ADDENDUM # 006
DATE: 06-05-19

TO CONTRACT DOCUMENTS ENTITLED:

PROJECT MANUAL FOR:

University of Missouri Teaching Hospital
AHU S2-8 Replacement

PROJECT NUMBER: CP162661

ADVERTISEMENT DATE: May 2, 2019

PREPARED FOR: The Curators of the University of Missouri

CONSULTANT: The Clark Enersen Partners
2020 Baltimore Avenue
Suite 300
Kansas City, Missouri 64108
(816) 474-8237

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:

SPECIFICATION CHANGES:

1. Bid for Lump Sum Contract
   a. Additive Alternate Bids:
      i. Additive Alternate No. 1 has been updated to read: “Provide demolition of remaining existing ventilation ductwork in Corridor 1W49 & 1W51”.
      ii. Additive Alternate No. 2 has been removed from the project scope.

   b. Allowance:
      ii. Add Allowance line item (2) Bidder shall include in the base bid sum an allowance of $50,000 for additional demolition as selected by owner during the construction period. Additional demolition costs must be provided to the owner for review and approval prior to commencement of additional demolition work. This allowance amount shall not include contractor's overhead and profit. The Contractor shall include overhead and profit on the allowance amount in their bid.

   c. Project Completion
      i. Contract Period - Number of calendar days to remain the same. Anticipated completion date is January 10th 2020.
2. **Section 1.H Alternates**  
   a. Update list of alternates to indicate:  
      i. Additive Alternate No. 1: Provide demolition of remaining existing ventilation ductwork in Corridor 1W49 & 1W51.

3. **Section 23 73 13 – Air Handling Units**  
   a. Remove all references to disassembly and reassembly of unit as well as additional on-site leakage testing. Unit to be installed through existing curtain wall.  
   b. JCI/York to be listed as approved equal.

**DRAWING CHANGES:**

1. **Sheet G0.00 – Title Sheet & Drawing Index**  
   a. Update Sheet G0.22 Title to ‘Construction Phasing Plan Second Floor’.  
   b. Update Architectural Drawing Index to remove Phase 2 Sheets. Sheets A1.20, A1.22, A1.23, & A1.30 have been removed from the project.

2. **Sheet G0.21 – Construction Phasing Plan Basement & First Floor**  
   a. Update First Floor Plan to show phases 1c, 1d, & 1e combined into phase 1e.  
   b. Update First Floor Plan to indicate Phase 1k.  
   c. Update Phasing Legend for Phases 1c, 1d, & 1e, and add Phase 1k.  
   d. Update Phasing Scope Narrative for Phases 1c, 1d, 1e & 1f, add Phase 1k, and remove Phase 2 scope.

3. **Sheet G0.22 – Construction Phasing Plan Second Floor**  
   a. Update Sheet Title to ‘Construction Phasing Plan Second Floor’.  
   b. Update Second Floor Phasing Plan_1a to remove Phase 2 area.  
   c. Update Second Floor Phasing Plan_1b to remove Phase 2 area.  
   d. Remove Roof Phasing Plan – Phase 2.  
   e. Update Phasing Legend for Phase 2.  
   f. Update Phasing Scope Narrative for Phases 1c, 1d, 1e & 1f, add Phase 1k, and remove Phase 2 scope.

4. **Sheet A1.10 – First Floor Ceiling Demolition & Ceiling Plan – Phase 1**  
   a. Add note C4 to Demolition Key Note Schedule and Ceiling Demolition Plan to read:  
      Alternate #1: Remove and retain existing ceiling tile as required for MEP work related to the removal of AHU S2-3. Ref: Mech.  
   b. Add note 5 to Key Notes Schedule and First Floor Reflected Ceiling New Work Plan to read:  
      Alternate #1: Reinstall existing ceiling tile in areas as required for work related to the removal of AHU S2-3. Ref: Mech.

5. **Sheet A1.11 – Second Floor Demolition Plan – Phase 1**  
   a. Add note #D12 to Second Floor Demolition Plan – Phase 1 & Demolition Key Notes Schedule to read: Remove existing 42” X 60” outside air louver for the S2-3 AHU. Ref. Mech. Prep opening for insulated metal panel infill.

6. **Sheet A1.12 – Second Floor Plan – Phase 1**  
   a. Add note #10 to Second Floor Plan – Phase 1 & Key Notes Schedule to read: Infill 42” X 60” louver opening with insulated metal panel over metal stud framing.
7. Sheet A1.14 – Exterior Elevation, Section Details, & Door Schedule and Details
   a. Add Curtain Wall Reinstallation General Notes to sheet as follows.
      • All curtainwall modifications to be completed by an EFCO certified installer. Installer must maintain warranty of original curtainwall installation.
      • All modified curtainwall areas to meet performance requirements of existing curtainwall including wind loads, deflection, and supporting structure movement.
      • GC to include performance testing as follows:
        1. Structural: Test according to ASTM E 330 as follows:
           i. When tested at positive and negative wind-load design pressures, assemblies do not evidence deflection exceeding specified limits.
           ii. When tested at 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2 percent of span.
           iii. Test Durations: As required by design wind velocity, but not less than 10 seconds.
        2. Air Infiltration: Test according to ASTM E 283 for infiltration as follows:
           i. Fixed Framing and Glass Area:
              • Maximum air leakage of 0.06 cfm/sq. ft. (0.30 L/s per sq. m) at a static-air-pressure differential of 6.24 lbf/sq. ft. (300 Pa).
        3. Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:
           i. No evidence of water penetration through fixed glazing and framing areas when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft. (300 Pa).
      i. Infill louver opening with metal stud framing and insulated metal panel per detail 4/A1.14.

8. Sheet FS1.01 – Fire Suppression Plans
   a. Re-issued with Stamp.
   b. Revised phasing call-outs for both floors.

9. Sheet M0.01 – HVAC Demolition Plans
   a. Refer to first floor demolition plan for additional notes of demolition of ventilation duct for AHU S2-3.
   b. Mechanical roof demolition plan now only shown for reference, existing AHU S2-8 to remain as existing.
   c. Refer to second floor HVAC demolition plan for additional demo notes for AHU S2-3.
   d. Phase 2 has been removed, see revised notes for phasing on second floor.

10. Sheet M1.01 – First Floor HVAC Phasing Plans
    a. Refer to first floor phasing plans for handling of existing ventilation duct in the corridor and addition of VAV-28-112.
    b. Revised VAV box numbers to match schedule.
    c. Removed additional phasing plans as work to be condensed into the new phases as shown.

11. Sheet M1.02 – HVAC Plans
    a. Refer to first HVAC piping for new piping for VAV-28-112 and revised phasing call-outs.
b. Revised water flows to VAV boxes.
c. Revised phasing on second floor plan. Removed phase 2 in its entirety. AHU S2-3 is shown as demolished.

12. Sheet M3.01 – Enlarged Mechanical Room Plans
   a. Refer to added note for existing unit heater to accommodate installation of AHU through existing curtainwall.

13. Sheet M6.01 – Mechanical Schedules
   a. Refer to added note on AHU schedule about install of unit. Removed necessity for disassembly.
   b. Refer to VAV box schedule for revised water flows and added VAV-28-112.
   c. Removed VAV-28-201. This box served Phase 2 area.

14. Sheet E0.21 – First Floor and Roof Electrical Demolition Plans
   a. Removed requirement to demolish electrical connection to existing AHU on roof.
   b. Added Add Alternate #1 requirements to first floor demolition scope.

