothes, or naked from the showers.

5. An existing room may be utilized as the Changing Room if it is suitably located and of a configuration whereby workers may enter the Changing Room directly from the Shower Room. Protect all surfaces of room with sheet plastic as set forth in Section 01526 Temporary Enclosures. Authorization for this must be obtained from the Designer in writing prior to start of construction. Submit written request in accordance with Section 01632 "Substitutions" detailing layout and protective measures proposed.

6. Maintain floor of changing room dry and clean at all times. Do not allow overflow water from shower to wet floor in changing room.

7. Damp wipe all surfaces twice after each shift change with a disinfectant solution.

8. Provide posted information for all emergency phone numbers and procedures.

9. Provide 1 storage locker per employee.

C. Shower Room: Provide a completely watertight operational shower to be used for transit by cleanly dressed workers heading for the Work Area from the Changing Room, or for showering by workers headed out of the Work Area after undressing in the Equipment Room.

1. Construct room by providing a shower pan and 2 shower walls in a configuration that will cause water running down walls to drip into pan. Install a freely draining wooden floor in shower pan at elevation of top of pan.

2. Separate this room from the rest of the building with airtight walls fabricated of 6 mil (0.15 mm) polyethylene.

3. Separate this room from the Drying Room and Airlock with airtight walls fabricated of 6 mil (0.15 mm) polyethylene.

4. Provide splash proof entrances to Drying Room and Airlock with doors arranged in the following configuration:

   a. At each entrance to the Shower Room construct a doorframe out of nominal 2 inch x 4 inch (51 mm X 102 mm) lumber with 1-1/2 inch (39 mm) jambs (sides) and 1-1/2 inch (39 mm) head (top) and sill (bottom). Attach to this doorframe two overlapping flaps of elastomeric membrane material, fastened at the head (top) and jambs (sides) (by clamping between a 1-1/2 inch (39 mm) x 3/4 inch (19mm) batten and frame). Overlap the flaps a minimum of 6 inch (152 mm) in a direction that presents a shingle-like configuration to the water stream from the shower. Overlap sill (bottom) by 1-1/2 inch (39 mm) minimum. Arrange so that any air movement out of the Work Area will cause the flaps to seal against the doorframe.

5. Provide showerhead and controls.

6. Provide temporary extensions of existing hot and cold water and drainage, as necessary for a complete and operable shower.

7. Provide a soap dish and a continuously adequate supply of soap and maintain in sanitary condition.

8. Arrange so that water from showering does not splash into the Changing or Equipment Rooms.

9. Arrange water shut off and drain pump operation controls so that a single individual can shower without assistance from either inside or outside of the Work Area.

10. Provide flexible hose shower head.

11. Pump wastewater to drain or to storage for use in amended water. If pumped to drain, provide 20 micron and 5 micron wastewater filters in line to drain or waste water storage. Change filters daily or more often if necessary. Locate filters inside shower unit so that water lost during filter changes is caught by shower pan.

12. Provide hose bib.

D. Equipment Room (contaminated area): Require work equipment, footwear and additional contaminated work clothing to be left here. This is a change and transit area for workers.

1. Separate this room from the Work Area by a 6 mil (0.15 mm) polyethylene flapped doorway.

2. Separate this room from the rest of the building with airtight walls fabricated of 6 mil (0.15 mm) polyethylene.

3. Separate this room from the Shower Room and Work Area with airtight walls fabricated of 6 mil (0.15 mm) polyethylene.

4. Provide a drop cloth layer of sheet plastic on floor in the Equipment Room for every shift change expected. Roll drop cloth layer of plastic from Equipment Room into Work Area after each shift change. Replace before next shift change. Provide a minimum of two (2) layers of plastic at all times. Use only clear plastic to cover floors.

E. Work Area: Separate Work Area from the Equipment Room by polyethylene barriers. If the airborne asbestos level in the Work Area is expected to be high, as in dry removal, add an intermediate cleaning space between the Equipment Room and the Work Area. Damp wipe clean all surfaces after each shift change. Provide one additional floor layer of 6 mil (0.15 mm) polyethylene per shift change and remove contaminated layer after each shift.

F. Decontamination Sequence: Require that all workers adhere to the following sequence when entering or leaving the Work Area.

1. Entering Work Area: Worker enters Changing Room and removes street clothing, puts on clean disposable overalls and respirator, and passes through the Shower Room into the Equipment Room.

2. Any additional clothing and equipment left in Equipment Room needed by the worker are put on in the Equipment Room.

3. Worker proceeds to Work Area.

G. Exiting Work Area:

1. Before leaving the Work Area, require the worker to remove all gross contamination and debris from overalls and feet.

2. The worker then proceeds to the Equipment Room and removes all clothing except respiratory protection equipment.

3. Extra work clothing such as boots, hard hats, goggles, gloves are to be stored in contaminated end of the Equipment Room.

4. Disposable coveralls are placed in a bag for disposal with other material.

5. Require that Decontamination procedures found in Section 01560 be followed by all individuals leaving the Work Area.

6. After showering, the worker moves to the Changing Room and dresses in either new coveralls for another entry or street clothes if leaving.

3.2 EQUIPMENT DECONTAMINATION UNIT:

A. Provide an Equipment Decontamination Unit consisting of a serial arrangement of rooms, Clean Room, Holding Room, Wash Room for removal of equipment and material from Work Area. Do not allow personnel to enter or exit Work Area through Equipment Decontamination Unit.

B. Arrange with airlocks between rooms as required below.

C. Wash Down Station: Provide an enclosed Shower Unit located in Work Area just outside Wash Room as an equipment, bag and container cleaning station.

1. Fabricate waterproof floor extending 6 feet (1.83 m) beyond Wash Down station in all directions. Install seamless waterproof membrane over area and extend over curbs on all four sides. Form curbs from 2 inch x 4 inch (51 X 102 mm) lumber laid on the flat.

2. Waterproof membrane is to be fabricated from minimum 10 mil (.254 mm) polyethylene.

3. Do not allow water to collect on waterproof membrane. Remove continuously with a wet vacuum or mops.

D. Wash Room: Provide wash room for cleaning of bagged or containerized asbestos-containing waste materials passed from the Work Area.

1. Construct washroom of nominal 2 inch x 4 inch (51 X 102 mm) wood framing and polyethylene sheeting, at least 6 mil (0.15 mm) in thickness and located so that packaged materials, after being wiped clean, can be passed to the Holding Room.

