

TO CONTRACT DOCUMENTS ENTITLED:

PROJECT MANUAL FOR: **Power Plant – 1923 & 1955  
Brick and Mortar Repairs**

PROJECT NUMBER: **CP242421**

ADVERTISEMENT DATE: 2025-12-11

PREPARED FOR: The Curators of the  
University of Missouri

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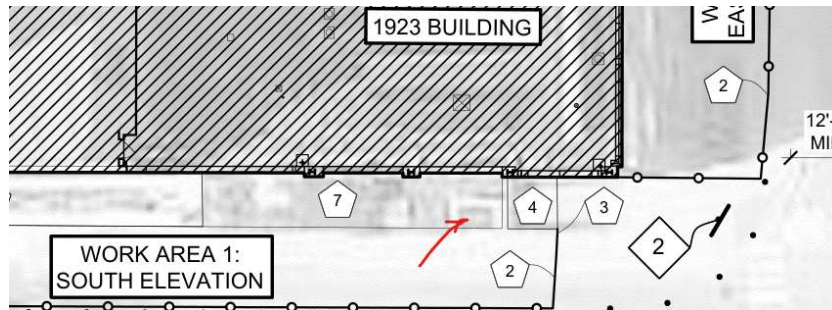
2025-01-21

Drawings and Specifications for the above noted project and the work covered thereby are herein modified as follows, and except as set forth herein, otherwise remain unchanged and in full force and effect:

GENERAL:

- **The bid date has changed:**
  - The bid date was January 23, 2025.
  - The new bid date will be **January 29, 2025**.
- Approved Substitution Request(s):
  - 07 7100 Roof Specialties:
    - Shop-fabricated coping using 22 ga. Berridge pre-finished stock and meeting NRCA ES-1 requirements is an accepted substitution for the prefinished basis-of-design Metal Era coping.

- Questions asked during the 2025-01-08 pre-bid meeting include:
  - QUESTION: What are the protection requirements at grates over area wells? (*This question was asked about a grated opening located at the southeast corner of the 1923 building, immediately west of the power plant entry door*):



- ANSWER: Air flow must be maintained. Any temporary protection installed over the opening will need to be raised above the grate.
  - QUESTION(S): The new masonry infill at the existing north elevation opening, as detailed on sheet A503, will need to be installed from the exterior due to limited access at the building interior.
    - How should the mortar joints be finished on the interior, is appearance a concern?  
ANSWER: Struck joints are acceptable at this location; the *interior* joints do not have to be raked and tooled.
    - What about mortar droppings and or minor debris resulting from this work?  
ANSWER: Minimize mortar and debris where possible. Note that the Owner will remove loose equipment and other items that are stored below this area.
- QUESTION: Can a man lift be used on the north side of the building? Are there concerns about blocking traffic flow through the alleyway at this location?

ANSWER:

- A man lift may be used at the contractor's discretion provided that at least (1) open, pickup-sized traffic lane remains unimpeded for the Owner's use.
- The Owner will coordinate with the successful bidder to allow some temporary obstruction of traffic through the north alleyway

SPECIFICATION CHANGES:

- Division 00 – Procurement and Contracting Requirements:
  - Update 00 0110 Table of Contents to include Section 02 0813 and related Environmental Hazard Assessment as noted below. An updated Table of Contents is attached to this addendum.

- Division 02 – Existing Condition:
  - Add Section 02 0813 – Technical Specifications – Asbestos Containing Materials Removal and Disposal & Universal Waste/Hazardous Building Materials Removal.
  - Add Environmental Hazards Assessment – dated January 2025 and prepared by JS HELD.

DRAWING CHANGES:

- A202 –Building Elevations.
  - Add Scope-of-Work note ‘Z’ – noting demolition of existing pipe supports and anchors.
  - A7: 1955 Building – North Elevation: Add demolition of existing pipe supports and anchors at (2) locations; include brick repair.
  - Add photo G7 – 1955 Building – North Elev. – Demo: Existing Pipe Hanger.

ATTACHMENTS:

- Section 00 0110 Table of Contents.
- Section 02 0813 – Technical Specifications – Asbestos Containing Materials Removal and Disposal & Universal Waste/Hazardous Building Materials Removal.
- Environmental Hazards Assessment – dated January 2025 and prepared by JS HELD.
- A202 –Building Elevations, revision note 1.

END OF ADDENDUM #1

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Project CP242421  
Columbia, Missouri

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# **TECHNICAL SPECIFICATIONS –**

## **ASBESTOS-CONTAINING MATERIALS REMOVAL AND DISPOSAL**

## **UNIVERSAL WASTE/HAZARDOUS BUILDING MATERIALS REMOVAL**



For

**UNIVERSITY OF MISSOURI  
PROJECT CP242421  
Power Plant 1923 & 1955  
Brick & Mortar Repairs**

Prepared for

**UNIVERSITY OF MISSOURI  
Campus Facilities  
Columbia, Missouri 65211**

Prepared by  
**UNIVERSITY OF MISSOURI  
ENVIRONMENTAL HEALTH & SAFETY**

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## **PART 1 – GENERAL**

Provisions of the General Conditions and Special Conditions are part of this Division.

The Contractor shall inform him/herself of the conditions for the project and is responsible for verifying the quantities and locations of all work to be performed as outlined in this technical specification. Failure to do so shall not relieve the Contractor of his obligation to furnish all materials and labor necessary to carry out the provisions of the Contract.

Contractor shall assume full responsibility and liability for compliance with all codes, ordinances, rules, regulations, orders and other legal requirements of Federal, State, and Local public authorities including, but not limited to, the U.S. Environmental Protection Agency (EPA), Occupational Health and Safety Administration (OSHA), and the Missouri Department of Natural Resources (MDNR), which bear on performance work. Where conflicts occur between these specifications and/or the above-mentioned regulatory agencies, the more stringent shall govern. The Contractor shall hold the Owner and Owner's air monitoring firm harmless for failure to comply with any applicable work, hauling, safety, health, or other regulations on the part of the Contractor, Contractor's employees, or Contractor's subcontractors.

Contractor affirms and shall be solely responsible for ensuring all personnel involved in asbestos abatement and/or universal waste/hazardous building material removal operations are adequately trained, appropriately certified, and qualified for the duties and responsibilities they are conducting. Further, any personnel required to don a respirator shall be medically cleared by a physician to wear such respirator, must be participating in a medical monitoring program, and have a current, acceptable respirator fit test. Contractor further affirms that all certifications, training, qualifications, fit testing results, physician's clearance statement, etc., shall be provided upon demand to the Owner's Representative.

If the Contractor observes that any of the Contract Documents are at variance therewith in any respect, he shall promptly notify the Owner in writing, and any necessary changes shall be accomplished by appropriate modification. It is not the Contractor's responsibility to make certain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, rules or regulations. If the Contractor performs any work knowing it to be contrary to such laws, statutes, ordinances, building codes, rules or regulations, and without such notice to the Owner, he shall assume full responsibility therefore and shall bear all costs attributable thereto.

The use of the best available technology, procedures, and methods for preparation, execution, cleanup, disposal, and safety are absolutely required. This compliance is the sole responsibility of the Contractor.

Contractor will confine operations at the site to the areas permitted under the Contract. Portions of the site beyond areas on which work is indicated are not to be disturbed.

Contractor shall assume full responsibility for protection and safekeeping of products stored on premises.

Contractor shall move any stored products which interfere with operations of Owner or other contractors.

Contractor shall utilize only those areas designated by the Owner for the storage of equipment and the placement of dumpsters/transport containers.

Contractor shall take all precautions necessary to ensure there is no asbestos containing materials or universal waste/hazardous building material contamination to those areas not included in work area. Should areas outside the work area become contaminated with hazardous wastes, the Contractor shall immediately clean them utilizing the wet cleaning and HEPA vacuum methods specified herein. The Contractor is responsible for the proper cleanup of all items in the work areas to maintain a clean and safe environment.

Owner reserves the right to unrestricted access of the work area by qualified and trained individuals, as designated by the Owner, for the purposes of monitoring, evaluating, or otherwise inspecting the condition of the work area and/or progress of work being performed by Contractor. No access shall be granted to untrained personnel and the Contractor shall ensure site security to prevent unauthorized access by untrained personnel.

## **1.1 SCOPE OF WORK COVERED BY CONTRACT DOCUMENTS**

### **1.1.1 ASBESTOS-CONTAINING MATERIALS REMOVAL AND DISPOSAL**

The work specified herein shall be the abatement of asbestos containing materials (ACM) by certified and registered persons who are knowledgeable, qualified and trained in the abatement, handling, and disposal of ACM, and subsequent cleaning of the affected environment.

The Contractor shall furnish all labor, material, equipment, testing, services, permits, insurance, notifications, necessary or required to perform the work for the abatement of ACM and for other work as specified in this section or as indicated in associated drawings, sketches, or reports of the work.

All fees required for notification requirements, renotifications, and/or inspections by the regulatory agencies shall be paid by the Contractor. Bulk sample analysis information required by the Missouri Department of Natural Resources (MDNR), U.S. Environmental Protection Agency (EPA), or local authority having jurisdiction in conjunction with the notification shall also be provided by the Contractor unless provided within this section.

Based upon a survey conducted by **J.S. Held, LLC (JSH Proj. No. 250100352, dated January 2025)**, the work shall include the removal and legal disposal of **Category I Non-friable ACM gray/black exterior window caulking located on Building 1923.**

#### **Friable asbestos:**

The Contractor shall remove and legally dispose of:

**Not Applicable**

#### **Non-friable asbestos:**

The Contractor shall remove and legally dispose of:

**Approximately 350 linear feet asbestos-containing black/gray window frame caulking on Building 1923 (see below). This caulking was specifically observed on the south facing windows (not louvers) of Building 1923 but may be present on other windows at the subject structure. *If gray/black caulking is encountered at windows on Building 1923, it is to be assumed as ACM caulking.***



*(Above – Building 1923 south-facing windows with confirmed gray/black ACM caulking).*

### **1.1.2 UNIVERSAL WASTE/HAZARDOUS BUILDING MATERIALS REMOVAL**

The Contractor shall be responsible for the coordination of the universal waste/hazardous building materials removal for this project with the Owner's Representative. The Contractor shall coordinate with the Owner's Representative, all other on-site contractors, and all subcontractors working under separate contracts so as to facilitate the general progress of the work. Each trade shall afford all trades every reasonable opportunity for the installation/completion of their work.

For all universal waste/hazardous building materials designated for removal, the default process will be that the Owner shall provide appropriate containers, the Contractor shall remove and place materials in their respective containers, and the Owner shall arrange for proper disposal of all containerized universal waste/hazardous building materials. Any deviations from this process need to be identified and agreed upon between the Owner and Contractor prior to implementation.

Based upon a survey conducted by **J.S. Held, LLC (JSH Proj. No. 250100352, dated January 2025)**, the work shall include the removal of the following types and quantities of universal waste/hazardous building materials:

#### **Hazardous Building Materials**

- Polychlorinated Biphenyls (PCBs)

**Not Applicable** *(All samples of exterior caulk sampled for PCBs were below laboratory detection limits).*

- Radioactive Sources

**Not Applicable**

### **Universal Waste**

- Mercury-Containing Equipment

**Not Applicable**

- Mercury-Containing Lamps

**Not Applicable**

- Batteries (non-alkaline)

**Not Applicable**

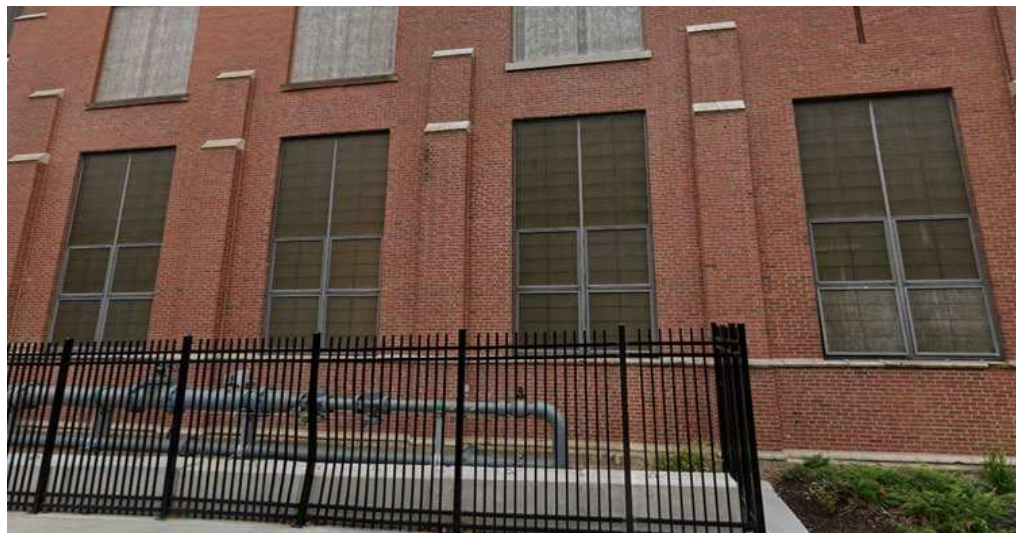
### **Reclaimable/Recyclable Materials**

**Not Applicable**

### **Building Materials Painted with Regulated Heavy Metals**

Approximately 70 linear feet of gray LBP on Building 1923 window lintels above south-facing windows. These materials shall be disposed of with Construction/Demolition debris in a permitted landfill.

In addition, the white plaster/terra cotta features above select windows on Building 1923 were confirmed to be coated with lead-containing paint (LCP) but was below the regulatory threshold for LBP.



*(Above – Building 1923 painted window lintels above south-facing windows. These lintels were confirmed to be coated with LBP).*

*\*NOT IN SCOPE BUT CONFIRMED AS PART OF SURVEY: White LBP on Power Plant Office Building (401 E. Stewart) window lintels above black, metal-framed windows.*

### CONTRACTOR OPERATIONS

The Contractor is responsible for contacting MU EHS at least three (3) business days prior to beginning the project for training procedures related to universal waste/hazardous building materials removal, handling, and collection of these materials. Any light fixtures, housings, etc., containing Universal Wastes/Hazardous Building Materials shall also be included in collection efforts for disposal by MU EHS. This does not include refrigerant or CFC/HCFC-containing equipment, which are being recovered by the Contractor.

- **Materials With RCRA-Metals Paint (Intact)** It is anticipated that demolition debris with lead-based paint that is intact (not peeling/chipping/flaking) will be removed as part of the demolition process and will be hauled away and disposed by the Contractor in a sanitary landfill approved by the State of Missouri to accept construction and demolition waste.
- **Fluorescent Light Tubes** may contain small amounts of mercury. This can potentially be harmful to human health and the environment. If fluorescent light tubes are part of the scope of the project, they shall be managed by the default process set out in Section 1.1.2. Care shall be taken by the Contractor to minimize breakage during removal and placement into containers.
- **Polychlorinated Biphenyls (PCBs)** are a known carcinogenic material. Their use was discontinued January 1, 1979. It shall be assumed that light ballasts contain PCBs unless they are labeled as “PCB-free” by the manufacturer. If light ballasts are part of the scope of the project, they shall be managed by the default process set out in Section 1.1.2. The Contractor shall segregate and containerize PCB ballasts separate from non-PCB ballasts. PCB and non-PCB ballasts shall be properly disposed by MU EHS.
- **Smoke Detectors** are typically ionization smoke detectors that may contain a small amount of radioactive material. If smoke detectors are part of the scope of the project, they shall be managed by the default process set out in Section 1.1.2 and will be properly disposed by MU EHS.
- **Fire Alarm Strobe Lights** are typically not considered a universal or hazardous waste. If fire alarm strobe lights are part of the scope of the project, they shall be managed by the default process set out in Section 1.1.2. MU EHS will dispose of the strobe lights as E-waste.
- **Exit Signs and Emergency Lights** typically have backup batteries that may contain small amounts of heavy metals. Certain exit signs are powered by a small amount of radioactive material. If exit signs and/or emergency lights are part of the scope of this project, they shall be managed by the default process set out in Section 1.1.2. The Contractor shall remove and containerize non-alkaline batteries for MU EHS to properly manage. The Contractor shall assume any non-powered exit signs to contain radioactive material and will containerize for MU EHS to properly dispose.
- **Drinking Fountains** Some drinking fountains have reservoirs that may contain lead and a CFC/HCFC refrigerant that must be recovered. If drinking fountains are part of the scope of the project, they shall be managed by the default process set out in Section 1.1.2. Any lead reservoirs shall be removed and containerized by the Contractor for recycling by MU EHS. The CFC/HCFC refrigerant must be recovered by a contractor licensed and trained in this type of work and documented. The final disposition of reclaimed refrigerants will be determined between Owner

and Contractor for each project. The remainder of the unit shall be managed as scrap by the Contractor.

- **Door Closers** Some older units have oil reservoirs for lubrication. These oils may contain small amounts of PCBs. If door closers are part of the scope of the project, they shall be managed by the default process set out in Section 1.1.2.
- **Thermostats** may contain elemental mercury, which can potentially be harmful to human health and the environment. If elemental mercury-containing thermostats are part of the scope of the project, they shall be managed by the default process set out in Section 1.1.2.
- **Window Air-Conditioning Units** Where possible, these window units should be removed and offered to the Owner for use elsewhere. If directed by the Owner, they shall be discarded. These units may contain CFC/HCFC refrigerants that must be recovered. CFC/HCFC refrigerants are suspected to damage the atmosphere. The CFC/HCFC refrigerant must be recovered by a contractor licensed and trained in this type of work and documented. The final disposition of reclaimed refrigerants will be determined between Owner and Contractor for each project. The remainder of the unit shall be discarded by the Contractor.

## 1.2 DEFINITIONS

### 1.2.1 ASBESTOS ABATEMENT

1. **Abatement** – Procedures to decrease or eliminate the source of fiber release from asbestos containing building materials. Includes encapsulation, enclosure, and removal.
2. **Adequately Wet** – To sufficiently mix or penetrate with liquid to prevent the release of particulate.
3. **Aggressive Air Sampling** – Sweeping of floors, ceilings and walls and other surfaces with the exhaust of a minimum of one (1) horsepower leaf blower or equivalent immediately prior to air monitoring.
4. **Approved Waste Disposal Site** – A solid waste disposal area that is authorized by the Missouri Department of Natural Resources to receive asbestos containing solid wastes.
5. **Asbestos** – Includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered.
6. **Asbestos Abatement Supervisor** – An individual who directs, controls, or supervises others in asbestos abatement projects.
7. **Asbestos Containing Building Material (ACBM)** – Surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a building.
8. **Asbestos Containing Material (ACM)** – Any material containing more than 1 percent asbestos by weight.
9. **Barrier** – Any surface that seals off the work area to inhibit the movement of asbestos fibers during abatement. Barrier may also refer to an engineering control to restrict unauthorized

access to the work area.

10. **Category I Nonfriable ACM** – Asbestos-containing packings, gaskets, resilient floor covering and asphalt roofing products containing more than one percent (1%) asbestos as determined using the method specified in 40 CFR part 763, subpart F, Appendix A, section 1, Polarized Light Microscopy.
11. **Category II Nonfriable ACM** – Any material, excluding Category I Nonfriable ACM, containing more than one percent (1%) asbestos as determined using the methods specified in 40 CFR part 763, subpart F, Appendix A, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.
12. **Competent Person** – one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f).
13. **Containment** – Area where asbestos abatement project is conducted. Area must be enclosed either by a glove bag or plastic sheeting barrier.
14. **Contractor's Competent Person (Qualified Person)** – One who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32 (f); in addition, for Class I, II, III, and IV work, who is specially trained in training courses which meet the criteria of EPA's Model Accreditation Plan (40 CFR Part 763) for project designer or supervisor, or its equivalent.
15. **Decontamination Area** – Enclosed area adjacent and connected to the regulated area which is used for decontamination of workers, materials, and equipment that are contaminated with asbestos.
16. **Demolition** – The wrecking or taking out of all material not being reused including any load bearing structural member of a facility together with any related handling operations.
17. **Disposal Bag** – A properly labeled 6 mil. thick leak-tight plastic bag used for transporting asbestos waste from work area to disposal site.
18. **Environmental Health & Safety (EHS)** – The Owner's Representative, contact for container(s) to collect universal wastes, hazardous building materials, reclaimed/recycled materials, and authorized to oversee abatement operations and enforcement of the specifications.
19. **Encapsulant (Sealant)** – A liquid material which can be applied to asbestos-containing material and which prevents the release of asbestos fibers from the material either by creating a membrane over the surface or by penetrating the material and binding its components together.
20. **Encapsulation** – Treatment of asbestos containing materials with an encapsulant.
21. **Enclosure** – The construction of an airtight, impermeable, permanent barrier around



asbestos containing material to control the release of asbestos fibers into the air.

