BAR DOWN STUDIO

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Work of this Section includes requirements for worker protection and waste disposal related to demolition involving lead-based paint (LBP)-coated building components and surfaces (the “Work) at the Chelsea City Hall Clock Tower in Chelsea, Massachusetts (the “Site”).

B. The procedures referenced herein shall be utilized during required demolition work specified elsewhere, that may impact building components coated with LBP. It is assumed that certain elements of the existing structure that were painted may be coated with LBP.

C. Work impacting LBP- coated components may result in dust and debris exposing workers to levels of lead above the Occupational Safety and Health Administration’s (OSHA) Action Level. Worker protection, training, and engineering controls referenced herein shall be strictly followed, until completion of exposure assessment with results indicating exposures below the “Action Level”. This Section does not involve lead abatement, but identified worker protection requirements for trades involved in the demolition and disposal procedures if LBP is involved in the demolition waste stream.

D. Construction activities disturbing surfaces coated with LBP that are likely to be employed, such as demolition, sanding, grinding, welding, cutting, and burning, have been known to expose workers to levels of lead in excess of the OSHA Permissible Exposure Limit (PEL). All work specified in the Contract Documents shall also be in conformance with this Section. DEFINITIONS

1.3 DEFINITIONS

A. The following definitions relative to LBP shall apply:

1. Action Level (AL) - The allowable employee exposure, without regard to use of respiratory protection, to an airborne concentration of lead over an eight (8)-hour time- weighted average (TWA) as defined by OSHA. The current action level is thirty micrograms per cubic meter (30 $\mu g/m^3$) of air.
2. Architect - Context Architecture.
3. Area Monitoring - The sampling of lead concentrations, which is representative of the airborne lead concentrations that may reach the breathing zone of personnel potentially exposed to lead.
4. Biological Monitoring - The analysis of a person’s blood and/or urine, to determine the level of lead concentration in the body.
5. CDC - The Center for Disease Control.
6. Change Room - An area provided with separate facilities for clean protective work clothing and equipment and for street clothes, which prevents cross-contamination.
7. Competent Person - A person employed by the Contractor 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 as defined by OSHA.
8. Consultant - Fuss & O’Neill EnviroScience, LLC.
9. EPA - The United States Environmental Protection Agency.
10. Exposure Assessment - An assessment conducted by an employer to determine if any employee may be exposed to lead at or above the AL.
11. High-Efficiency Particulate Air (HEPA) - A type of filtering system capable of filtering out particles of 0.3 microns diameter from a body of air at 99.97% efficiency or greater.

12. HUD - The United States Housing and Urban Development.
13. Lead - Refers to metallic lead, inorganic lead compounds, and organic lead soaps. Excluded from this definition are other organic lead compounds.
14. Lead Work Area - An area enclosed in a manner to prevent the spread of lead dust, paint chips, or debris resulting from LBP disturbance.
15. Lead-Based Paint - Refers to paints, glazes, and other surface coverings containing a toxic level of lead.
16. MSHA - The Mine Safety and Health Administration.
17. NARI - The National Association of the Remodeling Industry.
18. NIOSH - The National Institute of Occupational Safety and Health.
19. OSHA - The Occupational Safety and Health Administration.
20. Owner - City of Chelsea.
21. Permissible Exposure Limit (PEL) - The maximum allowable limit of exposure to an airborne concentration over an 8-hour TWA, as defined by OSHA. The current PEL for lead is fifty (50) $\mu g/m^3$ of air. Extended workdays lower the PEL by the formula: PEL equals 400 divided by the number of hours of work.
22. Personal Monitoring - Sampling of lead concentrations within the breathing zone of an employee to determine the 8-hour TWA concentration in accordance with OSHA Title 29 CFR, Parts 1910.1025 and 1926.62. Samples shall be representative of the employee's work tasks. Breathing zone shall be considered an area within a sphere with a radius of eighteen (18) inches and centered at the nose or mouth of an employee.
23. Resource Conservation and Recovery Act (RCRA) - RCRA establishes regulatory levels of hazardous chemicals. There are 8 heavy metals of concern for disposal: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Six (6) of the metals are typically in paints, excluding selenium and silver.
24. SDS - Safety Data Sheets.
25. Toxic Level of Lead - A level of lead, when present in dried paint or plaster, contains more than 0.50% lead by dry weight as measured by atomic absorption spectrophotometry (AAS) or 1.0 milligram per square centimeter (mg/cm^2) as measured by on-site testing utilizing an x-ray fluorescence analyzer.
26. Toxicity Characteristic Leaching Procedure (TCLP) - The EPA required sample preparation and analysis method for determining the hazard characteristics of a waste material.
27. TWA - Time-Weighted Average.