2. Separate this room from the Work Area by a single flapped door of 6 mil (0.15 mm) polyethylene sheeting.

3. Provide a drop cloth layer of plastic on floor in the Wash Room for every load-out operation. Roll this drop cloth layer of plastic from Wash Room into Work Area after each load-out. Provide a minimum of two (2) layers of plastic at all times. Use only clear plastic to cover floors.

E. Holding Room: Provide Holding Room as a drop location for bagged asbestos-containing materials passed from the Wash Room. Construct Holding Room of nominal 2 inch x 4 inch (51 X 102 mm) wood framing and polyethylene sheeting, at least 6 mil (0.15 mm) in thickness and located so that bagged materials cannot be passed from the Wash Room through the Holding Room to the Clean Room.

1. Separate this room from the adjacent rooms by flap doors fabricated from 6 mil (0.15 mm) sheet plastic.

F. Clean Room: provide Clean Room to isolate the Holding Room from the building exterior. If possible locate to provide direct access to the Holding Room from the building exterior.

1. Erect Critical and Primary Barriers as described in Section 01526 "Temporary Enclosures" in an existing space. If no space exists construct Clean Room of 2 x 4 (51 X 102 mm) wood framing and polyethylene sheeting, at least 6 mil (0.15 mm) in thickness.

2. Separate this room from the exterior by a single flap door of 6 mil (0.15 mm) polyethylene sheeting.

G. Load-out Area: The load-out area is the transfer area from the building to a truck or dumpster. It may be the Clean Room of the Equipment Decontamination unit or a separate room or loading dock area. Erect Critical and Primary barriers as described in Section 01526 "Temporary Enclosures" in load-out area.

1. During transfer of material from load-out area erect primary barriers as described in Section 01526 "Temporary Enclosures" as necessary to seal path from load-out area to truck or dumpster.

H. Decontamination Sequence: Take all equipment or material from the Work Area through the Equipment Decontamination Unit according to the following procedure:

1. At washdown station, thoroughly wet clean contaminated equipment or sealed polyethylene bags and pass into Wash Room.

2. When passing equipment or containers into the Wash Room, close all doorways of the Equipment Decontamination Unit, other than the doorway between the Washdown Station and the Wash Room. Keep all outside personnel clear of the Equipment Decontamination Unit.

3. Once inside the washroom, wet clean the bags and/or equipment.

4. When cleaning is complete pass items into Holding Room. Close all doorways except the doorway between the Holding room and the Clean Room.

5. Workers from the building exterior enter Holding Area and remove decontaminated equipment and/or containers for disposal.

6. Require these workers to wear full protective clothing and appropriate respiratory protection.

7. At no time is a worker from an uncontaminated area to enter the enclosure when a removal worker is inside.

3.3 CONSTRUCTION OF THE DECONTAMINATION UNITS:

A. Walls and Ceiling: Construct airtight walls and ceiling using polyethylene sheeting, at least 6 mil (0.15 mm) in thickness. Attach to existing building components or a temporary framework.

B. Floors: Use 2 layers (minimum) of 6 mil (0.15 mm) polyethylene sheeting to cover floors in all areas of the Decontamination Units. Use only clear plastic to cover floors.

C. Flap Doors: Fabricated from three (3) overlapping sheets with openings a minimum of three feet (3') (0.91 meters) wide. Configure so that sheeting overlaps adjacent surfaces. Weights at bottom of sheets as required so that they quickly close after being released. Put arrows on sheets to indicate direction of overlap and/or travel. Provide a minimum of six feet (6') (1.22 meters) between entrance and exit of any room. Provide a minimum of three feet (3') (0.91 meters) between doors to airlocks.

D. If the Decontamination area is located within an area containing friable asbestos on overhead ceilings, ducts, piping, etc., provide the area with a minimum 1/4 inch (6.4 mm) hardboard or 1/2 inch (12.7 mm) plywood "ceiling" with polyethylene sheeting, at least 6 mil (0.15 mm) in thickness covering the top of the "ceiling".

E. Visual Barrier: Where the Decontamination area is immediately adjacent to and within view of occupied areas, provide a visual barrier of opaque polyethylene sheeting at least 6 mil (0.15 mm) in thickness so that worker privacy is maintained and work procedures are not visible to building occupants. Where the area adjacent to the Decontamination area is accessible to the public, construct a solid barrier on the public side of the sheeting to protect the sheeting. Construct barrier with wood or metal studs covered with minimum 1/4 inch (6.4 mm) thick hardboard or 1/2 inch (12.7 mm) plywood. Where the solid barrier is provided, sheeting need not be opaque.

F. Alternate methods of providing Decontamination facilities may be submitted to the Designer for approval. Do not proceed with any such method(s) without written authorization of the Designer.

G. Electrical: Provide subpanel at Changing Room to accommodate all removal equipment. Power subpanel directly from a building electrical panel.

1. Connect all electrical branch circuits in Decontamination unit and particularly any pumps in shower room to a ground-fault circuit protection device.

3.4 CLEANING OF DECONTAMINATION UNITS:

A. Clean debris and residue from inside of Decontamination Units on a daily basis or as otherwise indicated on Contract Drawings. Damp wipe or hose down all surfaces after each shift change. Clean debris from shower pans on a daily basis.

B. If the Changing Room of the Personnel Decontamination Unit becomes contaminated with asbestos-containing debris, abandon the entire Decontamination Unit and erect a new Decontamination Unit. Use the former Changing Room as an inner section of the new Equipment Room.

3.5 SIGNS:

A. Post an approximately 20 inch by 14 inch (508 mm x 356 mm) manufactured caution sign at each entrance to the Work Area displaying the following legend with letter sizes and styles of a visibility required by 29 CFR 1926:

1. Provide signs in both English and Spanish.

2. Legend:

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA

3. Provide spacing between respective lines at least equal to the height of the respective upper line.

B. Post an approximately 10 inch by 14 (254 mm x 356 mm) inch manufactured sign at each entrance to each Work Area displaying the following legend with letter sizes and styles of a visibility at least equal to the following:

1. Provide signs in both English and Spanish.

2.

Legend	Notation
NO FOOD, BEVERAGES OR TOBACCO PERMITTED	3/4 inch (19 mm) Block
ALL PERSONS SHALL DON PROTECTIVE CLOTHING (COVERINGS) BEFORE ENTERING THE WORK AREA	3/4 inch (19 mm) Block
ALL PERSONS SHALL SHOWER IMMEDIATELY AFTER LEAVING WORK AREA AND BEFORE ENTERING THE CHANGING AREA	3/4 inch (19 mm) Block

END OF SECTION - 01563

SECTION 01711 - PROJECT DECONTAMINATION

PART 1 - GENERAL

1.1 SUMMARY:

A. Work of This Section includes the decontamination of air in the Work Area which has been, or may have been, contaminated by the elevated airborne asbestos fiber levels generated during abatement activities, or which may previously have had elevated fiber levels due to friable asbestos-containing materials (ACM) in the space.