15. Sheet E0.22 – Second Floor Electrical Demolition Plans
   a. Removed phase 2 electrical demolition scope in its entirety.
   b. Removed add alternate #2 scope of work.

16. Sheet E1.01 – First Floor Electrical Plan
   a. Added Add Alternate #1 requirements to first floor electrical scope.

17. Sheet E1.02 – Second Floor Electrical Plans
   a. Removed phase 2 electrical scope in its entirety.

Attachments: Bid for Lump Sum Contract, Section 1.H Alternates, Limited Asbestos Survey and Universal Waste Visual Evaluation Report, G0.00, G0.21, G0.22, A1.10, A1.11, A1.12, A1.14, FS1.01, M0.01, M1.01, M1.02, M3.01, M6.01, E.021, E0.22, E1.01, E1.02

END OF ADDENDUM # 006
SECTION 1.A

BID FOR LUMP SUM CONTRACT

Date: __________________________

BID OF __________________________
(hereinafter called "Bidder") a corporation* organized and existing under laws of the State of __________________________
a partnership* consisting of __________________________;
an individual* trading as __________________________;
a joint venture* consisting of __________________________.

*Insert Corporation(s), partnership or individual, as applicable.

TO: Curators of the University of Missouri
    Campus Facilities, Planning, Design and Construction
    General Services Building
    Room L100
    University of Missouri
    Columbia, Missouri 65211

1. Bidder, in compliance with invitation for bids for construction work in accordance with Drawings and Specifications prepared by THE CLARK ENERSEN PARTNERS, entitled "UNIVERSITY OF MISSOURI TEACHING HOSPITAL – AHU S2-8 REPLACEMENT", project number CP162661, dated MAY 2, 2019 having examined Contract Documents and site of proposed work, and being familiar with all conditions pertaining to construction of proposed project, including availability of materials and labor, hereby proposes to furnish all labor, materials and supplies to construct project in accordance with Contract Documents, within time set forth herein at prices stated below. Prices shall cover all expenses, including taxes not covered by the University of Missouri’s tax exemption status, incurred in performing work required under Contract documents, of which this Bid is a part.

Bidder acknowledges receipt of following addenda:

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2. In following Bid(s), amount(s) shall be written in both words and figures. In case of discrepancy between words and figures, words shall govern.

3. BID PRICING
   a. Base Bid:
      The Bidder agrees to furnish all labor, materials, tools, and equipment required to procure and install new rooftop mechanical equipment, remove existing mechanical and electrical equipment and renovate and fire sprinkle all areas served by new air handling equipment on 1st, 2nd and 3rd floors; all as indicated on the Drawings and described in these Specifications for sum of:

      ___________________________ DOLLARS ($ ___________________________).
b. Additive Alternate Bids:

Above Base Bid may be changed in accordance with following Alternate Bids as Owner may elect. Alternates are as described in Section 1.H of Project Manual. Alternates are written in a priority order, but Owner is not required to accept or reject in order listed. This is a one (1) contract project, therefore, Alternates shall be studied by each Bidder to determine effect on Bids of Contractor and each Subcontractor and/or Material supplier.

(1) Additive Alternate No. 1: Provide demolition of remaining existing ventilation ductwork in Corridor 1W49 & 1W51. All for sum of:


DOLLARS ($___________).

c. Unit Prices:

(1) None

d. Allowance:

(1) Bidder shall include in the base bid sum an allowance of $25,000 for Asbestos Abatement. This allowance amount shall not include contractor's overhead and profit. The Contractor shall include overhead and profit on the allowance amount in his bid.

(2) Bidder shall include in the base bid sum an allowance of $50,000 for additional demolition as selected by owner during the construction period. Additional demolition costs must be provided to the owner for review and approval prior to commencement of additional demolition work. This allowance amount shall not include contractor's overhead and profit. The Contractor shall include overhead and profit on the allowance amount in their bid.

4. PROJECT COMPLETION

a. Contract Period - Contract period begins on the day the Contractor receives unsigned Contract, Performance Bond, Payment Bond, and "Instructions for Execution of Contract, Bonds, and Insurance Certificates." Bidder agrees to complete Phase 1 of the project within one hundred and ninety-seven (197) calendar days from receipt of aforementioned documents. Fifteen (15) calendar days have been allocated in construction schedule for receiving aforementioned documents from Bidder.

b. Commencement - Contractor agrees to commence work on this project after the "Notice to Proceed" is issued by the Owner. "Notice to Proceed" will be issued within seven (7) calendar days after Owner receives properly prepared and executed Contract documents listed in paragraph 4.a. above.

c. Liquidated Damages – NOT USED

d. Refer to Scheduling Requirements in Special Conditions for specific scheduling of the following activities:

1. Special Work Times
2. Incidental Floor Work
3. Crane Work
4. HVAC Testing, Adjusting and Balancing
5. Utility Shut-downs, Outages and Tie-ins
6. Refuse / Trash Removal and Materials Delivery
5. **SUBCONTRACTOR LIST:**

Bidder hereby certifies that the following subcontractors will be used in performance of Work:

NOTE: Failure to list subcontractors for each category of work identified on this form or listing more than one subcontractor for any category of work without designating the portion of work performed by each shall be grounds for rejection of bid. List name, city, and state of designated subcontractor, for each category of work listed in Bid For Lump Sum Contract. If work within a category will be performed by more than one subcontractor, Bidder shall provide name, city, and state of each subcontractor and specify exact portion of work to be performed by each. If acceptance/non-acceptance of Alternates will affect designation of a subcontractor, Bidder shall provide information, for each affected category, with this bid form. If Bidder intends to perform any designated subcontract work by using Bidder's own employees, then Bidder shall list their own name, city, and state. The bidder may petition the Owner to change a listed subcontractor only within 48 hours of the bid opening. See Information For Bidders Section 16 List of Subcontractors for requirements.

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<tr>
<th>Work to be performed</th>
<th>Subcontractor Name, City, State</th>
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<tr>
<td>Mechanical / HVAC Contractor</td>
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<td>Electrical Contractor</td>
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<tr>
<td>Fire Sprinkler Contractor</td>
<td>__________________________</td>
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<tr>
<td>Fire Stopping Contractor</td>
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6. **SUPPLIER DIVERSITY PARTICIPATION GOALS**

a. The Contractor shall have as a goal, subcontracting with Minority Business Enterprise (MBE) of ten (10%), with Service Disabled Veteran Owned Business (SDVE) of three percent (3%); and with Women Business Enterprise (WBE), Disadvantage Business Enterprise (DBE), and/or Veteran Owned Business of ten (10%) of awarded contract price for work to be performed.

b. Requests for waiver of this goal shall be submitted on the attached Application For Waiver form. A determination by the Director of Facilities Planning & Development, UM, that a good faith effort has not been made by Contractor to achieve above stated goal may result in rejection of bid.

c. The Undersigned proposes to perform work with following Supplier Diversity participation level:

  MBE PERCENTAGE PARTICIPATION: __________ percent (_______%)  
  SDVE PERCENTAGE PARTICIPATION: __________ percent (_______%)  
  WBE, DBE, and VETERAN PERCENTAGE PARTICIPATION: __________ percent (_______%)  

d. A Supplier Diversity Compliance Evaluation form shall be submitted with this bid for each diverse subcontractor to be used on this project.