22. **Friable Asbestos Material** – Any material containing more than one percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763 section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.
23. **Glove Bag** – A manufactured or fabricated device, typically constructed of six (6) mil transparent polyethylene or polyvinyl chloride plastic. This device consists of two (2) inward projecting long sleeves, an internal tool pouch and an attached, labeled receptacle for asbestos waste.
24. **HEPA Vacuum Equipment** – High efficiency particulate air filtered vacuuming equipment with a filter system capable of collecting and retaining hazardous particulates. Filters should be of 99.97% efficiency for retaining particulates greater than 0.3 microns.
25. **Homogeneous Work Site** – Continuous areas with the same type of ACM and in which one type of abatement process is performed.
26. **Negative Initial Exposure Assessment** – An assessment by a "Competent Person" in which it is concluded that employee exposures during the job are likely to be consistently below the Permissible Exposure Levels; that non-friable asbestos will be removed and maintained in a non-friable condition.
27. **Outside Air** – Air outside of the containment.

28. **Owner's Air Monitoring Firm** – An entity who is not under the direct control of the asbestos abatement contractor and who has been selected by the Owner to conduct air monitoring. This may be a representative of MU EHS or a contracted service provider working directly on behalf of the Owner (MU).
29. **Owner's Air Sampling Professional** – An individual who holds a valid Air Sampling Professional certification from the State of Missouri (643.225 RSMo) and who is not under the direct control of the asbestos abatement contractor. The individual shall conduct, oversee, or be responsible for air monitoring of asbestos abatement projects before, during, and after the project has been completed. This may be a representative of MU EHS or a representative of a contracted service provider working directly on behalf of the Owner (MU).
30. **Owner's Air Sampling Technician** – An individual who has been trained by, and is under the direct supervision of, the certified Owner's Air Sampling Professional and who has met requirements of training found in OSHA's 29 CFR 1926.1101 (643.225 RSMo) to do air monitoring before, during, and after the asbestos abatement project on behalf of the Owner's Air Monitoring Firm.
31. **Owner's Representative** – MU's representative responsible for air monitoring and enforcement of the technical specifications. The Owner's Representative may be either the MU Project Manager or a member of MU EHS who is adequately trained and holds a Missouri Asbestos Occupation, Competent Person certification, or is a Certified Industrial Hygienist.
32. **Personal Monitoring** – Sampling of the asbestos fiber concentrations within the breathing zone.
33. **Regulated Asbestos Containing Material (RACM)** – Friable asbestos material; Category I nonfriable ACM that has become friable; Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; Category II nonfriable ACM that has a high probability of becoming, or has become, crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.
34. **Remove** – To take out RACM or facility components that contain or are covered with RACM from any facility.
35. **Renovation** – Altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component.
36. **Repair** – The restoration of asbestos material that has been damaged. Repair consists of the application of rewettable glass cloth, canvas, cement or other suitable material. It may also involve filling damaged areas with non-asbestos substitutes and re-encapsulating or painting previously encapsulated materials.
37. **Strip** – To take off RACM from any part of a facility or facility components.
38. **Waste Shipment Record** – The shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos containing waste material.

39. **Wet Cleaning/Wiping** – The process of eliminating contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water, and by, afterwards, properly disposing of these cleaning tools as necessary.
40. **Work Area** – A specific isolated area, other than the space enclosed within a glove bag, in which friable asbestos-containing materials is required to be handled. The area is designated as a work area from the time that the area is secured and access restrictions are in place. The area remains designated as a work area until the time that it has been cleaned in accordance with any requirements applicable to the operations conducted.

## 1.2.2 UNIVERSAL WASTE/HAZARDOUS BUILDING MATERIALS REMOVAL

1. **Approved Waste Disposal Site** – A permitted solid waste landfill that is authorized by the Missouri Department of Natural Resources to receive construction and demolition (C/D) wastes.
2. **Authorized Visitor** – The Owner, the Owner's Representative, or a representative of any regulatory or other agency having jurisdiction over the project and properly trained.
3. **Building Owner** – A representative of the University of Missouri.
4. **Disposal Container** – A properly labeled container for universal waste/hazardous building materials. The proposed disposal container for lead-based paint will be provided to the Owner's Representative and part of the hazard remediation contractor's pre-work.
5. **Environmental Health & Safety (EHS)** – The Owner's Representative, contact for container(s) to collect universal waste, hazardous building materials, reclaimed/recycled materials, and authorized to oversee abatement operations and enforcement of the specifications.
6. **Hazardous Building Material** – Materials such as PCB-containing waste or radioactive sources (smoke detectors, etc.), that are not considered Universal Waste, but that the Owner will rely upon a Hazardous Waste Shipment Record for documentation to support proper disposal.
7. **Hazardous Waste Shipment Record/Disposal Receipt** – The shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of universal waste, hazardous wastes, and specific hazardous building materials.
8. **HEPA Vacuum Equipment** – High efficiency particulate air filtered vacuuming equipment with a filter system capable of collecting and retaining hazardous particulates. Filters should be of 99.97% efficiency for retaining particulates greater than 0.3 microns.
9. **Owner's Representative** – MU's representative responsible for monitoring and enforcement of the technical specifications. The Owner's Representative may be either the MU Project Manager or a member of MU EHS who is adequately trained and certified to serve as a technical expert regarding management of Universal Waste/Hazardous Building Materials.
10. **Universal Waste** – EPA's universal waste regulations streamline the hazardous waste management standards for certain categories of hazardous waste that are commonly generated by a wide variety of establishments. The streamlined regulations:
  - promote the collection and recycling of universal waste,

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- ease the regulatory burden on retail stores and other generators that wish to collect these wastes and transporters of these wastes, and
- encourage the development of municipal and commercial programs to reduce the quantity of these wastes going to municipal solid waste landfills or combustors.

11. **Work Area** – A specific isolated area in which universal waste/hazardous building materials are required to be handled. The area is designated as a work area from the time that the area is secured and access restrictions are in place. The area remains designated as a work area until the time that it has been cleaned in accordance with any requirements applicable to the operations conducted.

### **1.3 CODES AND REGULATIONS**

#### **1.3.1 ASBESTOS ABATEMENT**

General Applicability of Codes, Regulations and Standards - All applicable codes, regulations, standards, statutes, laws, and rules have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith. Where conflicts arise, the most stringent specification shall apply.

Contractor Responsibility - The Contractor shall assume full responsibility and liability for the compliance with all applicable federal, state, and local regulations pertaining to work practices, hauling/disposal of regulated materials, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable federal, state, and local regulations. The Contractor shall hold the Owner harmless for failure to comply with any applicable work, hauling, disposal, safety, health, or other regulations on the part of the Contractor, Contractor's employees, or Contractor's subcontractors.

Federal and State requirements which govern asbestos abatement work or hauling and disposal of asbestos waste materials include, but are not limited to, the following:

1. U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) including but not limited to:
  - 29 CFR 1910.1001 and 29 CFR 1926.1101.
  - Respiratory Protection, 29 CFR 1910.134.
  - Construction Industry, 29 CFR 1926.1101
  - Access to Employee Exposure and Medical Records, 29 CFR 1910.2.
  - Hazard Communication, 29 CFR 1910.1200.
  - Specifications for Accident Prevention Signs and Tags, 29 CFR 1910.145.

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2. U.S. Environmental Protection Agency (EPA) including but not limited to:
  - National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR, Part 61, Subpart M.
3. U.S. Department of Transportation (DOT) including but not limited to:
  - 49 CFR, Part 172, Section 101.
4. State of Missouri including but not limited to:
  - Missouri Air Conservation Law Chapter 643. (643.225-643.250 RSMo)
  - Missouri Department of Natural Resources, Division 10, Chapter 6 of the Code of State Regulations as follows:
    - (1) 10 CSR 10-6.020, Definitions
    - (2) 10 CSR 10-6.080, Emission Standards for Hazardous Air Pollutants
    - (3) 10 CSR 10-6.230, Administrative Penalties
    - (4) 10 CSR 10-6.250, Asbestos Abatement Projects - Certification, Accreditation, and Business Exemption Requirements

### **1.3.2 UNIVERSAL WASTE/HAZARDOUS BUILDING MATERIALS REMOVAL**

All applicable codes, regulations, standards, statutes, laws, and rules have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith. Where conflicts arise, the most stringent specification shall apply.

Federal and State requirements which govern universal waste and hazardous waste removal work or hauling and disposal of such waste materials include, but are not limited to, the following:

1. U.S. Department of Labor, Occupational Health and Safety Administration (OSHA), 29 CFR 1910 and 29 CFR 1926.
  - Construction Industry - 29 CFR 1926.1101
  - Respiratory Protection – 29 CFR 1910.134
  - Hazard Communication – 29 CFR 1910.1200
  - Accident Prevention Signs – 29 CFR 1910.145

2. U.S. Environmental Protection Agency (EPA)

- Resource Conservation and Recovery Act (RCRA), 40 CFR Parts 239-282 [Hazardous Waste includes Universal Waste]
- Toxic Substances Control Act (TSCA), 40 CFR Parts 700-761

3. Missouri Department of Natural Resources

- Hazardous Waste Management Law, Chapter 260, Sections 350-433, RSMo
  - 10 CSR 25, includes MO Universal Waste Rule (Pub 2058), Ch 16

**1.4 NOTIFICATIONS (ASBESTOS ABATEMENT ONLY)**

Notifications meeting the requirements of Missouri's Air Conservation Law shall be completed and sent by the Contractor not less than ten (10) days before the intended starting date of the project. Send notification to:

MDNR/Air Pollution Control Program (Asbestos)  
P.O. Box 176  
Jefferson City, Missouri 65102

Completed and signed notifications may be sent electronically to  
[asbestosnotifications@dnr.mo.gov](mailto:asbestosnotifications@dnr.mo.gov)

Provide a copy to the Owner's Representative. Five (5) day notification to the Owner's Representative is required on jobs less than the reportable quantity ("Courtesy Notifications").

If the project is also within the jurisdiction of the Kansas City Health Department's Air Quality Program, St. Louis County Health Department, St. Louis City Division of Air Pollution Control, or the Springfield-Green County Health Department of Environmental Services, send notification directly to the appropriate agency.

**1.5 SUBMITTALS**

**1.5.1 ASBESTOS ABATEMENT**

**General Requirements** The following will be submitted by Contractor, in electronic format or paper copy, a minimum of 10 days prior to commencement of work for approval by the Owner's Representative (MU EHS or Project Manager). Owner's Representative may provide comments that must be addressed before concurrence and, otherwise, will provide concurrence that documents received are acceptable:

- 1 One copy of Safety Data Sheets (SDS) for products to be used by the Contractor in the performance of his work. Contractor will also maintain copies of SDS's on site per OSHA.
- 2 One copy of the notifications to, or any correspondence with, the regulatory agencies.
- 3 Documentation that the regulatory authority has approved of the planned abatement.
- 4 Submit a listing of all prior regulatory violations.

### **1.5.1.1 Friable ACM Abatement Operations**

In addition to the **General Requirements**, submit the following:

- 1 A summary of project personnel, job titles, and contact phone numbers.
- 2 Name, address, and contact person's name of testing laboratory or laboratories to be utilized analyzing samples for bulk analysis or air samples. The laboratory(ies) must be certified through the National Voluntary Laboratory Accreditation Program (NVLAP).
- 3 A detailed plan of the procedures proposed for use in complying with requirements of this specification, the Missouri Air Conservation Law, and 29 CFR 1926.1101. Include in the plan the layout and location of barriers, decontamination units, routes of ingress and egress for work area, methods used to assure safety of building occupants and visitors, methods used to isolate or closing out of HVAC system, personal air monitoring strategy, method of removal of material, and engineering controls utilized to prevent emissions from the work area.
- 4 A disposal plan to detail type of disposal container, method of transportation to disposal site, waste hauler, and disposal site.
- 5 Copy of the Emergency Protection Plan that includes notifications.

### **1.5.1.2 Non-Friable ACM Abatement Operations**

In addition to the **General Requirements**, submit the following:

- 1 A summary of project personnel, job titles, and contact phone numbers.
- 2 A detailed plan of the procedures proposed to minimize emissions and to prevent the material from becoming friable during removal.
- 3 Copy of the Emergency Protection Plan that includes notifications (to be used if the nonfriable material should become friable during removal).
- 4 One copy of the Negative Initial Exposure Assessment.

### **1.5.1.3 Post-Abatement**

Upon completion of the abatement work, the Contractor shall provide the following information to the Owner's Representative.

- Waste disposal receipts and waste shipment records on all asbestos waste removed from the project.

Upon completion of the abatement work, the Owner shall provide the following information to the Contractor.

- Air sampling test results of final clearance air samples taken under the supervision of Owner's Air Sampling Professional will be provided to both the Contractor and the MU Project Manager by MU EHS. Results must be in written report form. Electronic transmittal

is acceptable.

- Written certification from the MU Project Manager that abatement is complete. Electronic transmittal is acceptable.

## **1.5.2 UNIVERSAL WASTE/HAZARDOUS BUILDING MATERIALS REMOVAL**

### **1.5.2.1 Pre-Removal**

**General Requirements** The following will be submitted by Contractor 10 days prior to commencement of work for approval by the Owner's Representative (MU EHS or Project Manager). Owner's Representative may provide comments that must be addressed before concurrence or, otherwise, will provide concurrence that documents received are acceptable:

1. One copy of any Safety Data Sheets (SDS) for products to be used by the Contractor in the performance of his work. Contractor will also maintain copies of SDS's on site per OSHA.
2. A list of project personnel and contact phone numbers.
3. A detailed plan of the procedures proposed for use in complying with requirements of this specification. Include in the plan the layout and location of work areas, routes of ingress and egress for the work areas, methods to be used to assure safety of building occupants and visitors, method(s) of removal of material, and disposal container requirements for the wastes anticipated to be removed for disposal lead based paint waste to be disposed.
4. Proposed disposal site for any materials that MU EHS will not be directly managing disposal for, including a disposal plan to detail type of disposal container, method of transportation to disposal site, and waste hauler.
5. Any other submittals as required by Owner.

### **1.5.2.2 Post-Removal**

Upon completion of universal waste/hazardous building materials removal operations, the Contractor shall submit to the Owner's Representative, copies of all shipping records, disposal receipts, recycling documentation, etc., for all materials removed from the project site by Contractor for disposal.

Upon completion of the universal waste/hazardous building materials removal operations, the Owner's Representative will provide written certification to the Contractor that all applicable universal waste/hazardous building materials wastes have been removed from the facility. Electronic transmittal is acceptable.

## **PART 2 – PRODUCTS**

### **2.1 MATERIALS**

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



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Contractor shall store all materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination.

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

Contractor shall provide suitable materials for asbestos abatement and universal waste/hazardous building materials removal operations including, but not limited to:

**Plastic Sheeting:** A minimum 6-mil (or as specified).

**Tape:** Capable of sealing joints of adjacent sheets of polyethylene 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, duct tape, poly prep tapes or approved equal.

**Adhesives:** Capable of sealing joints of adjacent sheets of polyethylene 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.

**Impermeable Containers:** Suitable to receive and retain any universal waste/hazardous building materials until disposal by the Owner's Representative (MU EHS). The containers shall be labeled as required by Owner. Containers must be resistant to damage and rupture.

**Warning Labels and Signage:** As required by law and/or Owner.

**Other Materials:** Provide all other materials, such as, but not limited to, lumber, plywood, nails, and hardware, which may be required to properly prepare and complete this project.

## 2.2 TOOLS AND EQUIPMENT

Provide suitable tools for asbestos abatement and universal waste/hazardous building material removal operations including, but not limited to:

**Water Sprayer:** Airless or a low pressure sprayer for amended water application as applicable.

**Air-Purifying Equipment:** High Efficiency Particulate Air Filtration Systems (HEPA) shall comply with ANSI Z9.2-91. No air movement system or air equipment should discharge particulates outside the work area. Thus, the negative air unit shall be equipped with a three filter bank with the last being the HEPA filter capable of removing 99.97% of fibers/particulates >0.3 microns.

**Scaffolding:** As required to accomplish the specified work and meet all applicable safety regulations.

**Vacuums:** Use HEPA type from a known manufacturer.

Other tools and equipment as necessary.

### **PART 3 – EXECUTION**

#### **3.1 SUPERVISION**

##### **3.1.1 ASBESTOS ABATEMENT**

The Contractor shall designate a competent Supervisor subject to the approval of the Owner's Representative. The Supervisor shall be the Contractor's representative on the project, shall meet the requirements of all applicable laws and regulations, and meet/perform the following tasks, at a minimum:

1. Be certified by the State of Missouri as an Asbestos Abatement Supervisor, have a minimum of one year prior full time experience in asbestos abatement work, a minimum of two years' experience as a supervisor, and be qualified as a Competent Person in accordance with OSHA regulation 1926.1101.
2. Be on-site and supervise all abatement work in accordance with all applicable laws and regulations.
3. Conduct all OSHA-required personal exposure air monitoring during abatement operations.
4. Maintain a daily log on the project documenting events, visitations, problems, equipment failures, accidents, and inspections.
5. Be responsible for implementation of first aid, safety training, respiratory protection, and ensuring all workers are trained in emergency procedures.
6. Be responsible for conducting a visual inspection of the work area prior to a visual inspection by the Owner's Representative. Inspection shall be documented.

##### **3.1.2 UNIVERSAL WASTE/HAZARDOUS BUILDING MATERIALS REMOVAL**

The Contractor shall designate a competent Supervisor subject to the approval of the Owner's Representative. The Supervisor shall be the Contractor's representative on the project, shall meet the requirements of all applicable laws and regulations, and meet/perform the following tasks, at a minimum:

1. Be knowledgeable in all aspects of removal, cleanup, and proper handling of universal waste/hazardous building materials as listed in the Scope of Work.
2. Be on-site and supervise all removal, cleanup and handling of universal waste/hazardous building materials as listed in the Scope of Work.
3. Maintain a daily log on the project documenting events, violations, problems, equipment failures, accidents, and inspections.
4. Be responsible for implementation of first aid, safety training, respiratory protection, and ensuring all workers are trained in emergency procedures.
5. Be responsible for conducting a visual inspection of the work area prior to a visual inspection by the Owner's Representative. Inspection shall be documented.

### **3.2 NEGATIVE INITIAL EXPOSURE ASSESSMENT (ASBESTOS ABATEMENT ONLY)**

The Contractor must conduct a Negative Initial Exposure Assessment (non-friable asbestos) prior to removal of the asbestos material. The Negative Initial Exposure Assessment shall be performed by a "Competent Person" to determine whether the material may be removed and maintained in a non-friable condition. If the material cannot be removed without becoming friable then the Contractor shall comply with all legal and regulatory requirements for managing friable asbestos at no additional cost to the Owner.

The method of removal is the Contractor's option. However, in the event of any of the following:

1. Visible emissions are observed
2. Sanding, grinding, cutting, or abrading of the material
3. Air samples exceed 0.1 f/cc (fibers per cubic centimeter)

The Contractor shall immediately stop work, implement corrective work practices, make any necessary notifications to all regulatory agencies of the changes in work practices and material conditions, and comply with the requirements as set forth in this specification.