B. Work of This Section includes the cleaning, decontamination, and removal of temporary facilities installed prior to abatement work, including:

1. Primary and Critical Barriers erected by work of Section 01526

2. Decontamination Unit erected by work of Section 01563

3. Pressure Differential System installed by work of Section 01513

C. Work of This Section includes the cleaning, and decontamination of all surfaces (ceiling, walls, floor) of the Work Area, and all furniture or equipment in the Work Area.

1.2 RELATED DOCUMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this section.

1.3 DESCRIPTION OF REQUIREMENTS:

A. General: Decontamination of the Work Area following asbestos abatement.

B. If the asbestos abatement work is on damaged or friable materials the work is a four step procedure with two cleanings of the Primary Barrier plastic prior to its removal and two cleanings of the room surfaces to remove any new or existing contamination. Unless specifically indicated otherwise all materials are considered damaged or friable for purposes of this section.

C. If the asbestos abatement work is on undamaged and non-friable materials the decontamination procedure is a two step procedure with two cleanings of the Primary Barrier plastic to remove contamination, thus preventing contamination of the building when the Work Area isolation barriers are removed.

D. In both cases operation of the pressure differential system is used to remove airborne fibers generated by the abatement work.

1.4 RELATED WORK SPECIFIED ELSEWHERE:

A. Removal of Gross Debris is integral with the performance of abatement work and as such is specified in the appropriate work section(s) of these specifications:

1. Section 02081 Removal of Asbestos-Containing Materials

2. Section 01714 Work Area Clearance

PART 2 - PRODUCTS

2.1 MATERIALS

A. Sealant to be applied after removal of all visible asbestos containing material shall be a separate and distinct color from the surfaces to which it is applied when dry. Sealant shall be Foster 32-60 as manufactured by H.B. Fuller or Serpiflex Shield as manufactured by International Protective Coatings Corp. or approved equal.

PART 3 - EXECUTION

3.1 START OF WORK:

A. Previous Work: During completion of the asbestos abatement work specified in other sections, the Secondary Barrier of polyethylene sheeting will have been removed and disposed of along with any gross debris generated by the asbestos abatement work.

B. Visual inspection: Perform visual inspections of the work area along with the Project Administrator at each step of the decontamination process.

1. Follow inspection procedures in EPA Purple Book.

C. Start of Work: Work of this section begins with the cleaning of the Primary Barrier. At start of work the following will be in place:

1. Primary Barrier: Two layers of polyethylene sheeting on floor and one layer on walls.

2. Critical Barrier: An airtight barrier between the Work Area and other portions of the building or the outside.

3. Critical Barrier Sheeting: Over lighting fixtures and clocks, ventilation openings, doorways, convectors, speakers and other openings.

4. Decontamination Units: For personnel and equipment in operating condition.

5. Pressure Differential System: In operation.

6. Separation barriers and/or Occupancy Separation Barriers which form the sole barrier between the work area and occupied portions of the building or outside.

3.2 FIRST CLEANING:

A. First Cleaning: Carry out a first cleaning of all surfaces of the work area including items of remaining sheeting, tools, scaffolding and/or staging by use of damp-cleaning and mopping, and/or a High Efficiency Particulate Air (HEPA) filtered vacuum. (Note: A HEPA vacuum may fail if used with wet material.) Do not perform dry dusting or dry sweeping. Use each surface of a cleaning cloth one time only and then dispose of as contaminated waste. Continue this cleaning until there is no visible debris from removed materials or residue on plastic sheeting or other surfaces.

1. Remove All Filters in Air Handling System(s) and dispose of as asbestos-containing waste in accordance with requirements of Section 02084 Disposal of Regulated Asbestos-Containing Material.

2. After the surfaces have passed a visual inspection verifying that all debris and residue has been removed from the sheet plastic, allow a waiting period that is long enough for the HEPA-filtered fan units operating in the work area to provide 96 air changes to clean air of airborne asbestos fibers. Use oscillating fans as necessary to assure circulation of air in all parts of work areas during this period. Maintain Pressure Differential System in operation for the entire 96 air change period.

3.3 SECOND CLEANING:

A. Second Cleaning: Carry out a second cleaning of all surfaces in the work area in the same manner as the first cleaning.

B. Visual inspection: Before the application of any sealer to abated surfaces as a lock-back, perform a visual inspection to determine if all ACM including debris and residue has been removed. Perform visual inspections along with Project Administrator. When the area is visually clean, and if after sweeping of all surfaces with leaf blower, ***no debris, residue, dust or other material is found***, complete the certification at the end of this section. Visual inspection is not complete until confirmed in writing, on the certification, by Project Administrator. After this visual inspection is passed, lock-back sealants can be applied and the work area decontamination process can be initiated.

C. Sealing of substrate: Perform sealing of substrate or installation of spray-applied finishes or fireproofing, where required, at this time. Maintain Pressure Differential System in operation during encapsulation work. Perform work only after meeting the following requirements:

1. Surfaces to be covered with sealer have met the requirements for a visual inspection in this section.

2. Airborne fiber counts in the Work Area are at or below 0.01 fibers per cubic centimeter as measured by phase contrast microscopy.

D. Removal of Primary Barriers:

1. Immediately following the second cleaning of the Primary plastic, remove all Primary Barrier sheeting and Material Decontamination Unit, if there is one, leaving only:

a. Critical Barrier: Which forms the sole barrier between the Work Area and other portions of the building or the outside.

b. Critical Barrier Sheeting: Over lighting fixtures and clocks, ventilation openings, doorways, convectors, speakers, and other openings.

c. Decontamination Unit: For personnel, in operating condition.

d. Pressure Differential System: Maintain in continuous operation.

3.4 FINAL CLEANING:

A. Final Cleaning: Carry out a final cleaning of all surfaces in the Work Area in the same manner as the previous cleaning.

3.5 VISUAL INSPECTION:

A. After Final Cleaning Perform a Complete Visual Inspection of the entire Work Area including: all surfaces, ceiling, walls, floor, decontamination unit, all plastic sheeting, seals over ventilation openings, doorways, windows, and other openings; look for debris from any source, residue on surfaces, dust or other matter. During visual inspection sweep entire work area including walls, ceilings, ledges, floors, and other surfaces in the room with exhaust from forced air equipment (leaf blower with approximately 1 horsepower electric motor or equivalent). If any debris, residue, dust or other matter is found repeat final cleaning and continue decontamination procedure from that point. When the area is visually clean, and if after sweeping of all surfaces with leaf blower, ***no debris, residue, dust or other material is found***, complete the certification at the end of this section. Visual inspection is not complete until confirmed in writing, on the certification, by Project Administrator.