7. **BIDDER’S ACKNOWLEDGMENTS**
a. Bidder declares that he has had an opportunity to examine the site of the work and he has examined Contract Documents therefore; that he has carefully prepared his bid upon the basis thereof; that he has carefully examined and checked bid, materials, equipment and labor required thereunder, cost thereof, and his figures therefore. Bidder hereby states that amount, or amounts, set forth in bid is, or are, correct and that no mistake or error has occurred in bid or in Bidder's computations upon which this bid is based. Bidder agrees that he will make no claim for reformation, modifications, revisions or correction of bid after scheduled closing time for receipt of bids.

b. Bidder agrees that bid shall not be withdrawn for a period of ninety (90) days after scheduled closing time for receipt of bids.

c. Bidder understands that Owner reserves right to reject any or all bids and to waive any informalities in bidding.

d. Accompanying the bid is a bid bond, or a certified check, or an irrevocable letter of credit, or a cashier’s check payable without condition to "The Curators of the University of Missouri" which is an amount at least equal to five percent (5%) of amount of largest possible total bid herein submitted, including consideration of Alternates.

e. Accompanying the bid is a Bidder's Statement of Qualifications. Failure of Bidder to submit the Bidder's Statement of Qualifications with the bid may cause the bid to be rejected. Owner does not maintain Bidder's Statements of Qualifications on file.

f. It is understood and agreed that bid security of two (2) lowest and responsive Bidders will be retained until Contract has been executed and an acceptable Performance Bond and Payment Bond has been furnished. It is understood and agreed that if the bid is accepted and the undersigned fails to execute the Contract and furnish acceptable Performance/Payment Bond as required by Contract Documents, accompanying bid security will be realized upon or retained by Owner. Otherwise, the bid security will be returned to the undersigned.

8. BIDDER’S CERTIFICATE

Bidder hereby certifies:

a. His bid is genuine and is not made in interest of or on behalf of any undisclosed person, firm or corporation, and is not submitted in conformity with any agreement or rules of any group, association or corporation.

b. He has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid.

c. He has not solicited or induced any person, firm or corporation to refrain from bidding.

d. He has not sought by collusion or otherwise to obtain for himself any advantage over any other Bidder or over Owner.

e. He will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin in connection with performance of work.

f. By virtue of policy of the Board of Curators, and by virtue of statutory authority, a preference will be given to materials, products, supplies, provisions and all other articles produced, manufactured, mined or grown within the State of Missouri. By virtue of policy of the Board of Curators, preference will also be given to all Missouri firms, corporations, or individuals, all as more fully set forth in "Information For Bidders."
Note: All signatures shall be original; not copies, photocopies, stamped, etc.

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<th>Authorized Signature</th>
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<td>Licensed to do business in the State of Missouri?  ____yes  _____no</td>
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(Each Bidder shall complete bid form by manually signing on the proper signature line above and supplying required information called for in connection with the signature. Information is necessary for proper preparation of the Contract, Performance Bond and Payment Bond. Each Bidder shall supply information called for in accompanying "Bidder's Statement of Qualifications.")

END OF SECTION
SECTION 1.H

ALTERNATES

Base Bid may be increased in accordance with following Additive Alternate proposal(s) as Owner may elect:

1. Additive Alternate No. 1: Provide demolition of remaining existing ventilation ductwork in Corridor 1W49 & 1W51.

END OF SECTION
May 3, 2019

Ms. Lisa K. Cox
Campus Facilities – Planning, Design & Construction
University of Missouri
130 General Services Building
Columbia, Missouri 65211

ATTN: Ms. Lisa K. Cox
Email: coxlk@missouri.edu

University of Missouri Teaching Hospital – Replace AHU S2-8
MU Project Number CP162661
Columbia, Missouri 65211
PSI Project Number: 0029-4127

Dear Ms. Cox:

In accordance with our agreement, Professional Service Industries, Inc., (PSI), an Intertek Company, has conducted a Limited Asbestos Survey and University Waste Visual Evaluation for the above-referenced project. Please find one (1) electronic (.pdf format) copy of the report for these services enclosed.

We appreciate the opportunity to provide our services to you on this project and would be pleased to continue our role as your environmental consultant. If we can be of further assistance to you, please feel free to contact us.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

Jason M. Cyvas
IH/Environmental Services

Greg Chambliss, RPIH, LEED AP
Department Manager

Enclosures
HAZARDOUS MATERIALS SURVEY

For

UNIVERSITY OF MISSOURI TEACHING HOSPITAL - REPLACE AHU S2-8
MU PROJECT NUMBER CP162661
COLUMBIA, MISSOURI

Prepared for

University of Missouri - Columbia
130 General Services Building
Columbia, Missouri 65211

Prepared by

Professional Service Industries, Inc.
8669 Olive Boulevard
St. Louis, Missouri 63132
Telephone 314-432-8073

PSI WORK ORDER NO. 0029-4127

May 3, 2019

Jason Cyvas
MDNR Asbestos Inspector
Cert. #7118040618MOIR12228

Greg Chambliss, RPIH, LEED AP
Department Manager
Principal Consultant
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APPENDICES
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  APPENDIX C - Personnel/Laboratory Accreditations
  APPENDIX D – OSHA Work Practices Requirement and Prohibitions for Materials Containing Less than 1% Asbestos
1.0 INTRODUCTION

1.1 GENERAL INFORMATION

Professional Service Industries, Inc. (PSI) was retained by the University of Missouri - Columbia to conduct a limited asbestos survey and universal waste visual evaluation survey of highlighted area of the floor plan of the building as requested in the requires for proposal via e-mail dated April 12, 2019 at the University of Missouri Teaching Hospital located in Columbia, Missouri. Air Handler Unit S-2-8 in this building is being planned for removal and replacement.

This report has been prepared for the exclusive use of University of Missouri - Columbia.

1.2 AUTHORIZATION

Authorization to perform the assessment was given via an e-mail dated April 22, 2019 authorizing PSI to proceed in accordance with the Continuing Services Agreement and PSI’s Proposal Number 0029-275390, Rev. 1.

1.3 PURPOSE

The purpose of the survey was to determine the presence of hazardous materials prior to renovation.
2.0 SCOPE OF SERVICES

2.1 SCOPE OF WORK

As part of this project, the following services were performed:

- Limited Asbestos Survey and Sampling
- Evaluation for the presence of the following environmental concerns included but was not limited to:
  - Fluorescent Light Tubes
  - PCB-Containing Light Ballasts
  - Smoke Detectors
  - Fire Alarms
  - Exit Signs
  - Emergency Lights
  - Thermostats

2.2 SAMPLING GUIDELINES

The survey of the property was conducted in general accordance with the Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) and the National Emission Standards for Hazardous Air Pollutants (NESHAP) sampling guidelines to determine the presence of exposed and/or physically accessible suspect ACM, identify the location of ACM or assumed ACM, and quantify the amount of ACM identified during the inspection. Each suspect material was touched, where possible, to determine the friability of the material.

A visual inspection and sampling survey of the facility was conducted in accordance with general EPA/AHERA sampling guidelines to determine the presence of suspect asbestos-containing materials (ACM). Mr. Jason Cyvas, State of Missouri and EPA accredited asbestos inspector, performed the asbestos survey.

Samples of suspect asbestos-containing materials were collected from representative areas of the survey area, which could be physically entered during the survey.

Samples were sent to PSI’s laboratory located in Pittsburgh, Pennsylvania, for analysis. Each sample underwent Polarized Light Microscopy (PLM) analysis for detection of asbestos fibers in the building materials. The current EPA Method for the Determination of Asbestos in Bulk Building Materials is in document EPA-600/R-93/116 July 1993. The results of the analyses are summarized in Section 4.0 of this report. Suspect materials identified, but not sampled are also summarized. The laboratory report and chain-of-custody for these analyses are presented in Appendix A.

