Newfield Construction, Inc.

BULLETIN NO. 1

Date: August 8, 2018
Dillon Stadium – Phase 2, Hartford, CT

Clarifications

1. **The bid date, place and time are unchanged by this bulletin.**

2. A Pre-bid Meeting was convened on Monday, August 6, 2018. Meeting Agenda and Sign In Sheets are attached.

3. Bidders are reminded that **additional site inspections to view the existing conditions are scheduled as follows:**

   Thursday, August 9th from 10:00AM -11:00AM
   Monday, August 13th from 12:00PM-1:00PM

   Please sign in with the Newfield representative on site. Contact Dave Cormier (860) 982-6629 upon arrival to the site.

4. The City of Hartford Local Bidder Preference (Hartford City Code Section 2-661, City Contractor Preference) does not apply to this Project.

5. Builder's Risk Insurance Deductible: The applicable trade contractor shall be responsible for builders risk insurance deductibles for each occurrence for losses covered by this insurance involving the trade contractor or their subcontractors.

6. Section 00 11 00 Invitation to Bid. **Add** DAS Prequalification requirements. See attached revised Section 00 11 00.

7. Project Manual Division 00 Bidding and Contract Requirements. Add Table of Contents. See attached Table of Contents.

8. Section 00 41 01 Bid Form. **Add** Concrete, Site Unit Prices, Alternate 3. See attached revised Section 00 41 01.

9. Section 002400 Bid Packages, Part A, Bid Package 2.1 Site Construction, Bid Package Notes.
   Note 02.10: **Delete** the second sentence and **Replace** with "The silt fence at the toe of the East slope and the North tracking pad will be installed by others. Include installation of the tracking pad at the Southeast corner."
   Note 02.38: Delete entirely.

10. Section 002400 Bid Packages, Part B, Bid Package 2.2 Concrete, Bid Package Notes.
    Note 02.18: Delete entirely.

11. Section 002400 Bid Packages, Part D, Bid Package 2.4 General Trades, Bid Package Notes.
    Note 02.16 Delete entirely and **Replace** with: As part of the base bid include all hazmat abatement, universal waste disposal and lead paint removals except abatement at the press box and lead paint removals at the existing bleachers, which are part of Phase 1. Provide a deduct alternate value (Alternate 3) for hazmat abatement and universal waste disposal. Include selective demolition to accommodate hazmat removals in the Alternate.
    Add Note A1.01 Include two 12"X24" aluminum gable end louvers at Building C.
    Add Note A1.02 As part of the Roof Replacement Alternate (Alternate 2) for Building C include a continuous ridge vent.
    Add Note A1.03 Include removal of the entire existing ceiling and ceiling insulation in Building C. Provide two layers (crossed) of fiberglass R19 unfaced batt insulation with insulation baffles at the eaves and one layer of 5/8" gyp board with a Level 3 finish for the entire ceiling.
    Add Note A1.04 Include one layer of 5/8" gypsum board with a Level 3 finish over the existing plaster ceiling for the entire ceiling area in Building E. Include shimming as required at new and existing openings. Include replacement of the blown in insulation (with fiberglass batt insulation) at all openings.
    Add Note A1.05 Include removal of all loose items in the building and attic at Building E. Upon completion of attic work broom clean all attic floor areas.

12. Section 002400 Bid Packages, Part A, Bid Package 2.1 Site Construction, Part B, Bid Package 2.2 Concrete, Bid Package Notes.
    Add Note A1.06: Include four athletic field light pole foundations (S1-S4) and two scoreboard foundations. Each foundation (6 total) shall consist of a 20' X 20' X 3' reinforced concrete footing with a 36" diameter reinforced concrete pier 36" high. Reinforcing steel information is forthcoming in a future bulletin. The bottom of the footing shall be at elevation -5' and placed on 10" of 3/8" crushed stone on a 3" mud slab. The mud slab shall be the responsibility of the Site Contractor. All other concrete is the responsibility of the Concrete Contractor. Anchor bolts will be furnished by others and installed by the Concrete Contractor.
    Add Note A1.07: Drawing S501. Disregard the Typical New Grandstand Foundation Wall Detail and the Radon Pit Suction Detail. There are no radon pits. Grandstand foundation requirements for the West bleachers will be provided in a future bulletin.

13. Section 002400 Bid Packages, Part H, Bid Package 2.8 Electrical, Bid Package Notes. **Add Note A1.08** Concrete pole foundations for athletic field lights, athletic field light poles, field lights (S1-S4) and seating luminaires mounted to the poles will be furnished and installed by others. Include wiring and circuits as shown. Include all electrical connections at each pole approximately 10' above grade. Coordinate all work with lighting supplier. Include installation of a lighting contactor panel, furnished by others, in Building E.

14. Section 002400 Bid Packages, Part D, Bid Package 2.4 General Trades, Specification Sections, **Add**:
    DIVISION 1 GENERAL REQUIREMENTS
        010100 General Requirements
        017000 Contract Close Out
        010160 Scheduling
    DIVISION 2 EXISTING CONDITIONS
        020750 Selective Demolition for Hazardous Materials Abatement
        020800 Asbestos Abatement
        020900 Lead Paint Demolition
        021100 PCB Remediation
        024119 Selective Structural Demolition
        028500 Universal Waste Reclamation
    DIVISION 9 FINISHES
        096099 Concrete Moisture Control System
        096723 Resinous Flooring

15. Section 002400 Bid Packages, Part A, Bid Package 2.1 Site Construction, Part H Bid Package 2.8 Electrical Bid Package Notes. **Add Note A1.09** The concrete pad shown on Drawing SU-10, South of Building A, at the Truck I/O Panel (Note E28) is the responsibility of the Site Construction Contractor.

Attachments

1. Pre-Bid Agenda & Sign in, 3 pages.
2. Section 00 11 00 Invitation to Bid, 2 pages.
3. Division 00 Table of Contents, 1 page.
4. Section 00 41 01 Bid Form, 7 pages.
5. Sections 010100 General Requirements, 017000 Contract Close Out, 010160 Scheduling, 020750 Selective Demolition for Hazardous Materials Abatement, 020800 Asbestos Abatement, 020900 Lead Paint Demolition, 021100 PCB Remediation, 028500 Universal Waste Reclamation.
6. Pre-bid RFI responses for PB RFI 001-004 dated August 8, 2018, 8 pages.
7. JCJ Addendum 1, 8/7/18, 1 page plus attachments.

Newfield Construction

Dillon Stadium Phase 2
21 Van Dyke Ave., Hartford, CT 06106
Pre-Bid Meeting Agenda
August 6, 2018 2:00 PM

1. Sign in.

2. Project description - The Phase 2 work consists of Site Work (excluding the athletic field), construction of a new 9,600 sf stadium building and renovations the Northeast Building (3,000 sf) and the Southwest Building (1,400 sf). Phase 1, which has been awarded and is underway, includes bleacher, press box and field demolition, construction of new bleachers and new synthetic turf field. Phases 1 and 2 will be constructed concurrently.

3. Phase 2 Schedule:

Award:	8/20/18-8/29/18
Mobilize:	9/4/18
Substantial Completion:	3/27/19

5. Contract format- Newfield is a Construction Manager at Risk. Contracts will be held by Newfield. Refer to Section 00 52 00 for the Form of Agreement between the Construction Manager and Trade Contractor.

6. Taxes- This project is sales tax exempt to the extent allowed by law. All out of state (non-resident) contractors must furnish Newfield with a Certificate of Compliance with Connecticut General Statutes Section 12-430(7).

7. There is no Project Labor Agreement (PLA) on this Project.

8. This is a state-funded, prevailing wage project. All trades and all tiers of subcontractors are required to pay State of CT. prevailing wage rates or labor agreement rates and submit certified payroll reports to Newfield weekly.

9. DAS Requirements- **Department of Administrative Services (DAS) Prequalification Certification is required for prime contractors with contract values of 500K or more. Subcontractors to prime bidders are not required to have a DAS Prequalification Certificate.**

10. CHRO requirements apply to all bid packages. Bidders must file a Set Aside Plan with CHRO and meet the minority and small business participation goals.

11. City of Hartford Resident Workforce Requirements apply to all bid packages. Bidders shall make a good faith effort to utilize Harford residents for 30% of the total workforce hours.

12. Bonds- 10% Bid Bond (or bid security payable to Newfield) and 100% Performance and Payments bonds are required.

13. Bidder requirements- Prior experience of no less than 3 similar size projects within the last five years. Workers Compensation Experience Modification Rate (EMR) of 1.0 or less, including all tiers of subcontractors. All bidders must submit a Contractors Qualification Statement AIA A305 with bid. Note additional specific requirements in the Project Manual.

14. **Bids are due on Thursday, August 16th by 2:00 PM at the Office of Newfield Construction, 225 Newfield Ave., Hartford, CT 06106. A public bid opening will follow the submission deadline.**

15. Bid Forms- Submit one original and two copies of the following:
   a. Fully Executed Bid Proposal Form- see Document 00 41 01
   b. Bid Bond or Bid Security (10%) - see Document 00 61 00
   c. DAS Prequalification Certificate and Update Statement for bids in excess of $500,000.
   d. Contractors Qualification Statement (AIA A 305) - see Document 00 59 00
   e. Notification to Bidders/Contract Compliance Monitoring Report (see Section 00 31 35 Contract Compliance Documents)
   f. OPM Forms 1,5,6,7,SEEC Form 10 (See Section 00 31 36 Code of Ethics Documents)

16. Bid documents are available for the cost of printing, shipping and sales tax at ARC Farmington, 17 Talcott Notch Road, Farmington CT 06032. Email: planwell.farmingtonct@e-arc.com, Phone Number: 860-677-8817. Allow 24-48 hours for print order processing.

17. Bid Documents can be viewed and downloaded from Newfield's Fileshare Site. Go to www.newfieldconstruction.com (Bidding) for access instructions.

18. Send all pre bid inquiries to Brian Grant at Newfield Construction via Email: Brian Grant@newfieldconstruction.com. **The cut off for pre bid inquiries is the end of the day Friday, August 10th.**

19. Permits and Fees- City of Hartford Permit Fees are waived. The State Public Education fund Fee will be paid by others. All other required permits and fees are the responsibility of the applicable trade.

20. The Site will be open for an additional inspections by bidders as follows:

Thursday, August 9th from 10:00AM -11:00AM
Monday, August 13th from 12:00PM-1:00PM

Please sign in with the Newfield representative on site. Contact Dave Cormier (860) 982-6629 upon arrival to the site.

21. Tour of work areas.

Newfield CONSTRUCTION
EXPERIENCE. WE BUILD ON IT.™

Newfield Construction, Inc.

Dillon Stadium

Phase 2 Pre-bid Meeting

August 6, 2018

Please Print Clearly

Company	Name	Telephone	Email
Newfield	Tom DiMauro		
A. Secondino & Son	Gary Broderick	203-481-3486	gbroderick@asecondinoandson.com
Mizzy Construction	James Wall	860-793-2289	grant@mizzyconstruction.com
E.C.I.	Jim Bona	860-549-2822	JimB@ECIncorporated.com
Wiese Const.	Mel Wiese	860-~~860~~-8573	Mel@WieseConstruction.com
T + T Electric	Roger Levesque	860-296-6967	RogerL@TandTelectrical.com
MANAFORT BROTHERS INC	NATHAN GALLO	8602294853	NGALLO@MANAFORT.COM
ELITE Construction Rental	Ulysses Garcia	860.519-6476	UGARCIA@ELITECR.COM
New England Wreck	Stan Stachura	203-284-9972	SSTACHURA@NEYC LLC.com
Elite Construction	Ryan Lamont	860-290-9421	rlamont@elitecr.com
LSJ Masonry	Leon Samuel	860 578 9101	lsjmasonry@gmail.com
~~Ben~~ Giordano Const	Vin Giordano	203-488-7264	vg3@giordano.build
Aquestone Graphix LLC	Dyshann Anderson	860-206-4935	dyshann@aquastone.us

Newfield CONSTRUCTION
EXPERIENCE. WE BUILD ON IT.

Newfield Construction, Inc.

Dillon Stadium

Phase 2 Pre-bid Meeting

August 6, 2018

Please Print Clearly

Company	Name	Telephone	Email
Ducci Electrical	Rick Kelleher	860-489-9267	rkelleher@duccielectrical.com
Guerrera Const.	Ed Hellaver	203-888-5069	edh@guerreraconstruction.com
Midstate Site Development	Rob Matejek	860-242-1283	rmatejek@msdct.com
NFYC	Anthony Matukaitis	860 8105864	amatukaitis@NFYCLLC.com
Harry			
J Eshee Electric	Harry Sheer	860 621 7841	harry@jesheeelectric.com
Mobile mini	Dustin Robbins	860 666 1671 x2765	drobbins@mobilemini.com
~~Willie Jones~~			
YJ cleaning & MAINTENANCE	Willie Jones	860-298-3340	YJcleaningservices123@Gmail.com
G DONOVAN	DAN MOSHER	860-642-0700	BONDIE@GDONOVAN.COM

Newfield Construction, Inc.

Dillon Stadium

Phase 2 Pre-bid Meeting

August 6, 2018

Please Print Clearly

Company	Name	Telephone	Email
Performance Pitt	Ron Doyon	866-689-5505	rdoyon@perfph.com
OWI CONTRACTORS	BOB CAMILLO	203-968-3545	BOB@OWICONTRACTORS.COM
Elite Construction Rentals	Chris Krul	8602909421	ckrul@elitecr.com

INVITATION TO BID
Dillon Stadium Phase 2

Newfield Construction acting as Construction Manager for The Capital Region Development Authority (CRDA) will receive sealed proposals for the bid packages listed below on **Thursday, August 16, 2018** until 2:00 PM. All bids will be received at Newfield Construction, 225 Newfield Ave., Hartford, CT 06106. All proposals should be addressed to Newfield Construction. All bids will be publicly opened and read aloud. The work consists of construction of a stadium building and site improvements.

2.1 Site Construction*
2.2 Concrete*
2.3 Masonry
2.4 General Trades*
2.5 Fire Protection
2.6 Plumbing*
2.7 Mechanical
2.8 Electrical*

Bidders on bid packages marked with asterisk (*) are required to submit a Department of Administrative Services (DAS) Prequalification Certificate and Update (bid) Statement with their bid. The Prime Contractor shall hold a current "DAS Contractor Prequalification Certificate" from the Department of Administrative Services of the State of Connecticut according to Connecticut General Statute 4a-100, 4b-101 and 4b-91. DAS prequalification is required of all prime bidders with contract values in excess of five hundred thousand dollars. For prime bidders when the bid package estimate is less than 500K but the bid exceeds 500K prequalification certificates are not required to be submitted with the bid, but must be submitted prior to award. All contractors requiring DAS certification must maintain the certification for the duration of the contract. If you have any questions regarding these requirements, contact the State of Connecticut DAS, at telephone number (860) 713-5280 or visit their web site at www.das.state.ct.us. DAS prequalification is not required for subcontractors to the prime bidder.

The contractors selected to perform this State project must comply with CONN. GEN. STAT. §§ 4a60, 4a-60a, 4a-60g, and 46a-68b through 46a-68f, inclusive, as amended by June 2015 Special Session Public Act 15-5.

State law requires a minimum of twenty-five (25%) percent of the state-funded portion of the contract for award to subcontractors holding current certification from the Connecticut Department of Administrative Services ("DAS") under the provisions of CONN. GEN. STAT. § 4a-60g. (25% of the work with DAS certified Small and Minority owned businesses and 25% of that work with DAS certified Minority, Women and/or Disabled owned businesses.) The contractor must demonstrate good faith efforts to meet the 25% set-aside goals.

A pre bid meeting will be held for all bidders at the site, 250 Huyshope Ave, Hartford, CT 06106 at **2:00 PM on Monday, August 6th**. Attendance is **strongly recommended** but not mandatory for all bidders.

All bidders must have prior experience consisting of no less than three similar projects with an equal or greater value within the last five years. Bidders must provide verification of experience with proposal. All bidders and subcontractors must have a worker's compensation Experience Modification Rate (EMR) of 1.0 or less or be subject to rejection.

Sets of plans and specifications may be obtained on or after **Tuesday July 31, 2018** for the non-refundable cost of printing, plus shipping and sales tax. Documents can be purchased from **ARC Farmington, 17 Talcott Notch Road, Farmington CT 06032. Email: planwell.farmingtonct@e-**

arc.com, Phone Number: 860-677-8817 Allow 24-48 hours for print order processing. Documents can be downloaded free of charge from Newfield Construction's Fileshare Site. Visit www.newfieldconstruction.com (Projects Bidding) for downloading instructions.

All pre-bid inquiries must be submitted to the Construction Manager by the end of the day on **Friday, August 10th.**

Construction Manager: Newfield Construction, Inc.
225 Newfield Avenue
Hartford, CT 06106
Phone (860) 716-1439
Attn: Brian Grant (briangrant@newfieldconstruction.com)

Architect: JCJ Architecture, PC
120 Huyshop Ave., Suite 400
Hartford, CT 06106

No oral, telephone, or telegraphic proposals will be considered. All base bids shall stand available for acceptance for a period of ninety (90) days from the date bids are opened. Alternate Bids shall stand available for acceptance for a period of one hundred twenty (120) days from the date bids are opened.

The Owner and Construction Manager reserve the right to waive any informality in any Bids or to reject any and all bids, or any part of any bid, when it is determined to be in the best interest of the Owner or the Construction Manager to do so. A 10% Bid Security is required from each Bidder, at the time of bid submission. The selected bidder will be required to post Performance and Payment Bonds for the full amount of the Contract Sum. All bidders must comply with all provisions of Connecticut General Statutes 31-53 (Prevailing Wages) and Executive Order #3. This Project is exempt from Federal Excise Taxes as well as State of Connecticut Sales Tax to the extent allowed by law.

Newfield Construction is an equal opportunity affirmative action employer/purchaser. Small, Minority, Women and Disadvantaged Businesses are encouraged to bid.

DIVISION 00- BIDDING AND CONTRACT REQUIREMENTS, BID PACKAGES

Section	Title
00 11 00	Invitation to Bid
00 21 00	Instruction to Bidders, AIA Document A701
00 22 13	Supplementary Instructions to Bidders
00 24 00	Bid Packages
00 31 13	Construction Schedule
00 31 35	Contract Compliance Documents
00 31 36	Code of Ethics Documents
00 41 01	Bid Form
00 52 00	Form of Agreement Between the Construction Manager & Trade Contractor
00 59 00	Contractors Qualification Statement, AIA Document A305
00 61 00	Bid Bond, AIA Document A310
00 71 00	General Conditions of the Contract, AIA A201
00 72 00	Special Project Conditions
00 73 40	Prevailing Wage Rates

BID PROPOSAL FORM (Rev 8/8/18)

PROPOSAL FOR BID PACKAGE _____

DILLON STADIUM
21 VAN DYKE AVE.
HARTFORD, CT 06106

TO: Newfield Construction, Inc.
225 Newfield Avenue
Hartford, CT 06106

PROPOSAL OF: NAME_____

STREET_____

CITY_____

I have received the bid documents entitled "Phase 2 Dillon Stadium Repairs" dated July 13, 2018, prepared by JCJ Architects and other consultants, as listed in the Contract Document Specifications, Table of Contents and Drawing List bound in the Contract Document Project Manual and Bulletins/Addenda numbered and dated as follows:

Bulletin #_____Dated _____Bulletin #_____ Dated _____

Bulletin #_____Dated _____Bulletin #_____ Dated _____

Bulletin #_____Dated _____Bulletin #_____ Dated _____

I have included the provisions of the above Bid Documents and Addenda and Bulletins in my bid. I have examined the bid documents and existing building and site and I submit the following bid:

I will furnish all labor, materials, equipment and services necessary to perform the work required by the bid documents and will take in full payment therefore the lump sum price including all allowances of: See attached.

_____Dollars

$_____

ALTERNATES (All lines must be filled in. For additional costs the alternate value shall be preceded by the word "ADD" (ADD $xx,xxx.xx). For deduct costs the alternate value shall be preceded by the word "DEDUCT" (DEDUCT $xx,xxx.xx). If there is no cost impact to your scope of work indicate on the alternate line "NO CHANGE") Blank entries will be construed as no change in value. Alternate bid values shall remain open for acceptance for one hundred twenty days from the date bids are opened.

A. Alternate No. 1: In Building C remove and replace all water closets, urinals and hangers in lieu of reuse.

_____Dollars

$_____

B. Alternate No. 2: Remove and replace the strip shingle roof at Building C.

_____Dollars

$_____

C. Alternate No. 3: Delete hazmat abatement and universal waste scope of work.

DEDUCT:_____Dollars

$_____

UNIT PRICES

The undersigned proposes and agrees that the following unit prices shall be the basis for computing extra costs to the contract for additional work. For deleted work, the credit to the contract shall be the same. Unit prices shall include costs for all materials, equipment, tools, small tools, labor, permits, fees, overhead, profit, supervision, home office support, project management, estimating, safety, travel, shop drawings and as built drawings for all parties involved in the work. Unit prices shall apply to both the trade contractors and their subcontractors. All work is to be accomplished in accordance with applicable Sections of the Specifications and State and Federal regulations. The Construction Manager reserves the right to selectively reject any of the unit prices without any affect on the remainder of the bid.

C.Y.= cubic yard	S.F.= square foot	GB= glove bag
S.Y.= square yard	HR= hour	GAL= gallon
L.F.= linear foot	LB= pound	EA=Each

BID PACKAGE 2.1 SITE CONSTRUCTION

1. Bituminous Concrete Pavement:

   _____/S.Y.

2. Concrete Sidewalk Pavement:

   _____/S.F.

3. Concrete Monolithic Curb:

   _____/L.F.

4. Granite Curb:

   _____/L.F.

5. Concrete Planter:

   _____/EA.

6. Concrete/ Bituminous Pavement Base in place:

   _____/TON

7. Traprock Surface in place:

   _____/TON

8. Decorative Metal Fence:

   _____/L.F.

9. Structural Soil in place:

   _____/C.Y.

10. 4x8 Tree Grate:

    _____/EA.

11. 6x6 Tree Grate:

    _____/EA.

12. Flagpole:

    _____/EA.

13. 2" Crushed Stone:

    _____/TON

14. Sand in place:

    _____/C.Y.

15. Granular Fill in place:

    _____/C.Y.

16. Structural Fill in place:

    _____/C.Y.

17. Hay Bales:

    _____/EA

18. Silt Fence:

    _____/L.F.

19. Silt Sack:

    _____/EA

20. Concrete Curb:

    _____/L.F.

21. Area Drain:

    _____/EA.

22. Excavate and Dispose of Uncontaminated Unsuitable Soils:

    _____/C.Y.

23. 3/8" Crushed Stone in place:

_____/Ton

24. Mud Slab Concrete in place:

_____/C.Y.

BID PACKAGE 2.2 CONCRETE

25. Concrete, furnish and place in footings/piers:

_____/C.Y.

26. Reinforcing Steel, furnish and install:

_____/TON

27. Concrete Forming for Mat Footings:

_____/S.F. of contact area

BID PACKAGE 2.3 MASONRY

28. Brick Replacement:

_____/S.F.

29. Brick Repointing:

_____/S.F.

BID PACKAGE 2.4 GENERAL TRADES

30. Wood Trim (Fascia) Replacement:

_____/L.F.

31. Fire Treated Wood Blocking:

_____/L.F.

32. Removal and disposal of asbestos-containing pipe insulation and fitting cement:

_____/L.F.

33. Removal and disposal of asbestos-containing caulk:

_____/L.F.

34. Removal and disposal of PCB-containing caulk (<50 ppm):

_____/L.F.

35. Removal and disposal of asbestos-containing cement board:

_____/S.F.

36. Removal and disposal of asbestos-containing roof flashing cement:

_____/S.F.

37. Removal and disposal of asbestos-containing roof field:

_____/S.F.

BID PACKAGE 2.6 PLUMBING

38. Replace water closet and single carrier in lieu of reuse:

_____/EA.

39. Replace water closets (2) and common carrier in lieu of reuse:

_____/EA.

40. Replace urinal and carrier in lieu of reuse:

_____/EA.

1 - To hold open my bid for ninety (90) days after bid opening date. Alternate bids shall be held open for one hundred twenty (120) days after bid opening date.
2 - To enter into and execute a contract, if awarded on the basis of this bid, according to the contract form listed in the Project Manual.
3 - To deliver properly executed Performance/Labor and Material Bonds, if required, as described in the Instructions at the time of execution of the contract. The amount of the premiums for the subject bonds is included in the lump sum price above.
4 - To accomplish the work in accordance with the contract documents.
5 - To begin work within 5 calendar days of official notice of acceptance of bid or execution of contract, whichever is first. No on site mobilization will be permitted until the contract has been executed.
6 - To substantially complete the work per the Construction Schedule. Time is of the essence.

By submission of this bid, each Bidder and each person signing on behalf of any Bidder certifies, and in case of a joint bid, each party thereto certifies, as to its own organization, under penalty of perjury, that to the best of its knowledge and belief:
A.) The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other Bidder or with any competitor.
B.) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to opening, directly or indirectly, to any other Bidder or to any competitor.
C.) No attempt has been made or will be made by the Bidder to induce any other person, partnership, or corporation to submit or not submit a bid for the purpose of restricting competition.

The Bidder, by submittal of this BID, agrees with the Owner that the amount of the bid security deposited with this BID fairly and reasonably represents the amount of damages the Owner will suffer due to the failure of the bidder to fulfill his agreements as above provided:

_____
(Firm Name)

By_____
(Signature and Title of Authorized Representative)

_____

(Printed Name and Title of Authorized Representative)

_____

(Business Address)

_____

(City and State)

Date:_____Email:_____

Telephone No._____

The bidder is (circle one):
1. Corporation, licensed in the State of _____
2. Partnership
3. Individual
4. Limited Liability Corporation
5. Limited Liability Partnership

Note:
If the bidder is a corporation affix corporate seal and give below the names of its President, Treasurer, and General Manager, if any; if a partnership, give full names and residential addresses of all partners; and if an individual, give residential address if different from business address.