1.4 REGULATIONS AND STANDARDS

A. The following regulations, standards, and ordinances of federal, state, and local agencies are applicable and made a part of this specification by reference:

1. American National Standards Institute (ANSI)
   a. ANSI 288.2 - 1980 Respiratory Protection

2. Code of Federal Regulation (CFR)
   a. Title 29 CFR, Part 1910.134 - Respiratory Protection
   b. Title 29 CFR, Part 1910.1025 - Lead
   c. Title 29 CFR, Part 1910.1200 - Hazard Communication
   d. Title 29 CFR, Part 1926.55 - Gases, Vapors, Fumes, Dusts, and Mists
   e. Title 29 CFR, Part 1926.57 - Ventilation
   f. Title 29 CFR, Part 1926.59 - Hazard Communication in Construction
   g. Title 29 CFR, Part 1926.62 - Lead in Construction Interim Final Rule
   h. Title 40 CFR, Parts 124 and 270 - Hazardous Waste Permits
   i. Title 40 CFR, Part 172 - Hazardous Materials Tables and Communication Regulations
   j. Title 40 CFR, Part 178 - Shipping Container Specifications
   k. Title 40 CFR, Part 260 - Hazardous Waste Management Systems: General
   l. Title 40 CFR, Part 261 - Identification and Listing of Hazardous Waste
   m. Title 40 CFR, Part 262 - Generators of Hazardous Waste
   n. Title 40 CFR, Part 263 - Transporters of Hazardous Waste
   o. Title 40 CFR, Part 264 - Owner and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

p. Title 40 CFR, Part 265 - Interim Statutes for Owner and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
q. Title 40 CFR, Part 268 - Lead Disposal Restrictions
r. Title 49 CFR, Parts 170 - 180 Hazardous Wastes

3. Underwriters Laboratories, Inc. (UL)
   a. UL586 - 1990 High Efficiency Particulate Air Filter Units

1.5 QUALITY ASSURANCE

A. Hazard Communication Program

1. The Contractor shall establish and implement a Hazard Communication Program as required by OSHA Title 29 CFR, Part 1926.59.

B. Compliance Plan (Site-Specific)

1. The Contractor shall establish a written compliance plan, which is specific to the Site, to include the following:
   a. A description of work activity involving LBP disturbance including equipment used, material included, controls in place, crew size, employee job responsibilities, operating procedures, and maintenance practices.
   b. Methods of engineering controls to be used to control lead exposure.
   c. The proposed technology the Contractor will implement in meeting the PEL.
   d. Air monitoring data documenting the source of lead emissions.
   e. A detailed schedule for implementing the program, including documentation of appropriate supply of equipment, etc.
   f. Proposed work practice which establishes proper protective work clothing, housekeeping methods, hygiene facilities, and practices.
   g. Worker rotation schedule, if proposed, to reduce TWA.
   h. A description of methods for informing workers of potential lead exposure.

C. Hazardous Waste Management

1. The Contractor shall establish a Hazardous Waste Management Plan, which shall comply with applicable regulations and address the following:
   a. Identification of hazardous wastes.
   b. Estimated quantity of waste to be disposed.
   c. Names and qualifications of each subcontractor who will be transporting, storing, treating, and disposing of wastes.
   d. Disposal facility location and 24-hour point of contact.
   e. Establish EPA state hazardous waste and identification numbers, if applicable.
   f. Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes.
   g. List of waste handling equipment to be used in performing the work to include cleaning, volume reduction, if applicable, and transport equipment.
   h. Qualifications of laboratory to be utilized for TCLP sampling and analysis, if applicable.
   i. Spill Prevention, Containment, and Countermeasure (SPCC) plan.
   j. Work plan and schedule for waste containment, removal, treatment, and disposal.

D. Medical Examinations

1. Before exposure to lead-contaminated dust, provide workers with a comprehensive medical examination as required by OSHA Title 29 CFR, Parts 1910.1025 and 1926.62.
2. The examination shall not be required if adequate records show that employees have been examined as required by OSHA Title 29 CFR, Part 1926.62 within the last year.
3. Medical examination shall include, at a minimum, biological monitoring and approval to wear respiratory protection.