B. Temporary lighting: Provide a minimum of 100 foot candles (1075 Lumens / sq meter) of lighting on all surfaces in the areas to be subjected to visual inspection. Provide hand held lights providing 150 foot candles (1600 lumens / sq meter) at 4 feet (1.25 meter) capable of reaching all locations in work area.

C. Lifts: Provide ladders, scaffolding, and lifts as required to provide access to all surfaces in the area to be subjected to visual inspection. Access is to allow touching of all surfaces.

3.6 CLEARANCE AIR SAMPLING BY OWNER

A. After the work area is found to be visually clean and ***all surfaces are fully dry***, air sampling shall be collected and analyzed by the AST in accordance with the procedure for Phase Contrast Microscopy (PCM) or Transmission Electron Microscopy (TEM) set forth in section 01714.

1. If Release Criteria are not met, repeat Final Cleaning and continue Decontamination procedure from that point.

2. If Release Criteria are met, remove work area isolation in accordance with requirements of this section.

3.7 REMOVAL OF WORK AREA ISOLATION:

A. After all requirements of this section and Section 01714 Work Area Clearance have been met:

1. Shut down and remove the Pressure Differential System. Seal HEPA filtered fan units, HEPA vacuums and similar equipment with 6 mil (0.15 mm) polyethylene sheet and duct tape to form a tight seal at intake end before being moved from Work Area.

2. Remove Personnel Decontamination Unit.

3. Remove the Critical Barriers separating the Work Area from the rest of the building. Remove any small quantities of residual material found upon removal of the plastic sheeting with wet wiping, HEPA filtered vacuum cleaners and local area protection. If significant quantities, as determined by the Designer, are found then the entire area affected shall be decontaminated as specified in Section 01712 Cleaning & Decontamination Procedures.

4. Remove all equipment, materials, debris from the work site.

5. Dispose of all asbestos-containing waste material as specified in Section 02084 Disposal of Regulated Asbestos Containing Material.

3.4 SUBSTANTIAL COMPLETION OF ABATEMENT WORK:

A. Asbestos Abatement Work is Substantially Complete upon meeting the requirements of this section including submission of:

1. Certificate of Visual Inspection

2. Receipts Documenting proper disposal as required by Section 02084 Disposal of Regulated Asbestos-Containing Material.

3. Punch list detailing repairs to be made and incomplete items.

3.5 CERTIFICATE OF VISUAL INSPECTION:

A. Following this section is a "Certificate of Visual Inspection". This certification is to be completed by the Contractor and certified by the Project Administrator. Submit completed Certificate with Application for Final Payment. Final payment will not be made until this Certification is executed.

END OF SECTION - 01711

CERTIFICATION OF VISUAL INSPECTION

In accordance with Section 01711 "Project Decontamination" the Contractor hereby certifies that he has visually inspected the Work Area (all surfaces including pipes, beams, ledges, walls, ceiling and floor, Decontamination Unit, sheet plastic, etc.) and has found no dust, debris or residue.

by: (Signature_____ Date_____

(Print Name)_____

(Print Title)_____

PROJECT ADMINISTRATOR CERTIFICATION

The Project Administrator hereby certifies that he has accompanied the Contractor on the Contractor s visual inspection and verifies that this inspection has been thorough and to the best of their knowledge and belief, the Contractor's Certification above is a true and honest one.

by: (Signature)_____ Date_____

(Print Name)_____

(Print Title)_____

SECTION 01714 - WORK AREA CLEARANCE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to work of this section.

1.2 SUMMARY:

A. This section describes work performed by the AST to measure post-abatement fiber levels.

1.3 CONTRACTOR RELEASE CRITERIA:

A. The Work is Complete when the work area has passed Visual Inspection and airborne fiber levels have been reduced to the level specified in items 1.7 or 1.8 of this Section.

1.4 AIR MONITORING:

A. To determine if the elevated airborne fiber counts encountered during abatement operations have been reduced to the specified level, AST will secure samples and analyze them according to the following procedures.

B. Fibers Counted: Fibers' referred to in this section shall be either all fibers as counted in accordance with NIOSH Method 7400A, or asbestos fibers of any size as counted using a Transmission Electron Microscope as specified in Appendix A of 40 CFR 763.

1.5 AGGRESSIVE SAMPLING:

A. Before sampling pumps are started the exhaust from forced air equipment (such as a leaf blower with at least 1 horsepower electric motor) will be swept against all walls, ceilings, floors, ledges and other surfaces in the room. This procedure will be continued for 5 minutes per 10,000 cubic feet of work area volume. The Contractor shall supply the forced air equipment (leaf blower).

B. One fan capable of creating a minimum air velocity of 500 feet per minute shall be utilized for each 10,000 cubic feet of work area. Stationary fans shall be placed in locations, which will not interfere with air monitoring equipment. Fans shall be directed toward the ceiling and shall operate continuously for the entire sampling period. The Contractor shall supply all required fans.

C. Air samples will be collected in areas subject to normal air circulation away from room corners, obstructed locations, and sites near windows, doors or vents.

D. After air-sampling pumps have been shut off, fans will be shut off.

E. The use of leaf blowers and fans shall be restricted to general occupancy areas that are contained, and they shall not be used in any space with an open dirt, sand or gravel floor.

1.6 SCHEDULE OF AIR SAMPLES BY OWNER:

A. Number and Volume of Samples: The number and volume of air samples taken and analytical methods used by the AST will be in accordance with one of the following schedules in compliance with state and Federal regulations. Sample volumes utilized may vary depending upon job conditions and the analytical method used.

1.7 PHASE CONTRAST MICROSCOPY (PCM)

A. In each homogenous work area to be cleared by PCM, after completion of all cleaning work, a minimum of 5 samples will be taken analyzed as follows:

1. PCM Samples: collected on 0.8 u MCE, 25 mm filters

Location Sampled	Number of Samples	Limit Value (Fibers/cc)	Minimum Volume (Liters)	Rate (LPM)
Each Work Area	5	*0.010*	1,200	2-12
Field Blank	1	3 fibers/ 100 fields	N/A	N/A

B. Fibers on each filter will be counted and measured using the NIOSH Method 7400A procedures. If analyzed in the field, the microscopist shall be rated 'Approved" in the Asbestos Analysts Registry (AAR) program, administered by the American Industrial Hygiene Association (AIHA) If counted in a laboratory, the analyst shall also be AAR "Approved" and the laboratory shall be accredited for asbestos by AIHA.