As part of this survey, PSI did not sample, but noted the presence of the other above-listed environmental concerns.
3.0 METHODOLOGY

3.1 GENERAL REFERENCES

Asbestos sampling and assessment procedures were performed in general accordance with the guidelines published by the EPA in 40 CFR Part 763 Subpart E, October 30, 1987.

3.2 VISUAL INSPECTION

The visual inspection for asbestos was performed by an EPA and State of Missouri accredited inspector. An initial walkthrough was conducted to determine the presence and condition of suspect materials, which were accessible and/or exposed. Materials, which were similar in general appearance, were grouped into homogeneous sampling areas.

3.2.1 Homogeneous Material Classifications

A preliminary walkthrough of the property was conducted to determine areas of materials, which were visually similar in color, texture, general appearance, and which appeared to have been installed at the same time. Such materials are termed "homogeneous materials" by the EPA. During this walkthrough, the approximate locations of these homogeneous materials were also noted.

Following the EPA inspection protocol, each identified suspect asbestos homogeneous material was placed in one of the following EPA classifications:

- **Surfacing Materials** (spray or trowel applied to building members)
- **Thermal System Insulation** (materials generally applied to various mechanical systems)
- **Miscellaneous Materials** (any materials which do not fit either of the above categories)

Following the EPA NESHAP inspection protocol, each identified suspect homogeneous material that was confirmed as an ACM was also placed in one of the following NESHAP classifications:

- **Friable Materials**: NESHAP defines a friable ACM as any material containing more than one percent asbestos that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

- **Category I Non-Friable (Cat. I NF)**: NESHAP defines a Category I non-friable ACM as packing, gaskets, resilient floor covering (except vinyl sheet flooring products which are considered friable), and asphalt roofing products which contain more than one percent asbestos.
• **Category II Non-Friable (Cat. II NF):** NESHAP defines a Category II non-friable ACM as any material, except for a Category I non-friable ACM, which contains more than one percent asbestos and cannot be reduced to a powder by hand pressure when dry.

In the NESHAP regulation, a regulated asbestos-containing material (RACM) is defined as any (a) friable asbestos material; (b) Category I Non-Friable ACM that has become friable; (c) Cat. I NF ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; or (d) Category II Non-Friable 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.

### 3.3 SAMPLING PROCEDURES

Following the walkthrough, the inspector collected selected samples of suspect asbestos-containing materials. Sampling was limited to those materials physically accessible to the inspector during the time of the inspection, except if the structural integrity of the item being tested would be compromised.

EPA guidelines were used to determine the sampling protocol. Sampling locations were chosen to be representative of the homogeneous material.

Samples of suspect asbestos materials were taken as randomly as possible while again attempting to sample already damaged areas so as to minimize disturbance of the material.

### 3.4 QUANTIFICATION

Quantities of physically accessible and/or exposed confirmed asbestos-containing materials were estimated. This estimation was performed by taking approximate measurements in the field or estimating quantities based on as-built mechanical or structural drawings. Materials such as pipe insulation and associated mudded joint packing (MJP) were categorized according to the outside diameter of the insulation. Pipe lagging was quantified by linear footage while the actual number of MJPs was counted. Insulation on mechanical equipment such as boilers and ductwork was quantified by the square footage of the surface area of suspect insulation. Similarly, fireproofings, plasters, ceiling and floor tiles, and transite panels were measured in square feet of surface area. The quantities of ACM that were identified during this investigation are reported in Section 4 of this report.

Quantities of accessible and/or exposed building materials, which were confirmed or assumed to contain asbestos and/or lead, were estimated. This estimation was performed by taking approximate measurements in the field.

Quantities are estimates and should be confirmed prior to putting out to bid for abatement.
3.5 LABORATORY PROCEDURES

3.5.1 Method of Analysis

Bulk samples were analyzed by PLM with dispersion staining as described by EPA Method 600/R-93-116 (Asbestos in Bulk Building Materials). This is a standard method of analysis in optical mineralogy and the currently accepted method for the determination of asbestos in bulk samples. The microscopist visually estimated relative amounts of each constituent by determining the volume of each constituent in proportion to the total volume of the sample, using a stereoscope. Then a bulk sample is mounted on a slide, immersed in a solution of known refractive index and subjected to illumination by polarized light. The samples were analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, and actinolite/tremolite), fibrous non-asbestos constituents (mineral wool, paper, etc.) and nonfibrous constituents. Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

It should be noted that some ACM may not be accurately identified or quantified by PLM. As an example, the original fabrication of vinyl floor tiles routinely involved milling of asbestos fibers to extremely small sizes. As a result, these fibers may go undetected under the standard PLM method. Transmission Electron Microscopy (TEM) is recommended for a more definitive analysis of these materials. TEM analysis was not in the scope of this investigation.

3.5.2 Laboratory Quality Control Program

PSI's laboratory maintains an in-house quality control program. This program involves blind reanalysis of ten (10) percent of all samples, precision and accuracy controls, and use of standard bulk reference materials. In addition, the PSI Laboratory is accredited by NVLAP, which also has quality control procedures inherent in its program.

3.6 REPORT FORMATS

3.6.1 Report Format for Asbestos Survey Summary Table

Sample Number
An alpha numeric number is assigned to each sample to track results. A homogenous area is defined as an area of material that is uniform in color, texture and age. Each homogenous area was given a distinct letter designation. An example of the numbering sequence is as follows:

UMTH-FT-A-01
UMTH = Name of Client (i.e. University of Missouri Teaching Hospital)
PI = Brief Sample Name and/or Identifier (i.e., PI=Pipe Insulation)
A = Homogeneous Area ‘A’
01 = First sample taken from homogeneous area A
Material Description
Describes the material

Estimated Quantity
Approximate quantity of confirmed ACM, broken down by location.

<table>
<thead>
<tr>
<th>Abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF = Square Feet</td>
</tr>
<tr>
<td>LF = Linear Feet</td>
</tr>
<tr>
<td>EA = Each</td>
</tr>
</tbody>
</table>

Location
Area in the facility where suspect material was found.

Results
Amount and type of asbestos (Any material containing more than 1% asbestos is considered an ACM) or if the material does not contain asbestos (NAD = No Asbestos Detected).
4.0 FINDINGS AND RECOMMENDATIONS

4.1 GENERAL SUMMARY

Asbestos-Containing Materials
A material is considered by the EPA and the State of Missouri to be asbestos-containing if at least one sample collected from the homogenous area shows asbestos present in an amount greater than 1%.

The following materials were found to be asbestos-containing:

- Pipe Insulation 0-4” – 80% Chrysotile; Approximately 550 linear feet on pipe located throughout the limited survey areas; potentially present in any inaccessible/unknown pipe chases
- Mudded Pipe Fittings 0-4” – 2% Chrysotile and 20% Amosite; Approximately 250 each on pipe located throughout the limited survey areas; potentially present in any inaccessible/unknown pipe chases
- Pipe Insulation greater than 4” – 20% Amosite; Approximately 300 linear feet on pipe located throughout the limited survey areas; potentially present in any inaccessible/unknown pipe chases
- Mudded Pipe Fittings greater than 4” – 15% Amosite and 40% Chrysotile; Approximately 150 each on pipe located throughout the limited survey areas; potentially present in any inaccessible/unknown pipe chases
- 9”x9” Green Floor Tile and Black Mastic – 5% Chrysotile in Floor Tile, 2% Chrysotile in Mastic; Approximately 1,500 square feet throughout Rooms GE-03, GE-04, GE-05 and 1N23.
- 12” Floor Tile – Grey and Brown Mastic – Floor Tile is negative, <1% Chrysotile in Mastic, Approximately 1,700 square feet throughout Rooms 1W41, 1W40A, 1W40.
- 9”x9” Olive Floor Tile and Black Mastic – 4% Chrysotile in Floor Tile, 2% Chrysotile in Mastic, Approximately 50 square feet in Room 1W44.