E. Training

1. The Contractor shall ensure that workers are trained to perform LBP disturbing activities and disposal operations prior to the start of work, in accordance with OSHA Tile 29 CFR, Part 1926.62.

F. Respiratory Protection Program

1. The Contractor shall furnish each employee required to wear a negative pressure respirator with a respirator fit test at the time of initial fitting and at least once every 6 months thereafter, as required by OSHA Title 29 CFR, Part 1926.62.
2. The Contractor shall establish a Respiratory Protection Program in accordance with ANSI Z88.2 and OSHA Title 29 CFR, Parts 1910.134 and 1926.62.

1.6 SUBMITTALS

A. The Contractor shall submit to the Consultant, in one complete package, the following prior to the pre-construction meeting and at least ten (10) business days before the start of the Work:

1. Submit a schedule to the Owner and the Consultant, which defines a timetable for executing and completing the project, including work area preparations, removal, cleanup, and decontamination.
2. Submit a current, valid certificate of insurance.
3. Submit the name and address of the hauling contractor and location of the landfill to be used. Also, submit current valid operating permits and certificates of insurance for the transporter and landfill.
4. Submit the plans and construction details for the decontamination systems and the isolation of the work areas as may be necessary for compliance with this Section and applicable regulations.
5. Submit copies of medical records for each employee to be used on the project, including results of biological monitoring and a notarized statement by the examining physician that such an examination occurred.
6. Submit valid training certificates for each employee to be used on the project.
7. Submit a successful respirator fit testing record performed by a qualified individual within the previous six months for each employee to be used on this project. The employee's name and social security number must be provided with each record.
8. Submit the name and address of the Contractor's blood lead testing lab, OSHA CDC listing, and state certification.
9. Submit detailed product information on all materials and equipment proposed for demolition work on this project.
10. Submit pertinent information regarding the qualifications of the Project Supervisor (competent person) for this project, as well as a list of past projects completed.
11. Submit a chain-of-command for the project.
12. Submit a site-specific Emergency Action Plan for the project.
13. Submit a written, site-specific Respiratory Protection Program for employees, including make, model, and NIOSH approval numbers of respirators to be used at the Site (if applicable).
14. No work on the Site will be allowed to begin until the Owner and the Consultant, as listed herein, accept the Pre-Construction Submittals. Any delay caused by the Contractor's refusal or inability to submit this documentation accurately, completely, and in a timely manner does not constitute a cause for change order or a time extension.

B. The following shall be submitted to the Consultant during the Work:

1. Results of personal air sampling.
2. Training and medical records for new employees to start Site work (24-hours in advance).

C. The following shall be submitted to the Consultant at the completion of the Work:

1. Copies of all air sampling results.
2. Contractor logs.
3. Copies of manifests and receipts acknowledging disposal of all waste material from the project showing delivery date, quantity, and appropriate signature of landfill's authorized representative.

1.7 PERSONAL PROTECTION

A. Exposure Assessment

1. The Contractor shall determine if any worker will be exposed to lead at or above the AL.
2. The exposure assessment shall identify the level of exposure a worker would be subjected to without respiratory protection.
3. The exposure assessment shall be achieved by obtaining personal air monitoring samples representative of a full shift, at least an 8-hour TWA.
4. During the period of the exposure assessment, the Contractor shall institute the following procedures for protection of workers:
    a. Protective clothing shall be utilized
    b. Respiratory protection
    c. Change areas shall be provided
    d. Hand washing facilities and shower shall be provided
    e. Biological monitoring
    f. Training of workers

B. Respiratory Protection

1. The Contractor shall furnish appropriate respirators approved by NIOSH/MSHA for use in atmospheres containing lead dust.
2. Respirators shall comply with the requirements of OSHA Title 29 CFR, Part 1926.62.
3. Workers shall be instructed in all aspects of respiratory protection.
4. The Contractor shall have an adequate supply of HEPA-filter cartridges and spare parts on-site for all types of respirators in use.
5. The following minimum respirator protection for use during paint removal or demolition of components and surfaces with LBP shall be the half-face, air-purifying respirator with a minimum of dual P100 filter cartridges (for exposures not in excess of 500 $\mu g/m^3$ or 10 x PEL).