_____

(Printed Name of President (corporation), Partner or Individual, Managing Partner)

_____

(Address)

_____

(City and State)

_____

(Printed Name of Treasurer (corporation) or Partner)

_____

(Address)

_____

(City and State)

_____

(Printed Name of General Manager (corporation) or Partner)

_____

(Address)

_____

(City and State)

SECTION 01 01 00 HAZARDOUS MATERIALS GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. Related Sections:

1. Section 01 01 60: Hazardous Materials Scheduling and Phasing
2. Section 01 70 00: Hazardous Materials Contract Closeout
3. Section 02 07 50: Selective Demolition for Hazardous Materials Abatement
4. Section 02 08 00: Asbestos Abatement
5. Section 02 85 00: Universal Waste Reclamation
6. Section 02 09 00: Lead Paint Demolition
7. Section 02 11 00: PCB Remediation

1.2 SECTION INCLUDES

A. HMAC Qualifications

B. HMAC Use of Site and Premises

C. Work Phasing

D. Owner's Operations

E. Close Out and Punch List

F. Cleaning

G. Additional General Requirements

1.3 HAZARDOUS MATERIALS ABATEMENT CONTRACTOR (HMAC) QUALIFICATIONS

A. All bidders shall submit a record of prior experience in asbestos and lead demolition projects, listing no less than three (3) completed jobs in the past year, with all projects of similar size and scope. The Hazardous Materials Abatement Contractor (HMAC) shall list the experience and training of the site supervisor and all on-site workers. The information that shall be included is as follows:

1. Project Name and Address
2. Owner's Name and Address
3. Architect/Consultant/Construction Manager
4. Contract Amount
5. Date of Completion
6. Extras and Change Orders

B. The HMAC selected must appear on the approved list of asbestos abatement contractors on file at the State of Connecticut Department of Public Health (CTDPH).

C. Submit a written statement regarding whether the HMAC has ever been found out-of-compliance with federal or state asbestos and/or lead regulations pertaining to worker protection, removal, transport, or disposal.

D. Award of this Contract may not necessarily be based solely on the submitted lowest Base Bid amount. The Owner reserves the right to award this Contract to the Bidder who best meets all HMAC qualifications.

1.4 HMAC USE OF SITE AND PREMISES

A. Limit use of site and premises as follows:

1. Owner occupancy.
2. Work by Owner.
3. Use of site and premises by public.

B. Coordinate use of the premises under the direction of the Owner.

C. Assume full responsibility for protection and safekeeping of products under this Contract.

D. The HMAC shall not interfere with general Site operations. The HMAC shall coordinate parking for employees with the Owner.

E. The HMAC shall coordinate location of waste container(s) with Owner operations.

1.5 WORK PHASING

A. Work under this project may be performed in phases to accommodate Owner's/Architect's requirements and remaining construction phases. Coordinate abatement schedule and operations with the Owner/Consultant and other trades.

B. The HMAC shall become familiar with the phasing of this work and shall include the required mobilization and re-mobilization as necessary to support the work phasing.

1.6 OWNER'S OPERATIONS

A. Schedule the Work to accommodate this requirement.

B. Maintain means of egress.

C. Coordinate Work with the Owner, the Architect, and the Owner's Consultant.

D. Maintain the fire alarm and fire detection systems active at all time during construction.

E. Maintain permanent means of egress during construction. Provide and maintain temporary means of egress as required by Fire Marshall.

1.7 CLOSEOUT AND PUNCH LIST

A. The HMAC shall carefully check his/her own work and that of any Subcontractor as the work is being performed. Unsatisfactory work shall be corrected immediately.

B. When the HMAC determines that he is substantially complete, that is, has less than one percent of his Contract remaining to be completed, he shall prepare for submission to the Consultant, a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the HMAC to complete all work in accordance with the Contract Documents.

C. Upon receipt of the HMAC's list of items to be completed or corrected, the Consultant will promptly make a thorough inspection and prepare a "punch list" setting forth in accurate detail any items on the HMAC's list and any additional items that are not acceptable.

D. When the "punch list" has been prepared, the Consultant will arrange a meeting with the HMAC to identify and explain all punch list items and answer questions on the work that must be completed before final acceptance.

E. The HMAC shall correct all "punch list" items or shall cause the correction of the "punch list" items within a time frame to be established when the "punch list" is made. The time frame for the completion of the "punch list" shall not exceed the completion date of the Contract. Should the "punch list" not be completed within the specified time frame, the Owner may invoke the rights given under the General Conditions.

F. The Consultant shall not be expected to inspect any area more than once for the preparation of the "punch list" items. If, during an inspection, the Consultant discovers five (5) or more deficient conditions, then the area shall be declared "Not Ready" for Inspection.

G. All inspections and sampling required for hazardous materials abatement compliance will be performed by the Consultant.

1.8 CLEANING

A. Throughout the construction period, the HMAC shall maintain the building and the site free of rubbish, debris, surplus materials, and other items not required for the Work. Remove such material from the site daily to prevent accumulations. Remove all construction debris from work areas, and remove all hazardous waste and asbestos waste as required by the most current federal, state, and local regulations and the requirements of the specifications.

1.9 ADDITIONAL GENERAL REQUIREMENTS

A. The HMAC shall employ a competent and English-speaking Asbestos Abatement Supervisor with at least three (3) years of experience on projects of similar scope and magnitude. The Supervisor shall be responsible for all work involving hazardous materials abatement as described in the specifications and defined in the applicable regulations, and have full time daily supervision of the same. The Supervisor shall be the "Competent Person" as defined by OSHA regulations.

B. The HMAC shall allow the work of this contract to be inspected, if required, by local, state, federal, and any other authorities having jurisdiction over such work. The HMAC shall immediately notify the Owner and Consultant and shall maintain written evidence of such inspection for review by the Owner and Consultant.

C. The HMAC shall incur the cost of all fines resulting from regulatory non-compliance as issued by federal, state, and local agencies. The HMAC shall incur the cost of all work requirements mandated by federal, state, and local agencies as a result of regulatory non-compliance or negligence.

D. The HMAC shall immediately notify the Owner and Consultant of the delivery of all permits, licenses, certificates of inspection, of approval or occupancy, etc., and any other such instruments required under codes by authorities having jurisdiction, regardless to who issued, and shall cause them to be displayed to the Owner and Consultant for verification and recording.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 01 00

SECTION 01 01 60 HAZARDOUS MATERIALS SCHEDULING AND PHASING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. Related Sections:

1. Section 01 01 00: Hazardous Materials General Requirements
2. Section 01 70 00: Hazardous Materials Contract Closeout
3. Section 02 07 50: Selective Demolition for Hazardous Materials Abatement
4. Section 02 08 00: Asbestos Abatement
5. Section 02 85 00: Universal Waste Reclamation
6. Section 02 09 00: Lead Paint Demolition
7. Section 02 11 00: PCB Remediation

1.2 GENERAL REQUIREMENTS

A. The abatement work for this project will be conducted in phases. The work of this project shall begin upon receipt of the "Notice to Proceed" from the Owner. A Pre-Construction Meeting shall be scheduled by the Owner and must be attended by the Hazardous Materials Abatement Contractor (HMAC) and any Sub-Contractors. The assigned Site Supervisor(s) must also attend this meeting.

B. A working schedule for each phase of work shall be presented by the HMAC at the Pre-Construction Meeting. Variations, amendments, and corrections to the presented schedule will be discussed and the Owner will inform the HMAC of additions or changes in the scheduling requirements for the project.

C. As a result of the Pre-Construction Meeting, the HMAC shall submit a revised schedule no later than three (3) business days from the Pre-Construction Meeting. Upon approval from the Owner/Consultant, the HMAC will receive a "Notice to Proceed" with the work of the Contract.

D. Refer to all other applicable sections of the specification for coordination with other trades. The abatement HMAC shall coordinate work with all other activities at this occupied site.

E. The HMAC shall complete the work of this project in accordance with the General Contractor's overall phasing plan and schedule.

1.3 TIME FOR COMPLETION AND WORKING HOURS

A. Upon award of contract from the Owner, the HMAC shall immediately order materials, supplies, and components for the work of this project.

B. The HMAC shall begin the work immediately upon receipt of the written "Notice to Proceed" from the Owner. The date of the commencement of the work is termed the "Construction Start Date." The HMAC will be required to complete all work of this Contract within the time period stipulated in the finalized schedule. The last day in the schedule is termed as "Contract Completion Date."

C. If conditions arise that are beyond the control of the HMAC and force delays in the performance of the Work, the Owner/Consultant shall be immediately notified. The HMAC shall state the reason for the delay and shall estimate the expected duration of the delay. Any application for an extension of the Contract completion date shall be made under proper change order procedures. The acceptance of the cause for delay and change order is subject to the Owner's review and approval.

D. Work hours will be established in coordination with the Owner/Consultant.

E. Any extra hours or days per week worked by the HMAC or Sub-Contractors shall be at no extra cost to the Owner. Denial of extra hours or days per week by the Owner shall not be grounds for extra time allotted to the overall Contract time. The HMAC shall be responsible for all overtime payment to cover Consultant's overtime fees for work performed above and beyond normal working hours.

PART 1 - PRODUCTS (Not Used)

PART 2 - EXECUTION (Not Used)

END OF SECTION 01 01 60

SECTION 01 70 00 HAZARDOUS MATERIALS CONTRACT CLOSE OUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. Related Sections:

1. Section 01 01 00: Hazardous Materials General Requirements
2. Section 01 01 60: Hazardous Materials Scheduling and Phasing
3. Section 02 07 50: Selective Demolition for Hazardous Materials Abatement
4. Section 02 08 00: Asbestos Abatement
5. Section 02 85 00: Universal Waste Reclamation
6. Section 02 09 00: Lead Paint Demolition
7. Section 02 11 00: PCB Remediation

1.2 **FINAL CLEANING**

A. Unless otherwise specified under Sections of this Specification, the Hazardous Materials Abatement Contractor (HMAC) shall perform final cleaning operations as herein specified prior to final inspection.

B. Maintain the project Site free from accumulations of waste, debris and rubbish caused by operations. At the completion of the work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave the project clean and ready for work of other trades.

C. Cleaning shall include all surfaces, interior and exterior, in which the HMAC has had access.

D. Use only those materials that will not create hazards to health or property.

E. Remove all remnant pieces of polyethylene sheeting, tape and residual spray adhesive from surfaces scheduled to remain.

1.3 **ABATEMENT CLOSEOUT DOCUMENTS**

A. Submit to the Owner/Consultant, final completed hard copies, via mail, all asbestos Waste Shipment Records (WSR), signed by all transporters and the designated disposal site owner/operator. WSR's shall be submitted to Consultant within thirty-five (35) calendar days from shipment of waste from Site. Waste shall be shipped from the Site no later than one (1) day following completion of on-site abatement activities.

B. Submit to the Owner/Consultant, final completed hard copies, via mail, hazardous lead waste manifests, signed by all transporters and the designated disposal site owner/operator. Manifests shall be submitted to Consultant within thirty-five (35) calendar days from shipment of waste from site.

C. Refer to each hazardous materials abatement section for specific post project submittal requirements. Submit all post project submittals within ten (10) working days of project completion.

D. Final payment will be withheld until receipt of all the above documentations to Owner's/Consultant's satisfaction.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 70 50

SECTION 02 07 50 SELECTIVE DEMOLITION FOR HAZARDOUS MATERIALS ABATEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. Related Sections:

1. Section 01 01 60: Hazardous Materials Scheduling and Phasing
2. Section 01 02 60: Hazardous Materials Abatement Unit Prices
3. Section 01 70 00: Hazardous Materials Contract Closeout
4. Section 02 08 00: Asbestos Abatement
5. Section 02 85 00: Universal Waste Reclamation
6. Section 02 09 00: Lead Paint Demolition
7. Section 02 11 00: PCB Remediation

1.2 SUMMARY

A. The Hazardous Materials Abatement Contractor (HMAC) shall be responsible for removing all floor-mounted cabinets, partition walls, furniture, raised platforms, plywood, trim, and carpet in order to access floor tile and associated mastic that exists underneath. Also, provide selective demolition of partition walls and ceilings, as necessary, to access all asbestos-containing materials specified for removal. The HMAC shall obtain required permits to accomplish this work at no additional cost to the Owner.

B. Selective demolition will be properly coordinated to ensure that asbestos-containing materials are not disturbed during demolition. Any demolition activity that will disturb or potentially disturb the asbestos containing materials shall not be performed until work areas are properly contained following Section 02 08 00 Asbestos Abatement.

C. The HMAC shall be responsible for the selective demolition of all trim, fixtures, railings, millwork, acoustical ceiling systems, mechanical equipment, electrical equipment, plumbing equipment and fixtures, walls, ceilings and miscellaneous items necessary to perform asbestos and lead removal activities. Refer to Section 02 09 00 Lead Paint Demolition for additional requirements prior to the start of demolition activities.

D. Coordinate all selective demolition work with the Owner and Consultant.

E. If rental equipment will be utilized during hazardous material abatement activities, the HMAC shall provide written acknowledgement to the rental equipment provider and copy the Owner's Consultant stating that equipment will be used during hazardous material removal and will be thoroughly decontaminated prior to being returned.

1.3 PROJECT CONDITIONS

A. Occupancy:

8. Areas of the building in which selective demolition will occur will be unoccupied during work.

B. Existing Conditions:

1. After the project has begun, the HMAC is responsible for the condition of the structures to be selectively demolished.
2. Unforeseen Conditions: Should unforeseen conditions be encountered that affect design or function of project, investigate and fully submit an accurate, detailed, written report to the office of the Architect/Consultant. While awaiting a response, reschedule operations if necessary to avoid delay of overall project.

C. Work under this project may be performed in phases to accommodate Owner's/Architect's requirements and remaining construction phases. Coordinate abatement schedule and operations with the Owner/Architect/Consultant and other trades.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and sealed.
B. Insofar as is practicable, arrange operations to reveal unknown or concealed conditions for examination and verification before removal or demolition.

C. Verify actual conditions to determine, in advance, whether removal or demolition of any element will result in structural deficiency, overloading, failure, or unplanned collapse.

1. Demolish and remove connections to all electrical and plumbing fixtures required to remove asbestos containing materials and components coated with lead-based paint.
2. Demolish all building materials as required to access asbestos containing materials for abatement and remediation. Selective demolition that impacts asbestos materials shall be performed with engineering controls in place.
3. Demolish all building materials as required to access components coated with lead-based paint scheduled for removal or stabilization. Selective demolition that impacts components shall be performed with engineering controls in place.

3.2 PREPARATION

A. Traffic: Do not obstruct walks or public ways without the written permission of governing authorities and of the Owner. Where routes are permitted to be closed, provide alternate routes if required.

B. Protection:

4. Provide for the protection of persons passing around or through the area of demolition.
5. Perform demolition so as to prevent damage to adjacent improvements and facilities to remain.
6. Protect walls, floors, and other new or existing work from damage during demolition operations.

3.3 POLLUTION CONTROLS

A. Control as much as practicable the spread of dust and dirt.

B. Observe environmental regulations.

C. Do not allow water usage that results in freezing or flooding.

D. Do not allow adjacent improvements to remain to become soiled by demolition operations.

3.4 DEMOLITION - GENERAL

A. Remove: Items indicated to be removed shall be removed by the HMAC.

B. Existing to Remain: Construction or items indicated to remain shall be protected against damage during demolition operations. Where practical, and with the Owner's permission, the HMAC may elect to remove items to a suitable storage location during demolition and then properly clean and reinstall the items.

C. Perform work in a systematic manner.

D. Demolish and remove existing structures only to the extent required, as indicated in the Contract Documents.

E. Perform selective demolition using methods that are least likely to damage work to remain and which will provide proper surfaces for patching.

F. Remove debris daily.

G. Use any methods permitted by governing regulations and the requirements of the Contract Documents.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. Promptly dispose of materials resulting from demolition operations. Non-contaminated material may be disposed of as construction waste. Do not allow materials to accumulate on site.

B. All rubbish and waste material from the Work shall be neatly stacked or kept in suitable containers and removed from the premises daily. The premises shall be kept clean and in an orderly condition at all times to the satisfaction of the Owner and the Consultant.

C. Transport materials resulting from demolition operations and legally dispose of off-site.

D. Off-site disposal location shall not be within one-half mile of any portion of the project site or within sight of the project site.

E. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.

F. All disposal containers, receptacles, dumpsters shall be properly labeled and sealed from the onset of waste accumulation. Exterior waste containers shall be locked.

3.6 CLEANING

A. Throughout the abatement and remediation period, the HMAC shall maintain the building and site free of rubbish, debris, surplus materials, and other items not required for the Work. Remove such material from the site daily to prevent accumulations. Remove all construction debris from work areas, and remove all hazardous waste and asbestos waste as required by the most current federal, state, and local regulations and the requirements of the specifications.

END OF SECTION 02 07 60

SECTION 02 08 00 ASBESTOS ABATEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. Related Sections:

1.	Section 01 01 00:	Hazardous Materials General Requirements
2.	Section 01 01 60:	Hazardous Materials Scheduling and Phasing
3.	Section 01 70 00:	Hazardous Materials Contract Closeout
4.	Section 02 07 50:	Selective Demolition for Hazardous Materials Abatement
5.	Section 02 85 00:	Universal Waste Reclamation
6.	Section 02 09 00	Lead Paint Demolition
7.	Section 02 11 00:	PCB Remediation

1.2 GENERAL PROVISIONS

A. The Dillon Stadium complex located at 20 Van Dyke Avenue, Hartford, Connecticut (Site) consists of an existing athletic field, locker rooms, lavatories, storage buildings, east and west bleachers and a press box. The Site is scheduled for renovation and will require asbestos abatement, lead-based paint demolition, universal waste removal and removal of caulk containing Connecticut regulated Polychlorinated Biphenyls (PCBs).

B. Asbestos containing material (ACM) testing has identified building materials in areas scheduled for renovation/demolition that contain asbestos. The work covered in this section includes the minimum procedures that shall be employed during the abatement of the ACM.

C. Refer to other Sections of these Specifications to determine the type and extent of work therein affecting the work of this Section, whether or not such work is specifically mentioned herein.

D. Peter Folino of Eagle Environmental, Inc. is the designer of this Specification. Mr. Folino is a State of Connecticut Department of Public Health (CTDPH) Licensed Asbestos Project Designer (License #000195).

E. The Base Bid asbestos abatement work of this project is listed in Table I and on the Hazardous Materials Abatement Plans HM–1 through HM-4.

1.3 PROJECT DESCRIPTION

A. The work to be performed includes but is not limited to the proper removal, handling, and disposal of all ACM contained within and on the structures located at the Site. A

description of materials and locations of ACM scheduled for removal are shown in Table 1 – Summary of ACM and on the Hazardous Materials Abatement Plans HM-1 through HM-4.

B. Base Bid asbestos abatement work shall include but not be limited to the ACM identified in the following Table 1 – Summary of ACM and on the Hazardous Materials Abatement Plans. It is the sole responsibility of the Hazardous Materials Abatement Contractor (HMAC) to visit the site, review the Contract Documents and determine the quantities of ACM to be removed when developing their bid. Locations and estimated quantities of specific items noted in paragraph A above include:

TABLE I – SUMMARY OF ACM

LOCATION(S)	MATERIAL TYPE	ESTIMATED QUANTITY	F/NF
PHASE 1			
Press Box Building	12”x12” Floor Tile Under Plywood on Particle Board	~780 SF	NF
Press Box Building – Exterior	Grey Caulk under Aluminum Window Frames and under Aluminum Siding	~600 LF	NF
PHASE 2			
Locker Room Building – Men’s Room	Flat Sheet Cement Board Panels	~200 SF	NF
Locker Room Building – Boiler Room	Gray Pipe Insulation on Floor	<3 SF	F
Locker Room Attic	Gray Cloth Pipe Insulation	~300 LF	F
	Gray Pipe Insulation	~300 LF	F
	Gray Mudded Pipe Fitting Cement	~ 25 Each	F
Locker Room Exterior	Corrugated Cement Board Panels	~285 SF	NF
Restroom Building – Men’s Room	Double Layer Flat Sheet Cement Board Panels	~250 SF	NF
Restroom Building – Women’s Room	Double Layer Flat Sheet Cement Board Panels	~280 SF	NF
Restroom Building Exterior	Corrugated Cement Board Panels	~255 SF	NF

C. The intent of the project is to remove all identified ACM from the structures to facilitate future renovations and demolition of the Press Box. Work under this project may be performed in phases to accommodate Owner’s/Architect’s requirements and construction phases. Coordinate abatement schedule and operations with the Owner/Architect/Consultant and other trades to include, if any, remobilization fees to support the phasing.

D. The HMAC shall determine the quantities of asbestos-containing materials requiring

removal prior to submission of bid. Any discrepancies must be submitted in writing in RFI format to the Architect/Construction Manager for interpretation prior to submission of bid. The quantities provided above are estimates only.

E. The HMAC shall be responsible for select wall and ceiling demolition, the removal of counters, cabinets, platforms, plywood, fixtures, electrical, mechanical, plumbing systems and miscellaneous items to facilitate asbestos removal. Refer to Section 02 07 50 Selective Demolition Hazardous Materials Abatement for additional requirements.

F. Asbestos containing flooring materials have been identified under plywood in the Press Box. It is the HMACs responsibility to demolish and dispose of these materials in order to remove all ACM below. The plywood may only be removed once the work area is under full containment. The plywood shall be disposed of as asbestos-contaminated waste if any floor tile or floor tile residue adheres to the plywood or if the floor tile becomes damaged during plywood removal.

G. The sub-floor in the Press Box consists of laminated particle board on wood floor joists. There is no structural underlayment beneath the laminated particle board. The HMAC shall ensure all safety considerations are addressed while working in the Press Box. At a minimum, all personnel shall utilize fall protection while working in the Press Box. It is incumbent upon the HMAC's Competent Person to determine and implement the appropriate safety measures.

H. Where flooring materials are scheduled to be removed, the HMAC shall remove all layers of flooring and adhesives down to substrates as ACM.

I. The HMAC shall be responsible for relocating any remaining stored items or furniture that are within work areas to temporary storage areas outside the work areas.

J. The HMAC is directed to review Section 02 09 00 Lead Paint Awareness for additional requirements affecting the work of this section.

K. If rental equipment will be utilized during abatement activities, the HMAC shall provide written acknowledgement to the rental equipment provider and copy the Owner's Consultant stating that equipment will be used during hazardous material removal and will be thoroughly decontaminated prior to being returned.

1.4 QUALITY ASSURANCE

A. The HMAC shall be licensed by the State of Connecticut Department of Public Health (DPH) to perform asbestos abatement.

B. The Asbestos Abatement Supervisor(s) and Asbestos Abatement Workers shall be accredited in accordance with EPA regulation 40 CFR Part 763, subpart E, Appendix C; and shall be licensed by the State of Connecticut Department of Public Health.

C. HMAC performing non-friable exterior roof removal are not required to be licensed as an Asbestos Abatement Contractor by the State of Connecticut Department of Public

Health as long as the materials remain non-friable and do not become Regulated Asbestos Containing Material (RACM).

1.5 APPLICABLE CODES

A. The HMAC shall be solely responsible for conducting this project and supervising all work in a manner that will be in conformance with all federal, state and local regulations and guidelines pertaining to asbestos abatement. Specifically, the HMAC shall comply with the requirements of the following:

1. USEPA NESHAP Regulations (40 CFR 61, Subpart M);
2. OSHA Asbestos Regulations (29 CFR 1910.1001 and 1926.1101);
3. Connecticut DEEP Regulations (Section 22a-209-8 (I) and Section 22a-220 of the Connecticut General Statutes);
4. Connecticut DPH Standards for Asbestos Abatement Sections 19a-332a-1 to 19a-332a-16;
5. Connecticut DPH Licensure and Training Requirements Section 20-440-1 to Section 20-440-9.
6. Connecticut Basic Building Code (BOCA);
7. Connecticut Fire Safety Code (NFPA);
8. Local health and safety codes, ordinances or regulations pertaining to asbestos remediation and all national codes and standards including ASTM, ANSI, and Underwriter's Laboratories.

1.6 EXEMPTIONS

A. This project was designed by a State of Connecticut Department of Public Health licensed Asbestos Abatement Designer. Any deviation from these specifications requires the written approval and authorization from the Designer.

B. Any deviations from CTDPH Standards for Asbestos Abatement Sections 19a-332a-1 through 19a-332a-16 must be requested in writing and must be approved in writing by CTDPH.

1.7 NOTIFICATIONS, POSTINGS AND PERMITS

A. The HMAC shall make the following notifications and provide the submittals to the following agencies prior to the commencement of removal work for each building. This notification is required ten (10) days (10 calendar days for CTDPH and 10 business days for USEPA) prior to the start of the abatement project:

1. State of Connecticut
   Department of Public Health
   Indoor Air Program, MS #12 AIR
   410 Capitol Avenue
   P.O. Box 340308
   Hartford, CT 06134-0308

2. USEPA New England Headquarters
   5 Post Office Square, Suite 100
   Boston, Massachusetts 02109-3912

   Note: Effective December 14, 2017, EPA needs to be notified directly for all asbestos abatement projects involving >160 square feet or >260 linear feet or 35 cubic feet of ACM.

B. The minimum information included in the notification includes:

   1. Name and address of building owner/operator
   2. Building location
   3. Building size, age, and use
   4. Amount of friable asbestos
   5. Work schedule, including proposed start and completion date
   6. Asbestos removal procedures to be used
   7. Name and location of disposal site for generated asbestos waste, residue, and debris

C. Ten day notifications shall be posted for each individual phase of the project.

1.8 WORK SITE SAFETY PLAN

A. The HMAC shall establish a set of emergency procedures and shall post them in a conspicuous place at the work site. The safety plan should include provisions for the following:

   1. Evacuation of injured workers.
   2. Emergency and fire exit routes from all work areas.
   3. Emergency first aid treatment.
   4. Local telephone numbers for emergency services including ambulance, fire, and police.
   5. A method to notify workers in the event of a fire or other emergency requiring evacuation of the building.
   6. 24 hour site security program.

B. The HMAC is responsible for training all workers in these procedures.

1.9 ALTERNATIVE WORK PRACTICES (AWP)

A. No AWPs have been submitted or approved for this project.

B. Any deviations from these specifications require the written approval and authorization from the Owner and Consultant.

C. Any deviations from CTDPH Standards for Asbestos Abatement Sections 19a-332a-1 through 19a-332a-16 must be requested in writing and must be approved in writing by CTDPH.

1.10 RE-OCCUPANCY CLEARANCE

A. Re-occupancy air sampling will be required within all interior work areas.

B. The Owner shall be responsible for payment of the sampling and analysis of initial final air clearance samples only. The HMAC shall be responsible for payment of all costs associated with the collection and analysis of additional final air clearance samples for areas that failed the initial test.