### **3.3 WORKER PROTECTION & TRAINING**

#### **3.3.1 ASBESTOS ABATEMENT**

1. The Contractor shall be responsible for providing their employees with proper respiratory protection, respiratory training, a written respiratory program, medical monitoring program (medical examinations, maintaining medical records), and protective clothing and equipment to comply with OSHA requirements.
2. The Contractor shall be responsible for all testing and costs incurred for complying with requirements of OSHA regulations for Personal Air Sampling.
3. All workers shall be trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and protective measures.
4. All workers shall be certified as accredited Asbestos Abatement Workers as required by 10 CSR 10-6.250.

#### **3.3.2 UNIVERSAL WASTE/HAZARDOUS BUILDING MATERIALS REMOVAL**

1. The Contractor shall be responsible for providing their employees with proper respiratory protection, respiratory training, a written respiratory program, medical examinations, maintaining medical records, protective clothing and equipment to comply with OSHA requirements, if applicable and necessary.
2. All workers shall be trained in the dangers inherent in handling universal waste/hazardous building materials, in proper work procedures, and personal protective measures.
3. Prior to commencement of work, the workers shall be instructed and shall be knowledgeable on the hazards of the universal waste/hazardous building materials involved and other

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environmental exposures, use and fitting of respirators, protective clothing, decontamination procedures, and all aspects of removal work procedures.

4. The Contractor acknowledges that he alone is responsible for enforcing personnel protection requirements and that these specifications provide only a minimum acceptable standard for each phase of operation.
5. If required or requested of the workers, provide workers with personally issued and marked respiratory equipment approved by NIOSH and accepted by OSHA.
6. Where required or if requested by the workers, provide workers with sufficient sets of disposable protective full-body clothing. Such clothing shall consist of full-body coveralls, footwear, and head gear, one-piece coveralls or equal. Provide eye protection and hard hats as required by applicable safety regulations. Disposable clothing shall not be allowed to accumulate and shall be disposed of as contaminated waste.
7. No visitors shall be allowed in work areas, except as authorized.
8. Provide authorized visitors with suitable protective clothing, headgear, footwear, and gloves as described above whenever they are required to enter the work area.

### **3.4 INDEPENDENT TESTING LABORATORY (ASBESTOS ABATEMENT ONLY)**

Testing laboratories utilized by the Contractor for sample analysis during the project shall meet the following minimum requirements and be approved by the Owner's Representative. This information shall be submitted to the Owner's Representative for review.

1. All air monitoring samples shall be analyzed by a testing laboratory accredited by the American Industrial Hygiene Association (AIHA) or by an individual who is currently on the Asbestos Analyst Registry.
2. All bulk samples shall be analyzed by a testing laboratory accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

#### **3.4.1 ASBESTOS BULK SAMPLE ANALYTICAL METHODS**

##### **3.4.1.1 Friable Materials:**

Asbestos Analysis of Bulk Materials via AHERA Method 40 CFR 763, Subpart E, Appendix E supplemented with EPA 600/R-93/116 (Calibrated Visual Estimate, reporting limit to <1%) using Polarized Light Microscopy

##### **3.4.1.2 Non-Friable (caulking):**

Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 (Calibrated Visual Estimate, reporting limit to <1%) using Polarized Light Microscopy

### **3.4.1.3 Non-Friable (mastics, adhesives):**

Asbestos Analysis of Non-Friable Organic Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 (Calibrated Visual Estimate, reporting limit to <1%) using Polarized Light Microscopy

### **3.4.1.4 Non-Friable (vinyl floor tile):**

Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1 (target reporting limit 0.5%) with Gravimetric Reduction)

## **3.4.2 ASBESTOS AIR MONITORING ANALYTICAL METHODS**

### **3.4.2.1 PCM – Air:**

Use NIOSH 7400

### **3.4.2.2 PCM – Air That Fails:**

Using NIOSH 7400. Reclean area and retest. If area fails a third time, contact EHS for further instructions. Possible retesting using AHERA (40 CFR Part 763 Appx. A subpart E) or NIOSH 7402

## **3.5 OWNER'S REMEDIATION PROFESSIONAL**

### **3.5.1 ASBESTOS ABATEMENT**

It will be the Owner's responsibility to provide and/or hire an Air Sampling Professional. The Owner's Air Sampling Professional for this project shall be **J.S. Held, LLC, as needed**. The Owner's Air Sampling Professional will be required to perform the following duties at a minimum:

1. Approval of the Contractor's work plan and methods of ACM abatement to meet regulatory requirements and ensure the health and safety of University faculty, staff, and students.
2. Visual inspection of the work area and final clearance air monitoring.
3. Issue final air clearance to the Contractor and the MU Project Manager.

### **3.5.2 UNIVERSAL WASTE/HAZARDOUS BUILDING MATERIALS REMOVAL**

It will be the Owner's responsibility to provide and/or hire a Specialist certified, trained, and knowledgeable in handling and managing universal waste/hazardous building materials. The Specialist for this project shall be **J.S. Held, LLC, as needed**. The Specialist will be required to perform the following duties as a minimum:

1. Approval of the Contractor's work plan and methods of remediation to meet regulatory requirements and ensure the health and safety of University faculty, staff, and students.
2. Verify that the Contractor is satisfactorily performing the work in accordance with OSHA regulations.

3. Visual inspection of the work areas.

### **3.6 SEPARATION OF WORK AREAS FROM NON-WORK AREAS**

In addition to other physical barriers/controls required to isolate work areas and prevent unauthorized access/entry, universal waste/hazardous building materials removal operations work areas shall integrate visual separation. Visual separation shall be accomplished at all "see-through" locations using opaque polyethylene. This separation shall not be incorporated within the other seals involved on this project.

### **3.7 EMERGENCY PROTECTION PLAN**

1. The Contractor shall be responsible for developing a written Emergency Protection Plan and shall maintain this plan on site. The plan shall include considerations of asbestos and/or universal waste/hazardous building material releases, fire, explosion, toxic atmospheres, electrical hazards, slips, falls, and heat related injuries. All employees shall be instructed and trained in the procedures.
2. The Emergency Protection Plan shall include written notification procedures for police, fire and medical personnel of the planned abatement activities, work schedule, and layout of work area, particularly barriers that may affect response capabilities.
3. The Contractor shall designate and maintain emergency and fire exits from the work area(s) in accordance with local codes and regulations. All exits shall be clearly marked with fluorescent tape or red paint and shall be clearly visible from any part of the work area.

### **3.8 LOCAL AREA PROTECTION & SITE SECURITY**

1. The Contractor shall be responsible for all areas of the building used by them and/or subcontractors in the performance of the work. Contractor shall exert full control over the actions of all its employees and other persons with respect to the use and preservation of the existing building, except such controls as may be specifically reserved to the Owner.
2. Contractor shall secure the work areas to make sure of no inadvertent entry. Any breach to the exterior of the building shall be secured by the Contractor. The Contractor shall be responsible for maintaining security of the remediation area throughout the contract period.
3. Contractor has the right to exclude from the work area all persons who have no purpose related to the work or its inspection and shall require all persons in the work area to observe the same regulations required of Contractor's employees.
4. The Contractor shall have control of site security during abatement operations in order to protect work environment and equipment. Contractor shall have the Owner's assistance in notifying building occupants of impending activity and enforcement of restricted access by Owner's employees.

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5. The Contractor shall keep a minimum of two 10 lb., Type-ABC fire extinguishers on-site. One shall be maintained outside the work area and one inside the work area. Contractor's employees shall be trained in the operation of extinguishers.
6. Where remediation areas cannot be isolated by existing walls and doors from University employees, students, or the public, barriers must be constructed of 1/2" plywood sheeting over 2"x4", 16" on-center framing to isolate the area. The barriers must be installed in a manner to prevent damage to existing walls, floors, or ceilings. Barrier(s) may have a lockable door.
7. The Contractor shall maintain the work area free from rubbish, debris, and dirt and keep a clean, safe working area.
8. The Contractor shall provide warning signage around the regulated remediation area as required by OSHA. Owner reserves the authority to require additional signage, if it is deemed appropriate.
9. If applicable, the Contractor shall isolate any and all air supply and returns to the abatement space as required by OSHA. Contractor shall coordinate these efforts with the Owner's Representative.
10. If applicable, the Contractor shall keep all areas where adhesive stripper is in use (such as mastic removal) under negative pressure and exhausted to the outside ambient air.

**3.9 FINAL CLEARANCE REQUIREMENTS (FRIABLE ASBESTOS ABATEMENT ONLY)**

1. Upon completion of the abatement work, the Contractor's Asbestos Abatement Supervisor shall perform a visual inspection of the work area. If satisfactory, the Supervisor shall then request the Owner's Representative and/or Air Sampling Professional to perform a visual inspection. When the Owner's Representative and/or Air Sampling Professional deems the area is ready based on the results of their visual inspection, the Contractor shall apply a lockdown encapsulant. Following application of lockdown encapsulant, the Owner's Air Sampling Professional shall perform the final clearance sampling for airborne fiber concentrations.
2. The Owner's Air Sampling Professional will perform final clearance testing per the following requirements:
  - Aggressive sampling shall be required for all areas where removal has taken place with the exception of glove bag projects where nonaggressive sampling is permitted.
  - Phase contrast microscopy (PCM) samples analyzed on-site shall be counted by an accredited registered microscopist.
  - For areas specifically designated for clearance by Transmission Electron Microscopy, the method shall be NIOSH 7402.
3. Any work areas failing to meet the clearance requirements of this section shall be recleaned and retested at the Contractor's expense until satisfactory levels are obtained.

4. The Owner's Representative and/or Air Sampling Professional shall provide a written report of the air monitoring activities to the Contractor within seven (7) days after the final clearance testing. Electronic transmittal is acceptable.

### **3.10 REESTABLISHMENT OF THE WORK AREA AND SYSTEMS**

#### **3.10.1 ASBESTOS ABATEMENT**

1. Reestablishment of the work area shall only occur after the Contractor has received final clearance in writing from the Owner's Representative. Electronic transmission is acceptable.
2. Any damages to finishes, equipment, and/or the area affected by the abatement shall be repaired by the Contractor to equal or better condition as it was prior to the work, at no cost to the Owner.

#### **3.10.2 UNIVERSAL WASTE/HAZARDOUS BUILDING MATERIALS REMOVAL**

1. Reestablishment of the work area shall only occur after the Contractor has received a final visual inspection from the Owner's Representative documenting that the universal waste/hazardous building materials have been removed from the project site.

### **3.11 WASTE DISPOSAL**

#### **3.11.1 ASBESTOS**

1. All asbestos-containing waste and/or asbestos-contaminated debris shall, at a minimum, be adequately wet, double bagged in approved 6 mil polyethylene leakproof disposal bags or containers. Each bag or container shall be tagged to meet requirements of NESHAP with an asbestos caution label and a source identification label.
2. Transportation shall meet the requirements of all regulatory agencies for asbestos containing materials and shall be transported in an enclosed truck.
3. The waste disposal site shall be approved by the Missouri Department of Natural Resources for asbestos disposal. A chain-of-custody letter/waste shipment record and disposal receipts shall be provided to the Owner for all ACM and contaminated debris disposed.

#### **3.11.2 UNIVERSAL WASTE/HAZARDOUS BUILDING MATERIALS**

1. MU EHS shall assume responsibility for the proper disposal of all universal waste/hazardous building materials being removed on behalf of the Owner (MU) as a part of this Scope of Work. As the Generator of the waste, MU EHS will document and maintain records on the transportation and fate of universal waste/hazardous building materials disposed.
2. The fate of recyclable materials and recovered refrigerants will be identified prior to work beginning.



### **3.12 DRAWINGS**

1. Drawings, when provided, are not intended to be used for anything but a "reference" to the work area. Information is not specific to quantities or to exact location of ACM and/or universal waste/hazardous building materials unless explicitly noted. Contractor will be required to field verify the conditions and quantities.

### **3.13 REPORTS**

1. Reports, when provided, are intended to be used as a basis for the type and composition of the asbestos and/or universal waste/hazardous building materials present for both bidding purposes and for the information required for the notifications to the governing agencies.

# University of Missouri

## ENVIRONMENTAL HAZARDS ASSESSMENT

**UM CP242421 Power Plant 1923 & 1955**

**Brick & Mortar Repairs**

**415 S Fifth Street**

**Columbia, Missouri**

**January 2025**

PREPARED BY:



Nick Eilerman

Sr. Project Manager



James Burkeen

Environmental Scientist / Industrial Hygienist



**13 EXECUTIVE DR, SUITE 14  
FAIRVIEW HIGHTS, ILLINOIS 62208  
(618) 343-3590**

J.S. HELD PROJECT NO: 250100352

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- C Sample Location Diagrams
- D Asbestos Bulk Laboratory Analytical Report and Chain of Custody
- E Lead Laboratory Analytical Report and Chain of Custody
- F PCB (Caulk) Laboratory Analytical Report and Chain of Custody

## 1.0 INTRODUCTION

J.S Held, LLC (J.S. Held) was retained by University of Missouri to perform an assessment to determine the location and quantities of asbestos, lead and additional environmental hazards at the exterior façade of Power Plant Buildings 1923 and 1955 located at 415 S Fifth St. in Columbia Missouri. The assessment was conducted on January 2<sup>nd</sup>, 2025, by J.S. Held LLC trained asbestos and lead Inspectors. The assessment included a visual survey for environmental hazards, as well as the collection of bulk asbestos samples, the collection of bulk paint chip samples, and the preparation of diagrams locating lead-based paint (LBP) and asbestos- containing materials (ACM).

The asbestos assessment and lead sampling was performed by Missouri-accredited Asbestos Building Inspector James Burkeen (accreditation number 71180927224MOIR22874) and Missouri-accredited Lead Inspector Zach Haselhorst (Accreditation number 160228- 300004899). A copy of the J.S. Held employee asbestos certificates/Licenses are provided in **Appendix A**.

An asbestos bulk analytical results summary table is included in **Table 1**. Photographs collected are included in **Appendix B**. The asbestos bulk sample and lead paint chip sample location diagram is included in **Appendix C**, the asbestos bulk laboratory analytical report and chain of custody is included in **Appendix D**, the lead analytical laboratory report and chain of custody is included in **Appendix E**.

## 2.0 PROJECT BACKGROUND

The exterior façade of the subject buildings are scheduled to be renovated. Current plans are to renovate the existing façade while maintaining the use of the 1923 & 1955 buildings. Our understanding is that renovations consist of patching existing terra-cotta and plaster, tuckpointing of masonry-mortar, replacing damaged brick, replacing lintel(s) at 1923 building, removing existing stone coping and patching of existing cast stone with mortar repairs.

## 3.0 OBSERVATIONS

The property consists of a power plant located in Columbia Missouri. The project areas of the plant consist of two (1923 & 1955) two-story industrial buildings constructed of brick and concrete, stone coping on brick, metal framed windows, and metal glass doors. Photographs of the property are included in **Appendix A**.

## 4.0 ASBESTOS BULK SAMPLING

J.S. Held collected bulk samples for asbestos analysis of suspect materials that may be disturbed during renovation activities. The following is a summary of the asbestos sampling standards, sample collection activities and analytical results.

#### 4.1 Asbestos Bulk Sampling Standards

Both the United States Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA) regulate the disturbance, removal, handling and/or disposal of asbestos-containing materials (ACM). According to EPA and OSHA, ACM is defined as any material containing more than 1% asbestos. The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP [40 CFR Part 61, Subpart M]) requires a pre-renovation/pre-demolition asbestos inspection by an EPA Asbestos Hazard Emergency Response Act (AHERA [40 CFR Part 763, Subpart E]) accredited Asbestos Building Inspector to identify ACM.

It is impossible to confirm that a material or product is or contains asbestos by visual determination. Actual determinations can only be made by instrumental analysis. The EPA requires that the asbestos content of suspected materials be determined by collecting bulk samples and analyzing them by polarized light microscopy (PLM). The PLM method (EPA 600/R-93/116) determines both the percent and type of asbestos in the bulk samples. When a sample contains several layers, such as roofing materials, flooring and mastic, or drywall and joint compound, the layers are split and analyzed for asbestos separately. The PLM method has a laboratory reporting limit of 1% asbestos, and thus cannot verify asbestos concentrations of <1%. According to 40 CFR 61.141 Subpart M, where friable asbestos materials are determined to contain less than 10% asbestos by PLM, the asbestos content can be verified by point counting using PLM or assumed to be greater than 1%.

The OSHA Asbestos Standard for the Construction Industry (29 CFR 1926.1101) requires the identification of ACM in the workplace and worker protection for disturbance of materials containing any detectable concentration of asbestos (including  $\leq 1\%$ ). Additionally, according to OSHA 29 CFR 1926.1101, certain building materials installed prior to 1981 are presumed asbestos-containing materials (PACM) unless bulk sample PLM analysis determines them to be non-ACM.

The condition of any suspect asbestos-containing materials (SACM) or PACM observed within the property is also evaluated by the inspector to determine friability in accordance with the EPA NESHAP and AHERA. Friable ACM is defined by the EPA as ACM that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure. Nonfriable ACM is defined by the EPA as ACM that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure. Nonfriable ACM is furthered classified as Category I nonfriable ACM or Category II nonfriable ACM, depending on their potential to release fibers when damaged. Regulated Asbestos-Containing Material (RACM) is defined as friable ACM, Category I nonfriable ACM that has become friable; Category I nonfriable ACM that has been or will be sanded, ground, cut, or abraded; and Category II nonfriable ACM that has already been or is likely to become crumbled, pulverized, or reduced to powder. If a certain threshold amount of RACM is identified in a renovation or demolition operation, then all friable ACM in the operation, and in certain situations, nonfriable ACM in the operation, are subject to the NESHAP, as well as all other local or state regulations.

## 4.2 Asbestos Bulk Sample Collection

J.S. Held inspected the property for the presence of SACM and PACM that may be disturbed by renovation activities. J.S. Held identified sixteen (15) homogenous areas of SACM/PACM at the property and collected a total of forty-eight (48) samples for analysis of asbestos content in accordance with federal, state, and local regulations. Samples collected were marked on a sample location diagram and logged on the laboratory chain of custody. Materials determined to be homogenous were marked as such on the laboratory chain of custody. J.S. Held also identified the condition of the materials sampled at the time of the assessment. SACM observed throughout the property are as follows:

### Overall - Exterior

- Red Expansion Caulk
- Gray Expansion Caulk
- Tan Expansion Caulk
- Grout (Gray)
- Window Caulk (Gray)
- Exterior terra-cotta caps Caulk (White)
- Concrete Expansion Cap Caulk
- Plaster (White)
- Plaster Caulk (White)
- Door Caulk (Gray)
- Louvre Caulk
- Door Caulk (Black)
- Window Caulk (Black)
- Lintel Caulk (White)
- Concrete Patch (Gray)

## 4.3 Asbestos Bulk Sample Laboratory Analysis

The samples were submitted to EMSL Analytical, Inc. (EMSL) in St. Louis, Missouri for analysis. EMSL is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP # 101048-0) for PLM analysis. Samples were first analyzed by EPA/600/R-93/116 for Polarized Light Microscopy (PLM) and split into layers, yielding a total of Forty-eight (48) analytical results. A total of three (3) samples were determined to be Asbestos-Containing Materials (ACMs), with asbestos concentrations between 6% and 11% asbestos.

## 4.4 Asbestos Bulk Sample Laboratory Analytical Results

The analytical results indicate that the asbestos concentration greater than 1% in the following sampled materials:

### **Overall: Exterior**

- Samples 16-18 / Window Caulk (Black) Southwest Windows (Building 1923):



An asbestos bulk results summary is included in **Table 1**. The asbestos bulk sample location diagram is included in **Appendix C**, and the asbestos bulk laboratory report and chain of custody is included in **Appendix D**.