C. Decontamination of the work site is complete when every work area sample is less than or equal to the applicable Acceptance Level (0.010 f/cc). If any sample is above the Acceptance Level (0.010 f/cc), then the decontamination is incomplete and re-cleaning is required.

1.8 TRANSMISSION ELECTRON MICROSCOPY (TEM)

A. In each homogenous work area to be cleared by TEM, after completion of all cleaning work, a minimum of 13 samples will be taken and analyzed as follows:

1. TEM Samples: collected on 0.45 u MCE, 25 mm filters

Location Sampled	Number of Samples	Analytical Sensitivity (Struct./mm^2.)	Approx. Volume (Liters)	Rate (Liters/ Minute)
Each Work Area	5[1]	< 70 (average of 5 samples)	1,200	2-12
Outside Each Work Area	5[2]	Z-test	1,200	2-12
Work Area Blank	1	< 70 (average of blanks)	N/A	N/A
Outside Blank	1	< 70 (average of blanks)	N/A	N/A
Lab Blank	1	< 70 (average of blanks)	N/A	N/A

1) or 1 sample per 1,000 ft2 of contained floor area (except 1 per 2,000 ft2 in rooms > 5,000 ft2), whichever requires more samples.

2) outside work area samples shall be taken as follows: 1) two at the entrance to the decontamination chamber, representing make-up air, 2) two outside the building, and 3) one at another location inside the building, determined by the Owner's Industrial Hygiene services contractor. Prior to taking these samples, the AST shall inspect the vicinity to ensure that neither the activities of the abatement contractor, nor other ACM in the building, are expected to create ambient fiber levels that would be detected on these samples.

B. Analysis will be performed using the method set forth in the AHERA Regulation 40 CFR Part 763 Appendix A. The laboratory performing the analyses shall have current Accreditation for Airborne Asbestos Fiber Analysis through the National Voluntary Laboratory Accreditation Program (NVLAP), administered by the National Institute of Standards and Technology (NIST).

C. Asbestos structures referred to in this Section include asbestos fibers, bundles, clusters or matrices, as defined by method of analysis.

D. Release Criteria: Decontamination of the work site is complete when one of the following two sets of conditions are met. Utilization of condition 2 (Z-test) will be only if, in the written judgment of the ASCM, it is necessary due to knowledge or reasonable suspicion that ambient air entering the work area through the decontamination chamber is > 0.010 s/cc for reasons unrelated to the actions of the abatement contractor.

1. Work Area Samples meet acceptance criteria below the filter background levels.

   a. Minimum volume of all Work Area samples is 1,200 liters for a 25 mm filter.

   b. The average concentration of asbestos on the five Work Area Samples does not exceed the acceptance criteria of 70 structures per square millimeter of filter area.

2. Work Area Samples are not statistically different from outside samples.

   a. All sample volumes except for blanks are greater than 1,200 liters for a 25 mm filter.

   b. The average asbestos concentration of the three blanks is below the filter background level of 70 structures per square millimeter of filter area.

   c. The ASCM has determined that neither abatement contractor activities nor remaining ACM in other portions of the building are expected to be detected on the outside work area samples and average asbestos concentrations in Work Area Samples are not statistically different from Outside samples, as determined by the Z-test calculation found in 40 CFR Part 763, Subpart E, Appendix A (Z is less than or equal to 1.65)

E. If the arithmetic mean (average) asbestos concentration on the blank filters exceeds 70 structures per square millimeter of filter area, the analysis will cease, the cause of the problem shall be corrected and new samples will be collected.

1.9 FAILED CLEARANCE TESTING

A. If the Release Criteria conditions are not achieved, decontamination is incomplete and the cleaning procedures of Section 01711 shall be repeated at no additional cost to the Owner.

B. The Contractor will be financially responsible for all subsequent analysis costs (daily and clearance) and related technician costs required as a result of failed clearance testing.

1.10 PHASE CONTRAST MICROSCOPY

A. The services of a testing laboratory will be employed by the Owner to perform laboratory analysis of the air samples. A technician will be at the job site with a microscope so that verbal reports on air samples can be obtained within four (4) hours.

B. A complete record, certified by the testing laboratory, of all air monitoring tests and results will be furnished to the Owner.

1.11 TRANSMISSION ELECTRON MICROSCOPY

A. The services of a testing laboratory will be employed by the Owner to perform laboratory analysis of the air samples.

B. Verbal results will be available within 24 hours after submitting the sample to the laboratory.

C. A complete record, certified by the testing laboratory, of all Transmission Electron Microscopy results will be furnished to the Owner.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01714

SECTION 02081 - REMOVAL OF ASBESTOS-CONTAINING MATERIALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division - 1 Specification Sections, apply to work of this section.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

A. Worker Protection requirements are set forth in Section 01560 Worker Protection - Asbestos abatement.

B. Installation of Critical and Primary Barriers, and Work Area Isolation Procedures are set forth in Section 01526 Temporary Enclosures.

C. Project Decontamination procedures after removal of the Secondary Barrier are specified in Section 01711 Project Decontamination.

D. Disposal of asbestos-containing waste is specified in Section 02084 Disposal of Regulated Asbestos-Containing Materials.

1.3 SUBMITTALS:

A. Before Start of Work: Submit the following to the Designer for review. Do not start work until these submittals are returned with Designer's action stamp indicating that the submittal is returned for unrestricted use.

1. Surfactant: Submit product data, use instructions and recommendations from manufacturer of surfactant intended for use. Include data substantiating that material complies with requirements.

2. Removal Encapsulant: Submit product data, use instructions and recommendations from manufacturer of removal encapsulant intended for use. Include data substantiating that material complies with requirements.

3. NESHAP Certification Submit certification from manufacturer of surfactant or removal encapsulant that, to the extent required by this specification, the material, if used in accordance with manufacturer's instructions,will wet Asbestos-Containing Materials (ACM) to which it is applied as required by the National Emission Standard for Hazardous Pollutants (NESHAP) Asbestos Regulations (40 CFR 61, Subpart M).

B. Before Start of Work submit the following to the Designer for review. Do not begin work until these submittals are returned with the Designer'saction stamp indicating that the submittal has been Received and Reviewed

1. Material Safety Data Sheet: Submit Material Safety Data Sheets, or equivalent, in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) for the following:

a. Surfactants.
b. Encapsulants.
c. Solvents.