C. Protective Clothing

1. Personal protective clothing shall be provided for all workers, supervisors, and authorized visitors entering the work area.
2. Each worker shall be provided daily with a minimum of two (2) complete disposable coverall suits.
3. Removal workers shall not be limited to 2 coveralls, and the Contractor shall supply additional coveralls as necessary.
4. Under no circumstances shall anyone entering the abatement area be allowed to re-use a contaminated disposable suit.
5. Disposable suits (TYVEK™ or equivalent) and other personal protective equipment (PPE) shall be donned prior to entering a lead work area. A change room shall be provided for workers to don suits and other PPE with separate areas to store street clothes and personal belongings.
6. Eye protection for personnel engaged in lead operations shall be furnished when the use of a full-face respirator is not required.
7. Goggles with side shields shall be worn when working with power tools, a material that may splash or fragment, or if protective eye wear is specified on the SDS for a particular product to be used on the project.

1.8 PERSONAL MONITORING

A. General

1. The Contractor shall be required to perform the personal air sampling activities during LBP disturbing work. The results of such air sampling shall be posted, provided to individual workers, and submitted to the Client, as described herein.

B. Air Sampling

1. Air samples shall be collected for the duration of the work shift or for 8 hours, whichever is less. Personal air samples need not be collected every day after the first day, if working conditions remain unchanged, but must be collected each time there is a change in removal operations, either in terms of the location or in the type of work. Sampling will be used to determine the 8-hour TWA. The Contractor shall be responsible for personal air sampling as outlined in OSHA Title 29 CFR, Parts 1910.1025 and 1926.62.
2. Air sampling results shall be reported to individual workers, in written form, no more than 48 hours after the completion of a sampling cycle. The reporting document shall list each sample's result, sampling time and date, personnel monitored and their social security numbers, flow rate, sample duration, sample yield, cassette size, and analyst's name and company, and shall include an interpretation of the results. Air sample analysis results will be reported in $\mu g/m^3$.

C. Testing Laboratory

1. The Contractor's testing lab shall be currently participating in AIHA's Environmental Lead Laboratory Accreditation Program (ELLAP). The Contractor shall submit to the Consultant for review and acceptance, the name and address of the laboratory, certification(s) of AIHA participation, a listing of relevant experience in air lead analysis, and presentation of a documented Quality Assurance and Quality Control Program.

PART 2 - PRODUCTS

2.1 GENERAL

A. Any substitution in materials, equipment, or methods to those specified shall be approved by the Owner and Consultant prior to use. Any requests for substitution shall be provided in writing to the Owner and Consultant. The request shall clearly state the rationale for the substitution.

B. Submit to the Owner and Consultant product data for all materials and equipment and samples of all materials to be considered as an alternate.

C. Product data shall consist of manufacturer catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, SDS, and other standard descriptive data. Submittal data shall be clearly marked to identify pertinent materials, products, or equipment and show performance characteristics and capacities.

D. Samples shall be of sufficient size and quantity to clearly illustrate the functional characteristics of the product or material with integrally related parts and attachment devices.

2.2 MATERIALS AND PRODUCTS

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. The Contractor shall have available sufficient inventory or dated purchase orders for materials necessary for the project including protective clothing, respirators, filter cartridges, polyethylene (poly) sheeting of proper size and thickness, tape, and air filters.

D. Materials

1. Poly sheeting in a roll size to minimize the frequency of joints shall be delivered to the Site with factory label indicating 6-mil.
2. Poly disposable bags shall be 6-mil. Tie wraps for bags shall be plastic, five (5)-inches long (minimum), pointed and looped to secure filled poly bags.

3. Tape or spray adhesive will be capable of sealing joints in adjacent poly sheets and for attachment of poly sheeting to finished or unfinished surfaces of dissimilar materials and capable of adhering onto both dry and wet conditions, including use of amended water.
4. Impermeable containers are to be used to receive and retain any lead-containing or lead-contaminated materials until disposal at an acceptable disposal site. The containers shall be labeled in accordance with EPA and DOT standards.
5. HEPA-filtered exhaust systems shall be used during powered dust-generating removal operations. The use of powered equipment without HEPA exhaust systems in-place on this Site is prohibited.