C. Phase Contrast Microscopy (PCM) air samples will be analyzed by the Owner's Consultant. Transmission Electron Microscopy (TEM) samples will be analyzed by an accredited laboratory on a 24-hour turnaround time. The turnaround time starts once the samples are received at the laboratory.

1.11 CONTROL OVER REMOVAL WORK

A. All HMAC work procedures shall be monitored by the HMAC's "Competent Person" to ensure that areas outside the designated work locations do not become contaminated. The following controls shall be implemented each working day to help ensure this:

1. Prior to work on any given day, the HMAC's designated "Competent Person" shall evaluate job tasks with respect to safety procedures and requirements specified to prevent contamination of the building or the employees. This includes a visual survey of the work area and the decontamination enclosure systems.

B. The HMAC shall maintain control of and be responsible for access to all work areas to ensure the following requirements:

1. Nonessential personnel are prohibited from entering the area;
2. All authorized personnel entering the work area shall sign the work area entry log;
3. All authorized personnel entering the work area shall read the "worker protection procedures" which are posted at the entry points to the enclosure system, and shall be equipped with properly fitted respirators and protective clothing;
4. All personnel who are exiting from the decontamination enclosure system shall be properly decontaminated;
5. Asbestos waste that is taken out of the work area must be properly bagged and labeled in accordance with these specifications. The surface of the bags shall be decontaminated. Asbestos waste leaving the enclosure system must be transported off site or immediately placed in locked, posted temporary storage on site, and be removed within 24 hours of the project conclusion.
6. Any material, equipment, or supplies that are brought out of the decontamination enclosure system shall be cleaned and decontaminated by wet cleaning and/or HEPA vacuuming of all surfaces.

1.12 SITE SECURITY

A. The HMAC shall be responsible for the security of regulated areas. Post asbestos

abatement warning signs at entrances to the work area including the waste load out and worker decontamination chamber. The HMAC shall have a supervisor monitoring the entrance of the worker decontamination chamber during abatement work.

B. The supervisor shall maintain a work area access log for each work area. The access log shall document each person that enters the work area, the time entered and the time exited. Copies of the work area access logs shall be provided to the Owner's Consultant during the course of the project.

1.13 PERSONNEL PROTECTION

A. Prior to commencing work, instruct all workers in all aspects of personnel protection, work procedures, emergency procedures use of equipment including procedures unique to this project.

B. Respiratory protection shall meet the requirements of OSHA as required in 29 CFR 1910.134, 29 CFR 1926.11, 29 CFR 1926.62 and the requirements of the CTDPH Standards for Asbestos Abatement (19a-332a-1 through 16). A formal respiratory protection program must be implemented in accordance with 29 CFR 1926.1101 and 29 CFR 1910.134. The HMAC shall conduct exposure assessment air sampling, analysis and reporting to ensure the workers are using appropriate respiratory protection.

C. The HMAC shall provide appropriate respiratory protection for each worker and ensure usage during potential asbestos exposure.

D. The HMAC shall provide respirators from among those approved as being acceptable for protection by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part II.

E. The HMAC shall provide an adequate supply of filter for respirators in use.

F. Minimum respiratory protection shall be as follows:

Air borne Asbestos Level:	Required Respirator:
Not in excess of 1 f/cc (10 x PEL)	Half mask air purifying or otherwise as required respirator other than a disposable respirator, equipped with HEPA P 100 filters.
Not in excess of 5 f/cc (50 x PEL)	Full facepiece air purifying respirator equipped with HEPA P 100 filters.
Not in excess of 10 f/cc (100 x PEL)	Any powered air purifying respirator equipped with HEPA P 100 filters or any supplied air respirator operated in continuous flow mode.

Not in excess of 100 f/cc (1000 x PEL)	Full facepiece supplied air respirator operated in pressure demand mode.
Greater than 100 f/cc (1000 x PEL)	Full facepiece supplied air respirator unknown operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.

Notes:

1. Respirators assigned for higher airborne fiber concentrations may be used at lower concentrations.
2. A high efficiency filter means a filter that is at least 99.97 percent efficient against mono-dispersed particles of 0.3 micrometers in diameter or larger.
3. In addition to the selection criteria in paragraph 1.13F, the HMAC shall provide a tight-fitting powered air purifying respirator equipped with high efficiency filters or a full facepiece supplied air respirator operated in the pressure demand mode equipped with HEPA egress cartridges or an auxiliary positive pressure self-contained breathing apparatus for all employees within the regulated area where Class I work is being performed for which a negative exposure assessment has not been produced and the exposure assessment indicates the exposure level will not exceed 1 f/cc as an 8-hour time weighted average. A full facepiece supplied air respirator operated in the pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus shall be provided under such conditions if the exposure assessment indicates exposure levels above 1 f/cc as an 8 hour time weighted average.
4. If compresses air is used for supplied air respirators, this air will meet the requirements for grade D breathing air as described by the Compresses Gas association commodity Specification G-7.1-1966. The compressor will be equipped with the necessary safety devices and sorbends/filters, and be situated to avoid entry of contaminated air. In addition, the compressor will be equipped with alarms to indicate failure or overheating, and additional alarms for indicating the presence of carbon monoxide. Air line couplings will be incompatible with outlets for other gas system to prevent inadvertent servicing of air line respirators with non-respirable gases.

G. The HMAC shall provide and require all workers to wear protective clothing in Work Areas where asbestos fiber concentration exceeds permissible limits established by the OSHA or where contamination exists. Protective clothing shall include impervious coveralls with elastic wrists and ankles, head covering, gloves and foot coverings.

H. The HMAC shall ensure that all authorized persons entering contaminated areas are equipped with proper respirators and protective clothing.

1.14 WORKER PROTECTION PROCEDURES

A. The HMAC shall monitor airborne asbestos concentrations in the workers' breathing zone to establish conditions and work procedures for maintaining compliance with OSHA Regulations 29 CFR 1910.1001 and 1926.1001.

B. The HMAC's air sampling professional shall document all air sampling results and provide all air sampling reports as soon as feasible. OSHA air monitoring results shall be posted at a conspicuous location at the job site.

C. All personnel air sampling shall be conducted in accordance with methods described in OSHA standards 29 CFR 1910.1001 and 1926.1101.

1.15 SUBMITTALS

A. The HMAC will submit two (2) copies of the following submittals to the Owner's Representative ten (10) calendar days prior to the commencement of removal work:

5. HMAC's construction schedule
6. Shop drawings showing work area configuration with decontamination facility and negative air exhaust locations
7. Waste generator label to be used
8. Waste shipment and disposal form to be used with generated information.
9. Waste hauling contractor
10. Asbestos abatement training, licenses, medical and respirator fit-test records of each employee who may be on the project site
11. The qualifications of the hygiene firm that the HMAC proposes to use for this project to analyze HMAC employee OSHA exposure monitoring samples
12. Copies of all notifications and permits
13. Copies of the written respirator plan compliant with the most current issue of OSHA 1910.134 (To be maintained on Site. Does not need to be submitted to Consultant)
14. Copies of all SDS sheets for materials to be used on site
15. Work Site Safety Plan
16. Negative Exposure Assessment, if any
17. HMAC's State of Connecticut Asbestos Contractor license
18. State and Federal Notification forms

B. The HMAC will submit the following to the Owner's Consultant during the work:

1. Results of all personal air sampling
2. Certificate, training, medical, and fit-test records for new employees to start work (24 hours in advance of work).
3. HMAC site logs and containment access logs
4. Revised Notification, if any.
5. Completed waste shipment records for all asbestos waste transported from the site.

C. The following shall be submitted to the Owner's Consultant at the completion of work:

1. Completed copies of Waste Shipment Records (WSR).
2. Remaining personal air sampling results and site logs.
3. Revised Notification, if any.

1.16 DEFINITIONS

A. ABATEMENT - Procedures to control fiber release from asbestos-containing materials; includes removal, encapsulation, and enclosure.

B. AIRLOCK - A system for permitting ingress and egress while assuring air movement to a contaminated area from an uncontaminated area. Two curtained doorways spaced a minimum of six feet apart can form an airlock.

C. AIR MONITORING - The process of measuring the fiber concentration of an area or of a person.

D. AIR SAMPLING PROFESSIONAL – A licensed professional capable of developing air sampling protocols and conducting air monitoring and analysis. This individual should be an industrial hygienist, an environmental scientist, or an engineer with experience in asbestos air monitoring and worker protection equipment and procedures. This individual should have demonstrated proficiency in conducting air sample collection in accordance with 29 CFR 1910.1001 and 1926.1101.

E. ADEQUATELY WETTED - means sufficiently mixed or coated with water, amended or an aqueous solution; or the use of removal encapsulant to prevent dust emissions.

F. AMENDED WATER - Water to which a surfactant has been added.

G. ASBESTOS - The name given to a number of naturally occurring fibrous silicates. This includes the serpentine forms and the amphiboles and includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite, or any of these forms that have been chemically altered.

H. ASBESTOS ABATEMENT - Means the removal, encapsulation, enclosure, renovation, or repair of asbestos-containing materials except activities that are related to the removal or repair of asbestos cement pipe and are performed by employees of a water company as defined in Section 25-32a of the Connecticut General Statutes.

I. ASBESTOS ABATEMENT SITE SUPERVISOR - Means any licensed individual who is employed or engaged by an HMAC to supervise an asbestos abatement project.

J. ASBESTOS ABATEMENT WORKER - Means any employee of an HMAC who engages in asbestos abatement.

K. ASBESTOS CONSULTANT - Any person who engages in any activity directly involved with asbestos consultation services and who has been issued a certificate by the commissioner and a license by the department.

L. ASBESTOS CONTAINING MATERIAL (ACM) - A material composed of asbestos of any type and in an amount greater than one percent be weight, either alone or mixed with other fibrous or nonfibrous material.

M. ASBESTOS CONTRACTOR - Any person or entity engaged in asbestos abatement whose employees actually perform asbestos abatement work.

N. ASBESTOS CONTROL AREA - An area where asbestos abatement operations are performed which is isolated by physical boundaries to prevent the spread of asbestos dust, fibers, or debris.

O. ASBESTOS FIBERS - Those particles with a length greater than five (5) microns and a length to diameter ratio of 3: 1 or greater.

P. ASBESTOS PERMISSIBLE EXPOSURE LIMIT (PEL) - The maximum airborne concentration of asbestos fibers to which an employee is allowed to be exposed. The current level established by OSHA is 0.1 fibers per cubic centimeter of air as an eight (8) hour time weighted average and 1.0 fibers/cc averaged over a sampling period of 30 minutes as an excursion limit. The HMAC is responsible for maintaining work areas in a manner that this standard is not exceeded.

Q. ASBESTOS PROJECT MONITOR - The licensed asbestos consultant who is certified as a project monitor and who functions as an on-site representative of the facility Owner or other persons by over-seeing the activities of the asbestos abatement contractor.

R. AUTHORIZED VISITOR - Any person authorized by the Owner to enter the building.

S. BUILDING OWNER - For this Contract only, the building Owner is the City of Hartford.

T. CLEAN ROOM - An uncontaminated area or room, which is a part of the workers' decontamination enclosure with provisions for storage of workers' street clothes and protective equipment.

U. CLEARANCE SAMPLING - Final air sampling performed aggressively after the completion of the abatement project in a regulated area. Five (5) air samples collected by the asbestos abatement project monitor inside the work area, and having a fiber concentration of less than 0.010 fibers/cc of air will denote acceptable clearance sampling by Phase Contrast Microscopy. Five air samples collected by the asbestos abatement project monitor having an average asbestos concentration of less than 70 asbestos structures mm/sq. will denote acceptable clearance sampling for Transmission Electron Microscopy.

V. COMMISSIONER - Means the Commissioner of the Connecticut Department of Health Services or his/her authorized agent.

W. COMPETENT PERSON - A representative of the HMAC who is capable of identifying an asbestos hazard and who has the authority to take prompt corrective measures to eliminate the hazard during asbestos removal.

X. CONFINED SPACE - A work zone where access and egress are restricted, a potential for gaseous vapors to accumulate exist, or a potential for low oxygen content exists.

Y. DECONTAMINATION ENCLOSURE SYSTEM - A series of connected areas, with curtained doorways between any two adjacent areas, for the decontamination of workers and equipment. A decontamination enclosure system always contains at least one airlock and is adjacent and connected to the regulated area, where possible.

Z. DEPARTMENT - The Department of Public Health.

AA. EPA - Means the U.S. Environmental Protection Agency.

BB. ENCAPSULANT - A liquid material that can be applied to asbestos-containing material that controls the possible release of asbestos fibers from the materials by either creating a membrane over the surface (bridging encapsulant) or penetrating the material and binding its components together (penetrating encapsulant).

CC. ENCAPSULATION - A specified asbestos remediation strategy involving the application of an encapsulant to asbestos containing materials to control the release of asbestos fibers into the air.

DD. EQUIPMENT DECONTAMINATION ENCLOSURE - That portion of a decontamination enclosure system designed for controlling the transfer of materials and equipment, typically consisting of a washroom and a holding area.

EE. EQUIPMENT ROOM - A contaminated area or a room, which is part of the workers' decontamination enclosure with, provisions for storage of contaminated clothing and equipment.

FF. FACILITY - Means any private or public building or structure including but not limited to those used for institutional, residential (including single family homes), commercial or industrial purposes and vessels while ashore or in dry-dock.

GG. FIXED OBJECT - A unit of equipment or furniture in the work areas which cannot be removed from the work area.

HH. FRIABLE ASBESTOS MATERIAL - Any material that contains more than 1% asbestos by weight, that can be crumbled, pulverized or reduced to powder by hand pressure.

II. GLOVE BAG - An impervious plastic bag-like enclosure affixed around asbestos containing material, with glove-like appendages through which materials and tools may be handled.

JJ. HAZARDOUS MATERIALS ABATEMENT CONTRACTOR (HMAC) - Means the Asbestos Contractor, Lead Based Paint Abatement Contractor and or PCB/DEHP and Mercury Vapor Lighting Removal Contractor.

KK. HEPA FILTER - A high efficiency particulate air (HEPA) filter in compliance with ANSI Z9.2-1979.

LL. HEPA VACUUM EQUIPMENT - Vacuum equipment with a HEPA filter system for filtering the effluent air from the unit.

MM. HOLDING AREA - An air-locked chamber in the equipment decontamination enclosure located between the washroom and an uncontaminated area.

NN. INSPECTOR (ASBESTOS ABATEMENT PROJECT MONITOR)- An individual, retained by the Building Owner, who is a "qualified asbestos abatement project monitor" as defined by the State of Connecticut Department of Public Health, and who will be responsible for monitoring the HMAC during the asbestos abatement project.

OO. MOVABLE OBJECT - A unit of equipment or furniture in the work area, which can be removed from the work area.

PP. NEGATIVE AIR FILTRATION EQUIPMENT - A portable local exhaust system equipped with HEPA filtration used to create negative pressure in a regulated area (negative with respect to adjacent unregulated areas) and capable of maintaining a constant, low velocity air flow into regulated areas from adjacent unregulated areas.

QQ. OWNER'S REPRESENTATIVE -The Asbestos Consultant for the project.

RR. NESHAPS - National Emissions Standard for Hazardous Air Pollutants regulations enforced by the EPA.

SS. PLASTICIZE - To cover floors and walls with plastic sheeting as specified herein.

TT. SEPARATION BARRIER - A rigid barrier sealed with two (2) layers of six (6) mil polyethylene sheeting installed between an occupied area and the asbestos abatement work area.

UU. SHOWER ROOM - A room between the clean room and the equipment room in the workers' decontamination enclosure with hot/cold running water and suitably arranged for employee showering during decontamination. The shower room is located in an airlock between the contaminated area and the clean area.

VV. STRIPPING - Removing asbestos materials from any structural member, pipe surface, HVAC, or other equipment.

WW. WASHROOM - A room between the work area and the holding area in the equipment decontamination enclosure with provisions for storage of contaminated clothing and equipment.

XX. WET CLEANING - The process of reducing asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools, which have been dampened by amended water, and by then disposing of these cleaning items as asbestos contaminated waste.

YY. WORK AREA - Designated rooms, spaces, or areas of the project in which asbestos abatement actions are occurring and which may become contaminated as a result of such abatement actions. The work area must be totally self-contained by sealing, plasticizing and equipping the area with a decontamination enclosure system.

ZZ. WORKER DECONTAMINATION ENCLOSURE SYSTEM - That portion of a decontamination enclosure system designated for controlled passage of workers, other personnel, and authorized visitors, typically consisting of a clean room, a shower room, and an equipment room.

AAA. WORK STOPPAGE CLEANUP PROCEDURE - A process following the issuance of a written stop work order, whereby the HMAC thoroughly cleans and decontaminates the work area, the decontamination enclosure system, and any other areas of the building affected by the removal project, to the satisfaction of the Asbestos Project Monitor.

BBB. WORK ZONE - The area of the decontamination enclosure system where asbestos is being removed.

1.17 PRECONSTRUCTION MEETING

A. The HMAC shall be required to attend a preconstruction meeting with his/her site supervisor, any subcontractor they employ on site for the purpose of reviewing the contract requirements.

PART 2 - MATERIALS AND EQUIPMENT

2.1 MATERIALS

A. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name and product technical description.

B. Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes contaminated with asbestos shall be decontaminated or disposed of as asbestos waste.

C. Polyethylene sheet in a roll size to minimize the frequency of joints shall be delivered to job site with factory label indicating 4 or 6 mil.

D. Polyethylene disposable bags shall be true six (6) mil with preprinted labels.

E. Tape shall be capable of sealing joints in adjacent polyethylene sheets and for attachment of polyethylene sheets to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.

F. Surfactant (wetting agent) - shall consist of fifty (50) percent polyoxyethylene ether and fifty (50) percent polyoxyethylene ester, or equivalent, and shall be mixed with water to provide a concentration of one (1) ounce surfactant to five (5) gallons of water or as directed by manufacturer.

G. Impermeable containers are to be used to receive and retain any asbestos-containing or contaminated materials until disposal at an acceptable disposal site. (The containers shall be labeled in accordance with OSHA Standard 29 CFR 1926-1101.) Containers must be both air and watertight.

H. Labels and signs, as required by OSHA Standard 29 CFR 1926.1001 will be used.

I. Encapsulant shall be bridging or penetrating type which has been found acceptable to Eagle Environmental. Usage shall be in accordance with manufacturer's printed technical data.

J. Disposal labels shall be preprinted on self-adhesive labels with the generator name, abatement site and HMAC's name and address. Labels shall not be photocopied and applied with spray adhesive.

2.2 TOOLS AND EQUIPMENT

A. Provide suitable tools for asbestos removal, encapsulation and enclosure.

B. The HMAC shall have air monitoring equipment of type and quantity to monitor operations and conduct personnel exposure surveillance per OSHA requirements.

C. The HMAC shall have available sufficient inventory on site for materials necessary for the job including protective clothing, respirators, filter cartridges, polyethylene sheeting of proper size and thickness, tape, and air filters.

D. The HMAC shall provide temporary electrical power sources such as generators (when required).

E. The HMAC shall have available shower stalls and sufficient hose length and a drain system equipped with 5-micron filters.

F. Exhaust air filtration system units shall contain HEPA filter(s) capable of sufficient air exhaust to create negative pressure of 0.02 inches of water within the enclosure with respect to the outside area. Equipment shall be checked for proper operation by smoke tubes or a differential pressure gauge before the start of each shift and at least twice during the shift. Adequate exhaust air shall be provided for a minimum of four (4) air changes per hour within the enclosure. No air movement system or air filtering equipment shall discharge unfiltered air outside.

G. Vacuum units, of suitable size and capacities for project, shall have HEPA filter(s) capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers in diameter or larger.

H. The HMAC will have reserve exhaust air filtration system units in order to maintain negative air filtration in the event that a unit malfunctions during use.

I. The HMAC shall have available and use recording manometers to monitor pressure differential between the work area and occupied areas of the building. A minimum negative pressure differential of 0.02 inches of water column shall be maintained.

J. The HMAC shall have available spray equipment capable of mixing a wetting agent with water and capable of generating sufficient pressure and volume and having sufficient hose length to reach all areas with asbestos.

K. HEPA filtered local exhaust ventilation shall be utilized during the installation of enclosures and supports where asbestos-containing materials may be disturbed.

PART 3 - EXECUTION

3.1 INTERIOR WORK AREA PREPARATION - GENERAL

A. Provide GFCI devices, temporary power, and temporary lighting installed in compliance with the applicable electrical codes. All temporary installations are to be made by a licensed electrician.

B. Shut down electrical power, including receptacles and light fixtures. Lock and tag out circuits associated with the electrical components in the work area(s). Under no circumstances during the abatement and ceiling demolition procedures will lighting fixtures be permitted to be energized.

C. Shut down and/or isolate heating, cooling, and ventilation air systems or zones to prevent contamination and fiber dispersal to other areas of the structure. Lock and tag out circuits associated with heating and cooling units. During the work, vents within the work area shall be sealed with duct tape and polyethylene sheeting.

D. Seal off all openings, including but not limited to windows, corridors, doorways, skylights, ducts, grills, diffuser, and any other penetration of the work areas, with polyethylene sheeting minimum of six (6) mils thick sealed with duct tape. This includes doorways and corridors which will not be used for passage during work areas and occupied areas. Install 5 micron water filtration socks in all floor drains prior to sealing.

E. Establish worker decontamination facility, critical barriers and negative air filtration prior to conducting pre-cleaning activities. Pre-clean fixed objects within the work areas, using HEPA vacuum equipment and/or wet cleaning methods as appropriate, and enclose with minimum six (6) mil plastic sheeting sealed with duct tape.

F. Pre-clean movable objects within the work areas, using HEPA vacuum equipment and wet cleaning methods as appropriate. Do not use methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters.

G. After HEPA vacuum pre-cleaning, conduct work area preparation in accordance with this Specification section.

H. Where fixed walls are not used, one layer of six (6) mil polyethylene sheeting will be applied to a rigid framework of wood, metal, or PVC.

I. Install two layers of four (4) mil polyethylene wall sheeting over all wall surfaces and critical barrier (where wall materials are not being removed as ACM). All overlaps shall be sealed with tape.

J. Cover all floors in the work area with two layers of six (6)-mil polyethylene sheeting

(where flooring materials are not being removed as ACM). Extend the polyethylene flooring a minimum of twelve (12) inches up the walls. Ensure that the wall sheeting overlaps the floor sheeting from the top.

K. Maintain emergency and fire exits from the work area, or establish alternative exits satisfactory to fire officials.

L. Create pressure differential between work areas and occupied areas by the use of acceptable negative air pressure equipment. The HMAC shall ensure required negative air pressure is obtained throughout the containment and the total volume of air within the work area is changed every fifteen (15) minutes.

M. Install and maintain a manometer for each negative pressure enclosure where Class I work will be performed.

N. Post all approaches to each work area with Asbestos Warning signs. Warning signs shall be of size and type that are easily readable and are visible from all approaches to the work areas.

O. Establish and maintain an access log at each work area entry. Each access log shall include a written description of the work area.

3.2 CONTIGUOUS PERSONNEL DECONTAMINATION SYSTEM

A. The HMAC shall establish contiguous to each work area, where feasible, a personnel decontamination system consisting of equipment room, shower room and clean room in series. Access between the contaminated and uncontaminated areas shall be through this decontamination enclosure only. The decontamination system shall be constructed of two layers of six-mil polyethylene sheeting. Pre-fabricated "pop-up" decontamination chambers will not be permitted on this project.

B. Access between rooms in decontamination system shall be through double flap-curtained openings. Clean room, shower room and equipment room within decontamination system shall be completely sealed ensuring that the sole source of air flow through this area originates from uncontaminated areas outside the work area.

C. The shower unit shall be equipped with an adequate supply of warm water. A shower filtration pump containing two 5 micron sock filters or the best available technology shall be installed to filter shower water. Filtered shower water shall be discharged into sanitation drains and shall not be discharged into storm drains or onto floor or ground surfaces.

D. The shower room shall have soap and an adequate supply of drying towels. Provide an adequate number of shower units in accordance with OSHA 29 CFR 1926.1101.

3.3 REMOTE PERSONNEL DECONTAMINATION SYSTEM

A. The HMAC shall establish a remote personnel decontamination system only when contiguous decontamination systems are not feasible. The use of such remote

decontamination unit must be indicated in the State Notification. Access between the contaminated and uncontaminated areas shall be through this decontamination enclosure only. The decontamination system shall be constructed of two layers of six-mil polyethylene sheeting. Pre-fabricated "pop-up" decontamination chambers will not be permitted on this project.

B. Access between rooms in decontamination system shall be through double flap-curtained openings. Clean room, shower room and equipment room within decontamination system shall be completely sealed ensuring that the sole source of air flow through this area originates from uncontaminated areas outside the work area.

C. The shower unit shall be equipped with an adequate supply of warm water. A shower filtration pump containing two 5 micron sock filters or the best available technology shall be installed to filter shower water. Filtered shower water shall be discharged into sanitation drains and shall not be discharged into storm drains or onto floor or ground surfaces.

D. The shower room shall have soap and an adequate supply of drying towels. Provide an adequate number of shower units in accordance with OSHA 29 CFR 1926.1101.

3.4 WASTE LOAD OUT SYSTEMS

A. The HMAC shall establish waste load out systems, where feasible, attached to the work areas. Waste load out systems shall consist of a minimum of two (2) chambers that are of suitable size for transporting waste out of the work area. Waste load out systems shall be constructed of two layers of six-mil polyethylene sheeting.

B. Access between rooms in the waste load out system shall be through double flap-curtained openings. The waste load out system shall be used for decontaminating waste containers, bags, bundles, etc. prior to removal from the work area and transporting waste from the work area to the non-work area.

C. Persons working inside the contaminated work area are not permitted to pass from the work area to the non-work area through the waste load out system. Persons inside the contaminated work area shall not be permitted to enter into the clean area of the waste load out system.

D. The waste load out system shall remain sealed at all times except during decontamination of waste containers and transport of waste from the work area to the non-work area.

3.5 EXTERIOR WORK AREA PREPARATION – NON-FRIABLE ASBESTOS CONTAINING MATERIALS

A. Where exterior non-friable ACM is to be removed outdoors, post asbestos abatement warning signs and erect temporary barricades to create regulated areas. Regulated areas should be kept clear of any persons not fully trained and protected against exposure.

B. Install single six (6) mil drop cloths extending a minimum of ten (10) feet away from and one (1) foot up on the exterior wall of the building. Extend polyethylene sheeting outward from the base of the structure in order to collect debris when working from higher elevations. Install single six (6) mil critical barriers over any louver, vent or penetration into the building interior within or directly adjacent to the regulated area.