#### **4.5 Asbestos Bulk Limitations**

As with any asbestos inspection, it is possible that a contractor may encounter hidden areas that may contain asbestos but were not accessible at the time of the inspection. J.S. Held should be immediately notified of any additional suspect materials that have not been detailed, so that these materials can be sampled and correctly identified.

#### **4.6 Asbestos Bulk Sampling Conclusions**

J.S. Held performed an asbestos assessment on January 2<sup>nd</sup>, 2025, by accredited inspectors. Based on the assessment, samples 16-18 were identified to contain asbestos or are assumed to contain asbestos, as described above. Conclusions specific to categories of asbestos are as follows:

- *Category I nonfriable (and non-regulated) ACM includes: the black window caulking on the southwest exterior of Building 1923.*
- *The elevated north portions of Building 1955 were not accessible via mechanical lift during our inspection. Materials sampled at the east portions of Building 1955 are considered homogeneous to those observed at the north portions.*

#### **4.7 Asbestos Bulk Sampling Recommendations**

J.S. Held provides the following recommendations regarding the asbestos bulk sample results:

- If additional suspect materials that were not accessible during this inspection are found during or prior to renovation or demolition, additional sampling shall be performed by a Missouri licensed Asbestos Inspector.
- Any Category I ACM that is in poor condition must be abated.
- All other ACM can either be removed from the property during renovation activities or be managed in place if left undisturbed by renovation activities.
- All abatement or removal of ACM shall be performed in accordance with prevailing local, state and federal asbestos regulations.
- J.S. Held can provide specifications for asbestos abatement by an accredited Asbestos Project Designer upon request.
- As-built drawings should be utilized to identify asbestos throughout the building. Asbestos location diagrams provided by J.S. Held with this report are general and only include approximate locations of ACM as marked on in field drawings.
- J.S. Held recommends that if ACM is left in place, an Operations and Maintenance Program with a Management Plan should be developed by a Missouri accredited Asbestos Management Planner.

#### **5.0 LEAD-BASED PAINT AND MATERIALS CONTAINING LEAD ASSESSMENT**

J.S. Held performed a limited assessment to locate lead-based paint (LBP). The following is a summary of the lead sampling standards, sample collection activities and analytical results.

##### **5.1 Lead Paint Testing and Sampling Standards**

The Occupational Safety and Health Administration's (OSHA) Lead in Construction Standard (29 CFR 1926.62) regulates worker exposure to lead. EPA's Lead Renovation, Repair and Painting (RRP) Rule, 40 CFR Part 745, Subpart E – Residential Property Renovation, regulates restoration and renovation in housing and child-occupied facilities constructed prior to 1978. EPA's Resource Conservation and Recovery Act (RCRA 40 CFR Part 261) regulates proper disposal of lead-containing waste.

LBP is defined by the EPA as paint or other surface coatings that contain lead equal to or exceeding 1.0 milligram per square centimeter ( $\text{mg}/\text{cm}^2$ ) or 0.5 percent by weight (0.5 %) or 5,000 parts per million (ppm) by weight. OSHA defines lead as metallic lead, all inorganic lead compounds, and organic lead soaps, excluding organic lead compounds.



OSHA does not define a quantifiable amount of lead; therefore, any work where an employee may be occupationally exposed to lead is covered by the Lead in Construction Standard.

## 5.2 Lead Paint Chip Sample Collection

The painted components observed on the exterior of the property include plaster, metal window frames and lintels above windows. A total of three (3) paint chip samples were collected from the exterior of the subject buildings on January 2<sup>nd</sup>, 2025, in accordance with federal, state, and local regulations. Samples collected were marked on a sample location diagram and logged on the laboratory chain of custody.

## 5.3 Lead Paint Testing and Sample Laboratory Analysis

The paint chip samples were collected and submitted to EMSL Analytical, Inc. (EMSL) in St. Louis, Missouri enrolled in the National Voluntary Laboratory Accreditation Program (A2LA Accredited Environmental Testing Cert #2845.03)

## 5.4 Lead Paint Testing and Sample Laboratory Analytical Results

Of the three (3) bulk paint chip samples collected, two (2) of the samples were determined by the laboratory to be above the threshold for lead-based paint (LBP) of 0.5% by weight and are considered LBP. The remaining sample was below the threshold, but still determined to be lead-containing paint.

The lead laboratory analytical report and chain of custody is included as **Appendix E**

## 5.5 Lead Paint Limitations

Limitations specific to this inspection of the property include the following:

- Painted components may be present behind existing components. No assumptions have been made for any “hidden” components.

## 5.6 Lead Paint Conclusion

J.S. Held analyzed painted surfaces for LBP from the exterior of the subject building located at 415 S Fifth street in Columbia Missouri. Not all exterior components were observed to be painted. Based on the assessment performed by J.S. Held, LBP was confirmed present on limited components outside the building. J.S. Held assumes that all painted plaster, windows and doors; and concrete walls on the exterior of the building contain LBP and should be handled and disposed of accordingly.

*The results of the J.S. Held’s limited lead assessment detected lead in exceedance of the standard for LBP on painted substrates in the following areas:*

- **Exterior**
  - *Window Lintel (Dark Gray) at Building 1923 Southwest Windows*

- *Window Lintel (White) at Power Plant Office (401 East Stewart) Windows*

## 5.7 Lead Paint Recommendations

The purpose of the work is to renovate the exterior of the property at 415 S Fifth Street in Columbia Missouri. Any work that disturbs LBP, regardless of the intent of the occupancy, shall be performed in accordance with the OSHA Lead in Construction Standard (29 CFR 1926.62). All debris containing lead must be disposed of according to prevailing federal, state and local regulations. Following successful cleaning verification for renovation activities under the RRP Program, and following completion of build-back and cleaning, J.S. Held recommends the collection of lead dust wipe samples prior to occupancy. General recommendations for the property are as follows:

- Any additional areas or components within the property that were not observed by J.S. Held or identified in this report should be considered to contain lead until further testing can be safely conducted.
- J.S. Held recommends that an exposure assessment be performed for renovation activities that disturb painted components for compliance with OSHA 29 CFR 1926.62 Construction in Lead Standard.
- The contractor is responsible for proper disposal based on the waste categorization.

## 6.0 ADDITIONAL ENVIRONMENTAL HAZARDS

J.S. Held assessed the building for additional environmental hazards, including Polychlorinated biphenyls (PCBs) in Building Materials. A physical assessment of the exterior caulks was performed and all the caulking materials anticipated to be impacted by the renovation were sampled and analyzed for PCB content.

### 6.1 PCB Bulk Sample collection

Based on the results of visual observations, bulk samples of caulks were collected from representative surfaces/materials. Upon collection, the samples were placed in a sealable container and labeled with unique sample number using an indelible marker. A total of two (2) PCB samples were collected from suspect PCB-containing caulks at the exterior renovation areas. The observed caulks were pliable and in fair condition.

### 6.2 PCB Testing and Analytical results

The suspect PCB-containing caulk samples were delivered to EMSL for analysis by EPA Method SW846-8082A. EMSL is A2LA-certified and has been assigned the accreditation number 2845.25. The laboratory was instructed to analyze all submitted samples.

*Based on the results of laboratory analysis, PCBs were not identified above the laboratory reporting limit in the caulk samples collected from the areas to be impacted by renovations.*

## 6.2 Limitations

The EPA established a threshold of 50 ppm for PCB-containing materials to be regulated as PCB Bulk Product Waste. Samples were collected in general accordance with the sampling protocols outlined in corresponding EPA rules and guidance

## 6.3 Recommendations

The laboratory reporting limits were below the 50-ppm threshold for PCB bulk product waste. Therefore, the materials are not regulated by the EPA as PCB bulk product waste.

## 7.0 CONCLUSIONS

J.S Held was retained by the University of Missouri to perform an assessment to determine the location and quantities of asbestos, lead and additional environmental hazards at the subject buildings located at 415 S Fifth Street in Columbia Missouri. The assessment was conducted on January 2<sup>nd</sup> of 2025 by J.S. Held licensed Asbestos and Lead Inspectors. The assessment included a visual survey for environmental hazards, as well as the collection of bulk asbestos samples, bulk paint chip samples, bulk PCB in Building Materials (caulks) samples, and the preparation of diagrams locating LBP and ACM.

*Based on the assessment, ACM and LBP have been identified within the property.*

## TABLES

## **TABLE 1**

### **ASBESTOS BULK ANALYTICAL RESULTS SUMMARY**

**TABLE 1**  
**ASBESTOS ANALYTICAL SAMPLE SUMMARY**  
**UM Power Plant Inspection 1923 1955**  
**415 S Fifth Street**  
**Columbia, Missouri**

Sample Number	Homogenous Area	Sample Location	Sample Description	Collection Date	Test	Classification	Total Asbestos	Asbestos Type
1	1	1955 Building East	Red Expansion Caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
2	1	1955 Building East	Red Expansion Caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
3	1	1955 Building East	Red Expansion Caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
4	2	1955 Building East	Gray Expansion Caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
5	2	1955 Building East	Gray Expansion Caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
6	2	1923 Building West	Gray Expansion Caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
7	3	1955 Building	Tan Expansion Caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
8	3	1955 Building	Tan Expansion Caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
9	3	1955 Building	Tan Expansion Caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
10	4	1955 Building East	Grout/Mortar	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
11	4	1955 Building East	Grout/Mortar	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
12	4	1955 Building East	Grout/Mortar	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
13	4	1923 Building South	Grout/Mortar	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
14	4	1923 Building South	Grout/Mortar	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
15	4	1923 Building South	Grout/Mortar	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
16	5	1923 Building SE	Window Caulking (Gray)	1/2/2025	1/10/2025	ACM	6%	Chrysotile
17	5	1923 Building South	Window Caulking (Gray)	1/2/2025	1/10/2025	ACM	7%	Chrysotile
18	5	1923 Building SW	Window Caulking (Gray)	1/2/2025	1/10/2025	ACM	11%	Chrysotile
19	6	1923 Building South	Exterior cap Caulk (White)	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
20	6	1923 Building SE	Exterior cap Caulk (White)	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
21	6	1923 Building South	Exterior cap Caulk (White)	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
22	7	1923 Building South	Concrete expansion caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
23	7	1923 Building South	Concrete expansion caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
24	7	1923 Building South	Concrete expansion caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected

**TABLE 1**  
**ASBESTOS ANALYTICAL SAMPLE SUMMARY**  
**UM Power Plant Inspection 1923 1955**  
**415 S Fifth Street**  
**Columbia, Missouri**

Sample Number	Homogenous Area	Sample Location	Sample Description	Collection Date	Test	Classification	Total Asbestos	Asbestos Type
25	8	1955 Building - East	Plaster	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
26	8	1955 Building - East	Plaster	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
27	8	1923 Building South	Plaster	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
28	9	1955 Building - East	Plaster Caulking	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
29	9	1955 Building - East	Plaster Caulking	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
30	9	1923 Building South	Plaster Caulking	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
31	10	1923 South East Door	Door Caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
32	10	1923 South East Door	Door Caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
33	10	1923 South East Door	Door Caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
34	11	1923 Building SE	Louvre Caulking	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
35	11	1923 Building SE	Louvre Caulking	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
36	11	1923 Building SE	Louvre Caulking	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
37	12	1923 South West Door	Door Caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
38	12	1923 South West Door	Door Caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
39	12	1923 South West Door	Door Caulk	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
40	13	1923 Building Windows	Window Cualk (Black)	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
41	13	1923 Building Windows	Window Cualk (Black)	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
42	13	1923 Building Windows	Window Caulk (Black)	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
43	14	1923 Windows	Lintel Caulk (White)	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
44	14	1923 Windows	Lintel Caulk (White)	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
45	14	1923 Windows	Lintel Caulk (White)	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
46	15	1923 Building SW corner	Concrete Patch (Gray)	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
47	15	1923 Building SW corner	Concrerte Patch (Gray)	1/2/2025	1/10/2025	NON ACM	N/A	None Detected
48	15	1923 Building SW corner	Concrete Patch (Gray)	1/2/2025	1/10/2025	NON ACM	N/A	None Detected

## APPENDICES



# **APPENDIX A**

## **LICENSURE**

CERTIFICATION NUMBER:  
**7118092724MOIR22874**

THIS CERTIFIES  
**James H Burkeen**  
HAS COMPLETED THE CERTIFICATION  
REQUIREMENTS FOR  
**Inspector**



**URI**  
**ENT OF**  
**RESOURCES**

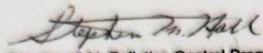
**Michael L. Parson**  
Governor

**Dru Buntin**  
Director

APPROVED: **10/08/2024**

TRAINING DATE: **09/27/2024**

EXPIRES: **10/08/2025**

  
Director of Air Pollution Control Program

OCTOBER 8, 2024

James H Burkeen  
3303 Crown Jewel Cir  
O'Fallon, MO 63366

**RE: Missouri Asbestos Occupation Certification Card**

Enclosed is your certification card for Asbestos Inspector, as issued by the Asbestos Unit of the Missouri Department of Natural Resources' Air Pollution Control Program.

Missouri Certification Number: 7118092724MOIR22874  
Course Training Date: September 27, 2024  
Missouri Certification Approval Date: October 08, 2024  
Missouri Certification Expiration Date: October 08, 2025

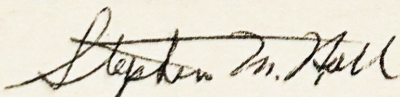
**Note:**

- All Missouri-certified asbestos personnel must comply with the following statutes and regulations:
  - Sections 643.225 to 643.250, RSMo;
  - 10 CSR 10-6.241 *Asbestos Projects-Registration, Abatement, Notification, Inspection, Demolition, and Performance Requirements*; and
  - 10 CSR 10-6.250 *Asbestos Projects-Certification, Accreditation and Business Exemption Requirements*.
- To keep your occupation certification up-to-date, you must complete an annual refresher course and submit a renewal application each year.
- In order to be eligible to renew your certification, you must successfully complete a refresher course with a Missouri-accredited training provider within 12 months of the expiration date of your current training certificate. If you exceed this grace period, you will be required to retake a Missouri-accredited initial course in order to be eligible for Missouri certification.

To obtain a copy of the certification renewal application, or review regulations and requirements, please visit our website at <http://dnr.mo.gov/env/apcp/asbestos/index.htm>.

If you have any questions please call the Air Pollution Control Program at 573-751-4817.

**AIR POLLUTION CONTROL PROGRAM**



Director of Air Pollution Control Program





Michael L. Parson  
Governor

Dru Buntin  
Director

RESOURCES

CERTIFICATION NUMBER:  
**7118111924MOIR16667**

THIS CERTIFIES  
**Zachary A Haselhorst**  
HAS COMPLETED THE CERTIFICATION  
REQUIREMENTS FOR  
**Inspector**

APPROVED: **11/25/2024** TRAINING DATE: **11/19/2024**  
EXPIRES: **11/25/2025**

*Stephen M. Hall*  
Director of Air Pollution Control Program

**RE: Missouri Asbestos Occupation Certification Card**

Enclosed is your certification card for Asbestos Inspector, as issued by the Asbestos Unit of the Missouri Department of Natural Resources' Air Pollution Control Program.

Missouri Certification Number: 7118111924MOIR16667  
Course Training Date: November 19, 2024  
Missouri Certification Approval Date: November 25, 2024  
Missouri Certification Expiration Date: November 25, 2025

**Note:**

- All Missouri-certified asbestos personnel must comply with the following statutes and regulations:
  - Sections 643.225 to 643.250, RSMo;
  - 10 CSR 10-6.241 *Asbestos Projects-Registration, Abatement, Notification, Inspection, Demolition, and Performance Requirements; and*
  - 10 CSR 10-6.250 *Asbestos Projects-Certification, Accreditation and Business Exemption Requirements.*
- To keep your occupation certification up-to-date, you must complete an annual refresher course and submit a renewal application each year.
- In order to be eligible to renew your certification, you must successfully complete a refresher course with a Missouri-accredited training provider within 12 months of the expiration date of your current training certificate. If you exceed this grace period, you will be required to retake a Missouri-accredited initial course in order to be eligible for Missouri certification.

To obtain a copy of the certification renewal application, or review regulations and requirements, please visit our website at <http://dnr.mo.gov/env/apcp/asbestos/index.htm>.

If you have any questions please call the Air Pollution Control Program at 573-751-4817.

**AIR POLLUTION CONTROL PROGRAM**

*Stephen M. Hall*

Director of Air Pollution Control Program



**STATE OF MISSOURI**  
**DEPARTMENT OF HEALTH AND SENIOR SERVICES**

**LEAD OCCUPATION LICENSE REGISTRATION**

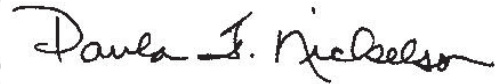
Issued to:

**Zachary A. Haselhorst**

The person, firm or corporation whose name appears on this certificate has fulfilled the requirements for licensure as set forth in the Missouri Revised Statutes 701.300-701.338, as long as not suspended or revoked, and is hereby authorized to engage in the activity listed below.

Lead Risk Assessor  
Category of License

Issuance Date: 3/1/2024  
Expiration Date: 3/1/2026  
License Number: 160229-300004899



Paula F. Nickelson  
Director  
Department of Health and Senior Services

## **APPENDIX B**

## **PHOTOGRAPHS**



Figure (1) – East walls of Buildings 1923 and 1955.



Figure (2) – SE Corner of Building 1923.



Figure (3) – Elevated terra cotta/plaster features on Building 1923.

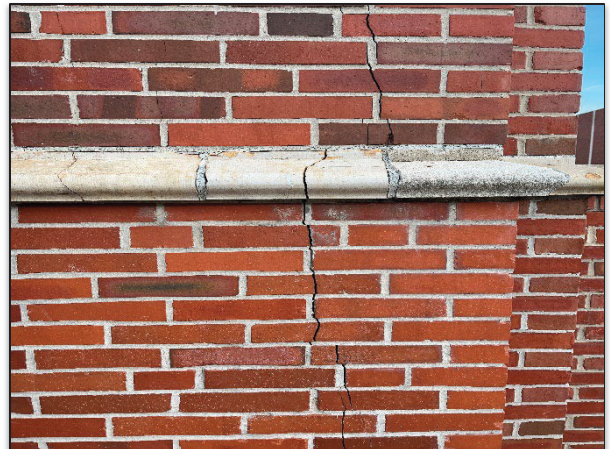


Figure (4) – Visible damage to façade.

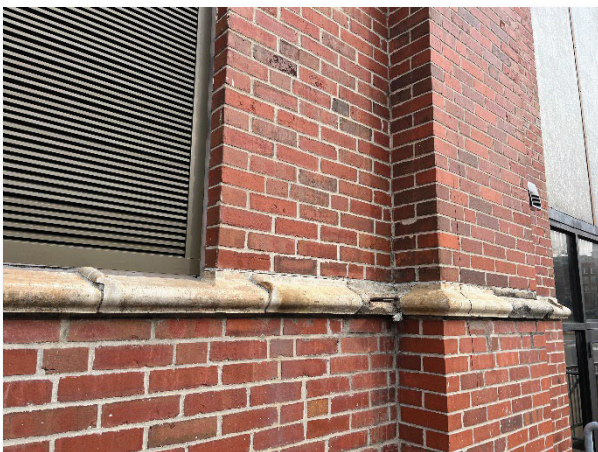


Figure (5) – Visible damage to façade.

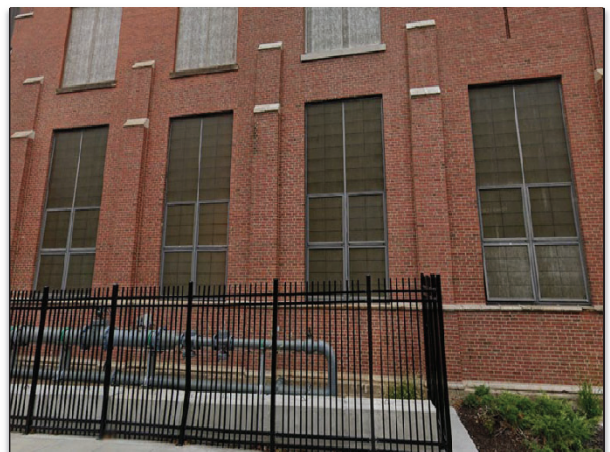


Figure (6) – SW windows of Bldg. 1923 w/ ACM caulk (HA 5) and LBP on Lintels.