PART 2 - PRODUCTS:

2.1 MATERIALS

A. Wetting Materials: For wetting prior to disturbance of ACM use either amended water or a removal encapsulant:

B. Amended Water: Provide water to which a surfactant has been added. Use a mixture of surfactant and water which results in wetting of the ACM and retardation of fiber release during disturbance of the material equal to or greater than that provided by the use of one ounce of a surfactant consisting of 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether mixed with five gallons (19 liters) of water.

C. Removal Encapsulant: Provide a penetrating type encapsulant designed specifically for removal of ACM. Use a material which results in wetting of the ACM and retardation of fiber release during disturbance of the material equal to or greater than that provided by water amended with a surfactant consisting of one ounce of a mixture of 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether in five gallons (19 liters) of water.

D. Polyethylene Sheet: A single polyethylene film in the largest sheet size practicable to minimize seams, 6.0 mil (0.15 mm) thick, clear, frosted, or black as indicated.

E. Polyethylene Sheet: Provide flame resistant polyethylene film that conforms to requirements set forth by the National Fire Protection Association Standard 701, Small Scale Fire Test for Flame-resistant Textiles and Films. Provide largest size possible to minimize seams, 6.0 mil (0.15°mm) thick, frosted or black as indicated.

F. Duct Tape: Provide duct tape in 2 inch or 3 inch (50mm or 75 mm) widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene.

G. Spray Cement: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

H. Disposal Bags: Provide 6 mil (0.15 mm) thick leak-tight polyethylene bags labeled as required by Section 02084 Disposal of Regulated Asbestos Containing Material.

I. Fiberboard Drums: Provide heavy-duty leak tight fiberboard drums with tight sealing locking metal tops.

J. Paper board Boxes: Provide heavy-duty corrugated paper board boxes coated with plastic or wax to retard deterioration from moisture. Provide in sizes that will easily fit in disposal bags.

K. Felt: Standard felt approximately 1/16 inch (1.6 mm) thick and 36 inches (900 mm) to 72 inches (1800 mm) in width.

PART 3 - EXECUTION

3.1 SECONDARY BARRIER:

A. Secondary Barrier: Over the Primary Barrier, install as a drop cloth a clear, 6 mil (0.15 mm) sheet plastic in all areas where asbestos removal work is to be carried out. Completely cover floor with sheet plastic. Where the work is within 10 feet (3 m) of a wall extend the Secondary Barrier up wall to ceiling. Support sheet plastic on wall with duct tape, seal top of Secondary plastic to Primary Barrier with duct tape so that debris is unable to get behind it. Provide cross strips of duct tape at wall support as necessary to support sheet plastic and prevent its falling during removal operations.

1. Install Secondary Barrier at the beginning of each work shift. Install only sufficient plastic for work of that shift.
2. Remove Secondary Barrier at end of each work shift or as work in an area is completed. Fold plastic toward center of sheet and pack in disposal bags. Keep material on sheet continuously wet until bagged.

3. Install Walkways of black 6 mil (0.15 mm) plastic between active removal areas and decontamination units to protect Primary Layer from tracked material. Install walkways at the beginning of, and remove at the end of, each work shift.

3.2 PRE-COMMENCEMENT INSPECTION

A. Each work area shall be prepared for abatement by isolating the area from the balance of the building, establishing a negative pressure enclosure, complete with decontamination units, temporary electrical and water connections and other temporary facilities as specified in each of the other sections of this specification.

B. Upon completion of preparation, Contractor shall request the AST to perform an inspection of the work area to verify that all isolation and engineering controls are in place and functioning as specified.

C. Repair, install or otherwise correct any deficiencies noted during the inspection and obtain written notification from the AST that the area has been found acceptable for abatement.

3.3 WORKER PROTECTION:

A. Before beginning work with any material for which a Material Safety Data Sheet has been submitted provide workers with the required protective equipment. Require that appropriate protective equipment be used at all times.

3.4 WET REMOVAL:

A. Thoroughly wet to satisfaction of Designer ACM to be removed prior to stripping and/or tooling to reduce fiber dispersal into the air. Accomplish wetting by a fine spray (mist) of amended water or removal encapsulant. Saturate material sufficiently to wet to the substrate without causing excess dripping. Allow time for amended water or removal encapsulant to penetrate material thoroughly. If amended water is used, spray material repeatedly during the work process to maintain a continuously wet condition. If a removal encapsulant is used, apply in strict accordance with manufacturer's written instructions. Perforate outer covering of any installation which has been painted and/or jacketed in order to allow penetration of amended water or removal encapsulant, or use injection equipment to wet material under the covering. Where necessary, carefully strip away while simultaneously spraying amended water or removal encapsulant on the installation to minimize dispersal of asbestos fibers into the air.

1. Mist work area continuously with amended water whenever necessary to reduce airborne fiber levels.

2. Remove saturated ACM in small sections from all areas. Do not allow material to dry out. As it is removed, simultaneously pack material while still wet into disposal bags. Twist neck of bags, bend over and seal with minimum three wraps of duct tape. Clean outside and move to Wash Down Station adjacent to Material Decontamination Unit.

3. Evacuate air from disposal bags with a HEPA filtered vacuum cleaner before sealing.

B. Fireproofing or Architectural Finish on Scratch Coat: Spray asbestos-containing fireproofing or architectural acoustic finish with a fine mist of amended water or removal encapsulant. Allow time for amended water or removal encapsulant to saturate materials to substrate. Do not over-saturate to cause excess dripping. Scrape materials from substrate. Remove materials in manageable quantities and control the descent to staging or floor below, if over 20 feet (6000 mm) use drop chute to contain material during descent. If using amended water, spray mist surface continuously during work process. If using removal encapsulant follow manufacturer's written instructions. Remove residue remaining on scratch coat after scraping using stiff nylon bristled hand brush. Use high pressure washer only with written authorization of Designer. If a removal encapsulant is used remove residue completely before encapsulant dries. If substrate dries before complete removal of residue re-wet with amended water or removal encapsulant.

C. Fireproofing or Architectural Finish on Wire Lath: Spray asbestos-containing fireproofing or architectural acoustic finish with a fine mist of amended water or removal encapsulant. Allow time for amended water or removal encapsulant to saturate material completely. Do not over-saturate to cause excess dripping. If surface of material has been painted or otherwise coated cut small holes as required and apply amended water or removal encapsulant from above. Cut wire lath into manageable sections and cut hanger wires. Roll or fold up complete with ACM and hand place in container. Do not drop on floor. After removal of lath and ACM remove any overspray on decking and structure above using stiff nylon bristled brush. Use high pressure washer only with written authorization from Designer. Use one of the following methods for containing waste.