C. Maintain an operable remote worker decontamination chamber during exterior abatement work unless a Negative Exposure Assessment is submitted for the exterior abatement work.

D. Maintain a work area access log at each exterior regulated work area. Access into the regulated area shall be established at a designated location.

3.6 ASBESTOS REMOVAL PROCEDURE - GENERAL

A. The HMAC shall have a designated "Competent Person" on the job at all times to ensure establishment of a proper enclosure system and proper work practices throughout the project. At a minimum, the HMAC Competent Person shall perform or supervise the following duties, as applicable:

1. Ensure the integrity of the containment or enclosure.
2. Set up procedures to control entry to and exit from the enclosure.
3. Supervise employee exposure monitoring.
4. Ensure that employees set up, use and remove engineering controls, use work practices and personal protective equipment in compliance with OSHA regulations.
5. Ensure that employees use the worker decontamination facilities and observe decontamination procedures.

B. Abatement work will not commence until all work area preparation is completed in accordance with this technical specification section.

C. Spray asbestos materials with amended water using airless spray equipment or apply removal wetting agent to reduce the release of fibers during removal operation.

D. Spraying of amended water shall be adequate enough to allow the ACM to absorb the water. Actual removal of ACM shall not be allowed until all ACM has become adequately wet.

E. Do not create any visible emissions during asbestos removal. Ensure all ACM is adequately wet prior to removal.

F. Fill disposal containers as removal proceeds. Seal filled containers before moving to waste load out system. Wet clean each container thoroughly, double bag, drum or use other approved containerization methods and apply a caution label before moving to holding area.

G. Remove and containerize all visible accumulations of asbestos-containing and/or asbestos- contaminated debris.

H. Solidify all liquid waste prior to containerization for disposal.

I. Sealed disposal containers and all equipment used in the work area shall be included in the cleanup and shall be removed from work areas, via the waste load out system at an appropriate time in the cleaning sequence.

J. The HMAC shall remove from each containment all abated asbestos containing materials at the end of each work shift.

K. At any time during asbestos removal, should the competent person suspect contamination of areas outside the work area(s), they shall cause to stop all abatement work until steps to decontaminate these areas and eliminate causes of such contamination are completed. Unprotected individuals shall be prohibited from entering suspected contaminated areas until air sampling and visual inspections certify decontamination.

L. Upon acceptance of the work area by the Owner's Representative, the HMAC shall apply an even coating of bridging encapsulant with airless spray equipment to all exposed surfaces contained within the work area. Apply encapsulant in accordance with manufacturer's recommendation.

3.7 MINIMUM SPECIFIC ASBESTOS REMOVAL PROCEDURE – THERMAL SYSTEM PIPE INSULATION

A. Minimum specific requirements relative to the removal of thermal system insulation are as follows.

1. Prior to the removal of any thermal system insulation, the HMAC shall ensure the work area is prepped in accordance with the requirements of Part 3.1 INTERIOR WORK AREA PREPARATION – GENERAL.
2. Utilizing an airless sprayer, the HMAC shall adequately wet all thermal system insulation but may not begin removal until approval is issued by Project Monitor. Thermal system
   insulation shall include pipe insulation and mud pack fitting cement.
3. Large pieces of thermal system insulation shall be reduced to manageable sections prior to packaging for disposal.
4. The HMAC shall provide demolition and disposal of ceilings and walls to allow access for removal of concealed pipe insulation/mudded fittings where necessary. Where thermal system insulation is identified in walls/ceilings or within pipe chases, the HMAC shall provide substrate demolition inside containment. Substrates shall be disposed of as asbestos contaminated waste. Install additional critical barriers as necessary following wall and ceiling demolition.
5. The HMAC shall cut banding, remove thermal systems insulation in sections and package for disposal. Ensure material is adequately wet prior to sealing disposal bag.
6. Dispose of all fiberglass pipe insulation and PVC pipe fitting coverings as asbestos-contaminated waste.
8. Remove all visible residues from pipes and fittings using nylon scrub pads. Wire brushes are prohibited.

9. Clean all lengths of pipes, fittings, hangars, saddles, supports, threads until they are free of visible residue.
10. Where pipes enter/exit walls, ceilings, floors, remove all insulation and HEPA vacuum all penetrations.
11. Within the Boiler Room of the Locker Room Building where less than three (3) square feet of thermal systems insulation is present, establish isolation barriers and remove piece of pipe insulation on the floor. HEPA vacuum floor and horizontal surfaces within six (6) feet of pipe insulation

3.8 MINIMUM SPECIFIC ASBESTOS REMOVAL PROCEDURE – FLOOR TILE

A. Provide selective demolition to remove limited partition walls, raised flooring, plywood, trim, etc. to access all floor tiles.

B. Removal of all layers of flooring down to particle board sub-floor. Should floor tiles stick to the particle board or the floor tile can't be removed without leaving floor tile residue on the plywood, the plywood shall be removed and disposed of as asbestos-contaminated waste. Floor leveling agents with asbestos-containing adhesives shall be removed and disposed of as asbestos-contaminated waste.

C. Minimum specific requirements relative to the removal of asbestos-containing non-friable flooring materials are as follows:

1. Prior to the removal of any non-friable flooring products, the HMAC shall ensure the work area is prepped in accordance with the requirements of Section 3.1 INTERIOR WORK AREA PREPARATION – GENERAL.
2. The HMAC shall continuously mist the non-friable flooring products with amended water, removal encapsulant, or detergent solution, so that entire surface is wet. Do not allow wetting agent to puddle, or run off to other areas. If removal encapsulant is used, use in strict accordance with the manufacturer's instructions.
3. Remove flooring materials using manual or mechanical methods. Continuously mist floor in area where flooring is being removed. Wet any debris generated as necessary to keep continuously wet.
4. Continuously pick up flooring materials and place in lined drums or in nylon mesh bags. Place nylon mesh bags into six (6) mil thick disposal bags with pre-printed OSHA warning labels. Ensure that all waste is placed in six (6) mil disposal bags during waste load out operations.
5. Remove plywood sub-floor if tile or tile residue remains and can't be cleaned to a no visible residue condition. Dispose of plywood as asbestos-contaminated waste.
6. The waste captured by grinder operation, if used, shall be removed from the grinder, wetted and disposed of as friable asbestos waste.
7. All liquid wastes shall be solidified once packaged for disposal. No liquid wastes shall be permitted to leave the site in liquid form.

3.9 MINIMUM SPECIFIC REMOVAL PROCEDURES – CEMENT BOARD PANELS

A. Minimum specific requirements relative to the removal of cement board panels are as follows.

1. Prior to the removal of any cement board, the HMAC shall ensure that the work area is prepped in accordance with the requirements of Part 3.1 INTERIOR WORK AREA PREPARATION AND 3.5 EXTERIOR WORK AREA PREPARATION – NON-FRIABLE ASBESTOS-CONTAINING MATERIALS.
2. Perform selective demolition of all urinals, sinks, piping, etc. to access cement board panels.
3. The HMAC shall utilize airless sprayer and amended water to wet the exposed surface of cement board prior to the start of removal.
4. Once substrates are adequately wet, remove the cement board and associated fasteners.
5. Remove cement board panels in whole pieces. Avoid breaking panels and do not render panels friable during removal.
6. Remove all insulation behind panels and dispose of as asbestos-contaminated waste.
7. Provide additional critical barriers if removal of cement board panels creates a void in the containment.
8. Wrap panels in a minimum of two (2) layers of six-mil polyethylene sheeting to create a leak-tight package. Apply OSHA warning labels, waste generator labels and DOT labels to each package of asbestos waste.
9. Following the removal of the cement board panels, remove all nails, screws or other fasteners from the framing.
10. Decontaminate framing through HEPA vacuuming and wet cleaning until no visible residue is achieved.
11. Spray an even layer of bridging encapsulant to all surfaces within the work area.

3.10 MINIMUM SPECIFIC REMOVAL PROCEDURES – EXTERIOR CAULK

A. Minimum specific requirements relative to the removal of cement board panels are as follows.

1. Prior to the removal of any cement board, the HMAC shall ensure that the work area is prepped in accordance with the requirements of Part 3.5 EXTERIOR WORK AREA PREPARATION – NON-FRIABLE ASBESTOS-CONTAINING MATERIALS.
2. Manually remove caulk utilizing hand tools. Do not subject caulk to any forces that would render it friable.
3. Wet caulk prior to the removal. Remove aluminum window frames as necessary to access caulk for removal. Scrape caulk from underlying substrate or remove affected substrate and dispose of as asbestos-contaminated waste.
4. Remove all residual caulk from window frames so no visible residue is present or dispose of window frames as asbestos-contaminated waste.
5. Remove aluminum siding on Press Box to access underlying caulk. Caulk is generally present around all window openings, at all seams of aluminum siding and at top and bottom of aluminum siding panels around the entire perimeter of the Press Box.
6. Dispose of affected substrates that cannot be cleaned of residual caulk as asbestos-contaminated waste.
7. Do not allow caulk to intentionally fall to ground below. Scrape caulk from all surfaces and place directly in waste disposal bags.

8. Remove caulk until no visible residue remains.
9. Exterior caulk removal work areas shall be subjected to a final visual inspection by the Asbestos Project Monitor.

3.11 FINAL CLEANING AND ENCAPSULATION

A. Upon completion of gross removal of all ACM specified for removal, the HMAC shall begin final cleaning of the effected work area. The HMAC shall HEPA vacuum and wet wipe all surfaces contained within the work area.

B. All tools or equipment that are not necessary for final cleaning shall be decontaminated or bagged and removed from the work area enclosure.

C. The HMAC shall begin final cleaning procedures at the furthest and highest most points from the personnel decontamination unit and move towards the unit. The HMAC shall ensure that all exposed building components and or surfaces are thoroughly HEPA vacuumed and wet wiped.

D. The HMAC shall HEPA vacuum and wet wipe any component specified to remain inside the work area enclosure.

E. The HMAC shall thoroughly wet wipe all polyethylene sheeting inside the work area enclosure.

F. Once all surfaces and components within the work area have been thoroughly cleaned, AND THE WORK AREA IS DRY, the HMAC's Competent Person shall perform a visual inspection of all surfaces and components within the work area enclosure. The HMAC's Competent Person shall sign off on the work area stating that all abatement has been completed for that portion of work and that the work area has met the no visible residue criteria.

G. The HMAC's Competent Person shall then request a final visual inspection to be performed by the Owner's Consultant. The Owner's Consultant shall visually inspect all surfaces and components in the work area for residual debris and or dust. Work areas must be dry for final visual inspection. Inspections will not be performed in work areas where there is standing water or wet surfaces. Additional cleaning shall be performed at the HMAC's expense if the Owner's Consultant identifies visual debris and/or dust during the visual inspection. Additional cleaning shall be performed until the work area meets the no visible residue/dust criteria.

H. Upon acceptance of the work area by the Owner's Consultant, the HMAC shall apply an even layer of bridging encapsulant to all surfaces contained within the work area. The Owner's Consultant shall verify the completeness of work area encapsulation.

3.12 WASTE PACKAGING AND REMOVAL PROCEDURE

A. The HMAC shall strictly adhere to the requirements of this section for ACM waste packaging and transporting waste from the work area enclosure to the disposal dumpster.

B. Waste disposal bags and drums shall be affixed with pre-printed OSHA warning labels, DOT labels and NESHAP labels.

C. Each container of ACM waste shall be made adequately wet prior to sealing the container. Bags shall be sealed immediately following additional wetting procedures. Bags of ACM waste shall not be permitted to remain unsealed while in the work area enclosure.

D. Each bag of ACM waste shall be double-bagged during waste load out procedures. The following waste load out procedure shall be strictly adhered to:

1. Wet wipe inner bag or drum to remove all ACM contamination. Ensure the inner bag is sealed.
2. Transport bag or drum to the equipment room located in the worker decontamination enclosure.
3. One worker, equipped with personal protective equipment, shall be inside the clean room of the worker decontamination enclosure.
4. The worker in the clean room of the decontamination enclosure shall open a six-mil disposal bag and hold it open inside the shower room where the inner bag containing the ACM waste shall be placed.
5. The outer bag shall be sealed with duct tape inside the shower room.
6. The double bagged or drummed waste shall be removed from the decontamination enclosure and waste generator labels shall be immediately affixed to the outer bag or drum.
7. Waste generator labels shall be printed self-adhering labels and shall contain the Owner's name, the site location address, and the HMAC's name.
8. The properly labeled waste shall be transported directly to the lined waste container.
9. The waste container shall be double lined with 6-mil polyethylene sheeting.
10. OSHA warning signs shall be secured to the waste container prior to any loading and unloading operations.
11. The waste container shall be kept locked at all times other than loading and unloading.

3.13 DISPOSAL OF ASBESTOS AND ASBESTOS CONTAMINATED WASTE

A. All disposal of asbestos containing and or asbestos contaminated material must be in compliance with requirements of the Office of the Department of Environmental Protection, State of Connecticut Department of Public Health and the USEPA NESHAP regulations.

B. Disposal approvals shall be obtained from the CTDEEP before commencing asbestos removal if waste will be disposed of in Connecticut.

C. Waste container storage locations shall be pre-approved by the Owner and Owner's Consultant.

D. A copy of approved disposal authorization shall be provided to the Owner and Owner's Consultant and any required federal, state or local agencies.

E. Copies of all landfill receipts will be retained by the Owner's Consultant as part of the project file. The receipts will be signed by the landfill operator on receipt, and the quantity of asbestos debris leaving the job site and arriving at the landfill acknowledged.

F. All asbestos debris shall be transported in covered, sealed vans, boxes or dumpsters, which are physically isolated from the driver by an airtight barrier. All vehicles must be properly licensed to meet United States Department of Transportation (USDOT) requirements.

G. Friable ACM waste shall be placed in double lined enclosed waste containers equipped with a lockable hasp. Waste containers shall be posted with OSHA warning signs during loading and unloading.

H. All liquid waste generated during the work shall be solidified. At no time will liquid wastes be permitted to be stored on site. Liquid waste generated during this project shall be solidified prior to the end of each work shift.

I. Completed Waste Shipment Records (WSR) signed by the landfill must be returned to the Owner or Owner's Consultant no later than 45 days from the time the waste was transported off-site. Completed waste shipment records that are not received by the Owner within 35 days shall require the HMAC to begin tracking the waste. The HMAC must notify the Owner of intentions on tracking the waste.

J. The HMAC must take appropriate actions as outlined in 40 CFR Part 61 NESHAP regulations when completed WSR are not forwarded to the Owner or Owner's Consultant within 45 days from the time the waste was transported off-site.

3.14 REOCCUPANCY AIR CLEARANCE MONITORING

A. After the presealant visual inspection has passed and all surfaces in the abatement area have dried, reoccupancy air clearance monitoring will be performed. The primary and secondary barriers, worker decontamination enclosure, and negative air filtration units shall remain in place. At no time shall tools, ladders, vacuums or waste remain inside the work area enclosure during final air clearance sampling.

B. Once the work area has dried, the Owner's Consultant shall collect aggressive re-occupancy air clearance samples. Aggressive air monitoring will be used. Selection of location and of samples shall be the responsibility of the Owner's Consultant. Air monitoring volumes shall be sufficient to provide a detection limit of 0.010 f/cc (fiber per cubic centimeter of air) using NIOSH-approved method.

C. Areas that do not comply with the re-occupancy air clearance criteria shall continue to be cleaned by and at the HMAC's expense until the specified re-occupancy air clearance criteria is achieved as evidenced by results of air testing as previously specified.

D. Laboratories conducting analysis of final air clearance samples shall be approved by the State of Connecticut Department of Health.

3.15 OWNER'S CONSULTANT RESPONSIBILITY

A. The Owner has retained the services of Eagle Environmental, Inc. to monitor this project. The Owner's Consultant shall collect and analyze air samples to ascertain the integrity of controls, which protect the building from asbestos contamination. Independently, the HMAC shall monitor air quality within the work area to ascertain the protection of employees and to comply with OSHA regulations.

B. The Owner's Consultant shall collect and analyze air samples during a minimum of two time periods:

1. Abatement Period: The Asbestos Abatement Project Monitor shall collect samples on a daily basis during the work period. A sufficient number of background samples shall be taken outside of the work area, at the exhaust of the negative pressure filtration equipment, and outside of the building to evaluate the degree of cleanliness or contamination of the building during asbestos removal. Additional samples may be taken inside the work area and decontamination enclosure system, at the discretion of the Asbestos Abatement Project Monitor.

    a. The Asbestos Abatement Project Monitor shall provide a continual evaluation of the air quality of the building during asbestos abatement, using his/her best professional judgments in respect to the State Department of Public Health guideline of 0.010 f/cc and the background air quality established during the pre-abatement period.
    b. If the Asbestos Abatement Project Monitor determines that the building air quality has become contaminated from the project, he/she shall immediately inform the HMAC to cease all removal operations and implement a work stoppage clean up procedure. The HMAC shall conduct a thorough cleanup of areas of the building designated by the Asbestos Abatement Project Monitor. No further asbestos abatement work shall take place until the Asbestos Abatement Project Monitor has determined that the building's air has been decontaminated.
    c. Abatement air samples shall be collected for a minimum period of ninety minutes at a minimum flow rate of 12 liters per minute, or as required to obtain a volume of 1,000 liters. Samples shall be analyzed by phase contrast microscopy (PCM) using the NIOSH 7400 protocol.

2. Reoccupancy Clearance Period: The Asbestos Abatement Project Monitor shall conduct air sampling following the final cleanup phase of the project, once the "no visible residue" criterion as established by the site supervisor and the Asbestos Abatement Project Monitor has been met.

    a. Phase Contrast Microscopy (PCM) - For work areas containing less than 500 linear feet or 1,500 square feet of ACM, post abatement analysis of the samples to determine if reoccupancy clearance standards have been met shall be conducted by PCM. A minimum of five (5) samples shall be collected inside each containment utilizing aggressive methods to comply with State of Connecticut DPH Standard for Asbestos Abatement sections 19a-332a-12, and 19a-332a-13. The project shall be considered complete when the results of

samples collected in the work area and analyzed by phase contrast microscopy using the most current National Institute for Occupational Safety and Health (NIOSH) method 7400, to show that the concentration of fibers for each of the five samples is less than or equal to a limit of quantification for PCM (0.010 fibers per cubic centimeter of air).

b. Transmission Electron Microscopy (TEM) - For work areas containing greater than 500 linear feet or 1500 square feet of ACM, post abatement analysis of the samples to determine if reoccupancy clearance standards have been met shall be conducted by TEM. A minimum of five (5) samples shall be collected inside containment utilizing aggressive methods to comply with State of Connecticut DPH Standard for Asbestos Abatement sections 19a-332a-12, and 19a-332a-13. An asbestos abatement project shall be considered complete when the average concentration of asbestos fibers of five air samples collected within the work area and analyzed by the TEM method in Appendix A of 40 CFR Part 763 subpart E is less than 70.0 structures per square millimeter (s/mm^2) of filter surface or is not statistically significantly different, as determined by the Z-test calculation found in Appendix A of 40 CFR Part 763, subpart E, from the average asbestos concentration of five air samples collected at the same time outside the work area and analyzed in the same manner, and the average asbestos concentration of the three field blanks described in Appendix A of 40 CFR Part 763, subpart E, is below the filter background level, as defined in Appendix A of 40 CFR Part 763 subpart E, of 70 s/mm^2.

C. Inspections shall be conducted by the Owner's Consultant throughout the progress of the abatement project. Inspections shall be conducted in order to document the progress of the abatement work as well as the procedures and practices employed by the HMAC. The Asbestos Abatement Project Monitor shall perform the following inspections during the course of abatement activities.

1. Precommencement Inspection: Precommencement inspections shall be performed at the time requested by the HMAC. The Asbestos Abatement Project Monitor shall be informed 24 hours prior to the time the inspection is needed. During the course of the precommencement inspection, the Asbestos Abatement Project Monitor shall inspect the containment. This shall include, but not be limited to, inspection of barrier integrity, the worker decontamination, facility, negative air filtration equipment etc. If during the course of the precommencement inspection, deficiencies are found, the HMAC shall perform the necessary adjustments in order to obtain compliance.

2. Work Area Inspections: Work area inspections shall be conducted on a daily basis at the discretion of the Asbestos Abatement Project Monitor. During the course of the work area inspections, the Asbestos Abatement Project Monitor shall observe the HMAC removal procedures, verify barrier integrity, monitor negative air filtration devices, assess project progress, and inform the HMAC of specific remedial activities if deficiencies are noted.

3. Presealant Inspection: Upon the request of the HMAC, The Asbestos Abatement Project Monitor shall conduct a presealant inspection. The presealant inspection shall be conducted after completion of the initial final cleaning procedures, but prior

to work area encapsulation. The presealant inspection shall verify that all ACM and residual debris have been removed from the work area. If, during the course of the presealant inspection, the Asbestos Abatement Project Monitor identifies residual dust or debris, the HMAC shall comply with the request of the Asbestos Abatement Project Monitor, in order to render the area is free of visible residue.

Final Visual Inspection: Following receipt of acceptable reoccupancy air monitoring results and concurrent with removal of the work area containment, the Asbestos Abatement Project Monitor shall conduct a final visual inspection. If residual dust or debris is identified during the course of the final inspection, the HMAC shall comply with the request of the Asbestos Abatement Project Monitor, in order to render the area free of visible residue.

END OF SECTION 02 08 00

SECTION 02 09 00 LEAD PAINT DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. Related Sections

1. Section 01 01 00: Hazardous Materials General Requirements
2. Section 01 01 60: Hazardous Materials Scheduling and Phasing
3. Section 01 70 00: Hazardous Materials Contract Closeout
4. Section 02 07 50: Selective Demolition for Hazardous Materials Abatement
5. Section 02 08 00: Asbestos Abatement
6. Section 02 85 00: Universal Waste
7. Section 02 11 00 PCB Remediation

1.2 PROJECT DESCRIPTION

A. Lead-based paint testing has identified paint that contains lead at the Site. All work that impacts painted surfaces through renovation, demolition and abatement/remediation activities shall be subject to the requirements of Section 02 09 00, Lead Paint Demolition. This Section applies to all trades working on the Site.

B. Refer to other Sections of these Specifications to determine the type and extent of work therein affecting the work of this Section, whether or not such work is specifically mentioned herein.

C. Certain building components at the building were determined to contain levels of lead in paint that may cause worker exposure during renovation and demolition work. Any disturbance to the lead-based painted components resulting from manual demolition, surface preparation and painting or work necessary to facilitate demolition shall be conducted in accordance with this specification.

D. The general inventory of surfaces containing high levels of lead associated with the Site structures are as follow:

Locker Room Building

1. Interior and Exterior Window Sashes, Frames, Jambs, Parting Beads, Sills;
2. Interior and Exterior Doors, Frames, Jambs;
3. Exterior Fascia, Soffits, Clapboard, Louvered Vents and Frame

West Bleachers

1. Structural Steel Frame, Steel Columns, Seat Brackets

Ticket Booth

1. Concrete Masonry Units (CMU) Walls

Score Board

1. Steel Frame

E. The surfaces containing lead-based paint in Section 1.2 D is a general inventory of lead-based paint. It is not intended to serve as a comprehensive listing of lead-based painted surfaces. The general inventory is intended to identify surfaces that contain high levels of lead to allow contractors to develop a lead compliance plan for the project.

F. The personnel performing lead-based paint removal work shall be trained in accordance with the Department of Labor's Occupational Safety and Health Administration (OSHA) 29 CFR 1926.62. Lead in Construction Standard. This Specification is intended to provide general information pertaining to lead in surface coatings at the site and to assist the Hazardous Materials Abatement Contractor (HMAC) in complying with applicable worker protection and disposal laws. It is the sole responsibility of the HMAC to comply with all OSHA worker protection laws and disposal laws.

G. All painted, varnished, shellacked, stained, primed or otherwise coated surfaces should be assumed to contain lead above 0.0 mg/cm2. All trades performing work that impact any painted, varnished, shellacked, stained, primed or otherwise coated surface must comply with the requirements of OSHA 29 CFR 1926.62 Lead in Construction Standard.

H. The HMAC should assume that building components that were not tested but that are like in color and construction date have similar lead paint levels as the components that were tested. In accordance with OSHA 29 CFR 1926.62, the HMAC must assume certain exposure levels for certain tasks in the absence of testing or personal exposure monitoring data. It is the sole responsibility of the HMAC to comply with OSHA 29 CFR 1926.62 for all tasks that disturb paint, varnish, shellac, stain or other surface coatings.

I. All components and surfaces that will be impacted by the work of this project shall be covered by this specification.

J. Metal components removed from the building must be recycled in an approved recycling facility for lead paint.

K. Toxicity Characteristic Leachate Procedure (TCLP) testing of waste materials has not been performed on any materials at the Site. Assumptions regarding the disposal characteristics of certain waste streams have been made for bidding purposes. For the purpose of this Specification, Non-hazardous solid waste means construction and demolition debris. Hazardous lead waste means a waste which is characteristically hazardous for lead and requires disposal in a Resource Conservation and Recovery Act (RCRA) approved landfill under EPA hazardous waste code D008. The Owner's Consultant shall perform additional TCLP sampling prior to waste disposal.

L. The HMAC is responsible for all TCLP testing of workers PPE and cleaning materials. Polyethylene sheeting shall be cleaned free of dust and debris and disposed of as non-hazardous waste.

M. If rental equipment will be utilized during abatement activities, the HMAC shall provide written acknowledgement to the rental equipment provider and copy the Owner's Consultant stating that equipment will be used during hazardous material removal and will be thoroughly decontaminated prior to being returned.

1.3 SCOPE OF WORK

A. Component Removal – Refer to the Hazardous Materials Abatement Plans HM-1 and Architects demolition plans for scope and limits of component removal. Component removal shall include the physical removal of building components for repair or replacement. Components, which are removed, shall be properly disposed of in accordance with this Specification. Component removal associated with this project shall include but not be limited to the following:

Locker Room Building

1. Exterior Wood Components (Hazardous Lead Waste)
2. Paint Chips from Exterior Painted Surfaces (Hazardous Lead Waste)
3. Interior Wood Trim, Interior Doors, Miscellaneous Components (Non-Hazardous Solid Waste)

Ticket Booth

1. CMU Walls (Non-Hazardous Solid Waste)

West Bleachers and Score Board

1. Structural Steel (Recycle)

B. Paint Stabilization – Refer to the Hazardous Materials Abatement Plans HM-1 and the Architects demolition and finish plans for scope and limits of repainting. Paint stabilization shall include the removal of loose, flacking, chipped, cracked or otherwise damaged paint followed by priming and repainting. Paint chips generated during surface preparation must be collected and disposed of as hazardous lead waste. The intent of the paint stabilization is to ensure that all painted surfaces are in an intact condition at the conclusion of renovation activities.