2.3 TOOLS AND EQUIPMENT

A. Provide suitable tools for all LBP disturbing operations.

B. The Contractor shall provide (as needed) temporary electrical power panels, electrical power cables, and electrical power sources (such as generators). Any electrical connection work affecting the building electrical power system shall be performed by a Commonwealth of Massachusetts-licensed electrician.

C. Vacuum units, of suitable size and capacities for the project, shall have HEPA filter(s) capable of trapping and retaining 99.97% of all mono-dispersed particles of 0.3 micrometers in diameter.

D. The Contractor will have reserve units so that system will operate continuously.

PART 3 - EXECUTION

3.1 PRE-CONSTRUCTION MEETING

A. At least one week prior to the start of work, a Pre-Construction Meeting will be scheduled and must be attended by the Contractor and any Subcontractors. The assigned Contractor Site Supervisor must attend this meeting.

B. The Contractor shall present a detailed project schedule and project submittal package at the Pre-Construction Meeting. Variations, amendments, and corrections to the presented schedule will be discussed, and the Owner and Consultant will inform the Contractor of any scheduling adjustments for this project.

C. Following the Pre-Construction Meeting, the Contractor shall submit a revised schedule (if needed) no later than one week after the meeting.

3.2 WORKER PROTECTION/TRAINING

A. The Contractor shall provide appropriate training, PPE, and biological monitoring for each worker and ensure proper usage during potential lead exposure and the initial exposure assessment.

3.3 CONTRACTOR'S RESPONSIBILITIES

A. The Contractor shall be responsible for establishing and maintaining controls referenced herein to prevent lead contamination outside the lead work area.

B. The Contractor shall also be responsible for conducting work with applicable federal, state, and local regulations as referenced herein.

3.4 WORKER HYGIENE PRACTICES (Required during initial exposure assessment and if results of air sampling are above OSHA AL)

A. Work Area Entry

1. Workers shall don PPE, including respiratory protection, disposable coveralls, gloves, headgear, and footwear, prior to entering the work area.

B. Work Area Departure

1. While leaving respirators on, workers shall remove all gross contamination, debris, and dust from disposable coveralls and proceed to change room to remove coveralls and footwear and place in hazardous waste disposal container.

C. Hand-Washing Facilities

1. All workers must wash their hands and faces upon leaving the work area.

D. Equipment

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

E. Prohibited Activities

1. Under no circumstances shall workers eat, drink, smoke, chew gum or tobacco, apply cosmetics, or remove their respirators in the work area.

F. Shock Hazards

1. The Contractor shall be responsible for using safe procedures to avoid electrical hazards. All temporary electrical wiring will be protected by ground-fault circuit interrupters (GFCI).

3.5 LEAD WORK AREA (Required during initial exposure assessment and if results of air sampling are above OSHA AL)

A. The Contractor shall place lead warning signs at all entrances and exits from the work area. Signage shall be a minimum of 20” x 14” and shall state the following:

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING OR DRINKING
UNAUTHORIZED ENTRY PROHIBITED

B. The Contractor shall designate a change room as specified in this Section. The change room shall consist of 2 layers of 6-mil poly sheeting on the floor surface adjacent to the lead work area. The change room shall have separate storage facilities for street clothes to avoid cross- contamination.

C. The Contractor shall provide potable water for hand and face washing.

D. The Contractor shall place 6-mil poly sheeting on floor/ground surfaces prior to beginning removal work to facilitate clean-up.

3.6 WORK AREA CLEAN-UP

A. The Contractor shall remove all loose chips and debris from floor surfaces and place in hazardous waste disposal bags.

B. The Contractor shall clean adjacent surfaces using a HEPA-filtered vacuum equipment to remove dust and debris.

C. Poly sheeting shall be cleaned and properly disposed as general construction and demolition waste.

3.7 WASTE DISPOSAL

A. The Contractor's contractual liability shall be the proper disposal of all non-hazardous wastes generated at the Site in accordance with all applicable federal, state, and local regulations as referenced herein.

1. The Contractor shall be responsible for collecting a waste characterization sample for TCLP analysis, as is required by the disposal site. Results of the TCLP analysis shall be forwarded by the Contractor to the Consultant prior to the waste being transported off- Site.

3.8 CONSULTANT

A. The Owner may retain a Consultant for the purpose of construction administration and project monitoring during demolition work at the Site.

B. The Consultant will represent the Owner in all tasks of the project at the discretion of the Owner.

END OF SECTION 028310