## **APPENDIX C**

### **SAMPLE LOCATION DIAGRAMS**

**Asbestos Bulk Sample Location Diagrams**  
**Lead Paint Chip Sample Location**  
**PCB Bulk Sample Location**

● S-#

Asbestos Bulk Samples

● S-#

Lead Paint Chip Samples

● S-#

PCB Bulk Samples

Asbestos Bulk Sample Locations  
 University Of Missouri  
 Project Number # 250100352  
**Mizzou Power Plant Inspection**  
 415 S Fifth Street  
 Columbia, Missouri

James H Burkeen  
 Missouri Asbestos Inspector  
 7118042624MOSI22874  
 Exp. 04/28/2025

INSPECTION DATES:

01/02/2025

INSPECTED BY:

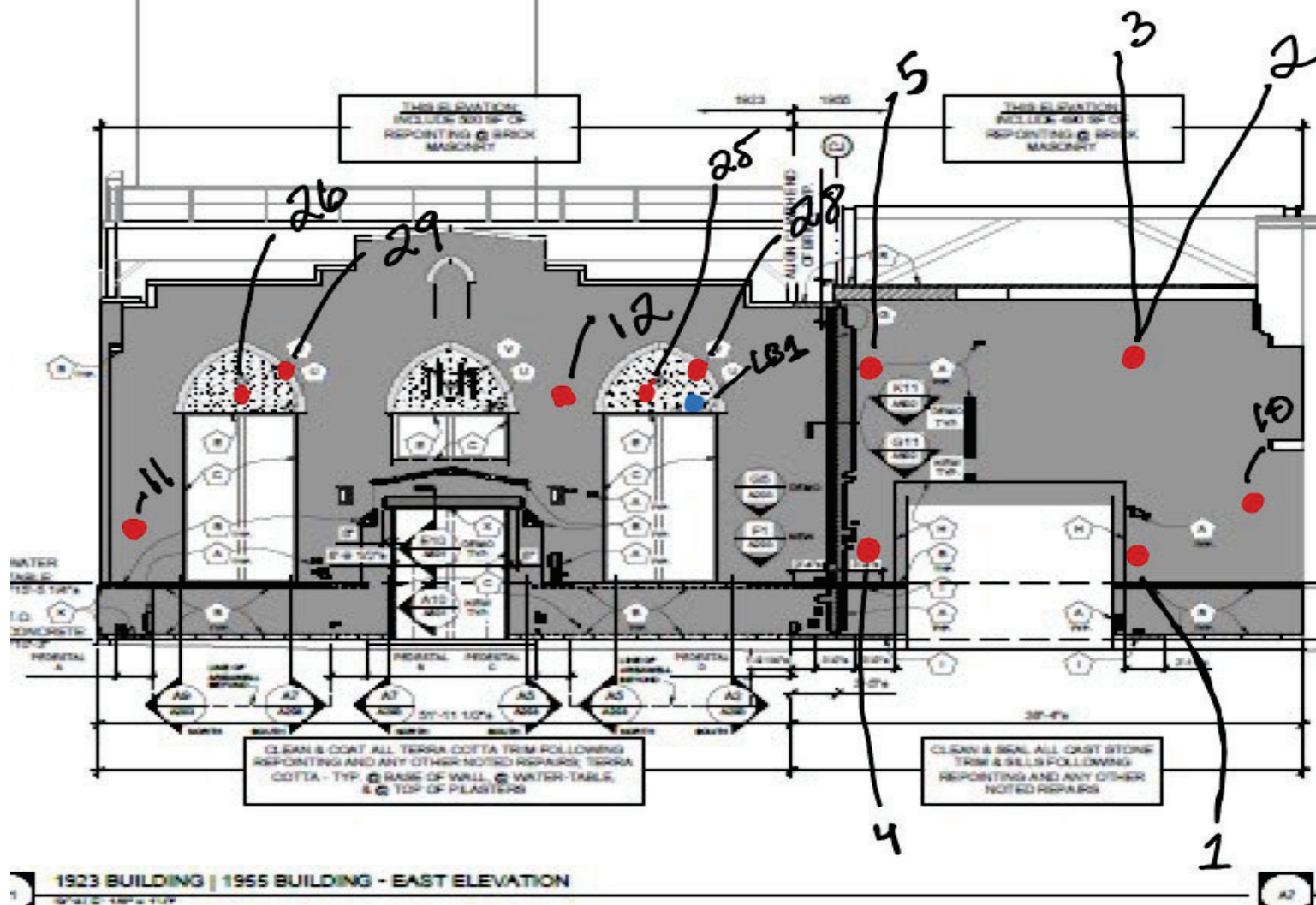
James H Burkeen

PROJECT NO.

250100352







Asbestos Bulk Sample Locations  
 University Of Missouri  
 Project Number # 250100352  
**Mizzou Power Plant Inspection**  
 415 S Fifth Street  
 Columbia, Missouri

James H Burkeen  
 Missouri Asbestos Inspector  
 7118042624MOSI22874  
 Exp. 04/28/2025

INSPECTION DATES:

01/02/2025

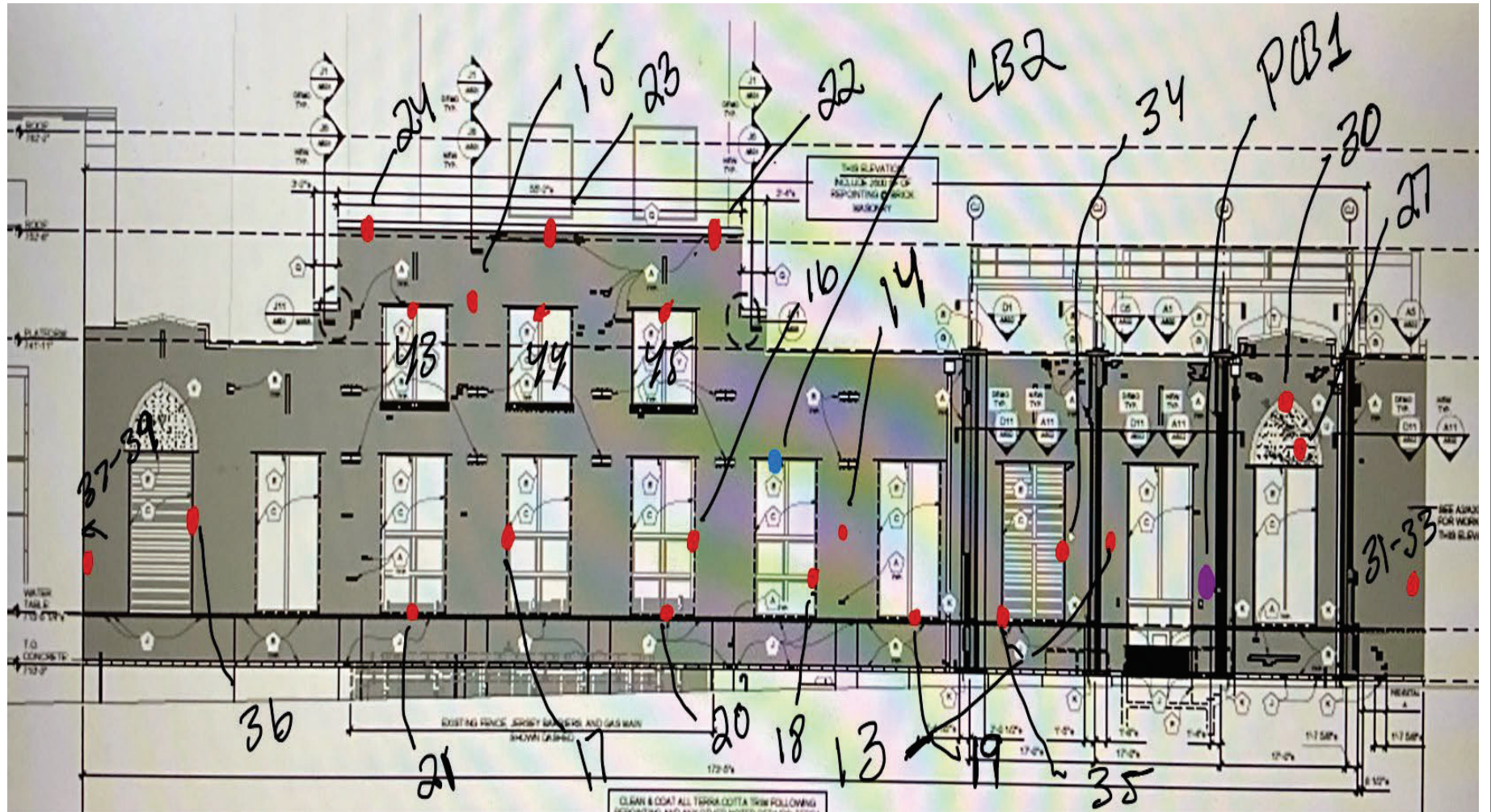
INSPECTED BY:

James H Burkeen

PROJECT NO.

250100352





Asbestos Bulk Sample Locations  
 University Of Missouri  
 Project Number # 250100352  
**Mizzou Power Plant Inspection**  
 415 S Fifth Street  
 Columbia, Missouri

James H Burkeen  
 Missouri Asbestos Inspector  
 7118042624MOSI22874  
 Exp. 04/28/2025

INSPECTION DATES:

01/02/2025

INSPECTED BY:

James H Burkeen

PROJECT NO.

250100352



## Sample Description

1-3. Red Expansion Caulk  
4-6 Gray Expansion Caulk  
7-9 Tan Expansion Caulk  
10-12 Grout  
13-15 Grout  
16-19 Window Caulk (Dark Gray)  
19-21 Exterior Caps Caulk (White)  
22-24 Concrete expansion Cap (Top of Building)  
25-27 Plaster (White)  
28-30 Plaster Caulk (White)  
31-33 Door Caulk (Dark Gray)  
34-36 Louvre Caulk (Gray)  
37-39 Door Caulk (Black)  
40-42 Window Caulk (Black)  
43-45 Lintel Caulk (White)  
46-48 Concrete patch (Gray)

Asbestos Bulk Sample Locations  
University Of Missouri  
Project Number # 250100352  
**Mizzou Power Plant Inspection**  
415 S Fifth Street  
Columbia, Missouri

James H Burkeen  
Missouri Asbestos Inspector  
7118042624MOSI22874  
Exp. 04/28/2025

### INSPECTION DATES:

01/02/2025

### INSPECTED BY:

James H Burkeen

### PROJECT NO.

250100352



## **APPENDIX D**

# **ASBESTOS BULK LABORATORY ANALYTICAL REPORT AND CHAIN OF CUSTODY**



# EMSL Analytical, Inc.

100 Green Park Industrial Court Saint Louis, MO 63123

Tel/Fax: (314) 577-0150 / (314) 776-3313

<http://www.EMSL.com> / [saintlouislab@emsl.com](mailto:saintlouislab@emsl.com)

EMSL Order: 392500059

Customer ID: ECON62

Customer PO:

Project ID:

**Attention:** Jeff Faust  
JS Held  
6 Meadow Heights Professional Park Drive  
Collinsville, IL 62234-4471

**Phone:** (314) 581-1024

**Fax:** (618) 343-3597

**Received Date:** 01/03/2025 11:45 AM

**Analysis Date:** 01/10/2025

**Collected Date:**

**Project:** Mizzou Power Plant Inspection

## Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1 392500059-0001		Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
2 392500059-0002		Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
3 392500059-0003		Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
4 392500059-0004		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5 392500059-0005		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
6 392500059-0006		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7 392500059-0007		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
8 392500059-0008		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
9 392500059-0009		Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
10 392500059-0010		Gray Non-Fibrous Homogeneous		16% Quartz 84% Non-fibrous (Other)	None Detected
11 392500059-0011		Gray Non-Fibrous Homogeneous		17% Quartz 83% Non-fibrous (Other)	None Detected
12 392500059-0012		White Non-Fibrous Homogeneous		29% Quartz 71% Non-fibrous (Other)	None Detected
13 392500059-0013		Gray Non-Fibrous Homogeneous		18% Quartz 82% Non-fibrous (Other)	None Detected
14 392500059-0014		Gray Non-Fibrous Homogeneous		19% Quartz 81% Non-fibrous (Other)	None Detected
15 392500059-0015		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
16 392500059-0016		Brown Non-Fibrous Homogeneous		94% Non-fibrous (Other)	<b>6% Chrysotile</b>

Initial report from: 01/10/2025 14:58:47



# EMSL Analytical, Inc.

100 Green Park Industrial Court Saint Louis, MO 63123

Tel/Fax: (314) 577-0150 / (314) 776-3313

<http://www.EMSL.com> / [saintlouislab@emsl.com](mailto:saintlouislab@emsl.com)

**EMSL Order:** 392500059  
**Customer ID:** ECON62  
**Customer PO:**  
**Project ID:**

## Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
17 392500059-0017		Brown Non-Fibrous Homogeneous		93% Non-fibrous (Other)	7% Chrysotile
18 392500059-0018		Black Non-Fibrous Homogeneous		89% Non-fibrous (Other)	11% Chrysotile
19 392500059-0019		White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
20 392500059-0020		White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
21 392500059-0021		White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
22 392500059-0022		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
23 392500059-0023		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
24 392500059-0024		White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
25-Plaster 392500059-0025		White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
25-Plaster 392500059-0025A		Various Non-Fibrous Homogeneous		18% Quartz 82% Non-fibrous (Other)	None Detected
26-Plaster 392500059-0026		White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
26-Plaster 392500059-0026A		Various Non-Fibrous Homogeneous		19% Quartz 81% Non-fibrous (Other)	None Detected
27 392500059-0027		White Non-Fibrous Homogeneous	6% Cellulose	94% Non-fibrous (Other)	None Detected
28 392500059-0028		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
29 392500059-0029		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
30 392500059-0030		Gray Non-Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
31-Caulk 392500059-0031		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
31-Insulation 392500059-0031A		Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
32-Caulk 392500059-0032		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 01/10/2025 14:58:47



# EMSL Analytical, Inc.

100 Green Park Industrial Court Saint Louis, MO 63123

Tel/Fax: (314) 577-0150 / (314) 776-3313

<http://www.EMSL.com> / [saintlouislaboratory@emsl.com](mailto:saintlouislaboratory@emsl.com)

**EMSL Order:** 392500059  
**Customer ID:** ECON62  
**Customer PO:**  
**Project ID:**

## Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
32-Insulation <small>392500059-0032A</small>		Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
33 <small>392500059-0033</small>		Gray Non-Fibrous Homogeneous	11% Cellulose	89% Non-fibrous (Other)	None Detected
34 <small>392500059-0034</small>		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
35 <small>392500059-0035</small>		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
36 <small>392500059-0036</small>		Gray Non-Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
37 <small>392500059-0037</small>		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
38 <small>392500059-0038</small>		Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
39 <small>392500059-0039</small>		Brown Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
40 <small>392500059-0040</small>		Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
41 <small>392500059-0041</small>		Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
42 <small>392500059-0042</small>		Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
43 <small>392500059-0043</small>		White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
44 <small>392500059-0044</small>		White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
45 <small>392500059-0045</small>		White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
46 <small>392500059-0046</small>		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
47 <small>392500059-0047</small>		Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
48 <small>392500059-0048</small>		Gray Non-Fibrous Homogeneous		26% Quartz 74% Non-fibrous (Other)	None Detected

Initial report from: 01/10/2025 14:58:47



# EMSL Analytical, Inc.

100 Green Park Industrial Court Saint Louis, MO 63123

Tel/Fax: (314) 577-0150 / (314) 776-3313

<http://www.EMSL.com> / [saintlouislabs@emsl.com](mailto:saintlouislabs@emsl.com)

EMSL Order: 392500059

Customer ID: ECON62

Customer PO:

Project ID:

Analyst(s)

*Oliver Malone (16)*

*Sue Ferrario (36)*

Jeff Siria, Laboratory Manager  
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method") but augmented with procedures outlined in the 1993 ("final") version of the method. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Saint Louis, MO NVLAP Lab Code 200742-0, CA 2668, OR 4194-001

Initial report from: 01/10/2025 14:58:47





# Asbestos Chain of Custody (Air, Bulk, Soil)

EMSL Order Number / Lab Use Only

EMSL Analytical, Inc.  
200 Route 130 North  
Cinnaminson, NJ 08077

392500059

PHONE: (800) 220-3675  
EMAIL: [CinnAslab@EMSL.com](mailto:CinnAslab@EMSL.com)

**EMSL ANALYTICAL, INC.**  
TESTING LABS • PRODUCTS • TRAINING

If Bill-To is the same as Report-To leave this section blank. Third-party billing requires written authorization.

<b>Customer Information</b>	Customer ID	Billing ID	
	Company Name: <u>J.S. HELD LLC</u>	Company Name	
	Contact Name: <u>Jeffrey Faust</u>	Billing Contact	
	Street Address: <u>13 Executive Dr Suite 14</u>	Street Address	
	City, State, Zip: <u>Fairview Heights 66208</u> Country: <u>USA</u>	City, State, Zip	Country
	Phone: <u>636-233-0411</u>	Phone	
Email(s) for Report: <u>Harper.burke@jsheld.com</u>	Email(s) for Invoice:		

Project Name/No. <u>Mizzo Power plant Inspection</u>		Purchase Order:
EMSL LIMS Project ID: <small>(if applicable, EMSL will provide)</small>	US State where samples collected:	State of Connecticut (CT) must select project location <input type="checkbox"/> Commercial (Taxable) <input type="checkbox"/> Residential (Non-Taxable)
Sampled By Name: <u>James Burkean</u>	Sampled By Signature: <u>[Signature]</u>	No. of Samples in Shipment

**Turn-Around-Time (TAT)**

3 Hour  
  4-4.5 Hour AHERA ONLY  
  6 Hour  
  24 Hour  
  32 Hour  
  48 Hour  
  72 Hour  
  96 Hour  
  1 Week  
  2 Week

TEM Air 3-6 Hour, please call ahead to schedule. 32 Hour TAT available for select tests only; samples must be submitted by 11:30 am.