C. Specialized Cleaning – Specialized cleaning includes cleaning with vacuums equipped with High Efficiency Particulate Air (HEPA) filters and wet cleaning with a lead cleaning detergent such as Lead Dissolve® or equivalent. Specialized cleaning shall be performed on all floors and horizontal surfaces including but not limited to window sills, window wells, shelving, millwork, etc. Specialized cleaning shall be performed at the completion of lead disturbing tasks and following all put back work in the buildings.

D. Lead-Paint Removal - Refer to the Hazardous Materials Abatement Plans HM-1 and Architects demolition plans for scope and limits of component removal. Paint removal includes the removal of paint from the substrate utilizing approved mechanical or chemical methods. Paint removal shall be required on any surface, which calls for complete paint stripping within the Architect's specifications. Paint removal shall also be performed on the structural steel at each torch cutting location. Paint shall be removed a minimum of six (6) inches in each direction from the location where torch cutting or welding will be performed.

1.4 APPLICABLE CODES

A. The HMAC shall be solely responsible for conducting this project and supervising all work in a manner which will be in conformance with all federal, state and local regulations and guidelines pertaining to lead paint abatement. Specifically, the HMAC shall comply with the requirements of the following:

1. Occupational Safety and Health Administration: OSHA

    a. 29 CFR 1910 General Industry Standards
    b. 29 CFR 1910.1025 Lead Standard for General Inventory
    c. 29 CFR 1910.134 Respiratory Protection
    d. 29 CFR 1910.1200 Hazard Communication
    e. 29 CFR 1910.245 Specifications for Accident Prevention (Sign and Tags)
    f. 29 CFR 1926.62 Lead in Construction Final Rule

2. State of Connecticut Department of Energy and Environmental Protection: DEEP

    a. Guidance for the management and disposal of lead contaminated materials generated in the lead abatement renovation and demolition industries.
    b. All applicable hazardous and solid waste disposal regulations.

3. USEPA

    a. 40 CFR 745.100 - .119 Final Rule
    b. 40 CFR Part 261 United States Environmental Protection Agency

1.5 DEFINITIONS

A. "Action level" means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30 ug/m (3)) calculated as an 8-hour time-weighted average (TWA).

B. "Biological monitoring" means the analysis of a person's blood and/or urine, to determine the level of lead contamination in the body.

C. "Competent person" means one who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them.

D. "Containment" means the process of erecting polyethylene barriers to control dust and debris emissions which is intended to keep adjacent areas and environment free of contamination.

E. "HMAC" means the primary contractor and all sub contractors performing the lead removal work.

F. “Exposure assessment” means the process of collecting and analyzing personal air samples to determine a worker’s potential to be exposed to contaminants and to determine the level of respiratory and personal protective equipment that would be suitable to prevent exposure from occurring.

G. HEPA (High Efficiency Particulate Air) means a type of filtering system capable of filtering out particles of 0.3 microns or greater diameter from a body of air at 99.97% efficiency or greater.

H. "High phosphate detergent" is detergent that contains at least five (5%) percent tri-sodium phosphate (TSP).

I. “Lead” means metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

J. PEL (Permissible exposure limit) means the maximum allowable airborne concentration a worker can be exposed to over an eight (8) hour work shift without having to don respiratory and personal protective equipment. The OSHA PEL is 50 ug/m3.

K. RCRA (Resource Conservation Recovery Act): The EPA enforced act, which establishes regulatory levels for hazardous chemicals. There are eight (8) heavy metals of concern for disposal: Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium and Silver.

L. Standard means the OSHA Lead in Construction Standard 29 CFR 1926.62.

M. Toxicity Characteristic Leachate Procedure: Is the EPA required sample preparation and analysis for determining the hazard characteristic of a waste generated at a lead abatement site.

1.6 FEES, PERMITS AND LICENSES

A. The HMAC shall comply with the provisions of all permits or applications required by the work specified, as well as make all submittals required under those auspices.

B. The HMAC shall make notifications to the local Police Department and Fire Department regarding the project.

1.7 SEQUENCING AND SCHEDULING

A. The HMAC shall extend full cooperation to Owner in all matters involving the use of Owner's facilities. At no time shall the HMAC cause or allow to be caused conditions that may cause risk or hazards to the general public or conditions that might impair safe use of the facility.

B. The HMAC shall submit a time-line schedule, not date specific, to Owner and Consultant for integration into the overall project schedule. Coordinate the work of this section with the needs of the Owner and General Contractor. Phasing and scheduling of this project will be at

the discretion of the General Contractor and shall not proceed in any area without the express consent of the General Contractor.

C. The HMAC shall coordinate their work with the progress of the work of other trades so that the work shall be completed as soon as conditions permit. Work under this project may be performed in phases to accommodate Owner's/Architect's requirements and construction phases. Coordinate schedule and operations with the Owner/Architect/Consultant and other trades.

D. Schedule initial assessment work in areas where the work will not cause an exposure potential to unprotected individuals.

1.8 SUBMITTALS

A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work.

B. The HMAC shall provide the following pre-project submittals prior to initiating work at the site:

1. Copies of all notifications, permits, applications, licenses and like documents required by federal, state and local regulations obtained or submitted in proper fashion.
2. Copies of medical records for each employee to be used on the project.
3. Record of successful respirator fit testing performed by a qualified individual within the previous year, for each employee to be used on this project with the employee's name and social security number with each record.
4. Proposed respiratory protection program for employees throughout all phases of the job, including make, model and NIOSH approval numbers of respirators to be used.
5. Written description, for the Owner's review and acceptance, of all proposed procedures, methods or equipment to be utilized that differ from the Contract Specifications, including manufacturers' specifications on any equipment not specified for use by this Section; in all instances, the HMAC must comply with all applicable federal, state and local regulations.
6. Proposed electrical safeguards to be implemented by qualified Electrical Contractor, including but not limited to location of GFCI outlets, lighting, and power panels necessary to safely perform the job including a description of electrical hazards safety plan for common practices in the work area.
7. Chain-of-Command of responsibility at work site including supervisors, foremen, and competent person, their names, resumes and certificates of training.
8. List of all supervisors and workers intended to be assigned to the project.
9. The name and address of HMAC's blood lead testing lab, OSHA-CDC listing, and Certification in the state where work site is located.
10. The name and address of HMAC's personal air monitoring and waste disposal lead testing laboratory (ies) including certification(s) of AIHA accreditation for heavy metal analysis, listing of relevant experience in air and debris lead analysis.
11. Safety Data Sheets (SDS) on all materials and chemicals to be used on the project.
12. Name, address, and ID number of the hazardous waste hauler, waste transfer route, and proposed disposal site.
13. Name, address, and ID number of the proposed construction debris site.

14. Temporary EPA Hazardous Waste I.D. No.
15. Copy of each workers lead awareness training certificate.
16. Copy of each workers initial blood lead level and zinc protoporphorin level.
17. Lead Based Paint compliance plan.

C. The HMAC shall provide the following post-project submittals at the completion of the work on site:

1. Copies of completed hazardous waste manifests with signatures from the landfill acknowledging receipt of the hazardous waste.
2. Copies of completed non-hazardous waste manifests.
3. Copies of work area access logs.
4. Copies of supervisor log
5. Copies of post project blood lead levels and zinc protoporphorin levels for each worker and supervisor who worked on the site.
6. Copies of all OSHA Compliance air sampling results.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name and product technical description.

B. Damaged or deteriorating materials shall not be used and shall be removed from the premises.

C. Fire retardant polyethylene sheet in a roll size to minimize the frequency of joints shall be delivered to job site with factory label indicating 6 mil.

D. Polyethylene disposable bags shall be six (6) mil with pre-printed label. Tie wraps for bags shall be plastic, five (5) inches long (minimum), pointed and looped to secure filled plastic bags.

E. Tape shall be capable of sealing joints in adjacent polyethylene sheets and for attachment of polyethylene sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.

F. Impermeable containers are to be used to received and retain any lead containing or contaminated materials until disposal at an acceptable disposal site. (The containers shall be labeled in accordance with EPA and DOT standards.)

G. HEPA filtered exhaust systems shall be used during any dust generating deleading operations.

H. Other materials such as lumber, nails and hardware necessary to construct and dismantle the decontamination enclosures and the barriers that isolate the work area shall be provided as appropriate for the work.

PART 3 - EXECUTION

3.1 INITIAL EXPOSURE ASSESSMENT

A. In order to comply with the requirements of OSHA 29 CFR 1926.62 Lead in Construction regulation, an initial exposure assessment must be performed for each activity that disturbs lead paint covered building materials. If the results of the initial exposure assessment are less than the "Action Level" for lead dust exposure of 30 micrograms per cubic meter of air, the employer is not obligated to comply with most requirements of the regulation. If the results of the initial exposure assessment are greater than the Action Level for lead dust exposure, all requirements of the Standard apply.

1. The Scope of this Section applies to all construction work where an employee may be occupationally exposed to lead. All construction work excluded from the general industry standard for lead 29 CFR 1910.1025(a) (2) is covered by this section. This includes but is not limited to the following.

    a. Demolition or salvage of structures where lead or materials containing lead is present.
    b. Removal or encapsulation of materials containing lead.
    c. New construction, alteration, repair, or renovation of structures, substrates, or portions thereof that contain lead, or materials containing lead.
    d. Lead contamination cleanup
    e. Transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed.

B. The HMAC shall assume that the employee is being exposed above the Permissible Exposure Level (PEL) until an initial exposure assessment has been completed for each lead related task being performed.

C. For the purpose of the initial exposure assessment, employee exposure is that exposure which would occur if the employee were not using a respirator.

D. The employer shall collect personal air samples representative of a full shift including at least one sample for each job classification in each work area for each shift or for the shift with the highest exposure level.

E. Until the employer performs an initial exposure assessment as required by the Standard, the employer shall provide appropriate respiratory protection, appropriate personal protective equipment, clean change areas, hand washing facilities, biological monitoring, training under 29 CFR 1926.59, Hazard Communication; 29 CFR 1926.62 – Lead, 29 CFR 1926.21, Safety Training and Education.

F. Where the employer has objective data, demonstrating that a particular product or material containing lead or a specific process, operation or activity involving lead cannot result in employee exposure to lead at or above the Action Level during processing, use or handling, the employer may rely upon such data instead of implementing initial monitoring.

3.2 LEAD-BASED PAINT COMPLIANCE PLAN

A. The HMAC shall be required to submit a lead-based paint compliance plan to the Owner detailing how the HMAC will maintain compliance with this Specification.

B. The HMAC shall describe the work procedures within the compliance plan that will be utilized to prevent contamination to the work site and surrounding environment.

C. The HMAC shall describe the work procedures and engineering controls that will be implemented to ensure that workers are not exposed above OSHA's PEL for lead dust exposure.

D. The HMAC shall describe how compliance with the hazardous waste disposal regulations will be met.

3.3 DUST GENERATING ACTIVITIES – WORK AREA PREPARATION

A. The HMAC shall establish a clean area outside the abatement areas for workers to change into protective clothing and store personal belongings.

B. When dust generating activities are undertaken, the work area shall be isolated from other trades by double flapped curtain doorways. The HMAC shall utilize double flapped curtain doorways for separation of the work area from the non-work area. All ingress to the work area shall be through the double flapped curtain doorways.

C. All HVAC vents and grills shall also be sealed with a single layer of six (6)-mil polyethylene sheeting sealed with duct tape.

D. Windows to the outside of the building shall remain shut during demolition activities.

E. The HMAC shall post lead hazard warning signs in accordance with OSHA 29 CFR 1926.62. It shall be the sole responsibility of the HMAC to ensure that only authorized personnel are permitted to enter the work area. A work area access log shall be maintained at the entrance to the work area. Authorized personnel shall sign in and out of the work area containment.

3.4 NON-DUST ACTIVITIES – WORK AREA PREPARATION

A. The HMAC shall establish a clean area outside the abatement areas for workers to change into protective clothing and store personal belongings.

B. When activities are undertaken that don't readily create dust, the work area shall be isolated from other trades by barrier caution tape. A buffer zone of a minimum of ten (10) feet is recommended between lead demolition activities and general trades work.

C. The HMAC shall post lead hazard warning signs in accordance with OSHA 29 CFR 1926.62. It shall be the sole responsibility of the HMAC to ensure that only authorized personnel are permitted to enter the work area. A work area access log shall be maintained at the entrance to the work area. Authorized personnel shall sign in and out of the work area containment.

3.5 PERSONAL PROTECTION

A. Eye protection, head protection, and ear protection shall be provided to each worker.

B. The HMAC shall establish a wash station in close proximity to the work area where workers shall decontaminate their person. The wash station shall be supplied with warm water and soap and an ample supply of drying towels. Wash water shall be tested for proper disposal.

C. All equipment used by workers inside the work area shall be wet wiped or bagged for later decontamination before removal from work area.

D. The HMAC is responsible for using safe procedures to avoid electrical hazards. All temporary electrical wiring will be protected by GFIs.

3.6 EXTERIOR WORK AREA PREPARATION

A. Remove all moveable objects from the work area.

B. The HMAC shall cover the ground with sturdy nylon reinforced drop cloths covered with six mil drop cloths. The sturdy nylon reinforced drop cloths shall be secured to the foundation of the building. The Drop cloths shall extend a minimum of ten feet from the building.

C. Regulate the work area with lead warning signs and barrier tape.

D. Seal all windows, doors or other penetrations into the building, which are located within the regulated work area.

E. As work progresses, remove debris to the appropriate waste container.

3.7 COMPONENT REMOVAL PROCEDURE

A. Prior to any component removal, the HMAC shall ensure that work area set up has been completed in accordance with applicable work area preparation section. Refer to the architects plans and specifications to determine extent of demolition work.

B. Where possible, the HMAC shall remove components in their full units and shall minimizing breakage to the best extent feasible.

C. The HMAC shall perform all incidental work necessary to facilitate removal of painted components.

D. Dust control measures must be employed during demolition work.

E. The HMAC shall transport painted components to the appropriate waste container as required to keep the work area free from tripping hazards.

F. The HMAC shall clean all loose paint chips generated during component removal or disturbance. Containerize all paint chips in a 55 gallon lined steel drum and hold for TCLP testing.

G. Containerize paint chips for disposal as removal process. Do not allow paint chips to accumulate on floors.

3.8 LEAD-BASED PAINT REMOVAL

A. Complete all necessary work area preparation in each area prior to commencing lead-work in that area.

B. Conduct on-site paint removal utilizing one of the following approved methods or combinations thereof:

1. Heat gun (not to be operated over 700 degrees Fahrenheit)
2. Power equipment with attached HEPA dust collection device
3. Chemical removal agent
4. Wet scraping

C. Remove all layers of paint and or primers down to a bare substrate. The HMAC is responsible for reducing lead levels below the toxic level on components where paint removal is specified.

D. At the completion of successful paint removal procedures the Environmental Consultant shall conduct on site XRF testing of all abated components within the entire work area to determine completeness of paint removal. The component(s) shall not be considered completely abated until XRF measurements are below the toxic level as defined by State regulations.

3.9 LEAD-BASED PAINT STABILIZATION

A. The Contractor shall conduct work area abatement preparation as specified in Sections 3.3 and 3.6 prior to conducting abatement activities.

B. Lightly mist the surface to be stabilized with water. Wet scrape the surface with a drag scraper or putty knife to remove the loose paint. Continuously mist during scraping. Do not dry scrape.

C. Feather paint edges as necessary to remove high spots in paint that may be subject to future peeling.

D. Remove all raised paint edges that may be present on surfaces or components.

E. Surface contaminants that prevent adhesion should be removed by cleaning with lead dissolve and water solution. These contaminants generally include dirt, grease, and soap films.

F. Once all loose paint is removed, clean the surface with a lead dissolve and water solution.

G. Prepare all surfaces for re-painting. Wet wipe the surface with clean water.

3.10 SPECIALIZED CLEANING

A. Complete all necessary work area preparation in each area prior to commencing work in that area.
B. Specialized cleaning shall be performed during two distinct phases. Perform specialized cleaning following completion of each of the following phases:

1. Construction and demolition phase
2. Following all put back work and prior to occupancy

C. Follow the cleaning procedure described below for hard smooth or semi-porous surfaces:

1. Conduct a thorough HEPA vacuuming of the surface.
2. Wash the floor with a string mop equipped with wringer. Use a lead cleaning detergent. Wring the mop into an empty bucket after each cleaning and before dipping the mop back into the cleaning solution.
3. Conduct a clean rinse mopping on the floor.
4. Conduct a second HEPA vacuuming of the surface.

D. Follow the cleaning procedure described below for area rugs:

1. HEPA vacuum the top side of the rug for one (1) minute per ten (10) square feet.
2. Fold the rug in half and HEPA vacuum the back side of the rug and underlying floor at a rate of one (1) minute per ten (10) square feet.
3. Repeat Step 2 for the other half of the rug.
4. Unfold the rug and HEPA vacuum the top at a rate of two (2) minutes per ten (10) square feet.

E. Follow the cleaning procedure described below for carpet:

1. HEPA vacuum the carpet at a rate no faster than two (2) minutes per ten (10) square feet. Vacuum in a side-to-side motion.
2. HEPA vacuum the carpet in the opposite direction at a rate no faster than two (2) minutes per ten (10) square feet. Vacuum in a side-to-side motion.

3.11 PROHIBITED ACTIVITIES

A. The HMAC shall be prohibited from the following:

1. Sanding lead-based painted components without HEPA dust collection devices and appropriate engineering controls.
2. Open flame paint removal.
3. Torch cutting steel components without appropriate engineering controls.
4. Rivet busting without appropriate engineering controls.
5. Creating visible dust or fumes during lead-based paint removal.

3.12 CLEANING

A. Paint Chips - All paint chips collected during clean up shall be placed in airtight leak proof

lined 55 gallon drums. Drums shall be stored in a secure locked area until they are transported off site for disposal.

B. Small wood debris will be picked up, collected and placed into a single six-mil plastic bag or six-mil polyethylene sheeting. The bags shall not be overloaded, shall be securely sealed, and shall be transported to the appropriate waste disposal container.

C. The HMAC shall HEPA vacuum all surfaces within the work areas. Floors and horizontal surfaces shall be wet cleaned with a lead cleaning detergent. The resulting liquid waste shall be disposed of in accordance with all applicable local, state, and federal regulations.

D. The HMAC shall thoroughly wet sweep the effected work areas. Floors shall be mopped with a lead cleaning detergent.

E. The Owner's Consultant shall perform a visual inspection of each work area to determine adequacy of cleaning procedures. Polyethylene sheeting shall be subjected to TCLP analyses provided and paid for by the HMAC.

F. The HMAC shall HEPA vacuum all paint chips from the exterior areas of the building.

G. The HMAC shall include in their Scope of Work a return visit to the Site to clean all newly installed materials and surfaces prior to lead clearance dust sampling by the Owner's Consultant.

H. Upon the request of the Owner, the Environmental Consultant shall inspect work areas following final cleaning and perform OSHA lead clearance dust sampling at the completion of renovations and prior to work areas being re-occupied. Twenty-Four (24) hour written notification shall be given prior to this testing.

I. Lead clearance testing shall include floors and window sills in representative renovated rooms.

J. Lead dust clearance standards utilized for this project shall include the following:

1. Floors: 100 ug/ft2
2. Window sills: 250 ug/ft2

K. The HMAC shall be responsible for cleaning all surfaces within the work area until clearance is achieved. The HMAC shall be responsible for the cost of all re-wipes.

3.13 DISPOSAL OF WASTE MATERIALS

A. The HMAC shall dispose of all paint chips and debris coated with toxic levels of lead-based paint as hazardous lead-waste. The waste classifications are as follows:

1. Paint chips: Hazardous lead waste
2. Plaster: Non-hazardous solid waste
3. Exterior wood components (identified in Plans and Specifications) scheduled for demolition: Hazardous Lead Waste with confirmatory TCLP sampling by Owner's Consultant

4. Metal components: Recycle at approved recycling facility
5. Cleaning materials, PPE, polyethylene sheeting: TCLP sampling by HMAC

B. Caution Note for Contractors: All materials, whether hazardous or non-hazardous, shall be disposed of in accordance with all laws and the provisions of any or all applicable federal, state, county, or local regulations and guidelines. It shall be the sole responsibility of the HMAC to assure compliance with all laws and regulations relating to this disposal.

C. The HMAC is responsible for performing and paying for all additional waste characterization testing, waste profiling and all other information required by their selected landfill for each shipment of waste.

D. Metal components shall be recycled at an approved recycling facility that accepts lead coated materials.

E. All paint removed from steel components shall be properly disposed of as hazardous lead waste.

F. The Contractor shall perform the following:

1. The HMAC shall comply with the requirements for small quantity generators (generates between one hundred (100) kg and one thousand (1000) kg of hazardous waste in a month or accumulates no more than one thousand (1000) kg of hazardous waste on-site at any one time and stores waste for no greater than ninety (90) days).

2. The HMAC shall ensure that all hazardous waste generated is sent off-site to permitted hazardous waste treatment, storage, or disposal facilities (TSDF).

3. The HMAC shall use DEEP permitted transporters for transport of hazardous waste.

4. The HMAC shall apply for a temporary EPA identification number, where applicable. Hazardous waste manifests must be utilized which bear this I.D. number.

5. The HMAC must comply with hazardous waste containerization requirements including but not limited to maintaining the containers in good condition, keeping containers closed and locked while in storage, properly labeling and dating containers, and using containers which are DEEP approved for over the road use.

6. The HMAC shall develop a written inspection schedule to inspect any containers of hazardous waste at least weekly.

7. The HMAC must designate an emergency coordinator who will be responsible for coordinating emergency response measures. Basic emergency information must be listed in writing, and posted next to the on-site telephone. This information must include the name and number of the emergency coordinator.

8. The HMAC must develop a written contingency plan for the site, which describe actions personnel will take in response to fires or other emergencies that may result in a release of hazardous waste constituents. The plan must meet certain content requirements and copies of the plan must be submitted to certain local emergency response officials.

9. The HMAC must provide written notification to local fire departments and/or police regarding the location, nature, and duration of the lead-removal project, and regarding the type and quantity of hazardous waste that may be stored at the site.

10. The HMAC must train their employees in hazardous waste management. They must maintain certain documentation regarding their training program, including the names, job titles, and job descriptions of the employees involved with hazardous waste management, a written description of the training that is given, and records documenting that employees have been trained. Annual updates of training must also be given.

11. The HMAC may not store hazardous waste on-site for greater than ninety (90) days without a TSDF permit.

    Before leaving the site for the last time, the HMAC must remove any remaining hazardous waste and must decontaminate any equipment, storage areas, structures, soil, etc. contaminated as a result of the removal or storage of the hazardous waste generated at the site.

3.14 POST RENVOATION FINAL CLEARANCE

A. A visual inspection by the environmental consultant licensed lead inspector shall be conducted at the completion of the renovation work prior to occupancy to evaluate the presence or absence of dust-lead hazards. The HMAC/General Contractor shall notify the Owner's Consultant a minimum of forty-eight (48) hours before the clearance inspection.

B. One (1) dust wipe sample shall be collected from the floor and a representative window sill in a representative number or renovated rooms.

C. The following criteria must be met for final clearance dust wipe samples where work was performed:

   1. Floors: $< 100 \mu g/ft^2$
   2. Window Sills: $< 250 \mu g/ft^2$

D. The initial sampling costs shall be incurred by the Owner. Additional sample collection and analysis costs shall be incurred by the HMAC for failed sample results.

END OF SECTION 02 09 0

SECTION 02 11 00 PCB REMEDIATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. Related Sections:

1. Section 01 01 00: Hazardous Materials General Requirements
2. Section 01 01 60: Hazardous Materials Scheduling and Phasing
3. Section 01 70 50: Hazardous Materials Contract Closeout
4. Section 02 07 60: Selective Demolition for Hazardous Materials Abatement
5. Section 02 08 00: Asbestos Abatement
6. Section 02 85 00: Universal Waste
7. Section 02 09 00: Lead Paint Demolition

1.2 GENERAL PROVISIONS

A. The Dillon Stadium complex located at 20 Van Dyke Avenue, Hartford, CT (Site)consists of an existing athletic field, locker rooms, lavatories, storage buildings, east and west bleachers and a press box. The Site is scheduled for renovation and will require asbestos abatement, lead-based paint demolition, universal waste removal and removal of caulk containing Connecticut regulated Polychlorinated Biphenyls (PCBs). .

B. Material testing has identified building materials in areas scheduled for renovation/demolition that contain PCB's in concentrations exceeding 1 part per million (ppm) and less than 50 ppm. The work covered in this section includes the minimum procedures that shall be employed during the remediation of PCB.

C. Refer to other Sections of these Specifications to determine the type and extent of work therein affecting the work of this Section, whether or not such work is specifically mentioned herein.

D. The Base Bid asbestos abatement work of this project is listed on the Hazardous Materials Abatement Plans HM–1.

1.3 PROJECT DESCRIPTION

A. The work to be performed includes but is not limited to the proper removal, handling, and disposal of PCB containing caulk from the interior of the Locker Room Building located at the Site. A description of materials and locations of PCB scheduled for removal are shown in Table 1 below and on the Hazardous Materials Abatement Plan HM-1.

B. Base Bid PCB Removal work shall include but not be limited to the PCB identified in the following Table 1 - Summary of PCB and on the Hazardous Materials Abatement Plans. It is the sole responsibility of the Hazardous Materials Abatement Contractor (HMAC) to visit the site,

review the Contract Documents and determine the quantities of PCB to be removed when developing their bid. Locations and estimated quantities of specific items noted in paragraph A above include:

TABLE I – SUMMARY OF PCB

LOCATION(S)	MATERIAL TYPE	ESTIMATED QUANTITY	PCB (ppm)
852/854 ASYLUM AVENUE			
Locker Room Building Interior	White Door Frame Caulk	200 LF	2.5

C. PCB-containing materials containing greater than 1 parts per million (ppm) but less than 50 ppm of PCB have been identified in the interior door frame caulk within the Locker Room Building. The removal of these materials shall be performed in accordance with this section and all applicable regulations.