1. Deposit material in corrugated paperboard box. When box is full duct tape closed and place in disposal bag.

2. Wrap material in felt and place in fiberboard drum lined with two disposal bags. Use caution to insure that all edges of wire lath that could cut plastic are covered with felt.

3. Place material directly in a steel drum. Seal drums when full with leak tight seal. Drum is to be leak tight in any orientation.

D. Pipe Insulation: Spray with a mist of amended water or removal encapsulant. Allow amended water or removal encapsulant to saturate material to substrate. If a removal encapsulant is used, use in strict accordance with manufacturer's instructions. Cut bands holding preformed pipe insulation, slit jackets at seams, remove and hand-place in a disposal bag. Remove job-molded fitting insulation in chunks and hand place in a disposal bag. Do not drop to floor. Remove any residue on pipe or fitting with stiff bristle nylon hand brush. In locations where pipe fitting insulation is removed from pipe with straight runs insulated with fibrous glass or other non-asbestos-containingfibrous material, remove fibrous material 6" (150 mm) from the point where it contacts the asbestos-containing insulation.

E. Vinyl Floor Tile & Mastic: Spray with a mist of amended water or removal encapsulant. Allow amended water or removal encapsulant to saturate material to substrate. If a removal encapsulantis used, use in strict accordance with manufacturer'sinstructions. Remove floor tile by mechanical means utilizing hand scrapers. Remove floor tile adhesive mastic by mechanical means (scraping and bead blaster machinery) and/or low odor chemical solvents. All visible residue of the mastic shall be removed. Utilize hand razor scrapers, if necessary, to access the work area edges or other hard to reach areas. Petroleum staining and traces of mastic embedded in concrete pores will not be acceptable.

3.5 LOCALIZED CONTROL OF MATERIAL RELEASE:

A. Pipe Insulation: HEPA vacuum surface of pipe insulation. Cut bands holding preformed pipe insulation, slit jackets at seams while holding HEPA vacuum under cut, remove and hand-place in a disposal bag. Remove job-molded fitting insulation in chunks, using nozzle of HEPA vacuum to collect debris generated, and hand-place in a disposal bag. Do not drop to floor. Remove any residue on pipe or fitting with wire brush. Brushing toward the nozzle of a HEPA vacuum. In locations where pipe fitting insulation is removed from pipe with straight runs insulated with fibrous glass or other non-asbestos-containing fibrous material, remove fibrous material 6 inches (150 mm) from the point where it contacts the asbestos-containing insulation. Use a two worker crew for work, with one worker removing material and one worker holding the nozzle of a HEPA vacuum in the location of disturbance.

B. Material sprayed on wire lath: Hold the nozzle from an operating HEPA filtered vacuum cleaner in the immediate vicinity of and below the work while cutting the wire lath or otherwise disturbing the ACM. Use a two-worker crew for cutting, with one worker cutting and one worker holding the HEPA vacuum nozzle.

3.6 SURGICAL REMOVAL METHODS

A. Removal by these proceduresshall be limitedto a maximum of a six (6) inch wide strip of material running the length and/or height of the separation barrier and is allowed only to facilitate the erection of the separation barrier. Surgical removal activities shall not be permitted until all full isolation and engineering

controls including, but not limited to, Occupancy Separation Barriers, critical barriers, wall, ceiling and floor polyethylene, AFD units, decontamination unit, temporary electrical, lighting and water are in place and functioning as specified and inspected by the AST.

1. Remove the first row or two of ceiling tiles along the entire running length of the separation barrier to be installed to allow complete access for removal of the asbestos containing fireproofing from the structural deck and/or beams. The interior field of ceiling tiles shall remain in place throughout these procedures.

2. Remove asbestos containing fireproofing material utilizing either wet removal methods as outlined in Section 3.4 of this section or the suction from a HEPA filter equipped vacuum to remove the asbestos material directly from the structural deck and/or beams.

3. Mist work area continuously with amended water whenever necessary to reduce airborne fiber levels.

4. Remove saturated ACM in small sections from all areas. Do not allow material to dry out. As it is removed, simultaneously pack material while still wet into disposal bags. Twist neck of bags, bend over and seal with minimum three wraps of duct tape. Clean outside and move to Wash Down Station adjacent to Material Decontamination Unit.

5. Evacuate air from disposal bags with a HEPA filtered vacuum cleaner before sealing.

6. Asbestos-containing material shall be disposed of as specified in Section 02084.

3.7 LOCK-DOWN ENCAPSULATION

A. Upon completion of removal and cleaning of surfaces, have surfaces visually inspected by the AST. When surfaces have passed the visual inspection, they shall be sprayed with an approved lock-down encapsulant.

3.8 LOCAL VENTILATION AND COLLECTION SYSTEM:

A. If necessary in order to meet work area fiber level specified in Section 01410 provide local ventilation and collection systems as described below for each area where ACM is being removed or otherwise disturbed:

1. Provide HEPA filtered fan units in addition to those required by section 01513, in the vicinity of the work. Arrange so that the units exhaust into the Work Area oriented in a direction away from the work. Extend a 12 inch (300 mm) diameter flexible non-collapsing duct from the intake end to a point no more than 4 feet (1200 mm) from any scraping or wire brushing activity.

2. Locate intake of duct so that air flow is horizontally and slightly downward into intake. Replace primary filters on HEPA filtered fan units at an interval of no greater than 30 minutes. Allow no more than one scraping or wire brushing activity per fan unit.

3. Attach a job-built 4 feet X 4 feet (1200 mm x 1200 mm) flared end piece on intake end of duct. Support end piece horizontally at a point 4 feet (1200 mm) below the work, so that airflow is directed downward into intake.

3.9 AIRBORNE FIBER COUNTS

A. Use work procedures that result in an 8-hour Time Weighted Average (TWA) airborne fiber count less than that indicated in Section 01410.

B. If airborne fiber counts exceed this level immediately mist the area with amended water to lower fiber counts and revise work procedures to maintain airborne fiber levels within the required limit.

END OF SECTION — 02081

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SECTION 02084 - DISPOSAL OF REGULATED ASBESTOS-CONTAINING MATERIAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

A. Worker protection requirements are set forth in Sections 01560 Worker Protection - Asbestos abatement

B. Section 01098 Codes, Regulations and Standards - Asbestos Abatement describes applicable federal, state and local regulations.

1.3 DESCRIPTION OF THE WORK:

A. This section describes the disposal of Regulated Asbestos-Containing Materials (RACM). Disposal includes packaging of Regulated Asbestos-Containing Materials. Disposal may be accomplished either by land filling or converting Regulated Asbestos Containing Materials to non-Asbestos waste.