Please refer to Appendix A for a more detailed description of the microscopic analysis of these samples.

4.2 SPECIFIC FINDINGS AND OBSERVATIONS

Asbestos-Containing Materials
The following suspect asbestos-containing materials were sampled during the course of this survey and submitted for laboratory analysis. The table is a summary of the analytical results of this survey. Materials in bold in the table are confirmed to be ACM.

A material is considered by the EPA and the State of Missouri to be asbestos-containing if at least one sample collected from the homogenous area shows asbestos present in an amount greater than 1%.
**ASBESTOS SAMPLING RESULTS**

<table>
<thead>
<tr>
<th>SAMPLE NUMBER</th>
<th>MATERIAL DESCRIPTION</th>
<th>ESTIMATED QUANTITY</th>
<th>LOCATION</th>
<th>RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMTH-PI-A-01, 02, 03</td>
<td>Pipe Insulation – 0-4” (TSI)</td>
<td>550 LF</td>
<td>Throughout Survey Areas</td>
<td>NAD, 80%CH, NT</td>
</tr>
<tr>
<td>UMTH-PF-B-01, 02, 03</td>
<td>Pipe Fittings – 0-4” (TSI)</td>
<td>250 EA</td>
<td>Throughout Survey Areas</td>
<td>2% CH/20% AM, NT, NT</td>
</tr>
<tr>
<td>UMTH-PI-C-01, 02, 03</td>
<td>Pipe Insulation – greater than 4” (TSI)</td>
<td>300 LF</td>
<td>Throughout Survey Areas</td>
<td>20% AM, NT, NT</td>
</tr>
<tr>
<td>UMTH-PF-D-01, 02, 03</td>
<td>Pipe Fittings – greater than 4” (TSI)</td>
<td>150 EA</td>
<td>Throughout Survey Areas</td>
<td>15% AM / 40% CH, NT, NT</td>
</tr>
<tr>
<td>UMTH-CT-E-01, 02, 03</td>
<td>Ceiling Tile – 2’x2’ – Light Texture/ Pin Dot pattern</td>
<td>1,700 SF</td>
<td>GE-06C, Throughout 1st Floor Renovation Area</td>
<td>NAD, NAD, NAD</td>
</tr>
<tr>
<td>UMTH-CT-F-01, 02, 03</td>
<td>Ceiling Tile – 2’x4’ – Small Peck /Pin Pattern</td>
<td>1,300 SF</td>
<td>GE-04, GE-03, GE-02</td>
<td>NAD, NAD, NAD</td>
</tr>
<tr>
<td>UMTH-CT-G-01, 02, 03</td>
<td>Ceiling Tile – 2’x2’ – Smooth/no pattern</td>
<td>1,200 SF</td>
<td>GW-02A-F</td>
<td>NAD, NAD, NAD</td>
</tr>
<tr>
<td>UMTH-CT-H-01, 02, 03</td>
<td>Ceiling Tile – 1’x1’ – Random Dot Pattern Mastic – Tan</td>
<td>5,000 SF</td>
<td>Above Drop Ceiling – Throughout 1st Floor Area</td>
<td>NAD, NAD, NAD NAD, NAD</td>
</tr>
<tr>
<td>UMTH-DW-I-01, 02, 03</td>
<td>Drywall System – Wall Board Drywall System – Joint Compound</td>
<td>4,500 SF</td>
<td>Throughout Survey Areas</td>
<td>NAD, NAD, NAD, NAD, NAD, NAD</td>
</tr>
<tr>
<td>UMTH-PL-J-01, 02, 03, 04, 05, 06, 07</td>
<td>Plaster</td>
<td>7,500 SF</td>
<td>Throughout Survey Area</td>
<td>NAD, NAD, NAD, NAD, NAD, NAD</td>
</tr>
<tr>
<td>UMTH-FT-K-01, 02, 03</td>
<td>Floor Tile – Green Mastic – Black</td>
<td>1,500 SF</td>
<td>GE-05, GE-04, GE-03, 1N23</td>
<td>5% CH, NT, NT 2% CH, NT, NT</td>
</tr>
<tr>
<td>UMTH-FT-L-01, 02, 03</td>
<td>Floor Tile – 12” Grey Mastic – Dark Brown</td>
<td>1,700 SF</td>
<td>1W41, 1W40A, 1W40</td>
<td>NAD, NAD, NAD &lt;1% CH, &lt;1% CH, NAD</td>
</tr>
<tr>
<td>UMTH-FT-M-01, 02, 03</td>
<td>Floor Tile – 9” Olive Mastic – Black</td>
<td>50 SF</td>
<td>1W44</td>
<td>4% CH, NT, NT 2% CH, NT, NT</td>
</tr>
<tr>
<td>UMTH-DT-N-01, 02, 03</td>
<td>Duct Seam Tape - Off white</td>
<td>20 LF</td>
<td>1N23</td>
<td>NAD, NAD, NAD</td>
</tr>
</tbody>
</table>

Materials sampled and found to be asbestos-containing are presented in *italics* and **bold** type.

SF – Square Feet, LF – Linear Feet, EA - Each
CH – Chrysotile asbestos, AM – Amosite asbestos
NAD – No Asbestos Detected, NA – Not Applicable, NT – Not tested due to first positive stop analysis

Based on the above sample results, the 0-4” diameter pipe insulations were found to contain 80% Chrysotile asbestos; pipe fittings on the 0-4” diameter pipes were found to contain 2% Chrysotile and 20% Amosite; pipe insulations with diameters of greater than 4” in diameter were found to contain 20% Amosite; pipe fittings on the pipes greater than 4” in diameter were found to contain 15% Amosite and 50% Chrysotile; 9” x 9” floor tiles were found to contain 4-5% Chrysotile asbestos and 2% Chrysotile asbestos in the mastic; and 12” x 12” floor tiles with brown mastic were found to contain <1% Chrysotile in the mastic. Even though the flooring mastic is <1% Asbestos and is technically, not an ACM, PSI recommends that this material be treated as ACM. Regardless, it should be handled in accordance with OSHA’s requirements found in Appendix D of this report. It is possible that pipe insulation and pipe fittings could also be present in inaccessible/unknown pipe chases located throughout the survey area.

If disturbance is likely, these asbestos-containing materials should be removed by a State of Missouri licensed asbestos abatement contractor.
Universal Wastes
The following universal wastes were identified during the survey:

Fluorescent Light Tubes
Approximately 125 four-foot fluorescent light tubes were noted throughout the survey area. Fluorescent light bulbs may contain small amounts of Mercury. This can potentially be harmful to human health and the environment. Used bulbs should be handled in an environmentally safe manner and disposed of properly.

PCB-Containing Light Ballasts
No ballasts were noted throughout the survey area. The ballasts were checked for Polychlorinated biphenyl (PCB) with an electronic meter. The results indicated the ballasts were electronic type ballast and therefore should not contain PCBs.