D. Refer to Hazardous Materials Abatement Drawings HM-1 for specific work area locations.

E. The Hazardous Materials Abatement Contractor (HMAC) is responsible for proper removal and disposal of all PCB containing materials identified at the site within areas of renovation and demolition as identified in the project scope. All PCB-containing materials and PCB-contaminated materials shall be disposed of as Connecticut Regulated Waste.

F. It is the sole responsibility of the HMAC to comply with all disposal laws regarding disposal of PCBs and solid waste. Materials which are segregated for re-use or disposal as solid or bulky waste shall be characterized prior to disposal or re-use.

G. The PCB-containing materials identified meet the definition of a PCB Excluded Product. For the purpose of this Specification, Connecticut Regulated Waste is a waste material that contains less than 50 ppm of PCB.

1.4 GENERAL REQUIREMENTS

A. The HMAC shall furnish all labor, materials, facilities, equipment, installation services, employee training, notifications, permits, licenses, certifications, agreements and incidentals necessary to perform the specified work. Work shall be performed in accordance with the contract documents, the latest regulations from the Occupational Safety and Health Administration (OSHA), the United States Environmental Protection Agency (USEPA), the State of Connecticut Department of Energy and Environmental Protection (DEEP) and all other applicable federal, state and local agencies. Whenever the requirements of the above references conflict or overlap, the more stringent provision shall apply.

B. All project personnel engaged in the work covered under this section shall be trained with OSHA 40-Hour HAZWOPER training in accordance with OSHA Regulations 29 CFR 1910 and 1926.

C. The HMAC shall provide a Project Health and Safety Officer (Competent Person) having a minimum of eight (8) hours of supervisor training in hazardous waste site operations in

accordance with the requirements of 29 CFR 1910. The supervisor must be on site at all times during abatement work.

D. The identified PCB-containing materials have been confirmed to be non-asbestos containing but have been applied to asbestos containing joint compound. The caulk attached to the asbestos-joint compound shall be disposed of as a CT regulated waste CR-01 and CT regulated asbestos waste.

E. The HMAC shall be required to attend a preconstruction meeting with his site supervisor, project manager and any subcontractor they employ on site for the purpose of reviewing the contract requirements.

1.5 SUBMITTALS

A. The following documents shall be submitted to the Owner's Consultant:

1. Work Plan and Health and Safety Plan: A written work plan that describes the methods to be used for the removal and containment of PCB-containing materials and associated debris, and the HMAC's plan to protect workers and to prevent PCB contamination migrating from the work areas. The work plan shall include floor plans and/or site plans indicating the proposed work areas for all PCB removal work as outlined in this Specification.
2. Training Documentation: Documentation of OSHA 40-Hour HAZWOPER Training for all employees and subcontractors to be used for the abatement work and 8-Hour HAZWOPER Supervisor Training for the designated on-site Health and Safety Officer for the abatement work.
3. PCB Disposal Plan: A written plan that details the HMAC's plan for transportation and disposal of PCB-containing wastes generated during the project. The Disposal Plan shall identify:

    a. Waste packaging, labeling, placarding and manifesting procedures.
    b. The name, address and 24-hour contact number for the proposed treatment or disposal facility or facilities to which waste generated during the project will be transported.
    c. The name, address, contact person(s) and state-specific permit numbers for proposed waste transporters, and EPA identification number for firms that will transport hazardous waste.
    d. The license plate numbers of vehicles to be used in transporting of the waste from the site to the disposal facility.
    e. The route(s) by which the waste will be transported to the designated disposal facility, and states or territories through which the waste will pass if the waste is to be disposed of outside of the State of Connecticut.

4. Material Safety Data Sheets: Material Safety Data Sheets (OSHA Form 174 or equivalent) and manufacturer's information shall be provided for all chemicals and materials to be used during the project.

B. The following documents shall be submitted to the Owner's Consultant within twenty one (21) calendar days following removal of waste from the site:

1. Waste Profile Sheets
2. Pre-Disposal Analysis Test Results (If required by disposal facility)
3. Manifests signed by the disposal facility
4. Tipping Receipts provided by the disposal facility
5. Certification of Final Treatment and Disposal signed by the responsible disposal facility official.

1.6 APPLICABLE STANDARDS AND REGULATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. Where a conflict or overlap among regulations and/or these specifications exist, the most stringent requirements shall apply. The Owner's Consultant will determine which requirements are most stringent.

1. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

a. ANSI,Z89,1 Personnel Protective Equipment-Protective Headwear for Industrial Workers-Requirements (Latest Revision) ANSI.Z87CODE OF FEDERAL REGULATIONS (CFR)

a. 29 CFR Subpart D	Walking-Working Surface
b. 29 CFR 1910.120	Hazardous Waste Operations and Emergency Response
c. 29 CFR 1910.134	Respiratory Protection Standard
d. 29 CFR 1910.1200	Hazard Communication
e. 29C FR 1926.20	General Health and Safety Provisions
f. 29CFR 1926.57	Ventilation
g. 29 CFR 1926.59	Hazard Communication Program
h. 29 CFR 1926.62	Lead Exposure in Construction
i. 29 CFR 1926.65	Hazardous Waste Operations and Emergency Response
j. 29 CFR 1926.95	Criteria for Personal Protective Equipment
k. 29 CFR 1926, Subpart H	Materials Handling, Storage, Use and Disposal
l. 29 CFR 1926, Subpart L	Scaffolding
m.	29 CFR 1926, Subpart M Fall Protection
n. 29 CFR 1926, Subpart X	Ladders
o. 29 CFR 1926, Subpart Z	Toxic and Hazardous Substances
p. 40 CFR 50.6	National Primary and Secondary Ambient Air Quality Standards for Particulate Matter
q. 40 CFR 260	Hazardous Waste Management System: General
r. 40 CFR 261	Identification and Listing of Hazardous Waste
s. 40 CFR 262	Standards Applicable to Generators of Hazardous Waste
t. 40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
u. 40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
v. 40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal

	Facilities
w.40 CFR 268	Land Disposal Restrictions
x. 40 CFR 700	Toxic Substances Control Act (TSCA)
y. 40 CFR 761	PCBs Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
z. 49 CFR 105 General	Hazardous Materials Program. Definitions and Procedures
aa. Definitions	49 CFR 171 General Information, Regulations and
bb. Provisions,	49 CFR 172 Hazardous Material Tables. Special Hazardous Materials Communications, Emergency Response Information, and Training Requirements
cc. Shipments	49 CFR 173 Shippers-General Requirements for and Packaging's
dd.	49 CFR 177 Carriage by Public Highway
ee.	49 CFR 178 Specifications for Packaging's

3. NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH) Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (NIOSH Publication 85-115)

   a. Publication Number 87-10B Respiratory Decision Logic
   b. NIOSH/OSHA Booklet 3142 Lead in Construction

4. U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

   a. PUB 3126 Working with Lead in the Construction Industry
   b. 29 CFR 1910, Subpart I, Appendix B-Non-Mandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment Selection

5. REGULATIONS OF CONNECTICUT STATE AGENCIES (RCSA)

   a. Hazardous Waste 22a-449(c)-100 through 119
   b. Hazardous Waste Transporter Permits 22a-449(c)-11
   c. Permit Fees for Hazardous Waste Materials Management 22a-454-1

6. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY GUIDANCE

   a. Polychlorinated Biphenyl (PCB) Site Revitalization Guidance Under the Toxic Substances Control Act

1.7 POSTING AND RECORD MAINTENANCE REQUIREMENTS

A. The following items shall be conspicuously displayed proximate to but outside of abatement work areas. The HMAC shall assure that the posted regulations are not altered, defaced or covered by other materials.

1. Exit Routes
2. Emergency exit procedures and routes

B. Emergency Phone Numbers

1. A list Indicating the telephone numbers and locations of the local hospital(s); the local emergency squad; the local fire department; the local police department; the Poison Control Center; Chemical Transportation Emergency Center (CHEMTREC); the Connecticut State Department of Public Health's office; the HMAC (on-site and after hours numbers); and the environmental consultant (on-site and after hours numbers).

C. Warning Signs

1. Warning signs shall be In English and the language of any workers on-site who do not speak English, and be of sufficient size to be clearly legible and display the following:

WARNING:
HAZARDOUS WASTE WORK AREA
PCBs-POISON
NO SMOKING, EATING OR DRINKING
AUTHORIZED PERSONNEL ONLY
PROTECTIVE CLOTHING IS REQUIRED IN THIS AREA

D. Items Available On-Site

1. The HMAC shall maintain the following items on-site and available for review by all employees and authorized visitors:

a. Project Health and Safely Plan (HASP)
b. Certificates of Training for all workers and the project Supervisor
c. Codes, Standards and Publications
d. Copies of applicable codes, standards, and publications
e. MSDS
f. Material Safety Data Sheets (MSDS) for all chemicals used during the project.
g. Compliance Programs

1) Copies of the HMAC's written hazard communication, respiratory protection, and confined space entry programs.

1.8 MINIMUM REQUIREMENTS FOR WORKER HEALTH AND SAFETY

A. General

1. The HMAC is responsible and liable for the health and safety of all on-site personnel and the off-site community affected by the project. All on-site workers or other persons entering the abatement work areas, decontamination areas or waste handling and staging areas shall be knowledgeable of and comply with the requirements of the site-specific Health and Safety Plan (HASP) at all times. The HMAC's HASP shall comply with all applicable federal, state and local regulations protecting human health and the environment from the hazards posed by the work to be performed under this project.

2. The HMAC shall not initiate on-site work in the contaminated areas until the HASP has been finalized, and approved by the Owner's Consultant.
3. Consistent disregard for the provisions of the HASP shall be deemed as sufficient cause for immediate stoppage of work and termination of the Contract or any Subcontracts without compromise or prejudice to the rights of the Owner or the Architect.
4. Any discrepancies between the HMAC's HASP and these specifications or federal and state regulations shall be resolved in favor of the more stringent requirements that provide the highest degree of protection to the project personnel and the surrounding community and environment, as determined by the Owner's Consultant.
5. In addition to exposure concerns relating to the presence of PCBs, other health and safety considerations will apply to the work. The HMAC shall be responsible for recognizing such hazards and shall be responsible for the health and safety of HMAC employees at all times. It is the HMAC's responsibility to comply with all applicable health and safety regulations.

B. Health and Safety Plan

1. The HMAC shall prepare and submit a site-specific Health and Safety Plan (HASP) to the Owner's Consultant a minimum of twenty one (21) business days prior to commencement of abatement work, The HASP shall govern all work conducted at the site during the abatement of PCB-containing materials and related debris: waste handling, sampling, and management; and waste transportation.
2. At a minimum, the HASP shall address the requirements set forth in 29 CFR 1910.120, as further outlined below:

   Health and Safety Organization
   Site Description and Hazard Assessment
   Training (HAZWOPPER)
   Medical Surveillance

   a. Work Areas
   b. Personal Protective Equipment
   c. Personal Hygiene and Decontamination
   d. Standard Operating Procedures and Engineering Controls
   e. Emergency Equipment and First Aid Provisions
   f. Equipment Decontamination
   g. Air Monitoring
   h. Telephone List
   i. Emergency Response and Evacuation Procedures and Routes
   j. Site Control
   k. Permit-Required Confined Space Procedures(If Applicable)
   l. Spill Containment Plan
   m. Heat and Cold Stress
   n. Record Keeping
   o. Community Protection Plan

3. The HASP shall be reviewed by all persons prior to entry into the abatement, decontamination, or waste staging areas, whether a representative of the HMAC, owner, architect/engineer, environmental consultant, subcontractors), waste transporter or

federal, state or local regulatory agency. Such review shall be acknowledged and documented by the HMAC's Health and Safety Officer by obtaining the name, signature and affiliation of all persons reviewing the HASP.

4. The HASP shall be maintained so as to be readily accessible and reviewable by all site personnel throughout the duration of the-abatement project and until all waste materials are removed from the site and disposed of at the appropriate disposal facility.
5. The HMAC's on-site Health and Safety Officer shall be responsible for ensuring that project personnel and site visitors are informed of and comply with the provisions of the HASP at all times during the project.

C. Work Areas

1. The HMAC shall establish and clearly identify work areas in the field. Access by equipment, site personnel, and the public to the work areas shall be limited as follows:

   a. Abatement Zone-The Abatement Zone(s) shall consist of all areas where abatement, waste handling and staging activities are ongoing and the immediately surrounding locale or other areas where contamination could occur. Each Abatement Zone shall be visibly delineated with orange construction fencing (exterior) and caution tape (interior) at a minimum, and restricted from access by all persons except those directly necessary to the completion of the respective abatement tasks. The Abatement Zones shall be relocated and delineated as necessary as work progresses from one portion of the project site to another, to limit access to each abatement area and to minimize risk of exposure to site workers and the general public. Access shall be controlled at the periphery of the Abatement Zones to regulate the flow of personnel and equipment into and out of each zone and to help verify that proper procedures for entering and exiting are followed. All persons within the Abatement Zones shall wear the appropriate level of protection established in the HASP.
   b. Decontamination Zone-The Decontamination Zone is the transition zone between the abatement area and the clean support zone of the project site, and is intended to reduce the potential for contaminants from being dispersed from the Abatement Zone to clean areas of the site. The Decontamination Zone shall consist of a buffer area surrounding each Abatement Zone through which the transfer of equipment, materials, personnel and
   containerized waste products will occur and in which decontamination of equipment, personnel, and clothing will occur, The Decontamination Zones shall be clearly delineated with orange construction fencing (exterior) and caution tape (interior) at a minimum and labeled with signage as provided in Part 1.6 of this Section. All emergency response and first aid equipment shall be readily maintained in these Zones. All protective equipment and clothing shall be removed or decontaminated in the Decontamination Zone prior to exiting to the Support Zone.
   c. Support Zone-The Support Zone will consist of the area outside the Decontamination Zones and the remainder of the project site. Administrative and

other support functions and any activities that by nature need not be conducted in the Abatement or Decontamination Zone related to the project shall occur in the

d. Support Zone. Access to the Abatement and Decontamination Zones shall be controlled by the Health and Safety Officer and limited to those persons necessary to complete the abatement work and who have reviewed and signed the HASP.

2. Within each interior Abatement Zone, negative pressure enclosures shall be established to prevent the dispersal of PCB's during abatement work. Each negative pressure enclosure shall consist of polyethylene sheeting (6 mil), warning signs, and negative air filtration equipment with HEPA filtered exhaust systems.

D. Personnel Protective Equipment

1. The HMAC shall be responsible to determine and provide the appropriate level of personal protective equipment in accordance with applicable regulations and standards necessary to protect the HMAC's employees and the general public from all hazards present.
2. The HMAC shall provide all employees with the appropriate safety equipment and protective clothing to ensure an appropriate level of protection for each task, taking into consideration the chemical, physical, ergonomic and biological hazards posed by the site and work activities.
3. The HMAC shall establish in the HASP criteria for the selection and use of personal protective equipment (PPE).
4. The PPE to be utilized for the project shall be selected based upon the potential hazards associated with the project site and the work to be performed. Appropriate protective clothing shall be worn at all times within the Abatement Zone.
5. The HMAC shall provide the appropriate level of respiratory protection to all field personnel engaged in activities where respiratory hazards exist or there is a potential for such hazard to exit.
6. The HMAC shall provide, as necessary, protective coveralls, disposable gloves and other protective clothing for all personnel that will be actively involved in abatement activities or waste handling activities or otherwise present in the Abatement Zones. Coveralls shall be of Tyvec or equivalent material. Should the potential for exposure to liquids exist, splash-resistant disposable suits shall be provided and utilized.
7. Protective coveralls, and other protective clothing shall be donned and removed within the Decontamination Zone and shall be disposed of at the end of each day. Ripped coveralls shall be immediately replaced after appropriate decontamination has been completed to the satisfaction of the Health and Safety Officer. Protective clothing shall not be worn outside of the Decontamination Zone.
8. Hard Hats, protective eyewear, rubber boots and/or other non-skid footwear shall be provided by the HMAC as required for workers and authorized visitors, Safety shoes and hard hats shall be in conformance with ANSI Z89.1 (1969) and ANSI 241.1 (1967), respectively.
9. All contaminated protective clothing, respirator cartridges and disposable protective items shall be placed into proper containers to be provided by the HMAC for transport and proper disposal in accordance with 40 CFR 262.

E. Emergency Equipment and First Aid Requirements

1. The HMAC shall provide and maintain at the site, at a minimum, the following Emergency and First Aid Equipment:
2. Fire Extinguishers.-a minimum of one (1) fire extinguisher shall be supplied and maintained at the site by the HMAC throughout the duration of the project. Each extinguisher shall be a minimum of a 20-pound Class ABC dry fire extinguisher with Underwriters Laboratory approval per 29 CFR 1910.157.
3. First Aid Kit-a minimum of one (1) first aid kit meeting the requirements of 29 CFR 1910.151 shall be supplied and maintained at the site by the HMAC throughout the duration of the project.
4. Communications-telephone communications (either cellular or land line) shall be provided by the HMAC for use by site personnel at all times during the project.
5. The Health and Safety Officer shall be notified immediately in the event of personal injury, potential exposure to contaminants, or other emergency. The Health and Safety Officer shall then immediately notify the Owner's Consultant of same.
6. If a member of the work crew demonstrates symptoms of heat or cold stress, injury, chemical exposure or other similar issue, another team member present within the delineated abatement zone (i.e., suitably equipped with appropriate PPE provisions) should remove the affected person from the delineated work site and signal/communicate to the Health and Safety Officer of the incident. Precautions should be taken to avoid exposure of other individuals to contaminated media.
7. An evaluation of the person's condition shall be made by the Health and Safety Officer, to determine the appropriate course of action to administer first aid or other emergency response provision. The Health and Safety Officer shall assess the seriousness of the injury, give first aid treatment if appropriate, and arrange for appropriate emergency response from outside emergency services, it warranted.
8. If soiled clothing cannot be removed, the injured person will be wrapped in a blanket while transported from the site.
9. The Health and Safety Officer shall monitor the affected person to determine whether there are symptoms resulting from the exposure or injury. If there is a visible manifestation of exposure such as skin irritation, the affected party shall be referred to a medical facility for treatment and evaluation as to whether the manifestation may be indicative of a delayed or acute exposure, a secondary response to exposure such as skin infection or occupational dermatitis. All incidents of injuries and/or obvious chemical exposure shall be evaluated by the Health and Safety Officer and the Owner's Consultant to determine whether modifications to work practices and/or protective provisions are warranted.

F. Standard Safety and Health Procedures and Engineering Controls. The following provisions shall be employed to promote overall safety, personnel hygiene and personnel decontamination:

1. Each HMAC or subcontractor shall ensure that all safety equipment and protective clothing to be utilized by its personnel is maintained in a clean and readily accessible manner at the site.
2. All prescription eyeglasses in use on this project shall be safety glasses conforming to ANSI Standard Z87.1. Prior to exiting the delineated Decontamination Zone(s), all personnel shall remove protective clothing, and place disposable items in appropriate

disposal containers to be dedicated to that purpose. Following removal of PPE, personnel shall thoroughly wash and rinse their face, hands, arms and other exposed areas with soap and tap water wash and subsequent tap water rinse. A fresh supply of tap water shall be provided at the site on each work day by the HMAC for this purpose.

3. All PPE used on site shall be decontaminated or disposed of at the end of each work day. Discarded PPE shall be placed in sealed CTDOT-approved 55-gallon barrels for off-site disposal.
4. Respirators, if necessary due to an upgrade to Level C PPE, shall be dedicated to each employee, and not interchanged between workers without cleaning and sanitizing.
5. Eating, drinking, chewing gum or tobacco, smoking, and any other practice that increases the likelihood of hand to mouth contact shall be prohibited within the delineated abatement and decontamination work zones. Prior to performing these activities, each employee shall thoroughly cleanse their face, hands, arms and other exposed areas,
6. All personnel shall thoroughly cleanse their face, hands, arms and other exposed areas prior to using toilet facilities.
7. No alcohol, tobacco, illicit drugs or firearms will be allowed on the site at any time.
8. All personnel that are on non-prescription (i.e., over-the-counter) or prescription medication of any kind shall notify the Health and Safety Officer prior to conducting work at the site. The Health and Safety Officer will make a determination as to whether such individuals will be allowed to work on the site, and, if so, in what capacity. The Health and Safety Officer may require signed documentation from the Individual's personal physician stating what limitations may be posed by the medication or condition that may apply to that individual's work activities.
9. Contact with potentially contaminated surfaces should be avoided, if possible. Field personnel should minimize walking through standing water/puddles, mud or other wet or discolored surfaces; kneeling on ground; and placing equipment, materials or food on ground or other potentially contaminated surface.
10. The use of the "Buddy System"` shall be employed at all times while conducting work at the site. Each employee shall frequently monitor other workers for signs of heat stress or chemical exposure or fatigue; periodically examine others PPE for signs of wear or damage; routinely communicate with others; and notify the Site Safety Officer in the case of an emergency.

PART 2 - PRODUCTS

1.9 MATERIALS AND EQUIPMENT

A. All materials shall be delivered in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name.

B. Sealer shall be Siloxane WB Concentrate as manufactured by Prosoco, Inc. or approved equal.

C. House Keeping of Work Site

1. The HMAC shall keep all surfaces as free as practical from accumulations of PCB-containing materials, brick debris, mortar, concrete, wood and other waste materials during the abatement work.

2. All loose and/or non-intact PCB-containing materials, sheetrock, plaster, concrete, brick, wood, mortar and other debris shall be thoroughly collected and securely containerized in the final waste receptacles at the conclusion of each work day.
3. All disposable personal protective equipment shall be placed in the designated waste receptacles at the conclusion of each work day or at any time that such items are removed or changed.

D. Damaged or deteriorating materials shall not be used and shall be removed from the premises.

E. Polyethylene sheet in a roll size to minimize the frequency of joints shall be delivered to job site with factory label indicating 4 or 6 mil.

F. Tape or adhesive spray will be capable of sealing joints in adjacent polyethylene sheets and for attachment of polyethylene sheets to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.

2.1 TOOLS AND EQUIPMENT

A. Provide suitable tools for PCB removal and encapsulation.

B. The HMAC shall have air monitoring equipment of type and quantity to monitor operations and conduct personnel exposure surveillance per OSHA requirements.

C. The HMAC shall have available sufficient inventory on site for materials necessary for the job including protective clothing, respirators, filter cartridges, polyethylene sheeting of proper size and thickness, tape, and air filters.

D. The HMAC shall provide temporary electrical power sources such as generators (when required).

E. Vacuum units, of suitable size and capacities for project, shall have HEPA filter(s) capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers in diameter or larger.

PART 3 - EXECUTION

3.1 WORK AREA PREPARATION - GENERAL

A. The HMAC shall isolate Abatement Zones, Decontamination Zones and Support Zones as described in this Section and install appropriate signage to work areas from non-work areas within the building and on the building exterior to prevent air exchange and unauthorized entry into the work areas.

B. Shut down and/or isolate heating, cooling, and ventilation air systems or zones to prevent contamination and PCB dispersal to other areas of the structure. Lock and tag out circuits associated with heating and cooling units. During the work, vents within the work area shall be sealed with duct tape and polyethylene sheeting.

C. Seal off all openings, including but not limited to corridors, doorways, skylights, ducts, grills, diffuser, and any other penetration of the work areas, with polyethylene sheeting minimum of six (6) mils thick sealed with duct tape. Install 5 micron water filtration socks in all floor drains prior to sealing.

D. Prior to commencement of PCB-containing materials abatement activities at each work area, a containment system shall be constructed by the HMAC to capture and contain all materials removed during the abatement.

E. Post all approaches to each work area with PCB Warning signs. Warning signs shall be of size and type that are easily readable and are visible from all approaches to the work areas.

F. For exterior PCB removal work areas, establish Abatement Zones, Decontamination Zones and Support Zones as described in this Section and install appropriate signage to separate PCB removal areas from construction areas.

G. For exterior abatement areas, install polyethylene drop cloths a minimum of six (6) mils thick to protect ground and soil from PCB contamination. Drop cloths shall extend a minimum of ten (10) feet in all directions from the location of PCB removal activities.

H. Establish water to control dust during abatement and demolition activities.

3.2 DECONTAMINATION ENCLOSURE SYSTEMS

A. The HMAC shall establish a personnel and equipment decontamination system contiguous to each work area. Access between the contaminated and uncontaminated areas shall be through this decontamination enclosure only. The decontamination system shall be constructed of two layers of six-mil polyethylene sheeting. Pre-fabricated "pop-up" decontamination chambers will not be permitted on this project.

B. Equipment to be utilized in connection with the PCB-containing materials removal, waste collection or that will or may come in direct contact with the site contaminants shall be decontaminated prior to leaving the site to prevent migration of the contaminated residues from the project site.

C. All non-disposable equipment and tools employed in the course of the project will be decontaminated at the conclusion of each work day through the following sequence:

1. Initial tap water rinse, to remove gross debris
2. Tap water and organic solvent (i.e. Hexane) wash
3. Tap water rinse
4. Second tap water and Alconox, or equivalent, wash
5. Second tap water rinse

D. The wash water and decontamination liquids shall be captured and containerized in 55-gallon barrels for profiling and appropriateoff-site disposal or treatment.

3.3 CAULK REMOVAL (<50 PPM)

A. Prior to the removal of any PCB-containing materials, the HMAC shall ensure that the work areas are established in accordance with Section 3.1 WORK AREA PREPARATION – GENERAL for exterior work and the worker decontamination facility is established in accordance with Section 3.2 DECONTAMINATION ENCLOSURE SYSTEMS.

B. The HMAC shall manually remove the caulk from between the door frame and the masonry opening and immediately containerize for proper disposal as Connecticut Regulated Waste.

C. Use hand tools to remove the caulk until all visible caulk and residue is removed.

D. Remove residual caulk from masonry and door frames. If door frames are scheduled for removal, remove door frames to access the caulk.

E. Following removal of the caulk, final clean the work area in accordance with Section 3.4 FINAL CLEANING.

3.4 FINAL CLEANING

A. Following the gross removal of all PCB-containing materials and debris, each work area shall be final cleaned. Final cleaning shall include all tools, equipment, polyethylene sheeting and exposed substrates within the work area.

B. Final cleaning on floor surfaces shall also be required ten (10) feet in all directions from exterior of the contiguous decontamination facility.

C. Final cleaning shall include vacuuming of all surfaces within each work area with a High Efficiency Particulate Air (HEPA) filtered vacuum.