1.4 SUBMITTALS:

A. Before Start of Work: Submit the following to the Designer for review. Do not start work until these submittals are returned with Designer's action stamp indicating that the submittal is returned for unrestricted use.

1. Copy of state or local license for waste hauler.

2. Name and address of landfill where Regulated Asbestos Containing Materials are to be buried. Include contact person and telephone number.

3. Name and address of processor where Regulated Asbestos-Containing Materials are to be processed into non-asbestos waste. Include contact person and telephone number. Also provide the following information about the process and operation used by the processor:

a. Results of start-up performance testing and performance testing for last 90 days including operating parameters, feed characteristics, and analysis of output materials.

b. Results of composite analysis required during initial 90 days of operation and results of composite analysis of monthly product composite samples for last 90 days.

c. Results of continuous monitoring and logs of process operating parameters for the initial 90 days and last 90 days of operation.

d. A description of any deviation from the operating parameters established during performance testing, the duration of the deviation, and steps taken to correct the deviation.

e. Product data on process to be used

4. Chain of Custody form and form of waste manifest proposed

5. Sample of disposal bag and any added labels to be used.

B. On a weekly basis submit copies of all manifests and disposal site receipts to Designer.

C. Waste Shipment Record: Maintain a waste shipment record as required by the NESHAP regulation which indicates the waste generator, transporter, and disposal site, and which describes the nature, size, type of container, and form of asbestos waste. Submit to Designer within 35 days of departure from building.

PART 2 - PRODUCTS:

2.1 MATERIALS

A. Disposal Bags: Provide 6 mil (0.15 mm) thick leak-tight polyethylene bags labeled with three labels with text as follows:

1. First Label: Provide in accordance with 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
BREATHING AIRBORNE FIBERS IS
HAZARDOUS TO YOUR HEALTH

2. Second Label: Provide in accordance with U. S. Department of Transportation regulation on hazardous waste marking. 49 CFR parts 171 and 172. Hazardous Substances

RQ-ASBESTOS WASTE
CLASS 9
NA2212-PG III

3. Third Label: Provide the name of the waste generator (Owner's name), the location from which the waste was generated and the names and addresses of the contractor and transporter. This label must be durable, able to repel dirt and moisture (e.g., permanent marker). Label must be placed directly on disposal bag(s) in a legible format.

B. Burlap bags, nylon-reinforced bags or cardboard boxes: Provide labels in accordance with paragraph 2.1, A, 1-3 of this section.

C. Fiberboard drums or 6-mil (0.15 mm) polyethylene sheeting: Provide labels in accordance with paragraph 2.1, A, 1-3 of this section.

2.2 VITRIFICATION:

A. Convert Regulated Asbestos-Containing Materials to non-asbestos waste by thermal conversion in a process including the following principal elements. Comply with all EPA and DOT requirements for asbestos waste until the waste is converted:

1. Receiving and storage: areas that are maintained as contained controlled areas isolated by physical barriers and a pressure differential

2. Melting: process that is intrinsically safe in that it will not allow unconverted asbestos to appear in the final product under any circumstances

B. Processor: Use a processor that meets all the requirements of the EPA NESHAP regulation for an operation that converts regulated asbestos-containing material and asbestos-containing waste material into non-asbestos (asbestos-free) material as set forth in 40 CFR 61 Sub-part A and M section 61.155

C. Available Processors: Subject to compliance with requirements, providers of processes include, but are not limited to, the following:

D. Processors: Subject to compliance with requirements, utilize process provided by one of the following:

1. GTS Duratek
   8955 Guilford Rd
   Suite 200
   Columbia, MD 21045
   (800) 638-3838

2. Penberthy Electromelt
   631 So. 96th Street
   Seattle, WA 98108

PART 3 - EXECUTION

3.1 SEQUENCE

A. Comply with the following sections during all phases of this work:

1. Section 01560 Worker Protection - Asbestos Abatement

2. Section 01562 Respiratory Protection

3.2 GENERAL:

A. All waste is to be hauled by a waste hauler with all required licenses from all state and local authority with jurisdiction.

B. Liquid waste: Mix all liquid asbestos-containing waste or asbestos contaminated waste with a bladeable material so that it forms a bladeable (non-liquid) form, and have the concurrence of the landfill operator prior to disposal.

C. Load all adequately wetted Regulated Asbestos-Containing Material in disposal bags or leak-tight containers. All materials are to be contained in one of the following

1. Two (2) 6 mil (0.15 mm) disposal bags or

2. Two 6 mil (0.15 mm) disposal bags and a fiberboard drum or

3. Wrapped with two (2) layers of 6 mil (0.15 mm) polyethylene

D. Protect interior of truck or dumpster with Critical and Primary Barriers as described in Section 01526 Temporary Enclosures.

E. Carefully load containerized waste in fully enclosed dumpsters, trucks or other appropriate vehicles for transport. Exercise care before and during transport, to insure that no unauthorized persons have access to the material.

F. Warning Signs: During loading and unloading mark dumpsters, receptacles and vehicles with a sign complying with requirements of the EPA NESHAP regulation (40 CFR Part 61), in a manner and location that a person can read the following legend:

DANGER
ASBESTOS DUST HAZARD
CANCER AND LUNG DISEASE HAZARD
Authorized Personnel Only

G. Do not store containerized materials outside of the Work Area. Take containers from the Work Area directly to a sealed truck or lockable dumpster. ***When transporting bagged material through building, it must be done in enclosed utility type carts with lids.***

H. Do not transport disposal-baggedmaterials on open trucks. Label drums with same warninglabels as bags. Uncontaminated drums may be reused. Treat drums that have been contaminated as Regulated Asbestos-Containing Material and dispose of in accordance with this specification.

I. Advise the landfill operator or processor, at least ten days in advance of transport, of the quantity of material to be delivered.

J. At disposal site unload containerized waste:

1. At a disposal site, sealed plastic bags may be carefully unloaded from the truck. If bags are broken or damaged, return to work site for rebagging. Clean entire truck and contents using procedures set forth in section 01711 Project Decontamination.

2. At a processing site truck and loading dock are arranged as a controlled work area and containerized waste is transferred to storage area by site personnel. All bags including broken ones will be transferred. Clean truck, using procedures set forth in section 01711 Project Decontamination.

K. Retain receipts from landfill or processor for materials disposed of.

L. At completion of hauling and disposal of each load submit copy of waste manifest, chain of custody form, and landfill receipt to Designer.

END OF SECTION - 02084