Smoke Detectors
Approximately 8 smoke detectors were noted in the survey area. These smoke detectors may contain small amounts of radioactive material and should be disposed of properly.

Thermostats
No thermostats were noted in the survey area. Thermostats may contain small amounts of mercury and should be disposed of properly.

Fire Extinguishers
Approximately 11 fire extinguishers were noted in the survey area. These fire extinguishers may contain amounts of chlorofluorocarbons (CFC’s) and/or Hydrochlorofluorocarbons (HFCF’s) and should be disposed of properly.

Exit Signs
Approximately 10 exit signs were noted in the survey area. These exit signs may contain small amounts of lead in the batteries and should be disposed of properly.

Emergency Lights / Fire Alarms
Approximately 4 emergency lights and 4 fire alarms were noted in the survey area. Emergency lights and fire alarms may contain lead batteries and/or other heavy metals and should be disposed of properly prior to demolition/renovation activities.

Air Conditioning Wall Unit
Approximately one (1) air conditioning wall unit was noted in the survey area. Air conditioning wall units may contain CFCs and/or HCFCs and should be disposed of properly.
4.3 ENVIRONMENTAL COST ESTIMATES

PSI used recognized standard engineering principals in developing the unit cost budgetary estimate for removal of the listed environmental concerns. This estimate is for removal and disposal of the listed items and anticipates all work being performed at the same time.

Asbestos-containing Materials

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>800 linear feet of pipe insulation and pipe fitting insulation (0-4&quot;)</td>
<td>$20,000.00</td>
</tr>
<tr>
<td>450 linear feet of pipe insulation and pipe fitting insulation (&gt; 4&quot;)</td>
<td>$13,500.00</td>
</tr>
<tr>
<td>3,250 square feet of floor tile and/or mastic</td>
<td>$22,750.00</td>
</tr>
</tbody>
</table>

**TOTAL ESTIMATED ASBESTOS ABATEMENT COSTS:** $56,250.00

Other Environmental Concerns

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>664 Fluorescent light tubes</td>
<td>$750.00</td>
</tr>
<tr>
<td>8 Smoke Detectors</td>
<td>$400.00</td>
</tr>
<tr>
<td>11 Fire Extinguishers</td>
<td>$550.00</td>
</tr>
<tr>
<td>4 Emergency lights and batteries</td>
<td>$200.00</td>
</tr>
<tr>
<td>10 Exit Signs</td>
<td>$500.00</td>
</tr>
<tr>
<td>4 Fire Alarms</td>
<td>$200.00</td>
</tr>
<tr>
<td>1 Air conditioning wall unit</td>
<td>$250.00</td>
</tr>
</tbody>
</table>

**TOTAL ESTIMATED MISCELLANEOUS REMOVAL COSTS:** $2,850.00

**ESTIMATED ASBESTOS REMOVAL COSTS** $59,100.00

This is an estimate only, intended for use in general policy discussions regarding program development and planning. The figures are as of the date of the report and cover only the removal contractor's fees. Not included are items such as: project management or indirect or hidden costs. Other variables included in an engineering cost estimate are the project schedule and phasing, size of the project, and other factors which can affect project cost. It is recognized that neither PSI nor the owner has control over the cost of labor, materials or equipment, market or negotiating conditions. Accordingly, PSI cannot and does not warrant or represent that bids or negotiated prices will not vary from the budgetary estimate prepared by PSI.

4.4 OTHER CONSIDERATIONS

If additional suspect materials not documented in this report are encountered during work activities, the material should be considered asbestos-containing unless bulk sampling is performed, and laboratory analysis proves otherwise.

The client should consult the Environmental Protection Agency’s NESHAP standard, the State of Missouri’s asbestos regulations, and any local regulations, if any, for additional details regarding asbestos-related demolition/renovation procedures and requirements.

www.intertek.com/building
5.0  WARRANTY

Professional Service Industries, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The field and laboratory results reported herein are considered sufficient in detail and scope to determine the presence, condition and hazard potential of accessible and/or exposed suspect asbestos-containing or lead-based paint materials in the property at the time of survey. Test results are valid only for the material tested.

There is a distinct possibility that conditions may exist which could not be identified within the scope of study or which were not apparent during the site visit. This survey covered only those areas, which were exposed and/or physically accessible to the inspector. The study is also limited to the information available from the client at the time it was conducted.

PSI warrants that the findings contained herein have been prepared with the level of care and skill ordinarily exercised by professionals practicing in the community. The scope of work addressed readily accessible and exposed interior and exterior building areas. Observation or sampling of inaccessible areas such as behind walls or within ductwork was performed on a limited basis.

As directed by the client, PSI did not provide any service to investigate or detect the presence of moisture, mold or other biological contaminants in or around any structure, or any service that was designed or intended to prevent or lower the risk of the occurrence of the amplification of the same. The sampling methods utilized by PSI in performing its services may result in the disturbance or dispersal of mold spores. The client acknowledges that mold is ubiquitous to the environment with mold amplification occurring when building materials are impacted by moisture. Client further acknowledges that site conditions are outside of PSI’s control, and that mold amplification will likely occur, or continue to occur, in the presence of moisture. As such, PSI cannot and shall not be held responsible for the occurrence or reoccurrence of mold amplification.

No other warranties are implied or expressed.
APPENDIX A

ASBESTOS LABORATORY RESULTS
## REPORT OF BULK SAMPLE ANALYSIS FOR ASBESTOS

**TESTED FOR:** PSI, Inc  
8669 Olive Boulevard  
St. Louis, MO 63132  
Attn: Greg Chambliss  

**Univ of Missouri - Teaching Hospital**  
1 Hospital Drive, Columbia, MO  
Prefix: UMTH-

---

**Date Received:** 4/26/2019  
**Date Completed:** 4/29/2019  
**Date Reported:** 4/30/2019

---

**Analyst:** Chris Kopar  
**Work Order:** 1904644  
**Page:** 1 of 4

<table>
<thead>
<tr>
<th>Client ID</th>
<th>Lab ID (Layer)</th>
<th>Sample Description (Color, Texture, Etc.)</th>
<th>Asbestos Content (Percent and Type)</th>
<th>Non-asbestos Fibers (Percent and Type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PI-A-01</td>
<td>001A</td>
<td>Beige, Pipe Insulation, Homogeneous</td>
<td>NO ASBESTOS DETECTED</td>
<td>100% Cellulose Fiber</td>
</tr>
<tr>
<td>PI-A-02</td>
<td>002A</td>
<td>White, Pipe Insulation, Homogeneous</td>
<td>80% Chrysotile</td>
<td>20% Cellulose Fiber</td>
</tr>
<tr>
<td>PI-A-03</td>
<td>003A</td>
<td>Sample Not Tested</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PF-B-01</td>
<td>004A</td>
<td>White, Pipe Fitting, Homogeneous</td>
<td>2% Chrysotile</td>
<td>None Reported</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20% Amosite</td>
<td>None Reported</td>
</tr>
<tr>
<td>PF-B-02</td>
<td>005A</td>
<td>Sample Not Tested</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PF-B-03</td>
<td>006A</td>
<td>Sample Not Tested</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI-C-01</td>
<td>007A</td>
<td>White, Pipe Insulation, Homogeneous</td>
<td>20% Amosite</td>
<td>None Reported</td>
</tr>
<tr>
<td>PI-C-02</td>
<td>008A</td>
<td>Sample Not Tested</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI-C-03</td>
<td>009A</td>
<td>Sample Not Tested</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PF-D-01</td>
<td>010A</td>
<td>White, Pipe Fitting, Homogeneous</td>
<td>15% Amosite</td>
<td>10% Cellulose Fiber</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>40% Chrysotile</td>
<td></td>
</tr>
<tr>
<td>PF-D-02</td>
<td>011A</td>
<td>Sample Not Tested</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Quantitation is based on a visual estimation of the relative area of bulk sample components, unless otherwise noted in the "Comments" section of this report. The results are valid only for the item tested. This report may not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. Method used: E.P.A. Interim Method for the Determination of Asbestos in Bulk Insulation Samples (EPA 600/M4-82-020). Polarized Light Microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Quantitative Transmission Electron Microscopy is currently the only method that can be used to determine if the material can be considered or treated as non-asbestos containing. Samples will be disposed of within 30 days unless notified in writing by the client. No part of this report may reproduced, except in full, without written permission of the laboratory. The reporting limit is 1% by weight. NVLAP Lab Code 101350-0.