D. Following HEPA vacuuming of the work area, the HMAC shall utilize a non-chlorinated solvent cleaner such as but not limited to Hexane, Naphtha or Terpene to wipe all surfaces including but not limited to tools, equipment, polyethylene sheeting, metal window frames, lintels and exposed substrates.

E. Perform a second cleaning utilizing Alconox cleaner.

F. Remove all pre and secondary HEPA filters and properly dispose of as PCB remediation waste.

G. A thorough visual inspection shall be performed by the Owner's Consultant following final cleaning activities. The visual inspection shall determine if the HMAC removed all PCB-containing materials and performed cleaning in accordance with this Specification.

H. Visible residue, dust, debris, incomplete cleaning or removal will be cause for the HMAC to continue performing removal work or cleaning within the work area.

I. Post remediation verification sampling of the floor slab shall be performed by the Owner's consultant.

3.5 ON-SITE WASTE MANAGEMENT

A. Solid Hazardous Wastes

1. All solid waste material containment system components, used personnel protective equipment, and other solid wastes generated during the work, shall be placed directly in appropriate waste receptacles immediately upon removal from its in-situ position. Suitable waste receptacles may consist of roll-off containers or CTDOT-approved 55-gallon barrels.
2. If roll-off containers are to be utilized for containerization of the abatement wastes, the following shall apply:

    a. All roll off containers or other similar vessels utilized shall be leak-tight and lined with 6-mil polyethylene sheeting or equivalent impermeable lining, and equipped with a secured and impermeable cover.
    b. The impermeable cover shall remain securely in place at all times when material is not being actively placed in the vessels. The HMAC shall be responsible for ensuring that the cover remains securely intact until the container is removed from the site.

3. If 55-Gallon barrels are to be utilized for waste containerization, the barrels shall consists of suitable DOT-approved 55-gallon barrels that are leak-tight and free of corrosion, perforations, punctures, or other damage. All barrels shall be securely covered and sealed at the conclusion of each work day. The waste containers shall remain staged at the site with a secure impermeable cover in place until the materials are transported from the site to be delivered to the designated disposal facility.
4. A waste roll off and barrel staging area shall be designated prior to initiation of the abatement work, and approved by the Owner's Consultant.

B. Decontamination Fluids and Liquid Waste Materials

1. Under no circumstances shall decontamination fluids or liquid wastes be discharged to the ground surface or subsurface at the site.
2. Liquid materials, including equipment or personal decontamination fluids or similar liquids generated during excavation work at the site shall be placed directly into appropriately sized and sealed vessels immediately upon generation.
3. Acceptable vessels for the storage of groundwater or liquid wastes may include DOT approved 55-gallon barrels, steel or polyethylene tanks, fractioning tanks or tank trucks. All proposed vessels shall be compatible with the intended liquid contents.
4. Container staging areas shall be designated prior to initiation of the removal work and approved by the Owner's Consultant.
5. All storage vessels to be used in the containerization and transportation of liquid waste materials shall be free of corrosion, perforations, punctures or other condition that may impair its ability to securely contain liquid.
6. Temporary staging of liquid waste vessels at the site shall be in a manner that will prevent freezing of contained liquids. Should the potential exist for liquid containers to freeze during exterior storage at the site, arrangements shall be made with the Owner's Consultant to identify and utilize an appropriate alternate storage location acceptable to the Owner's Consultant.

7. All liquid storage vessels utilized and staged at the site shall be stored in an area on the property that will not interfere with facility operations or normal flow of vehicle or pedestrian traffic, and in a manner that will minimize the potential for tipping, vandalism or damage by vehicular traffic.

C. Labeling of Waste Containers

1. All waste containers must be labeled with the name of the waste contained; the date in which the first material was placed in the vessel; and the last date at which addition of waste occurred.
2. All waste containers containing PCB-containing materials, PCB-containing debris, containment system components, used personnel protective equipment, personal and equipment wash water and decontamination fluids, or other wastes generated during the abatement work shall be labeled as follows:

> HAZARDOUS WASTE-Federal law prohibits improper disposal.
> If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.
> Generator's Name: _____
> _____
> _____
> Manifest Document No.: _____
> _____
> _____

3. Such marking must be durable, in English and printed on or affixed to the surface of the package or on a label, tag or sign; displayed on a background of sharply contrasting color; unobscured by labels or attachments and located away from any other marking (such as advertising) that could substantially reduce its effectiveness.

3.6 WASTE TRANSPORTATION AND DISPOSAL

A. All waste packaging, labeling and transportation activities shall be performed in accordance with applicable State of Connecticut and US Department of Transportation Regulations at 49 CFR Parts 171. 172, 173, 177, and 178, and any and all other applicable federal, state and local laws and regulations.

B. All hazardous wastes shall be shipped using state-specific standard manifest documents. The HMAC shall supply and complete the manifest documents in accordance with all applicable state and federal regulations. All manifest documents shall be signed by a representative of the Owner and appropriate copies shall be provided to the Owner's representative prior to removing the waste from the site.

C. All Connecticut Regulated Waste shall be shipped using state-specific waste shipment records.

D. The HMAC or their designated waste disposal subcontractor providing waste transportation services shall possess a valid Waste Hauler's Permit issued by the State of Connecticut Department of Environmental Protection (CTDEP). In addition, if the waste is to be transported

and disposed of out of Connecticut State, applicable permits for those states or territories through which the waste will be transported and for where it will be disposed will be required. It is the responsibility of the HMAC to identify the appropriate disposal facility and associated travel route(s) and to identify the pertinent permits that will be required and to provide copies of the applicable permits to the Owner's Consultant prior to removing the waste from the site.

E. The HMAC is responsible for all testing, analytical fees or other services required by their designated landfill necessary to generate waste profiles.

F. The waste disposal classifications for PCB source and substrate materials generated during this project are as follows:

1. All waste is classified as Connecticut Regulated Waste.

3.7 CERTIFICATION OF ABATEMENT WORK

A. The HMAC shall certify in writing to the Owner's Consultant that all abatement work and waste disposal has been completed in accordance with this specification and all applicable federal and state regulations.

B. The HMAC shall certify in writing to the Owner's Consultant that each piece of equipment used in the Abatement zones or which has come in or potential come into contact with contaminated material has been decontaminated prior to removal from the site.

3.8 OWNER'S CONSULTANT POST ABATEMENT CERTIFICATION

A. At the completion of abatement work, the Owner's Consultant will perform visual inspections within each work area.

B. The Consultant may perform surface verification wipe sampling and substrate sampling as necessary. Surface wipes and substrate sampling shall be collected in random locations from the interior surfaces. The frequency of such samples shall be determined by the Consultant. Containment barriers shall remain in place until successful verification sampling is performed and clearance criteria is achieved.

C. Areas that do not meet the required clearance criteria shall be re-cleaned and or resealed at no additional cost to the owner. Clearance criteria for wipe samples shall be < 1 µg tested surfaces. Clearance criteria for substrate core samples on porous materials shall be <1.0 ppm. Clearance sampling will be performed at the Consultant's discretion.

END OF SECTION

SECTION 02 85 00 UNIVERSAL WASTE RECLAMATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. Related Sections:

1. Section 01 01 00: Hazardous Materials General Requirements
2. Section 01 01 60: Scheduling and Phasing
3. Section 01 70 00: Contract Closeout
4. Section 02 07 50: Selective Demolition for Hazardous Materials Abatement
5. Section 02 08 00: Asbestos Abatement
6. Section 02 09 00: Lead Paint Demolition
7. Section 02 11 00: PCB Remediation

1.2 GENERAL PROVISIONS

A. The existing buildings located at 20 Van Dyke Avenue in Hartford, Connecticut will be renovated. The reclamation of universal waste products as defined by the State of Connecticut Department of Energy and Environmental Protection (CTDEEP) will be performed in conjunction with the demolition of the existing buildings.

1.3 DESCRIPTION OF WORK

B. The Hazardous Materials Abatement Contractor (HMAC) shall furnish all labor, materials, facilities, equipment, services, employee training and testing, permits and agreements, and waste transport, incineration, and reclamation necessary to perform the work required for universal waste removal and reclamation in accordance with these Specifications; EPA, OSHA, NIOSH, State of Connecticut regulations, and other applicable federal, state and local government regulations. Whenever there is a conflict or overlap of the above references, the most stringent provisions are applicable.

C. Collection and reclamation of inert gases in lamp products: The HMAC is responsible for disassembling all interior and exterior light fixtures and removing the associated lamps from the fixtures for proper reclamation. Approximate quantities of items requiring reclamation include: one hundred and ten (110) fluorescent light tubes.

D. Collection, reclamation and incineration of light ballasts and electrical capacitors: The HMAC is responsible for removing ballasts and capacitors that are assumed to contain PCB or DEHP. Approximate quantities of items requiring reclamation include: fifty-five (55) PCB-containing ballasts.

E. Collection, reclamation of lead-acid batteries: The HMAC is responsible for disassembling emergency lighting, smoke detectors and signage units to remove all lead-

acid batteries for recycling. Approximate quantities of batteries requiring recycling include: six (6) lead acid battery within a smoke detectors, exit lights and emergency lights.

F. Collection and reclamation of refrigerants: The HMAC is responsible for removing the Freon tanks from the areas of renovation and reclaiming the Freon. Approximate quantities of tanks requiring refrigerant reclamation includes three (3) air conditioning units from the Press Box.

G. Collection and reclamation of miscellaneous stored chemicals and fire extinguishers with fire suppressant chemicals.

H. Work under this project may be performed in phases to accommodate Owner's/Architect's requirements and construction phases. Coordinate reclamation schedule and operations with the Owner/Architect/Consultant and other trades.

1.4 APPLICABLE CODES

A. State Regulations

1. Section 22a-449(c)-113 - Regulations of Connecticut State Agencies (RCSA) for disposal of ballast.
2. Section 22a-465 - Regulations of Connecticut State Agencies for remediation of PCB Bulk Remediation Waste.

B. Federal Regulations

1. 29 CFR 1910.120 – Hazardous Waste Operations and Emergency Response
2. 29 CFR 1910.134 – Respiratory Protection
3. 40 CFR 263 – Standards applicable to Transporters of Hazardous Waste
4. 40 CFR 264 – Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities
5. 40 CFR 268 – Land Disposal Restrictions
6. 40 CFR Part 700 - Toxic Substance Control Act (TSCA)
7. 40 CFR Part 761 - PCB Manufacturing, Processing, Distribution in Commerce and Use Prohibition.

1.5 DEFINITIONS: WHERE APPLICABLE OR STATED, TERMS SHALL HAVE THE FOLLOWING DEFINITIONS:

A. Universal Waste shall mean batteries, Mercury-containing thermostats, certain pesticides, lamps (including but not limited to fluorescent, neon and mercury vapor lamps), and used electronics.

B. Large Quantity Generator means a handler can accumulate 5000 kilograms or more of universal waste at any time.

C. Small Quantity Generator means a handler can accumulate not more than 5000 kilograms or more of universal waste at any time.

D. Handler means the Generator of the universal waste product.

1.6 GENERAL REQUIREMENTS

A. The HMAC is subject to approval by the Owner's Consultant and all regulatory agencies with jurisdiction over this work, and may be rejected based on criteria established.

B. The Owner's Consultant requires that documentation be provided for all aspects of work detailing the bidder's qualifications and prior experience on the following criteria:

1. Workers handling universal waste must be informed by their employer of the proper handling and emergency procedures appropriate to the type(s) of universal waste handled at the facility.

PART 2 - PRODUCTS

2.1 TRANSPORTATION AND STORAGE CONTAINERS AND LABELING

A. All containers for universal waste must be closed, structurally sound, compatible with the contents of the universal waste, and must be capable of preventing leakage, spillage or damage that could cause leakage.

B. All universal waste products must be stored in a container and the container shall be properly labeled. Appropriate labeling is as follows.

1. Universal waste lamps (each lamp) or the container or package in which such lamps are contained must be labeled or marked clearly with any of the following: "Universal Waste - Lamp(s)" or "Waste Lamp(s), or "Used Lamp(s)".
2. Universal waste used electronics (each piece of equipment) or the container; package or pallet in which the used electronics are contained must be labeled or marked clearly with any of the following: "Universal Waste - used electronics" or "Waste Used Electronics, or "Used Electronics".

PART 3 - EXECUTION

3.1 BALLAST AND CAPACITOR REMOVAL

A. The HMAC shall retrieve light ballasts and electrical motor capacitors which shall be immediately package for reclamation.

B. If the ballasts or capacitors are found to be leaking, contaminated light fixtures or electrical motors shall be disposed of as PCB/DEHP contaminated materials.

C. Workers shall don chemically resistant gloves as exterior surfaces may contain trace quantities of PCB's or DEHP.

D. If a leaking ballasts or capacitors are detected during removal, workers shall immediately don chemically resistant protective suits, (i.e. Tyvek), to reduce skin contact with PCB/DEHP.

E. HMAC shall have on hand spill containment and absorbent materials in the event a spillage of PCB-containing fluids occurs. Provide appropriate polyethylene sheeting to protect concrete floor and other surfaces from any spillage.

F. All protective equipment (gloves, suits) and materials contaminated during any cleanup shall be disposed of as PCB contaminated waste along with the capacitor.

G. All ballasts and capacitors shall be placed in DOT-approved barrels for subsequent transport immediately upon removal. Barrels will be labeled with the following yellow PCB caution label:

CAUTION
CONTAINS
PCB's
(Polychlorinated Biphenyls)
A toxic environmental contaminant
Requiring special handling and
Disposal in accordance with U.S.
Environmental Protection Agency
Regulations 40 CFR 761 - For
Disposal Information contact the
Nearest U.S. EPA Office.

In case of accident or spill, call toll
Free the U.S. Coast Guard National
Response Center:
800-424-8802

H. Use new 17C 55-gallon open head steel drums that have been approved for transporting hazardous materials. Used or reconditioned drums may be used only if they have been properly cleaned, tested, and labeled.

I. Drums shall be prepared by placing one to three inches of absorbent material in the bottom of the drum.

J. Drums shall be packed so as to not exceed a total weight of 900 pounds. If proper handling equipment is not available, half fill the drums so that manual handling is possible.

3.1 MERCURY VAPOR LAMP AND FIXTURE REMOVAL

A. Light fixtures shall be disassembled and inspected by the HMAC. All resulting lamps shall be immediately packaged for reclamation.

B. Workers shall don chemically resistant gloves as exterior surfaces may contain trace quantities of Mercury.

C. Carefully remove fluorescent lighting and place directly into boxes or barrels specifically designed for the transport of fluorescent lighting. Package lighting and ballast, if any, in accordance with the recycling facilities requirements. Broken glass and residual dust shall be HEPA vacuum and disposed of as Mercury contaminated materials.

D. Manifest lighting reclamation at an approved facility. Provide proof of reclamation at the completion of the project.

3.2 INERT GAS RECLAMATION

A. All lighting shall be packaged and transported in accordance with the reclamation facilities requirements.

B. All refrigerants shall be reclaimed following best practices and industry standards. At no time shall refrigerants be permitted to be released into the environment.

C. Provide Reclamation Certificates following work.

3.3 RECYCLING OF LEAD ACID BATTERIES

A. Disassemble fixtures and remove lead acid batteries.

B. Package, store and ship batteries in approved containers from recycling facility.

C. Provide Reclamation Certificates following work.

END OF SECTION 02 85 00

RFI #PB-PH2-001

Newfield Construction, Inc.
225 Newfield Avenue
Hartford, Connecticut 06106
Phone: (860) 953-1477
Fax: (860) 953-1712

Project: 880 - Dillon Stadium Renovations
250 Huyshope Ave
Hartford, Connecticut 06106

Misc Electrical Questions #1

TO:	Dustin Lombardi **(JCJ Architecture)**	**FROM::**	Brian Grant **(Newfield Construction, Inc.)** 225 Newfield Avenue Hartford, Connecticut 06106
DATE INITIATED:	08/06/2018	**STATUS:**	Closed
LOCATION:		**DUE DATE:**	08/08/2018
SUB JOB:		**COST CODE:**	
COST IMPACT:		**SCHEDULE IMPACT:**	
DRAWING NUMBER:	SU-101	**SPEC SECTION:**	
LINKED DRAWINGS:		**REFERENCE:**	Phase 2 Bid Documents
RECEIVED FROM:			

COPIES TO:
Dave Cormier **(Newfield Construction, Inc.)**

Question from Brian Grant (Newfield Construction, Inc.) at 11:50 AM on 08/06/2018

Phase 2 Bidding Contractor has the following questions:

1.) Drawing SU-101 – On the South side of Building A – Truck I/O Panel is Denoted with Note 28 – Which call for an Outdoor Camlock Type Panel with NEMA 3R Enclosure – Can a Specification or Model # be Provided?
Additionally a Concrete Pad is Denoted at this location. Is this pad by others?

2.) Note 31 on Drawing SU-101 calls for a Flush Grade Weatherproof Box – Can a Specification with Size and Type of Box be Provided

3.) Drawing SU-101 – Note 25 – Denotes a 2”C with (3) #6 & (1) #8 from Building E to Transformer in Building C
Drawing E-300 – Riser Denotes this same Run with 1-1/2” C – Which pipe size should we use?

Please review and advise.

Official Response: **Dustin Lombardi (JCJ Architecture)** *responded on Wednesday, August 8th, 2018 at 10:14AM EDT*

Response Attached.
Dustin Lombardi, AIA
Sr. Architect
JCJARCHITECTURE
an employee owned company
120 Huyshope Avenue, Suite 400/ Hartford, CT 06106
[D] 860.240.9433 / [F] 860.524.8067

Attachments:
RFI #PB-PH2-001 - IES response.pdf

BY **DATE** **COPIES TO**

RFI #PB-PH2-001

Newfield Construction, Inc.
225 Newfield Avenue
Hartford, Connecticut 06106
Phone: (860) 953-1477
Fax: (860) 953-1712

Project: 880 - Dillon Stadium Renovations
250 Huyshope Ave
Hartford, Connecticut 06106

Misc Electrical Questions #1

TO:	Dustin Lombardi **(JCJ Architecture)**	**FROM::**	Brian Grant **(Newfield Construction, Inc.)** 225 Newfield Avenue Hartford, Connecticut 06106
DATE INITIATED:	08/06/2018	**STATUS:**	Open
LOCATION:		**DUE DATE:**	08/13/2018
SUB JOB:		**COST CODE:**	
COST IMPACT:		**SCHEDULE IMPACT:**	
DRAWING NUMBER:	SU-101	**SPEC SECTION:**	
LINKED DRAWINGS:		**REFERENCE:**	Phase 2 Bid Documents
RECEIVED FROM:			
COPIES TO:	Dave Cormier **(Newfield Construction, Inc.)**		

Question from Brian Grant (Newfield Construction, Inc.) at 11:47 AM on 08/06/2018

Phase 2 Bidding Contractor has the following questions:
1.) Drawing SU-101 – On the South side of Building A – Truck I/O Panel is Denoted with Note 28 – Which call for an Outdoor Camlock Type Panel with NEMA 3R Enclosure – Can a Specification or Model # be Provided?
Additionally a Concrete Pad is Denoted at this location. Is this pad by others?

Note 31 on Drawing SU-101 calls for a Flush Grade Weatherproof Box – Can a Specification with Size and Type of Box be Provided

Drawing SU-101 – Note 25 – Denotes a 2”C with (3) #6 & (1) #8 from Building E to Transformer in Building C
Drawing E-300 – Riser Denotes this same Run with 1-1/2” C – Which pipe size should we use?

Awaiting an Official Response

All Replies:

1. Union Connector Co. (Outdoor Company Switch) catalog No. CSC-0610-CSP-3R with single phase, 120/240V option. Note that this project selection will require final approval by stadium vendor. Provide concrete pad.

Note 31 - Refer to legend on Drawing E-201.

Drawing SU-101 - Note 25/Drawing E300 use 2"C.

P. Pycela
IES, LLC
08/08/18

BY **DATE** **COPIES TO**

RFI #PB-PH2-002

Newfield Construction, Inc.
225 Newfield Avenue
Hartford, Connecticut 06106
Phone: (860) 953-1477
Fax: (860) 953-1712

Project: 880 - Dillon Stadium Renovations
250 Huyshope Ave
Hartford, Connecticut 06106

Type B/B1 Light Fixture Clarification

TO:	Dustin Lombardi **(JCJ Architecture)**	**FROM::**	Brian Grant **(Newfield Construction, Inc.)** 225 Newfield Avenue Hartford, Connecticut 06106
DATE INITIATED:	08/06/2018	**STATUS:**	Closed
LOCATION:		**DUE DATE:**	08/13/2018
SUB JOB:		**COST CODE:**	
COST IMPACT:		**SCHEDULE IMPACT:**	
DRAWING NUMBER:	E-101B	**SPEC SECTION:**	
LINKED DRAWINGS:		**REFERENCE:**	Phase 2 Bid Documents
RECEIVED FROM:			
COPIES TO:			

Question from Brian Grant (Newfield Construction, Inc.) at 12:22 PM on 08/06/2018

Phase 2 Bidding Contractor has the following question:
Drawing E101-B – Building C Denotes (2) Type B1 Fixtures, (1) on the Exterior East Side of the Building & (1) on the Exterior West Side of the Building. Type B1 is not on the Fixture Schedule. Should these be Type B?

Please review and advise.

Official Response: **Dustin Lombardi (JCJ Architecture)** *responded on Wednesday, August 8th, 2018 at 10:14AM EDT*

Response attached
Dustin Lombardi, AIA
Sr. Architect
JCJARCHITECTURE
an employee owned company
120 Huyshope Avenue, Suite 400/ Hartford, CT 06106
[D] 860.240.9433 / [F] 860.524.8067

Attachments:
RFI #PB-PH2-002 - IES response.pdf

BY **DATE** **COPIES TO**

RFI #PB-PH2-002

Newfield Construction, Inc.
225 Newfield Avenue
Hartford, Connecticut 06106
Phone: (860) 953-1477
Fax: (860) 953-1712

Project: 880 - Dillon Stadium Renovations
250 Huyshope Ave
Hartford, Connecticut 06106

Type B/B1 Light Fixture Clarification

TO:	Dustin Lombardi **(JCJ Architecture)**	**FROM::**	Brian Grant **(Newfield Construction, Inc.)** 225 Newfield Avenue Hartford, Connecticut 06106
DATE INITIATED:	08/06/2018	**STATUS:**	Open
LOCATION:		**DUE DATE:**	08/13/2018
SUB JOB:		**COST CODE:**	
COST IMPACT:		**SCHEDULE IMPACT:**	
DRAWING NUMBER:	E-101B	**SPEC SECTION:**	
LINKED DRAWINGS:		**REFERENCE:**	Phase 2 Bid Documents
RECEIVED FROM:			
COPIES TO:			

Question from Brian Grant (Newfield Construction, Inc.) at 12:22 PM on 08/06/2018

Phase 2 Bidding Contractor has the following question:
Drawing E101-B – Building C Denotes (2) Type B1 Fixtures, (1) on the Exterior East Side of the Building & (1) on the Exterior West Side of the Building. Type B1 is not on the Fixture Schedule. Should these be Type B?

Please review and advise.

Awaiting an Official Response

All Replies:

Yes, both Type B1 Fixtures should be Type B.

P. Pycela
IES, LLC
08/08/18

BY **DATE** **COPIES TO**

RFI #PB-PH2-003

Newfield Construction, Inc.
225 Newfield Avenue
Hartford, Connecticut 06106
Phone: (860) 953-1477
Fax: (860) 953-1712

Project: 880 - Dillon Stadium Renovations
250 Huyshope Ave
Hartford, Connecticut 06106

S1, S2 & S3 Window Height Clarification

TO:	Dustin Lombardi **(JCJ Architecture)**	**FROM::**	Brian Grant **(Newfield Construction, Inc.)** 225 Newfield Avenue Hartford, Connecticut 06106
DATE INITIATED:	08/06/2018	**STATUS:**	Closed
LOCATION:		**DUE DATE:**	08/08/2018
SUB JOB:		**COST CODE:**	
COST IMPACT:		**SCHEDULE IMPACT:**	
DRAWING NUMBER:	A-720	**SPEC SECTION:**	
LINKED DRAWINGS:		**REFERENCE:**	Phase 2 Bid Documents
RECEIVED FROM:			

COPIES TO:
Dave Cormier **(Newfield Construction, Inc.)**

Question from Brian Grant (Newfield Construction, Inc.) at 09:53 PM on 08/06/2018

Phase 2 Bidding Contractor has the following question:
Ref attached dwg. Please advise on window heights of S1, S2 and S3. The dwg detail appears to be cut off.

Please review and advise.