<p><b>PCM Air</b></p> <p><input type="checkbox"/> NIOSH 7400</p> <p><input type="checkbox"/> NIOSH 7400 w/ 8hr. TWA</p> <p><b>PLM - Bulk (reporting limit)</b></p> <p><input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (&lt;1%)</p> <p><input type="checkbox"/> PLM EPA NOB (&lt;1%)</p> <p><input type="checkbox"/> POINT COUNT</p> <p style="margin-left: 20px;"><input type="checkbox"/> 400 (&lt;0.25%)   <input type="checkbox"/> 1,000 (&lt;0.1%)</p> <p>POINT COUNT w/ GRAVIMETRIC</p> <p style="margin-left: 20px;"><input type="checkbox"/> 400 (&lt;0.25%)   <input type="checkbox"/> 1,000 (&lt;0.1%)</p> <p><input type="checkbox"/> NIOSH 9002 (&lt;1%)</p> <p><input type="checkbox"/> NYS 198.1 (Friable - NY)</p> <p><input type="checkbox"/> NYS 198.6 NOB (Non-Friable - NY)</p> <p><input type="checkbox"/> NYS 198.8 (Vermiculite SM-V)</p>	<p style="text-align: center;"><b>Test Selection</b></p> <p><b>TEM - Air</b></p> <p><input type="checkbox"/> AHERA 40 CFR, Part 763</p> <p><input type="checkbox"/> NIOSH 7402</p> <p><input type="checkbox"/> EPA Level II</p> <p><input type="checkbox"/> ISO 10312*</p> <p style="text-align: center;"><b>TEM - Bulk</b></p> <p><input type="checkbox"/> TEM EPA NOB</p> <p><input type="checkbox"/> NYS NOB 198.4 (Non-Friable-NY)</p> <p><input type="checkbox"/> TEM EPA 600/R-93/116 w Milling Prep (0.1%)</p> <p style="text-align: center;"><b>Other Test (please specify)</b></p>	<p><b>TEM - Settled Dust</b></p> <p><input type="checkbox"/> Microvac - ASTM D5755</p> <p><input type="checkbox"/> Wipe - ASTM D6480</p> <p><input type="checkbox"/> Qualitative via Filtration Prep</p> <p><input type="checkbox"/> Qualitative via Drop Mount Prep</p> <p><b>Soil - Rock - Vermiculite (reporting limit)*</b></p> <p><input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (&lt;0.25%)</p> <p><input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (&lt;0.1%)</p> <p><input type="checkbox"/> TEM EPA 600/R-93/116 with milling prep (&lt;0.1%)</p> <p><input type="checkbox"/> TEM Qualitative via Filtration Prep</p> <p><input type="checkbox"/> TEM Qualitative via Drop Mount Prep</p>
---	---	--

\*Please call with your project-specific requirements

Positive Stop - Clearly Identified Homogeneous Areas (HA)      Filter Pore Size (Air Samples)     0.8um     0.45um

Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
1	Red Expansion Caulk		
2	↓		
3	↓		
4	Gray Expansion Caulk		
5	↓		
6	↓		
7	Tan Expansion Caulk (1955B)		
8	Tan Expansion Caulk (1955B)		

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by: <u>[Signature]</u>	Date/Time: <u>11/3/25 11:38</u>	Received by: <u>[Signature]</u>	Date/Time: <u>01/03/25 11:45</u>
Relinquished by:	Date/Time:	Received by:	Date/Time:

Controlled Document - COC-05 Asbestos R16 10/28/2021     **AGREE TO ELECTRONIC SIGNATURE** (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.



**EMSL ANALYTICAL, INC.**  
TESTING LABS • PRODUCTS • TRAINING

**Asbestos Chain of Custody (Air, Bulk, Soil)**

EMSL Order Number / Lab Use Only

EMSL Analytical, Inc.  
200 Route 130 North  
Cinnaminson, NJ 08077

PHONE: (800) 220-3675  
EMAIL: CinnAslab@EMSL.com

392500059

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
9	Tan Expansion Caulk (1955B)		
10	Grout (gray) 1955 building		
11	Grout (gray) 1955 building		
12	Grout (gray) 1955 building		
13	Grout (gray) 1923 building		
14	Grout (gray) 1923 building		
15	Grout (gray) 1923 building		
16	Window Caulk (1923 building E)		
17	Window Caulk (South windows)		
18	Window Caulk (South windows)		
19	Exterior Caps Caulk (white)		
20	Exterior Caps Caulk (white)		
21	Exterior Caps Caulk (white)		
22	Concrete Expansion cap (caulk)		
23	Concrete Expansion cap (caulk)		
24	Concrete Expansion cap (caulk)		
25	White plaster (1955 East)		
26	White plaster (1955 East)		
27	White plaster (1923 SE)		
28	White plaster caulk (1955 E)		
29	White plaster caulk (1955 E)		
30	White plaster caulk (1923 SE)		
31	Door Caulk (1923 building)		
32	Door Caulk (1923 building)		
33	Door Caulk (1923 building)		

Method of Shipment:		Sample Condition Upon Receipt	
Relinquished by: <i>[Signature]</i>	Date/Time: 11/23/25 11:25:22	Received by: <i>[Signature]</i> W/L	Date/Time: 01/03/25 11:45
Relinquished by:	Date/Time:	Received by:	Date/Time:

Controlled Document - COC-05 Asbestos R16 10/26/2021

AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.



**Asbestos Chain of Custody (Air, Bulk, Soil)**

EMSL Order Number / Lab Use Only

EMSL Analytical, Inc.  
 200 Route 130 North  
 Cinnaminson, NJ 08077

392500059

PHONE: (800) 220-3675  
 EMAIL: CinnAsblab@EMSL.com

EMSL ANALYTICAL, INC.  
 TESTING LABS • PRODUCTS • TRAINING

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
34	Louvre Caulk (1923 SE)		
35	Louvre Caulk (1923 SE)		
36	Louvre Caulk (1923 SE)		
37	Door Caulk (1923 SE)		
38	Door Caulk (1923 SE)		
39	Door Caulk (1923 SE)		
40	Window Caulk (Black)		
41	Window Caulk (Black)		
42	Window Caulk (Black)		
43	Lintel Caulk (white)		
44	Lintel Caulk (white)		
45	Lintel Caulk (white)		
46	Concrete Patch (gray)		
47	Concrete Patch (gray)		
48	Concrete Patch (gray)		

Method of Shipment		Sample Condition Upon Receipt:	
Relinquished by <i>[Signature]</i>	Date/Time: 1/2/2015 11:58	Received by <i>[Signature]</i>	Date/Time: 01/03/15 1145
Relinquished by	Date/Time	Received by	Date/Time

Controlled Document - CDC-05 Asbestos R16 10/28/2021  AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

**APPENDIX E**  
**LEAD LABORATORY ANALYTICAL REPORT AND**  
**CHAIN OF CUSTODY**



**EMSL Analytical, Inc.**

100 Green Park Industrial Court, St.Louis, MO, 63123  
Telephone: (314) 577-0150 Fax:(314) 776-3313  
EMSL-SL-39

**EMSL Order ID:** 392550124  
**LIMS Reference ID:** FD50124  
**EMSL Customer ID:** ECON62

**Attention:** Jeff Faust  
JS Held [ECON62]  
6 Meadow Heights Professional Park Drive  
Collinsville, IL 62234-4471  
(314) 581-1024  
jeffry.faust@jsheld.com

**Project Name:** Mizzol Power Plant inspection

**Customer PO:**  
**EMSL Sales Rep:** Jeromy Bish  
**Received:** 01/03/2025 11:45  
**Reported:** 01/13/2025 16:58

**Analytical Results**

Analyte	Results	RL	Weight(g)	Prep Date & Tech	Prep Method	Analysis Date & Analyst	Analytical Method	Q	DF
<b>Client Sample ID: 1/39027-01</b>							<b>Date Sampled: 01/02/25</b>		
<b>Matrix: Chips</b>							<b>LIMS Reference ID: FD50124-01</b>		
<b>Lead</b>	0.017 % wt	0.008 % wt	0.2533	01/07/25 FS	SW-846 3050B	01/07/25 FS	SW 846-7000B		1
Sample Comments:									
<b>Client Sample ID: 2/39027-02</b>							<b>Date Sampled: 01/02/25</b>		
<b>Matrix: Chips</b>							<b>LIMS Reference ID: FD50124-02</b>		
<b>Lead</b>	33 % wt	1.6 % wt	0.2541	01/07/25 FS	SW-846 3050B	01/07/25 FS	SW 846-7000B	D	200
Sample Comments:									
<b>Client Sample ID: 3/39027-03</b>							<b>Date Sampled: 01/02/25</b>		
<b>Matrix: Chips</b>							<b>LIMS Reference ID: FD50124-03</b>		
<b>Lead</b>	20 % wt	0.80 % wt	0.2504	01/07/25 FS	SW-846 3050B	01/07/25 FS	SW 846-7000B	D	100
Sample Comments:									



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EMSL-SL-39

**EMSL Order ID:** 392550124  
**LIMS Reference ID:** FD50124  
**EMSL Customer ID:** ECON62

**Attention:** Jeff Faust  
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Collinsville, IL 62234-4471  
(314) 581-1024  
jeffry.faust@jsheld.com

**Project Name:** Mizzol Power Plant inspection

**Customer PO:**  
**EMSL Sales Rep:** Jeromy Bish  
**Received:** 01/03/2025 11:45  
**Reported:** 01/13/2025 16:58

**Work Order Case Narrative**

Replaces preliminary report 39027 issued 01/07/25.



**EMSL Analytical, Inc.**

100 Green Park Industrial Court, St.Louis, MO, 63123  
Telephone: (314) 577-0150 Fax:(314) 776-3313  
EMSL-SL-39

**EMSL Order ID:** 392550124  
**LIMS Reference ID:** FD50124  
**EMSL Customer ID:** ECON62

**Attention:** Jeff Faust  
JS Held [ECON62]  
6 Meadow Heights Professional Park Drive  
Collinsville, IL 62234-4471  
(314) 581-1024  
jeffry.faust@jsheld.com

**Project Name:** Mizzol Power Plant inspection

**Customer PO:**  
**EMSL Sales Rep:** Jeromy Bish  
**Received:** 01/03/2025 11:45  
**Reported:** 01/13/2025 16:58

**Certified Analyses included in this Report**

Analyte	Certifications
<b>SW 846-7000B in Chips</b>	
Lead	39-AIHA ELLAP

**List of Certifications**

Code	Description	Number	Expires
39-AIHA ELLAP	American Industrial Hygiene Association (AIHA-LAP) - ELLAP	102636	04/01/2025
39-AIHA IHLAP	American Industrial Hygiene Association (AIHA-LAP) - IHLAP	102636	04/01/2025
39-MO	Missouri Department of Natural Resources Drinking Water Laboratory	165	05/31/2027
39-A2LA Food	A2LA Food Microbiology Certificate	2845.10	04/30/2026
39-OR	Oregon Environmental Laboratory Accreditation Program (NELAP)	4194	03/26/2025

Please see the specific Field of Testing (FOT) on [www.emsl.com](http://www.emsl.com) <<http://www.emsl.com>> for a complete listing of parameters for which EMSL is certified.

**Notes and Definitions**

Item	Definition
D	Analyte was reported from a dilution run.
(Dig)	For metals analysis, sample was digested.
[2C]	Reported from the second channel in dual column analysis.
DF	Dilution Factor
MDL	Method Detection Limit.
ND	Analyte was NOT DETECTED at or above the detection limit.
NR	Spike/Surrogate showed no recovery.
Q	Qualifier
RL	Reporting Limit
Wet	Sample is not dry weight corrected.

Measurement of uncertainty and any applicable definitions of method modifications are available upon request. Per EPA NLLAP policy, sample results are not blank corrected.



**EMSL Analytical, Inc.**

100 Green Park Industrial Court, St.Louis, MO, 63123  
Telephone: (314) 577-0150 Fax:(314) 776-3313  
EMSL-SL-39

**EMSL Order ID:** 392550124  
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**Project Name:** Mizzol Power Plant inspection

**Customer PO:**  
**EMSL Sales Rep:** Jeromy Bish  
**Received:** 01/03/2025 11:45  
**Reported:** 01/13/2025 16:58

---

Jeff Siria Laboratory Manager or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. QC sample results are within quality control criteria and met method specifications unless otherwise noted. All results for soil samples are reported on a dry weight basis, unless otherwise noted.

Analysis following EMSL SOP for the Determination of Environmental Lead by FLAA. The laboratory has a reporting limit of 0.008% by wt., based upon a minimum sample weight of 0.25g submitted to the lab, and is not responsible for any result or reporting limit provided in mg/cm<sup>2</sup> since it is dependent upon an area value provided by non-lab personnel. A "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty and definitions of modifications are available upon request. Results in this report are not blank corrected unless specified.





# Lead Chain of Custody

EMSL Order Number / Lab Use Only

EMSL Analytical, Inc.  
200 Route 130 North  
Cinnaminson, NJ 08077

EMSL ANALYTICAL, INC.  
TESTING LABS • PRODUCTS • TRAINING

FD50124

PHONE: (800) 220-3675

EMAIL: CinnaminsonLeadLab@emsl.com

Customer Information	Customer ID:	Billing ID:	
	Company Name: <i>J.S. held LLC</i>	Company Name:	
	Contact Name: <i>Jeffrey Faust</i>	Billing Contact:	
	Street Address: <i>13 Executive Dr. Suite 14</i>	Street Address:	
	City, State, Zip: <i>Fairview heights IL 60009</i> Country: <i>USA</i>	City, State, Zip:	Country:
	Phone: <i>636 233-0411</i>	Phone:	
Email(s) for Report: <i>Harper.burkeand@jsheld.com</i>	Email(s) for Invoice:		

### Project Information

Project Name/No: *Mizzol Power Plant inspection* Purchase Order:

EMSL LIMS Project ID: (if applicable, EMSL will provide) US State where samples collected: State of Connecticut (CT) must select project location:  
 Commercial (Taxable)  Residential (Non-Taxable)

Sampled By Name: *CAGHARY HASELHARTS* Sampled By Signature: *Sabrina A. Haselhart* No. of Samples in Shipment:

Turn-Around Time (TAT)  
 3 Hour  6 Hour  24 Hour  32 Hour  48 Hour  72 Hour  96 Hour  1 Week  2 Week

Please call ahead for large projects and/or turnaround times 6 Hours or Less. \*32 Hour TAT available for select tests only; samples must be submitted by 11:30am.

MATRIX	METHOD	INSTRUMENT	REPORTING LIMIT	SELECTION
CHIPS <input checked="" type="checkbox"/> % by wt. <input type="checkbox"/> ppm (mg/kg) <input type="checkbox"/> mg/cm <sup>2</sup> *Reporting Limit based on a minimum 0.25g sample weight. **Not appropriate for Ceramic Tiles - XRF is recommended	SW 846-7000B <i>FI</i> <i>01.07.15</i>	Flame Atomic Absorption	0.008% (80ppm)	<input checked="" type="checkbox"/>
	SW 846-6010D*	ICP-OES	0.0004% (4ppm)	<input type="checkbox"/>
	NIOSH 7082	Flame Atomic Absorption	4µg/filter	<input type="checkbox"/>
AIR	NIOSH 7303M	ICP-OES	1.0µg/filter	<input type="checkbox"/>
	NIOSH 7303M	ICP-MS	0.05µg/filter	<input type="checkbox"/>
WIPE <input type="checkbox"/> ASTM <input type="checkbox"/> NON-ASTM *If no box is checked, non-ASTM Wipe is assumed	SW 846-7000B	Flame Atomic Absorption	10µg/wipe	<input type="checkbox"/>
	SW 846-6010D*	ICP-OES	1.0µg/wipe	<input type="checkbox"/>
TCLP	SW 846-1311 / 7000B / SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	SW 846-1311 / SW 846-6010D*	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
SPLP	SW 846-1312 / 7000B / SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	SW 846-1312 / SW 846-6010D*	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
TTLIC	22 CCR App. II, 7000B	Flame Atomic Absorption	40mg/kg (ppm)	<input type="checkbox"/>
	22 CCR App. II, SW 846-6010D*	ICP-OES	2mg/kg (ppm)	<input type="checkbox"/>
STLC	22 CCR App. II, 7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	22 CCR App. II, SW 846-6010D*	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
Soil	SW 846-7000B	Flame Atomic Absorption	40mg/kg (ppm)	<input type="checkbox"/>
	SW 846-6010D*	ICP-OES	2mg/kg (ppm)	<input type="checkbox"/>
Wastewater	SM 3111B / SW 846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
Unpreserved <input type="checkbox"/>				
Preserved with HNO3 <input type="checkbox"/> PH<2	EPA 200.7	ICP-OES	0.020 mg/L (ppm)	<input type="checkbox"/>
Drinking Water	EPA 200.5	ICP-OES	0.003 mg/L (ppm)	<input type="checkbox"/>
Unpreserved <input type="checkbox"/>				
Preserved with HNO3 <input type="checkbox"/> PH<2	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	<input type="checkbox"/>
TSP/SPM Filter	40 CFR Part 50	ICP-OES	12 µg/filter	<input type="checkbox"/>
Other:				<input type="checkbox"/>

Sample Number	Sample Location	Volume / Area	Date / Time Sampled
<i>1</i>	<i>White Plaster Paint (SE)</i>		<i>11/2/2025 11:00AM</i>
<i>2</i>	<i>Window lintle (Dark gray)</i>		
<i>3</i>	<i>Lintle Paint (white) SW windows</i>		

Method of Shipment: Sample Condition Upon Receipt:

Relinquished by: *James Bubea* Date/Time: *11/3/25 11:38 AM* Received by: *Joakim Wli* Date/Time: *01/03/25 1145*

Relinquished by: Date/Time: Received by: Date/Time:

Controlled Document - COC-25 Lead R18 04/04/2024 \*6010C Available Upon Request

AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

**APPENDIX F**  
**PCB (CAULK) LABORATORY ANALYTICAL REPORT**  
**AND CHAIN OF CUSTODY**

**EMSL Analytical, Inc.**

6340 Castleplace Drive, Indianapolis, IN, 46250  
 Telephone: 317.803.2997 Fax:317.803.3047  
 IndianapolisLab@emsl.com / www.Emsl.com

EMSL Order ID: 162550013  
 LIMS Reference ID: CD50013  
 EMSL Customer ID: ECON62

**Attention:** Jeff Faust  
 JS Held [ECON62]  
 6 Meadow Heights Professional Park Drive  
 Collinsville, IL 62234-4471  
 (314) 581-1024  
 jeffry.faust@jsheld.com

**Project Name:** [none]  
  
**Customer PO:**  
**EMSL Sales Rep:** Jeromy Bish  
**Received:** 01/06/2025 11:32  
**Reported:** 01/09/2025 12:59

**Analytical Results**

Analyte	Results	RL	Weight(g)	Prep Date & Tech	Prep Method	Analysis Date & Analyst	Analytical Method	Q	DF
---------	---------	----	-----------	------------------	-------------	-------------------------	-------------------	---	----

**Client Sample ID: 1/Expansion Caulk**

Date Sampled: 01/02/25

Matrix: Solid

LIMS Reference ID: CD50013-01

Aroclor-1016	<0.81 mg/kg	0.81 mg/kg	0.6183	01/07/25 BxM	SW846 3546	01/08/25 BM	SW846-8082A	1	
Aroclor-1221	<0.81 mg/kg	0.81 mg/kg	0.6183	01/07/25 BxM	SW846 3546	01/08/25 BM	SW846-8082A	1	
Aroclor-1232	<0.81 mg/kg	0.81 mg/kg	0.6183	01/07/25 BxM	SW846 3546	01/08/25 BM	SW846-8082A	1	
Aroclor-1242	<0.81 mg/kg	0.81 mg/kg	0.6183	01/07/25 BxM	SW846 3546	01/08/25 BM	SW846-8082A	1	
Aroclor-1248	<0.81 mg/kg	0.81 mg/kg	0.6183	01/07/25 BxM	SW846 3546	01/08/25 BM	SW846-8082A	1	
Aroclor-1254	<0.81 mg/kg	0.81 mg/kg	0.6183	01/07/25 BxM	SW846 3546	01/08/25 BM	SW846-8082A	1	
Aroclor-1260	<0.81 mg/kg	0.81 mg/kg	0.6183	01/07/25 BxM	SW846 3546	01/08/25 BM	SW846-8082A	1	
Aroclor-1262	<0.81 mg/kg	0.81 mg/kg	0.6183	01/07/25 BxM	SW846 3546	01/08/25 BM	SW846-8082A	1	
Aroclor-1268	<0.81 mg/kg	0.81 mg/kg	0.6183	01/07/25 BxM	SW846 3546	01/08/25 BM	SW846-8082A	1	

Sample Comments:

**Client Sample ID: 2/Expansion Caulk**

Date Sampled: 01/03/25

Matrix: Solid

LIMS Reference ID: CD50013-02

Aroclor-1016	<0.89 mg/kg	0.89 mg/kg	0.5602	01/07/25 BxM	SW846 3546	01/07/25 BM	SW846-8082A	1	
Aroclor-1221	<0.89 mg/kg	0.89 mg/kg	0.5602	01/07/25 BxM	SW846 3546	01/07/25 BM	SW846-8082A	1	
Aroclor-1232	<0.89 mg/kg	0.89 mg/kg	0.5602	01/07/25 BxM	SW846 3546	01/07/25 BM	SW846-8082A	1	
Aroclor-1242	<0.89 mg/kg	0.89 mg/kg	0.5602	01/07/25 BxM	SW846 3546	01/07/25 BM	SW846-8082A	1	
Aroclor-1248	<0.89 mg/kg	0.89 mg/kg	0.5602	01/07/25 BxM	SW846 3546	01/07/25 BM	SW846-8082A	1	
Aroclor-1254	<0.89 mg/kg	0.89 mg/kg	0.5602	01/07/25 BxM	SW846 3546	01/07/25 BM	SW846-8082A	1	
Aroclor-1260	<0.89 mg/kg	0.89 mg/kg	0.5602	01/07/25 BxM	SW846 3546	01/07/25 BM	SW846-8082A	1	
Aroclor-1262	<0.89 mg/kg	0.89 mg/kg	0.5602	01/07/25 BxM	SW846 3546	01/07/25 BM	SW846-8082A	1	
Aroclor-1268	<0.89 mg/kg	0.89 mg/kg	0.5602	01/07/25 BxM	SW846 3546	01/07/25 BM	SW846-8082A	1	

Sample Comments:



# EMSL Analytical, Inc.

6340 Castleplace Drive, Indianapolis, IN, 46250  
Telephone: 317.803.2997 Fax:317.803.3047  
IndianapolisLab@emsl.com / www.Emsl.com

EMSL Order ID: 162550013  
LIMS Reference ID: CD50013  
EMSL Customer ID: ECON62

**Attention:** Jeff Faust  
JS Held [ECON62]  
6 Meadow Heights Professional Park Drive  
Collinsville, IL 62234-4471  
(314) 581-1024  
jeffry.faust@jsheld.com

**Project Name:** [none]  
**Customer PO:**  
**EMSL Sales Rep:** Jeromy Bish  
**Received:** 01/06/2025 11:32  
**Reported:** 01/09/2025 12:59

## Certified Analyses included in this Report

Analyte	Certifications
<b>SW846-8082A in Solid</b>	
Aroclor-1016	16-A2LA Chemistry,16-CA ELAP,16-FLDOH,16-NJDEP,16-NYDOH
Aroclor-1221	16-A2LA Chemistry,16-CA ELAP,16-FLDOH,16-NJDEP,16-NYDOH
Aroclor-1232	16-A2LA Chemistry,16-CA ELAP,16-FLDOH,16-NJDEP,16-NYDOH
Aroclor-1242	16-A2LA Chemistry,16-CA ELAP,16-FLDOH,16-NJDEP,16-NYDOH
Aroclor-1248	16-A2LA Chemistry,16-CA ELAP,16-FLDOH,16-NJDEP,16-NYDOH
Aroclor-1254	16-A2LA Chemistry,16-CA ELAP,16-FLDOH,16-NJDEP,16-NYDOH
Aroclor-1260	16-A2LA Chemistry,16-CA ELAP,16-FLDOH,16-NJDEP,16-NYDOH
Aroclor-1262	16-A2LA Chemistry,16-CA ELAP,16-FLDOH,16-NJDEP,16-NYDOH
Aroclor-1268	16-A2LA Chemistry,16-CA ELAP,16-FLDOH,16-NJDEP,16-NYDOH

## List of Certifications

Code	Description	Number	Expires
16-MO	Missouri Drinking Water	10180	03/31/2026
16-NYDOH	New York Potable Water, Metals Solid and Hazardous Waste - Asbestos	12130	04/01/2025
16-AIHA ELLAP	EMSL Analytical, Inc. Indianapolis, IN AIHA-LAP, LLC ELLAP Accredited	157245	06/01/2025
16-AIHA IHLAP	EMSL Analytical, Inc. Indianapolis, IN AIHA-LAP, LLC IHLAP Accredited	157245	06/01/2025
16-CA ELAP	California Metals in DW, Chemistry and Bulk Asbestos in Hazardous Waste	2575	06/30/2025
16-A2LA Food	A2LA Food Microbiology	2845.11	01/31/2026
16-A2LA Chemistry	A2LA Environmental and Chemistry	2845.25	01/31/2026
16-IN Metals/Asbestos	Indiana Lead and Metals and Asbestos in Drinking Water	C-49-09	12/31/2026
16-OHDOH	Ohio - Lead in Paint Chips, Wipes, Soil and Air	E10040	05/03/2025
16-FLDOH	Florida Asbestos and Metals in Drinking Water, PCBs	E871170	06/30/2025
16-NJDEP	New Jersey Metals, Organics and Inorganics in DW PCBs	IN002	06/30/2025
16-IN Colilert/HPC	Indiana Colilert and HPC	M-49-06	12/31/2026

Please see the specific Field of Testing (FOT) on [www.emsl.com](http://www.emsl.com) <<http://www.emsl.com>> for a complete listing of parameters for which EMSL is certified.

## Notes and Definitions

Item	Definition
(Dig)	For metals analysis, sample was digested.
[2C]	Reported from the second channel in dual column analysis.
DF	Dilution Factor
MDL	Method Detection Limit.
ND	Analyte was NOT DETECTED at or above the detection limit.
NR	Spike/Surrogate showed no recovery.
Q	Qualifier
RL	Reporting Limit
Wet	Sample is not dry weight corrected.



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Collinsville, IL 62234-4471  
(314) 581-1024  
jeffry.faust@jsheld.com

**Project Name:** [none]

**Customer PO:**  
**EMSL Sales Rep:** Jeromy Bish  
**Received:** 01/06/2025 11:32  
**Reported:** 01/09/2025 12:59

Measurement of uncertainty and any applicable definitions of method modifications are available upon request. Per EPA NLLAP policy, sample results are not blank corrected.

---

Aleks Kuchenbrod Laboratory Manager or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. QC sample results are within quality control criteria and met method specifications unless otherwise noted. All results for soil samples are reported on a dry weight basis, unless otherwise noted.



Industrial Hygiene - Chain of Custody

200 Route 130 North  
Cinnaminson, NJ 08077

EMSL ANALYTICAL, INC.  
TESTING LABS • PRODUCTS • TRAINING

EMSL Order Number / Lab Use Only

142550013

PHONE: (800) 220-3675

EMAIL: c@emsl.com

If Bill-To is the same as Report-To leave this section blank. Third-party billing requires written authorization.

Customer Information	Customer ID:	Billing ID:	
	Company Name: <i>J.S. Held LLC</i>	Company Name:	
	Contact Name: <i>Jeffrey Faust</i>	Billing Contact:	
	Street Address: <i>13 Executive Dr Suite 14</i>	Street Address:	
	City, State, Zip: <i>Fairview Heights 62208</i> Country: <i>USA</i>	City, State, Zip:	Country:
Phone: <i>N/A (636) 233-0411</i>	Phone:		
Email(s) for Report: <i>Harper.burkeem@jsheld.com</i>	Email(s) for Invoice:		

Project Name/No: *Mizzo Power Plant Inspection* Purchase Order:

EMSL LIMS Project ID: (If applicable, EMSL will provide) US State where samples collected: State of Connecticut (CT) must select project location:  
 Commercial (Taxable)  Residential (Non-Taxable)

Media Type: Media Manufacturer/Part Number: Media Lot Number:

Sampled By Name: *James Burkeen* Sampled By Signature: *James Burkeen* No. Samples in Shipment:

Turnaround Time (TAT) Options - Please check: (If no selection made, Standard 2 Week (EOD) TAT will apply)  
 2 Week  1 Week  4 Day  3 Day  2 Day  1 Day  Other (Call Lab)

Client Sample ID	Location/Description	Analyte/Method	Media	Flow (lpm)	Sample Time		Volume/Area	Sample Type	Sample Date	Comments
					On	Off				
<i>1</i>	<i>Expansion Caulk</i>	<i>PCB</i>	<i>Bulk</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<input type="checkbox"/> Area <input type="checkbox"/> Personal	<i>1/2/2025</i>	
<i>2</i>	<i>Expansion Caulk</i>	<i>PCB</i>	<i>Bulk</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<input type="checkbox"/> Area <input type="checkbox"/> Personal	<i>↓</i>	
								<input type="checkbox"/> Area <input type="checkbox"/> Personal		
								<input type="checkbox"/> Area <input type="checkbox"/> Personal		
								<input type="checkbox"/> Area <input type="checkbox"/> Personal		
								<input type="checkbox"/> Area <input type="checkbox"/> Personal		
								<input type="checkbox"/> Area <input type="checkbox"/> Personal		
								<input type="checkbox"/> Area <input type="checkbox"/> Personal		

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Method of Shipment: Sample Condition Upon Receipt:

Relinquished by: *James Burkeen* Date/Time: *1/3/2025 11:38 AM* Received by: *Joan Ming wli* Date/Time: *01/03/25 11:45*  
 Relinquished by: Date/Time: Received by: *[Signature]* Date/Time: *1/03/25 11:32 AM*

Controlled Document - COC-21 Industrial Hygiene R4 05/12/2021  AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

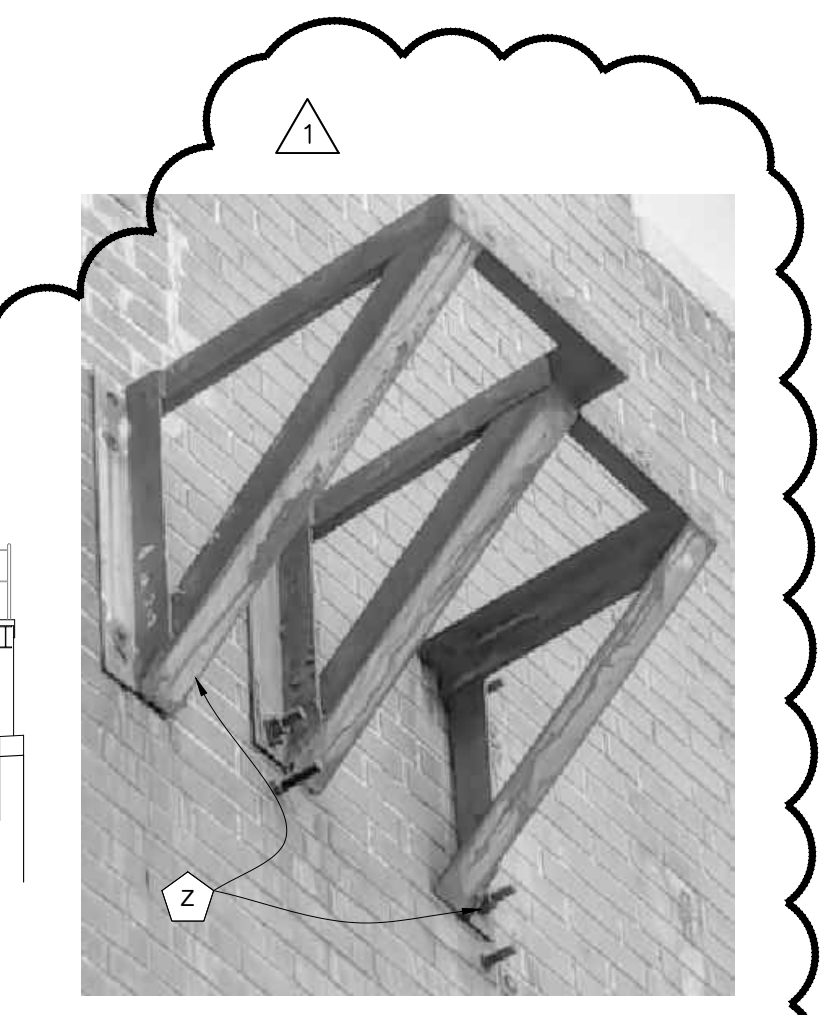
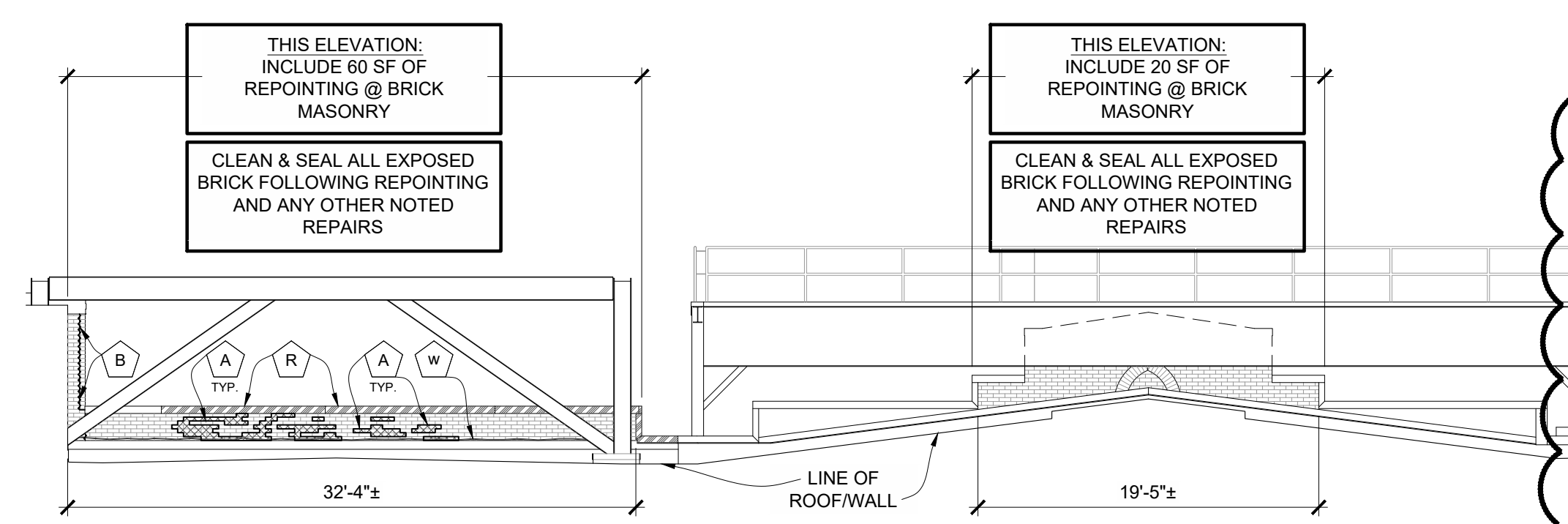
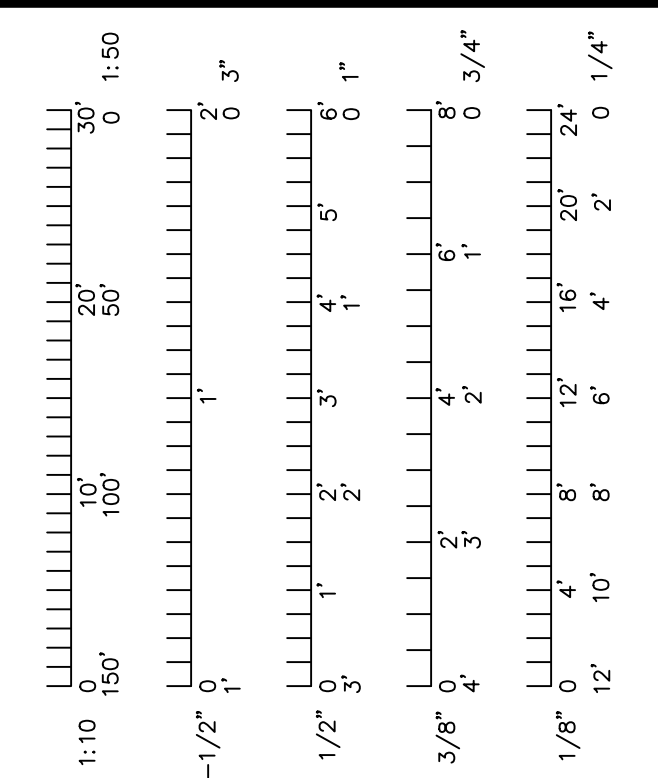
GENERAL ELEVATION NOTES

- FIELD VERIFICATION: INFORMATION CONTAINED IN THESE DRAWINGS IS BASED ON EXISTING DOCUMENTS. THE INFORMATION CONTAINED HEREIN MAY REQUIRE ADJUSTMENTS OR MODIFICATIONS TO CONFORM WITH EXISTING CONDITIONS IN CASES WHERE CHANGES IN DETAILS ARE NECESSARY. THESE DRAWINGS CONVEY THE DESIGN INTENT ONLY.
- FIELD VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO EXECUTING ANY WORK. NOTIFY OWNER'S REPRESENTATIVE OF ANY DIMENSIONS OR WORK DIFFERING FROM THAT SHOWN FOR CLARIFICATION BY THE OWNER'S REPRESENTATIVE PRIOR TO PROCEEDING WITH THE WORK.
- ALL DIMENSIONS ARE TO FACE OF STUD, OR MASONRY, UNLESS OTHERWISE NOTED.
- REMOVE ALL EXISTING BUILDING ELEMENTS AS NOTED AND THOSE THAT WOULD INTERFERE WITH THE INSTALLATION OF NEW WORK. VERIFY WITH OWNER'S REPRESENTATIVE REMOVAL OF ANY ITEMS NOT NOTED FOR DEMOLITION.
- PROTECT ALL ADJACENT AREAS, INCLUDING LANDSCAPING NOT DESIGNATED FOR WORK, FROM DAMAGE AS A RESULT OF THIS WORK. DAMAGED ITEMS WILL BE REPAIRED BY THE OWNER; THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF THE REPAIRS.
- FLASHING DETAILS SHOWN ARE BASED ON STANDARD DETAILS FROM THE SHEETMETAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA). NOTIFY OWNER'S REPRESENTATIVE OR FABRICATOR OF INSTALLATION REQUIREMENTS THAT DIFFER FROM THOSE SHOWN. DO NOT PROCEED WITH WORK UNTIL INSTRUCTIONS ARE RECEIVED FROM OWNER'S REPRESENTATIVE.
- PERFORM ALL TUCKPOINTING WORK IN ACCORDANCE WITH THE BRICK INDUSTRY ASSOCIATION (BIA) TECH NOTES PUBLICATION 46, AND THE CONTRACT DOCUMENTS, WHICHEVER IS THE MOST STRINGENT.
- NO CONSTRUCTION TRAFFIC IS ALLOWED ON THE ROOF WITHOUT PROTECTION BOARDS AS DEFINED IN THE PROJECT DOCUMENTS OR AS OTHERWISE PERMITTED BY THE OWNER'S REPRESENTATIVE.
- PROTECT ALL AREAS THAT INTERFACE WITH SCAFFOLDING SUCH AS COPINGS, FLASHINGS, AND OTHER LIKE ITEMS.
- PROTECT ALL BUILDING ENTRANCES WHEN DOING WORK OVERHEAD; SEE G11/G003 FOR TYPICAL OVERHEAD PROTECTION DETAIL.
- COORDINATE ALL REQUIRED UTILITIES WITH OWNER.
- DO NOT SCALE DRAWINGS - WHERE DIMENSIONAL DISCREPANCIES ARE ENCOUNTERED NOTIFY ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.
- INDEPENDENT TESTING AGENCY MAY BE HIRED BY THE OWNER TO CUT OUT AND REMOVE INSTALLED SEALANT JOINTS IN SIX (6) LOCATIONS OF APPROXIMATELY ONE (1) LINEAR FOOT PER LOCATION. LOCATIONS WILL BE RANDOMLY SELECTED BY THE OWNER'S REPRESENTATIVE. THE WORK WILL BE CHECKED BY THE OWNER'S REPRESENTATIVE FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS IN ACCORDANCE TO ASTM C1193. IF DEFECTIVE WORK IS FOUND, FURTHER TESTS MAY BE REQUIRED AT NO ADDITIONAL COST