Respectfully submitted,

PSI, Inc.

Approved Signatory
George Skarupa
<table>
<thead>
<tr>
<th>Client ID (Layer)</th>
<th>Lab ID</th>
<th>Sample Description (Color, Texture, Etc.)</th>
<th>Analyst's Comment</th>
<th>Asbestos Content (Percent and Type)</th>
<th>Non-asbestos Fibers (Percent and Type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PF-D-03</td>
<td>012A</td>
<td>Sample Not Tested</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT-E-01</td>
<td>013A</td>
<td>(1) White, Ceiling Tile, Homogeneous</td>
<td></td>
<td>NO ASBESTOS DETECTED</td>
<td>40% Cellulose Fiber 40% Fibrous Glass</td>
</tr>
<tr>
<td>CT-E-02</td>
<td>014A</td>
<td>(1) White, Ceiling Tile, Homogeneous</td>
<td></td>
<td>NO ASBESTOS DETECTED</td>
<td>40% Cellulose Fiber 40% Fibrous Glass</td>
</tr>
<tr>
<td>CT-E-03</td>
<td>015A</td>
<td>(1) White, Ceiling Tile, Homogeneous</td>
<td></td>
<td>NO ASBESTOS DETECTED</td>
<td>40% Cellulose Fiber 40% Fibrous Glass</td>
</tr>
<tr>
<td>CT-F-01</td>
<td>016A</td>
<td>(1) White, Ceiling Tile, Homogeneous</td>
<td></td>
<td>NO ASBESTOS DETECTED</td>
<td>40% Cellulose Fiber 40% Fibrous Glass</td>
</tr>
<tr>
<td>CT-F-02</td>
<td>017A</td>
<td>(1) White, Ceiling Tile, Homogeneous</td>
<td></td>
<td>NO ASBESTOS DETECTED</td>
<td>40% Cellulose Fiber 40% Fibrous Glass</td>
</tr>
<tr>
<td>CT-F-03</td>
<td>018A</td>
<td>(1) White, Ceiling Tile, Homogeneous</td>
<td></td>
<td>NO ASBESTOS DETECTED</td>
<td>40% Cellulose Fiber 40% Fibrous Glass</td>
</tr>
<tr>
<td>CT-G-01</td>
<td>019A</td>
<td>(1) White, Ceiling Tile, Homogeneous</td>
<td></td>
<td>NO ASBESTOS DETECTED</td>
<td>40% Cellulose Fiber 40% Fibrous Glass</td>
</tr>
<tr>
<td>CT-G-02</td>
<td>020A</td>
<td>(1) White, Ceiling Tile, Homogeneous</td>
<td></td>
<td>NO ASBESTOS DETECTED</td>
<td>40% Cellulose Fiber 40% Fibrous Glass</td>
</tr>
<tr>
<td>CT-G-03</td>
<td>021A</td>
<td>(1) White, Ceiling Tile, Homogeneous</td>
<td></td>
<td>NO ASBESTOS DETECTED</td>
<td>40% Cellulose Fiber 40% Fibrous Glass</td>
</tr>
<tr>
<td>CT-H-01</td>
<td>022A</td>
<td>(1) White, Ceiling Tile, Homogeneous</td>
<td></td>
<td>NO ASBESTOS DETECTED</td>
<td>85% Fibrous Glass</td>
</tr>
<tr>
<td>CT-H-02</td>
<td>023A</td>
<td>(1) White, Ceiling Tile, Homogeneous</td>
<td></td>
<td>NO ASBESTOS DETECTED</td>
<td>85% Fibrous Glass</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) Tan, Mastic, Homogeneous</td>
<td></td>
<td></td>
<td>None Reported</td>
</tr>
</tbody>
</table>

Quantitation is based on a visual estimation of the relative area of bulk sample components, unless otherwise noted in the "Comments" section of this report. The results are valid only for the item tested. This report may not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. Method used: E.P.A. Interim Method for the Determination of Asbestos in Bulk Insulation Samples (EPA 600/M4-82-020). Polarized Light Microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Quantitative Transmission Electron Microscopy is currently the only method that can be used to determine if the material can be considered or treated as non-asbestos containing. Samples will be disposed of within 30 days unless notified in writing by the client. No part of this report may reproduced, except in full, without written permission of the laboratory. The reporting limit is 1% by weight. NVLAP Lab Code 101350-0.

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<th>Non-asbestos Fibers (Percent and Type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT-H-03</td>
<td>024A</td>
<td>White, Ceiling Tile, Homogeneous</td>
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Quantitation is based on a visual estimation of the relative area of bulk sample components, unless otherwise noted in the "Comments" section of this report. The results are valid only for the item tested. This report may not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. Method used: E.P.A. Interim Method for the Determination of Asbestos in Bulk Insulation Samples (EPA 600/M-82-020). Polarized Light Microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Quantitative Transmission Electron Microscopy is currently the only method that can be used to determine if the material can be considered or treated as non-asbestos containing. Samples will be disposed of within 30 days unless notified in writing by the client. No part of this report may be reproduced, except in full, without written permission of the laboratory. The reporting limit is 1% by weight. NVLAP Lab Code 101350-0.

Respectfully submitted,

PSI, Inc.

George Skarupa

Professional Service Industries, Inc. 850 Poplar Street, Pittsburgh, PA 15220 Phone 412/922-4010 Fax 412/922-4014
<table>
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<tr>
<th>Client ID</th>
<th>Lab ID (Layer)</th>
<th>Sample Description (Color, Texture, Etc.)</th>
<th>Asbestos Content (Percent and Type)</th>
<th>Non-asbestos Fibers (Percent and Type)</th>
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<td>95% Cellulose Fiber</td>
</tr>
</tbody>
</table>

**Report Notes:** (PT) Point Count Results

Quantitation is based on a visual estimation of the relative area of bulk sample components, unless otherwise noted in the “Comments” section of this report. The results are valid only for the item tested. This report may not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. Method used: E.P.A. Interim Method for the Determination of Asbestos in Bulk Insulation Samples (EPA 600/M4-82-020). Polarized Light Microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Quantitative Transmission Electron Microscopy is currently the only method that can be used to determine if the material can be considered or treated as non-asbestos containing. Samples will be disposed of within 30 days unless notified in writing by the client. No part of this report may reproduced, except in full, without written permission of the laboratory. The reporting limit is 1% by weight. NVLAP Lab Code 101350-0.

Respectfully submitted,
PSI, Inc.