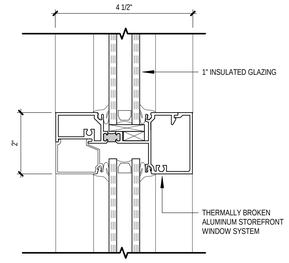
Attachments:
Dillon PB-PH2-003 RFI Attachment.pdf

Official Response: **Dustin Lombardi (JCJ Architecture)** *responded on Tuesday, August 7th, 2018 at 8:05AM EDT*

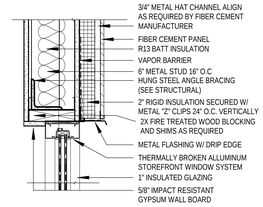
Please see attached drawing with revised view ports to see the dimensions that were cropped from the bid set. Please release this drawings in its entirety to clarify the printing error to all the bidders. Dustin Lombardi, AIA
Sr. Architect
JCJARCHITECTURE
an employee owned company
120 Huyshope Avenue, Suite 400/ Hartford, CT 06106
[D] 860.240.9433 / [F] 860.524.8067

Attachments:
H18018.00 DILLON STADIUM a-720 Window Types & details.pdf

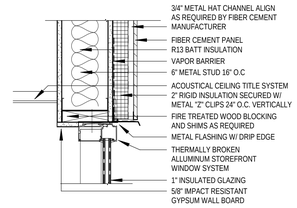
BY **DATE** **COPIES TO**



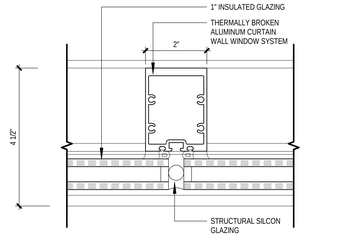
13 STOREFRONT - INTER. HORIZONTAL
6" = 1'-0"



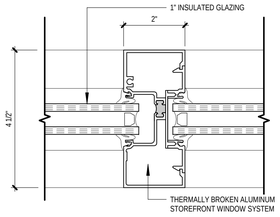
10 STOREFRONT - HEAD DETAIL
1 1/2" = 1'-0"



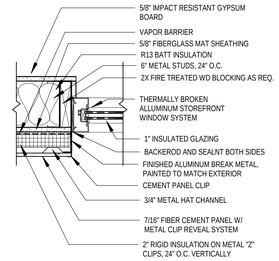
7 STOREFRONT SSG - HEAD DETAIL
1 1/2" = 1'-0"



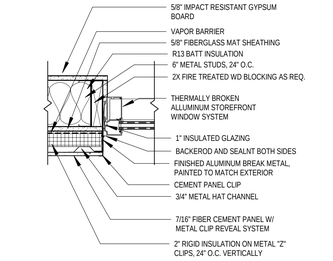
4 STOREFRONT SSG - INTER. VERTICAL
6" = 1'-0"



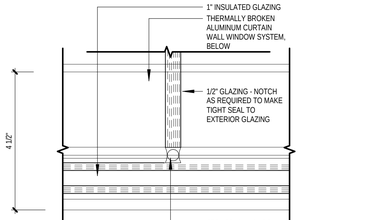
12 STOREFRONT - INTER. VERTICAL
6" = 1'-0"



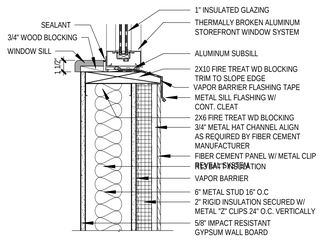
9 STOREFRONT - JAMB DETAIL
1 1/2" = 1'-0"



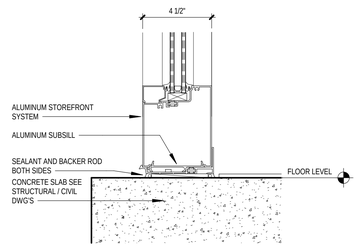
6 STOREFRONT SSG - JAMB DETAIL
1 1/2" = 1'-0"



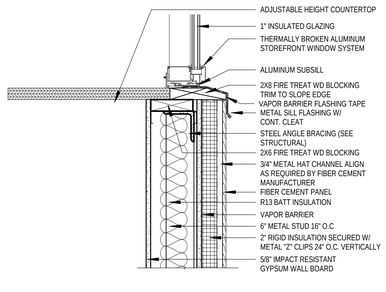
3 STOREFRONT SSG - INTER. VERTICAL
6" = 1'-0"



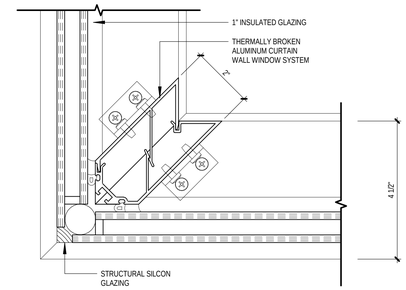
11 STOREFRONT - SILL DETAIL
1 1/2" = 1'-0"



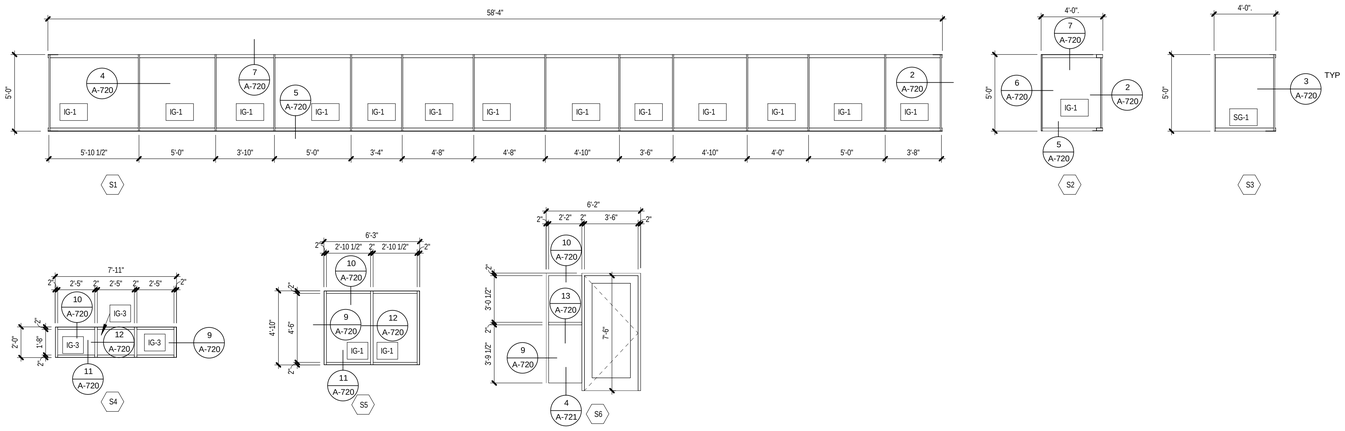
8 STOREFRONT - SILL DETAIL
3" = 1'-0"



5 STOREFRONT SSG - SILL DETAIL
1 1/2" = 1'-0"



2 STOREFRONT SSG - OUTSIDE CORNER
6" = 1'-0"



1 STOREFRONT ELEVATIONS
1/4" = 1'-0"

LEGEND:

SG	SINGLE PANE GLASS
IG	INSULATING GLASS
MO	MASONRY OPENING
WD	SOLID CORE WOOD DOOR
HMF	HOLLOW METAL FRAME
GALV	GALVANIZED
RO	ROUGH OPENING
SO	STEEL INSULATING OVERHEAD DOOR
SC	STEEL COILING DOOR
SG-1	UNCOATED CLEAR FLOAT-GLASS FULLY TEMPERED
IG-1	INSULATING GLASS
IG-2	INSULATING GLASS - FULLY TEMPERED
IG-3	COATED FROSTED INSULATING GLASS
IG-4	COATED FROSTED INSULATING GLASS (FULLY TEMPERED)
IG-5	LAMINATED INSULATING GLASS
AIP	ALUMINUM INSULATED PANEL
LG-1	LAMINATED GLASS

DILLON STADIUM REPAIRS

21 VAN DYKE AVENUE,
HARTFORD, CT 06106

JCJARCHITECTURE
120 HUYSHOPE AVENUE
SUITE 400
HARTFORD, CT 06106
860.247.9226

CONSULTANTS:

ARCHITECTS
Odell
212 South Tryon Street Suite 980
Charlotte, NC 28281
(704) 414-1522

CIVIL / LANDSCAPE ARCHITECTURE
Freeman Companies, LLC
36 John Street
Hartford, CT 06106
(860) 251-9550

STRUCTURAL
Macchi Engineers, LLC
44 Gillet Street
Hartford, CT 06105
(860) 549-6190

MECHANICAL, ELECTRICAL, & PLUMING
Innovative Engineering Solutions, LLC
33 North Plains Industrial Road
Wallingford, CT 06492
(203) 467-4370

CONSTRUCTION DOCUMENTS
JULY 13,2018

P.I.C. _____ L.D. _____
P.M. _____ P.A. _____

ISSUE JULY 13TH, 2018
JOB H18018.00
DRAWN DML
SCALE As indicated

REVISIONS:

WINDOW TYPES & DETAILS

A-720

RFI #PB-PH2-004

Newfield Construction, Inc.
225 Newfield Avenue
Hartford, Connecticut 06106
Phone: (860) 953-1477
Fax: (860) 953-1712

Project: 880 - Dillon Stadium Renovations
250 Huyshope Ave
Hartford, Connecticut 06106

Toilet Accessories Clarification

TO:	Dustin Lombardi **(JCJ Architecture)**	**FROM::**	Brian Grant **(Newfield Construction, Inc.)** 225 Newfield Avenue Hartford, Connecticut 06106
DATE INITIATED:	08/08/2018	**STATUS:**	Closed
LOCATION:		**DUE DATE:**	08/09/2018
SUB JOB:		**COST CODE:**	
COST IMPACT:		**SCHEDULE IMPACT:**	
DRAWING NUMBER:	A330 & A331	**SPEC SECTION:**	
LINKED DRAWINGS:		**REFERENCE:**	Phase 2 Bid Documents
RECEIVED FROM:			

COPIES TO:
Dave Cormier **(Newfield Construction, Inc.)**

Question from Brian Grant (Newfield Construction, Inc.) at 08:01 AM on 08/08/2018

Phase 2 Bidding Contractor has the following questions:
Reference attached dwg A-330 & A-331.

Please confirm if SND (TA-8a) is to be in all women's restrooms.

RR A101, A103, A123, A126 and A307 call out SND's.

Please confirm if SND (TA-8a) is to be in RR E109, E104, E101 and C102.

Attachments:
Dillon PB-PH2-004 RFI Attachment.pdf

Official Response: **Dustin Lombardi (JCJ Architecture)** *responded on Wednesday, August 8th, 2018 at 8:04AM EDT*

Confirmed. All Female restrooms to receive SND (TA-8a)
Dustin Lombardi, AIA
Sr. Architect
JCJARCHITECTURE
an employee owned company
120 Huyshope Avenue, Suite 400/ Hartford, CT 06106
[D] 860.240.9433 / [F] 860.524.8067

Attachments:

BY **DATE** **COPIES TO**

RFI #PB-PH2-006

Newfield Construction, Inc.
225 Newfield Avenue
Hartford, Connecticut 06106
Phone: (860) 953-1477
Fax: (860) 953-1712

Project: 880 - Dillon Stadium Renovations
250 Huyshope Ave
Hartford, Connecticut 06106

Door Hardware / Thermal Door Coordination Issue

TO:	Dustin Lombardi **(JCJ Architecture)**	**FROM::**	Brian Grant **(Newfield Construction, Inc.)** 225 Newfield Avenue Hartford, Connecticut 06106
DATE INITIATED:	08/08/2018	**STATUS:**	Closed
LOCATION:		**DUE DATE:**	08/09/2018
SUB JOB:		**COST CODE:**	
COST IMPACT:		**SCHEDULE IMPACT:**	
DRAWING NUMBER:		**SPEC SECTION:**	
LINKED DRAWINGS:		**REFERENCE:**	Phase 2 Bid Documents
RECEIVED FROM:			

COPIES TO:
Dave Cormier **(Newfield Construction, Inc.)**

Question from Brian Grant (Newfield Construction, Inc.) at 08:15 AM on 08/08/2018

Phase 2 Bidding Contractor has the following question:
The Corbin Russwin ED5800 panics will not work in the AA425 thermal door, they will interfere with the thermal separators in the door and frame. They advised you can change to the ED4800. Also, the 780-226HD continuous hinge will require a Beveled Rail and 3/4" door stop. They suggest changing to the 780-112HD and we can use the Rabetted rail and standard 1/2" door stops. Please advise on how to proceed.

Please review and advise.

Official Response: **Brian Grant (Newfield Construction, Inc.)** *responded on Wednesday, August 8th, 2018 at 10:18AM EDT*

From: Paul <Paul@phhawleyllc.com>
Sent: Wednesday, August 08, 2018 9:25 AM
To: Lombardi.Dustin <DLombardi@jcj.com>
Subject: RE: Dillon Stadium Renovations: New RFI PB-PH2-006 (Door Hardware / Thermal Door Coordination Issue)

Dustin
Changing to the ED4800 Series exit devices and the 780-112HD is approved.

Thank you,
Paul
Paul H. Hawley III

P.H. HAWLEY ASSOCIATES, LLC
36 SCENIC DRIVE
BERLIN, CT. 06037
TEL: 860.438.7636
Connecticut Business ID 1064813

E-MAIL: **paul@phhawleyllc.com**

Attachments:

BY **DATE** **COPIES TO**

ADDENDUM NO. 1

DATE: August 7, 2018

PROJECT: Dillon Stadium
21 Van Dyke Avenue
Hartford, Connecticut

FROM: JCJ Architecture, Inc.
120 Huyshope Avenue
Suite 400
Hartford, Connecticut 06106
(860) 247-9226

TO: Bidders of Record

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated July 13, 2018. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of one (1) page and the following attached documents:

1. Specification Sections.

PROJECT MANUAL:

1. Section **096099 - CONCRETE MOISTURE CONTROL SYSTEM**: Add the new Specification Section to the Project Manual.

2. Section **096723 - RESINOUS FLOORING**: Add the new Specification Section to the Project Manual.

3. **TABLE OF CONTENTS**: Add the following new Specification Sections to DIVISION 9 - FINISHES:

   a. "096099 - CONCRETE MOISTURE CONTROL SYSTEM
   096723 - RESINOUS FLOORING"

DRAWINGS:

1. Drawing **A-750 "INTERIOR FINISH SCHEDULE AND SIGNAGE DETAILS"**:

   a. Home Team Shower A106: CHANGE Floor Finish from "CONC-S-1" to "Resinous Flooring with Moisture Control System."
   b. Away Team Shower A118: CHANGE Floor Finish from "CONC-S-1" to "Resinous Flooring with Moisture Control System."

END OF ADDENDUM NO. 1

SECTION 096099 CONCRETE MOISTURE CONTROL SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes penetrating, epoxy based and water based, vapor barrier systems for slab-on-grade and elevated concrete floor slabs to receive new finish flooring.

B. Related Sections include the following:

1. Section 096723 “Resinous Flooring” for finish flooring system installed over moisture control system.

1.3 PERFORMANCE REQUIREMENTS

A. Performance Testing: Provide Concrete Moisture Control System (CMCS) that complies with test-performance requirements indicated, as evidenced by reports of tests performed by manufacturer by a qualified independent testing agency on manufacturer's standard products applied to substrates simulating those on Project using same application methods to be used for Project.

1. Engage testing agency to perform preconstruction tests on field tests.
2. Select areas of treatment to adequately demonstrate capability of concrete moisture control system to comply with performance requirements.
3. Notify Architect seven days in advance of the dates and times when assemblies will be constructed.

B. Product Performance History:

1. Water-Vapor Transmission: Maximum 90 percent reduction in rate of vapor transmission in comparison of treated and untreated specimens, per ASTM E 96.
2. ASTM D 1308, Insensitivity to alkaline environment up to ph 14.
3. Submit list of product use and performance history, for the same formulation and system design, listing reference sources.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

1. Include manufacturer's printed statement of VOC content.
2. Manufacturer’s installation instructions.

B. Manufacturer Certificates: Signed by manufacturers certifying that concrete moisture control system comply with requirements.

C. Qualification Data: For Installer and testing agency.

D. Preconstruction Testing Reports: For concrete moisture control system -treated substrates.

E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for assemblies.

F. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by manufacturer.

B. Testing Agency Qualifications: An independent agency qualified according to ASTM E 548 for testing indicated.

C. Test Application: Apply concrete moisture control system and for each substrate required.

1. Locate each test application as directed by Architect.
2. Size: 9 sq. ft.
3. Final approval by Architect of concrete moisture control system application will be from test applications.

D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.6 PROJECT CONDITIONS

A. Limitations: Proceed with application only when the substrate conditions permit concrete moisture control system to be applied according to manufacturers' written instructions and warranty requirements:

1. Ambient temperature is above 50 deg F (10.0 deg C).
2. Concrete surfaces and mortar have cured for more than 28 days.
3. Application proceeds more than seven days after surfaces have been wet.
4. Substrate is not frozen, or surface temperature is above 50 deg F (10.0 deg C).
5. Provide continuous ventilation and indirect air movement at all times during application and curing process of concrete moisture control system.
6. Protect concrete moisture control system from rain or surface water for a minimum of 24 hours from time of application.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agree to repair or replace materials that fail within specified warranty period. Flooring materials removed to facilitate repairs, and damaged caused by failure of the concrete moisture control system, shall be replaced by the concrete moisture control system manufacturer.

1. Warranty Period: Ten years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified below.

2.2 CONCRETE MOISTURE CONTROL SYSTEM

A. Vapor Barrier: Low viscosity, VOC Compliant, 100% solid epoxy formulated as a vapor barrier against high moisture and alkalinity in concrete substrates.

1. Available Products:

a. Koester American Corporation; VAP-1 2000.
b. Mapei Corporation; Planiseal EMB.

B. Vapor Barrier: Water-based, VOC Compliant, compound formulated as a vapor barrier against high moisture and alkalinity in concrete substrates.

1. Available Products:

a. Moxie-International; Moxie Floor Sealer II .
b. Specialty Products Group; Vapor Lock VL 10/10.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrate of substances that might interfere with penetration or performance of concrete moisture control system . Test for moisture content, according to concrete moisture control system manufacturer's written instructions, and recommended tests.

1. Cast-in-Place Concrete: Remove oil, curing compounds, laitance, and other substances that could prevent adhesion or penetration of concrete moisture control system.

B. Test for pH level, according to concrete moisture control system manufacturer's written instructions.

C. Protect adjoining work from spillage or splashing of concrete moisture control system repellent. Cover adjoining and nearby surfaces if there is the possibility of concrete moisture control system being deposited on surfaces.

D. Shot blast floor surfaces to receive moisture control system and clean surfaces to remove residue from substrate. Remove defective materials and foreign mater, including but not limited to, dust, adhesives, leveling compounds, paint, dirt, floor hardeners, bond breakers, oil, grease, curing agents, form release agents, efflorescence, laitance, and shot blast abrasive residue.

1. Mechanically prepare substrate to meet porosity requirements of the CMCS manufacturers' requirements.

E. Repair cracks, expansion joints, control joints and open surface honeycombs.

F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLICATION

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect the

substrate before application of concrete moisture control system and to instruct Applicator on the proper application method to be used.

B. Utilizing either temporary or permanent HVAC systems, maintain temperature range within 68°F and 72°F, and relative humidity levels at a maximum of 50% during the entire application period.

C. Apply moisture control system at coverage rates recommended by manufacturer's printed instructions for measured existing vapor transmission rate.

D. Cure Time: Maintain ambient conditions, for a minimum of 72 hours, a minimum temperature of 75°F and 50% maximum relative humidity.

3.3 TESTING

A. Initial Tests:

1. Anhydrous calcium chloride testing shall be performed by the General Contractor.
2. Provide initial anhydrous calcium chloride tests in accordance with ASTM F 1869 to the prepared concrete surfaces. Tests shall be performed on properly prepared concrete.
3. Conduct calcium chloride tests at same temperature and humidity levels as permanently occupied spaces.
4. Provide a marked-up record plan showing pre-treatment test results. Include ambient air temperature and humidity levels before and during the testing procedure.

B. Post Treatment Tests:

1. After a minium of 72 hours of cure time for moisture control system, provide plastic sheet moisture tests in accordance with ASTM D 4263 - "*Standard Test Method of Indicating Moisture in Concrete by the Plastic Sheet Method*," as modified below, to the prepared concrete surfaces.

    a. Provide 10 mil polyethylene sheet in lieu of 4 mil polyethylene sheet.
    b. Provide moisture meter probe underneath the polyethylene sheet for the duration of the test.
    c. Report: Record the relative humidity at the end of the test period.

2. Provide a marked up plan showing post treatment test results. Include ambient air temperature and humidity levels before and during the testing procedure.
3. If tests show humidity levels above 75%, moisture control system manufacturer shall provide remedial treatment, as approved by the Architect.

C. Adhesion Tests:

1. The finish flooring contractor(s) shall verify proper adhesion of flooring adhesives, coatings, and leveling compounds to the finish moisture control treated concrete slab.

    a. Conduct anhydrous calcium chloride test in accordance with ASTM F 1869 , except as modified below.

        1) Do not abrade, shot blast, or other destructive method, to clean the surface of the concrete slab. Remove all dust and debris not bonded to the concrete slab.

3.4 CLEANING

A. Immediately clean moisture control system from adjoining surfaces and surfaces soiled or damaged

by moisture control system application as work progresses. Repair damage caused by moisture control system application. Comply with manufacturer's written cleaning instructions.

END OF SECTION 096099

SECTION 096723 RESINOUS FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes resinous flooring systems.

B. Related Sections:

1. Section 096099 "Concrete Moisture Control System" water vapor mitigation system below resinous flooring system.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product. Include manufacturer's technical data, application instructions, and recommendations for each resinous flooring component required.

B. Sustainable Design Submittals:

1. Laboratory Test Reports: For flooring products, indicating compliance with requirements for low-emitting materials.

C. Samples for Initial Selection: For each type of exposed finish required.

D. Samples for Verification: For each resinous flooring system required, 6 inches (150 mm) square, applied to a rigid backing by Installer for this Project.

1.5 INFORMATIONAL SUBMITTALS

A. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.

B. Material Certificates: For each resinous flooring component, from manufacturer.

C. Material Test Reports: For each resinous flooring system, by a qualified testing agency.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For resinous flooring to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by

manufacturer.

B. Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.

C. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Apply full-thickness mockups on 96-inch- (2400-mm-) square floor area selected by Architect.

a. Include 96-inch (2400-mm) length of integral cove base with inside and outside corner.

2. Simulate finished lighting conditions for Architect's review of mockups.
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.

1.9 FIELD CONDITIONS

A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.

B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.

C. Close spaces to traffic during resinous flooring application and for 24 hours after application unless manufacturer recommends a longer period.

PART 2 - PRODUCTS

2.1 PERORMANCE REQUIREMENTS

A. Flooring products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

B. Flammability: Self-extinguishing according to ASTM D 635.

2.2 MANUFACTURERS

A. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, from single source from single manufacturer. Obtain secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from manufacturer recommended in writing by manufacturer of primary materials.

2.3 RESINOUS FLOORING

A. Resinous Flooring System: Abrasion-, impact-, and chemical-resistant, aggregate-filled, and resin-based monolithic floor surfacing designed to produce a seamless floor and integral cove base.

1. Basis-of-Design Product: Subject to compliance with requirements, provide StonShield SLT; Stonhard or comparable product by one of the following:

    a. BASF Corporation-Construction Systems.
    b. Crossfield Products Corp.
    c. Duraflex, Inc.
    d. ITW Polymers Sealants North America (formerly Pacific Polymers, Inc.).
    e. Key Resin Company.
    f. Neogard; a division of Jones-Blair, Inc.
    g. Sherwin-Williams Company, General Polymers.
    h. Sikafloor; Sika Corporation.

B. System Characteristics:

1. Color and Pattern: As selected by Architect from manufacturer's full range.
2. Wearing Surface: Textured for slip resistance.
3. Overall System Thickness: 1/8 inch (3.2 mm).

C. Primer: Type recommended by resinous flooring manufacturer for substrate and resinous flooring system indicated.

D. Patching and Fill Material: Resinous product of or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated.

E. Body Coats:

1. Resin: Epoxy.
2. Type: Pigmented.
3. Application Method: Self-leveling slurry with broadcast aggregates.
4. Number of Coats: Two.
5. Aggregates: Colored quartz (ceramic-coated silica).

F. Topcoats: Sealing or finish coats.

1. Resin: Epoxy.
2. Type: Clear.
3. Number of Coats: One.
4. Finish: Gloss.

G. System Physical Properties: Provide resinous flooring system with the following minimum physical property requirements when tested according to test methods indicated:

1. Tensile Strength: 1600 psi minimum according to ASTM C 307.
2. Flexural Modulus of Elasticity: 1.0×10^6 minimum according to ASTM C 580.
3. Water Absorption: 0.1% percent maximum according to ASTM C 413.
4. Impact Resistance: No chipping, cracking, or delamination and not more than 1/16-inch (1.6-mm) permanent indentation according to MIL-D-3134J.
5. Resistance to Elevated Temperature: No slip or flow of more than 1/16 inch (1.6 mm) according to MIL-D-3134J.

6. Abrasion Resistance: 0.06 fm max maximum weight loss according to ASTM D 4060.
7. Hardness: 85 to 90, Shore D according to ASTM D 2240.
8. Critical Radiant Flux: 0.22 W/sq. cm or greater according to NFPA 253.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean, dry substrate for resinous flooring application.

B. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.

1. Roughen concrete substrates as follows:

   a. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
   b. Comply with ASTM C 811 requirements unless manufacturer's written instructions are more stringent.

2. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.
3. Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions.

   a. Anhydrous Calcium Chloride Test: ASTM F 1869. Proceed with application of resinous flooring only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) of slab area in 24 hours.
   b. Plastic Sheet Test: ASTM D 4263. Proceed with application only after testing indicates absence of moisture in substrates.
   c. Relative Humidity Test: Use in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.

4. Alkalinity and Adhesion Testing: Verify that concrete substrates have pH within acceptable range. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.

C. Patching and Filling: Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.

1. Control Joint Treatment: Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written instructions.

D. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.

3.2 APPLICATION

A. Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.

1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
3. Expansion and Isolation Joint Treatment: At substrate expansion and isolation joints, comply with resinous flooring manufacturer's written instructions.

B. Primer: Apply primer over prepared substrate at manufacturer's recommended spreading rate.

C. Integral Cove Base: Apply cove base mix to wall surfaces before applying flooring. Apply according to manufacturer's written instructions and details, including those for taping, mixing, priming, troweling, sanding, and topcoating of cove base. Round internal and external corners.

1. Integral Cove Base: 4 inches (100 mm) high.

D. Self-Leveling Body Coats: Apply self-leveling slurry body coats in thickness indicated for flooring system.

1. Aggregates: Broadcast aggregates at rate recommended by manufacturer and, after resin is cured, remove excess aggregates to provide surface texture indicated.

E. Topcoats: Apply topcoats in number indicated for flooring system and at spreading rates recommended in writing by manufacturer and to produce wearing surface indicated.

3.3 FIELD QUALITY CONTROL

A. Material Sampling: Owner may, at any time and any number of times during resinous flooring application, require material samples for testing for compliance with requirements.

1. Owner will engage an independent testing agency to take samples of materials being used. Material samples will be taken, identified, sealed, and certified in presence of Contractor.
2. Testing agency will test samples for compliance with requirements, using applicable referenced testing procedures or, if not referenced, using testing procedures listed in manufacturer's product data.
3. If test results show applied materials do not comply with specified requirements, pay for testing, remove noncomplying materials, prepare surfaces coated with unacceptable materials, and reapply flooring materials to comply with requirements.

B. Core Sampling: At the direction of Owner and at locations designated by Owner, take one core sample per 1000 sq. ft. (92.9 sq. m) of resinous flooring, or portion of, to verify thickness. For each sample that fails to comply with requirements, take two additional samples. Repair damage caused by coring. Correct deficiencies in installed flooring as indicated by testing.

3.4 PROTECTION

A. Protect resinous flooring from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by resinous flooring manufacturer.

END OF SECTION 096723