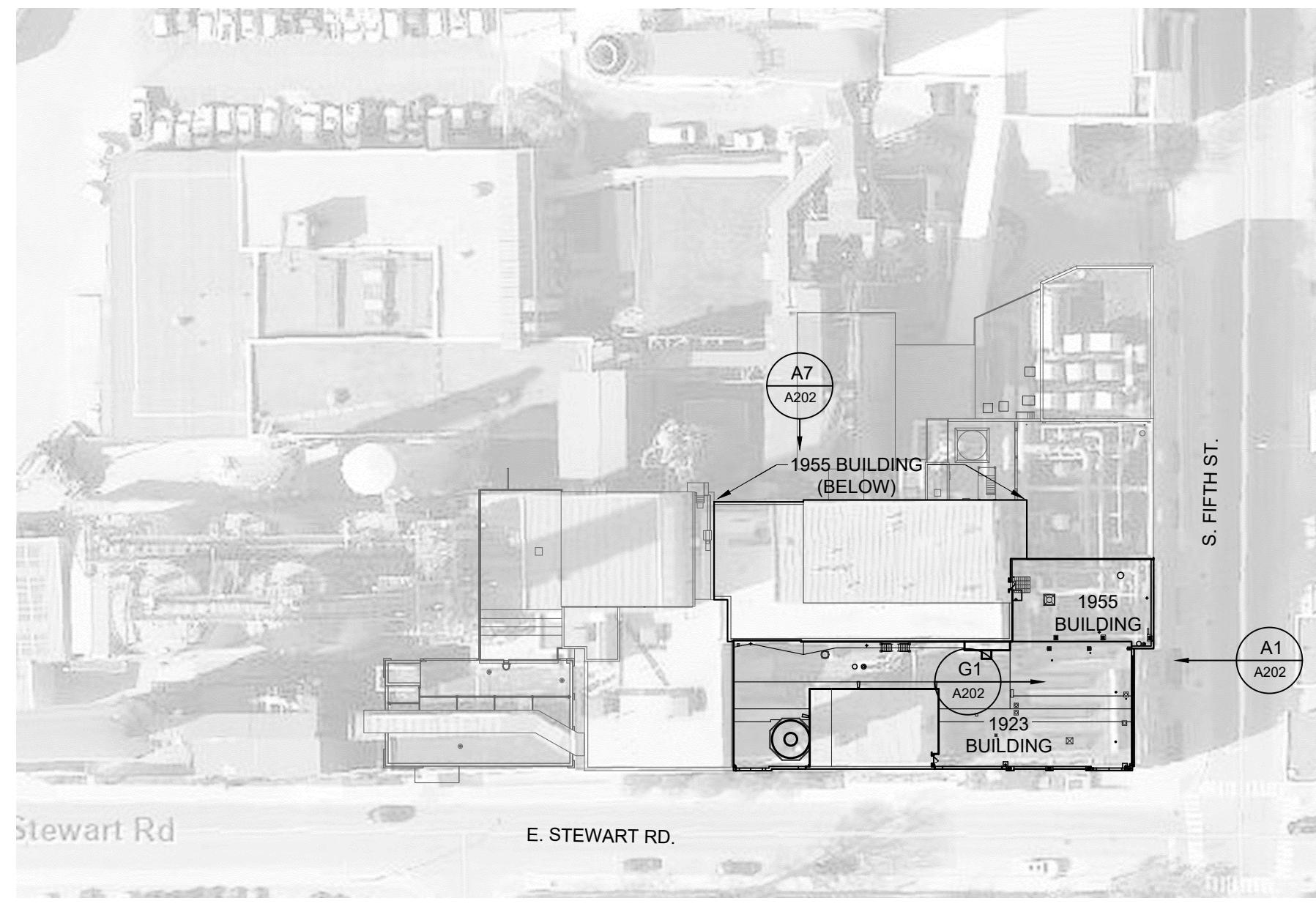
- TO THE OWNER. IF ANY TEST SECTION REVEALS NON-COMPLYING WORK, REMOVE ALL ADJACENT SEALANT WORK TO THE POINT WHERE WORK IS FOUND IN COMPLIANCE; RE-SEAL PER THE CONTRACT DOCUMENTS. IF MORE THAN FOUR (4) TESTS FAIL TO MEET THE CONTRACT DOCUMENT REQUIREMENTS, THE CONTRACTOR MAY BE REQUIRED TO RE-SEAL THE ENTIRE BUILDING OR SELECTED SECTIONS OF THE BUILDING AT NO ADDITIONAL COST TO THE OWNER. PROVIDE LIFTS OR OTHER ACCEPTABLE MEANS OF ACCESS TO THE WORK.
- LEAVE AREA CLEAN AND FREE OF DEBRIS AT THE END OF EACH DAY.
- UNLESS OTHERWISE NOTED OR SHOWN, DIMENSIONS ARE PROVIDED FOR PURPOSES OF OBTAINING APPROXIMATE QUANTITIES ONLY. FIELD VERIFY ALL QUANTITIES.
- SEE WALL SECTIONS FOR ADDITIONAL DETAILS, MATERIALS, NOTES, AND DIMENSION.
- MAINTAIN WEATHER TIGHT BUILDING ENVELOPE. DO NOT LEAVE WORK AREAS UNPROTECTED FROM ENVIRONMENTAL CONDITIONS.

SCOPE OF WORK NOTES & KEY

- A** REPLACE DEFECTIVE BRICK; REFER TO UNIT PRICING FOR OVERALL QUANTITIES INCLUDED.
- B** REPOINT JOINTS WITH NEW "RAKE AND SEAL" (SEALANT OVER RAKED MORTAR) JOINTS. SEE (E1 A501)
- C** REMOVE EXISTING SEALANT AND BACKING MATERIAL @ PERIMETERS OF INDICATED OPENING, @ EXISTING COUNTERFLASHING(S), AND/OR @ TERMINATION BAR(S); INSTALL NEW SEALANT WITH BACKER ROD/BOND BREAKER.
- D** REPOINT LINTEL/LEDGE ANGLE WITH SEALANT AND BACKER ROD; INSTALL NEW WEEP TUBES @ 24" O.C. HORIZONTAL. MIN. SEE (K1 A502)
- E** EXISTING LINTEL: REMOVE ANY LOOSE SCALE & RUST, CLEAN LINTEL, PRIME & REPAINT.
- F** RESET EXISTING COUNTERFLASHING; INSTALL STAINLESS STEEL TERMINATION BAR W/ SEALANT RECEIVER OVER TOP EDGE OF EXISTING COUNTERFLASHING; PROVIDE FASTENERS @ MAX. 8" O.C., TYP.
- G** INSTALL NEW CONTROL JOINT IN OUTER WYTHE OF MASONRY. SEE (A11 A502, D11 A502, G11 A502, K11 A502)
- H** REMOVE EXISTING SEALANT & BACKER @ CONTROL JOINT; REPOINT JOINT WITH SEALANT & BACKER ROD/BOND BREAKER. SEE (G1 A501)
- I** REPLACE DAMAGED PRECAST TRIM W/ NEW PRECAST TO MATCH. FOR TYP. PROFILES SEE: (A1 A501, A4 A501)
- J** REPAIR DAMAGED TERRA COTTA TRIM W/ TERRA COTTA REPAIR MORTAR; REFER TO UNIT PRICING FOR OVERALL QUANTITIES INCLUDED.
- K** REPLACE TERRA COTTA TRIM W/ NEW PRECAST TRIM TO MATCH - TYP. @ NEW CONTROL JOINTS; ALIGN PRECAST JOINT W/ NEW CJ - TYP. WHERE INDICATED @ DAMAGED TERRA COTTA - FOR TYP. PROFILES SEE: (C4 A501, C7 A501, A7 A501)
- L** REMOVE CORRODED METAL ANCHOR, DEBRIS, ETC.; REPOINT DAMAGED MORTAR.
- M** INSTALL NEW PRE-FINISHED METAL FLASHING W/ TOOLED SEALANT - SEE (E4 A501)
- N** CUT MIN. 3/8" X 3/4" RABBET IN FACE OF BRICK, IN LINE W/ EXISTING CRACK; INSTALL NEW MORTAR JOINT
- O** PROVIDE MIN. 3/4" SOFT JOINT BETWEEN TOP OF BRICK AND BOTTOM OF EXISTING STEEL; INSTALL NEOPRENE FILLER, BACKER ROD/BOND BREAKER, & CONTINUOUS TOOLED SEALANT JOINT
- P** PATCH DAMAGED CONCRETE WITH CONCRETE REPAIR MORTAR - SEE: (J7 A701, J7 A702)
- Q** REMOVE EXISTING STONE COPING @ ASSOCIATED FLASHING(S); INSTALL NEW TREATED WOOD BLOCKING, FLASHING(S), & PRE-MANUFACTURED METAL COPING
- R** TEMPORARILY REMOVE EXISTING COPING & BLOCKING TO MINIMUM EXTENT POSSIBLE - FOR INSTALLATION OF NEW CONTROL JOINT AND OR REPLACEMENT OF BRICK AT BACK OF PARAPET; REINSTALL EXISTING COPING & BLOCKING W/ NEW SEALANT @ SAME LOCATION.
- S** REMOVE EXISTING METAL CAP AT TOP OF PILASTER/PIER; CLEAN & REMOVE CORROSION AT BASE OF STEEL COLUMN, PRIME & PAINT. INSTALL NEW PRE-FINISHED BRAKE METAL CAP & PITCH POCKET. SEE: (E1 A701, E4 A701, E7 A701, E10 A701, A1 A502, A5 A502, D1 A502, D5 A502)
- T** TEMPORARILY REMOVE CONDUCTOR HEAD, DOWNSPOUT, & STRAP HANGERS; SALVAGE, STORE, & REINSTALL AT SAME LOCATION AT END OF PROJECT.
- U** SOUND & REMOVE ANY LOOSE OR DAMAGED PLASTER; SCRIBE PLASTER @ CRACKS, REMOVING EXISTING MATERIAL TO SOUND SURFACE, RE-PLASTER.
- V** REPAIR PLASTER WHERE NOTED; FOLLOWING REPAIR - CLEAN, PRIME, & PAINT ENTIRE PLASTER SURFACE. TEMPORARILY MASK EXISTING EXPOSED BRICK TO PREVENT STAINING BY PLASTER/PAINT.
- W** TEMPORARILY MOVE EXISTING LIGHTNING PROTECTION CABLE FOR WORK IN THIS AREA. REINSTALL CABLE AT SAME LOCATION, W/ EXISTING ANCHORS OR SIMILAR.
- X** REMOVE BRICK TO EXPOSE LINTEL; REMOVE & REPLACE EXISTING LINTEL
- Y** APPLY FIBERGLASS GLAZED PANEL COATING TO EXTERIOR FACE OF FIBERGLASS GLAZED PANELS.

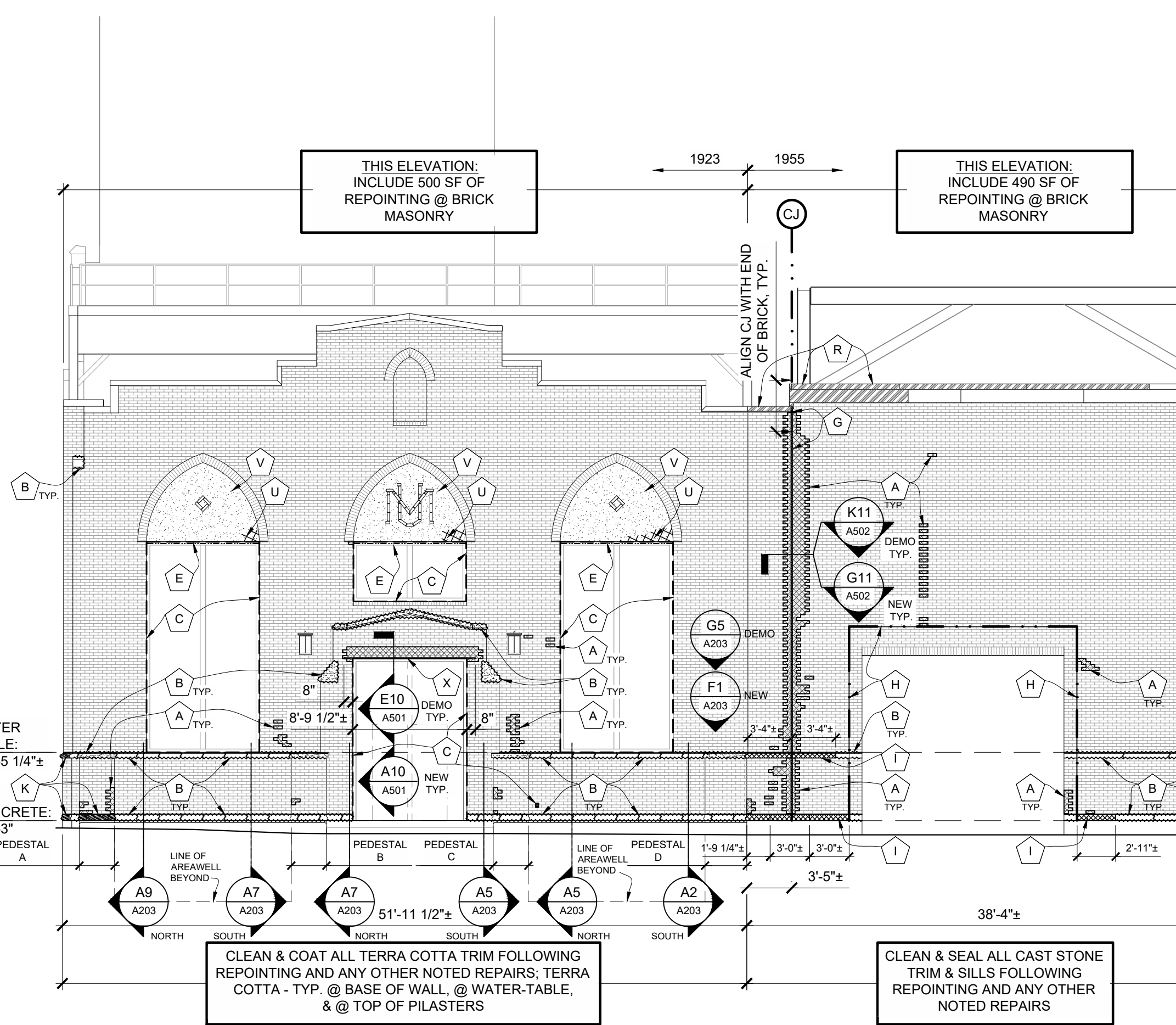


**G7** 1955 BUILDING - NORTH ELEV. - DEMO: EXISTING PIPE HANGER  
SCALE: N.T.S.

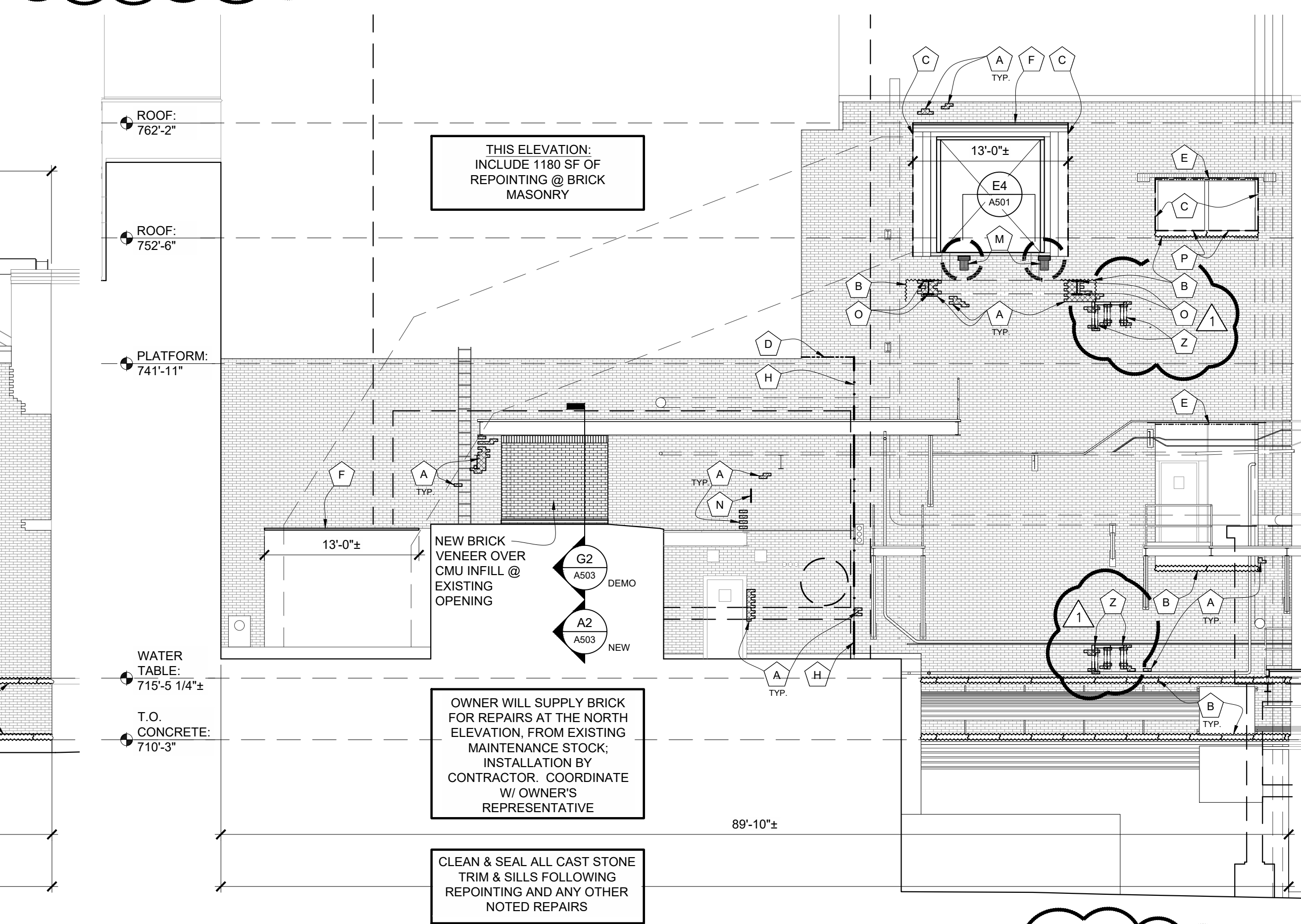


**G9** KEY PLAN  
SCALE: N.T.S.

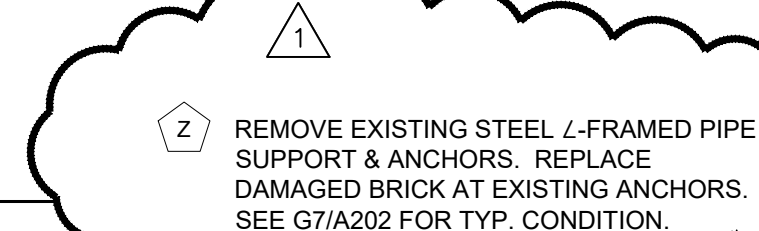
**G1** 1923 BUILDING | 1955 BUILDING - WEST PARAPET INTERIOR ELEVATION  
SCALE: 1/8" = 1'-0"



**A1** 1923 BUILDING | 1955 BUILDING - EAST ELEVATION  
SCALE: 1/8" = 1'-0"



**A7** 1955 BUILDING - NORTH ELEVATION  
SCALE: 1/8" = 1'-0"



CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING, COORDINATING, PATCHING, AND REPAIRING ALL EXISTING ITEMS TO REMAIN WHERE AFFECTED BY REMOVED ITEMS. SPECIFIC INSTANCES OF PATCHING MAY NOT BE NOTED ON DRAWINGS.

UNLESS SPECIFICALLY STATED OR SHOWN, ALL WORK SHALL APPLY TO EXTERIOR OF BUILDING ONLY.

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Missouri State Certificate of Authority No. 000244

Project CP242421  
POWER PLANT - 1923 & 1955  
BRICK AND MORTAR REPAIRS  
COLUMBIA, MO  
University of Missouri  
For: The Curators of the University of Missouri

Drawn:	Project Number:	
ER	202411	
Checked:	CAD File Name (Number):	
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No.	Revisions:	Date:
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12/11/2024		A202
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