Approved Signatory
George Skarupa
**Project Information**

<table>
<thead>
<tr>
<th>Project No.</th>
<th>0029-4127</th>
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<tr>
<td>Project Name</td>
<td>Univ of Missouri - Teaching Hospital</td>
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<tr>
<td>Project Address</td>
<td>1 Hospital Drive, Columbia, MO</td>
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**Send Results To:**

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<thead>
<tr>
<th>Company</th>
<th>Professional Service Industries, Inc. (PSI)</th>
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<tbody>
<tr>
<td>Attn</td>
<td>Greg Chambliss</td>
</tr>
<tr>
<td>Address</td>
<td>8669 Olive Boulevard; St., Louis, Missouri 63132</td>
</tr>
<tr>
<td>Telephone</td>
<td>314-432-8073</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:greg.chambliss@intertek.com">greg.chambliss@intertek.com</a></td>
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**Send Invoice To:**

<table>
<thead>
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**Requested Turnaround Time:**

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**Stop at First Positive**

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**Parameter**

| Sample ID | Number of Samples | PLM Bulk | Point Count (400) | Point Count (1000) | Lead Wipe | Lead Air | Lead Soil | Lead Paint Chip | Lead TCP | PCM | PCM 19 Rules | TEM AHERA | TEM 7402 | TEM Chafield | TEM Vacuum | TEM Wipe | NY PLM Friaile/NOB | NY TEM NOB | NY SOF-V | Total Nuisance Dust | Respirable Dust | Cadmium | Zinc |
|-----------|------------------|----------|------------------|-------------------|-----------|---------|----------|-----------------|---------|-----|---------------|----------|---------|----------------|-----------|---------|------------------|----------------|---------|-------|
| UMTH-PI-A-01, 02, 03 | 3 X |         |                  |                   |           |         |          |                 |         |     |               |          |         |               |           |         |                  |               |         |       |
| UMTH-PF-B-01, 02, 03 | 3 X |         |                  |                   |           |         |          |                 |         |     |               |          |         |               |           |         |                  |               |         |       |
| UMTH-PI-C-01, 02, 03 | 3 X |         |                  |                   |           |         |          |                 |         |     |               |          |         |               |           |         |                  |               |         |       |
| UMTH-PF-D-01, 02, 03 | 3 X |         |                  |                   |           |         |          |                 |         |     |               |          |         |               |           |         |                  |               |         |       |
| UMTH-CT-E-01, 02, 03 | 3 X |         |                  |                   |           |         |          |                 |         |     |               |          |         |               |           |         |                  |               |         |       |
| UMTH-CT-F-01, 02, 03 | 3 X |         |                  |                   |           |         |          |                 |         |     |               |          |         |               |           |         |                  |               |         |       |
| UMTH-CT-G-01, 02, 03 | 3 X |         |                  |                   |           |         |          |                 |         |     |               |          |         |               |           |         |                  |               |         |       |

**Special Instructions / Comments:**

"Pipe Insulation (0-4")
Mudded Pipe Fitting (0-4")
Pipe Insulation (>4")
Mudded Pipe Fitting (>4")
Ceiling Tile - 2X2 - Light Texture/Pin Hole
Ceiling Tile - 2X4 - Small Peck/Pin
Ceiling Tile - 2X2 Solid"
**CHAIN OF CUSTODY - ASB/LEAD/IH**

**Project Information**
- **Project No:** 0029-4127
- **Project Name:** Univ of Missouri - Teaching Hospital
- **Project Address:** 1 Hospital Drive, Columbia, MO

**Send Results To:**
- **Company:** Professional Service Industries, Inc. (PSI)
- **Attn:** Greg Chambliss
- **Address:** 8669 Olive Boulevard; St., Louis, Missouri 63132
- **Telephone:** 314-432-8073
- **Email:** greg.chambliss@intertek.com

**Requested Turnaround Time:**
- **Same Day**
- **1-2 Day**
- **3-5 Day**
- **Requested Date:** 4/30/2019

**Send Invoice To:**
- **Company:** Professional Service Industries, Inc. (PSI)
- **Attn:** Greg Chambliss
- **Address:** 8669 Olive Boulevard; St., Louis, Missouri 63132
- **Telephone:** 314-432-8073
- **Email:** greg.chambliss@intertek.com

**Parameter**

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<th>Lead TCLP</th>
<th>PCM</th>
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<th>TEM AHERA</th>
<th>TEM 7402</th>
<th>TEM Chatfield</th>
<th>TEM Vacuum</th>
<th>TEM Wipe</th>
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**Relinquished by:**

- [Signature]

**Date/Time:** 11/5/19

**Received by:**

- [Signature]

**Date/Time:** 4/26/19 9:00 AM

**Special Instructions/Comments:**

- [Signature]
APPENDIX B

SITE SKETCH WITH APPROXIMATE LOCATIONS OF ACM
Asbestos Containing Material Location
Flooring Materials

University of Missouri - Teaching Hospital

Date: 4/24/19

Drawn by: JMC

Floor Tile and/or Mastic Positive for Asbestos
Asbestos Containing Material Location
Thermal System Insulation - TSI
No Asbestos-Containing Floor Tile or Mastic Found in this Area
APPENDIX C

PERSONNEL/LABORATORY ACCREDITATIONS
April 23, 2019

Jason M. Cyvas
413 S Library Street
Waterloo, IL 62298

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: 7118041919MOIRR12228
Course Training Date: April 19, 2019
Missouri Certification Approval Date: April 23, 2019
Missouri Certification Expiration Date: April 23, 2020

Note:
- All Missouri-certified asbestos personnel must comply with the following statutes and regulations:
  - Sections 643.225 to 643.225, 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
Certificate of Accreditation to ISO/IEC 17025:2005

PSI
Pittsburgh, PA

NVLAP LAB CODE: 101350-0

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized international Standard ISO/IEC 17025:2005, and listed on the Scope of Accreditation, for:

Effective Dates
2018-07-01 through 2019-06-30

For the National Voluntary Laboratory Accreditation Program


Effective Dates
2018-07-01 through 2019-06-30
# ASBESTOS FIBER ANALYSIS

## Bulk Asbestos Analysis

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<th>Code</th>
<th>Description</th>
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<tr>
<td>18/A01</td>
<td>EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples</td>
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<tr>
<td>18/A03</td>
<td>EPA 600/R-95/116: Method for the Determination of Asbestos in Bulk Building Materials</td>
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## Airborne Asbestos Analysis

<table>
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<td>18/A02</td>
<td>U.S. EPA's &quot;Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions&quot; as found in 40 CFR, Part 763, Subpart E, Appendix A.</td>
</tr>
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APPENDIX D

OSHA WORK PRACTICES REQUIREMENT AND PROHIBITIONS FOR MATERIALS CONTAINING LESS THAN 1% ASBESTOS
OSHA Work Practice Requirements and Prohibitions for 
Materials Containing Less Than (<) 1% Asbestos

A material is considered by the EPA and the State of Missouri to be asbestos-containing if at least one sample collected from the homogenous area shows asbestos present in an amount greater than 1%. Materials that contain less than 1% asbestos, while not defined by the EPA or the State of Missouri as an asbestos-containing material (ACM), are still subject to Occupational Safety and Health Administration (OSHA) regulations, which govern work activities involving the disturbance of materials that contain any asbestos, including <1%.

In accordance with OSHA regulations, work activities involving the disturbance of any materials that contain asbestos, including <1%, involve certain work practice requirements and prohibitions.

If the employer decides to have its own employees perform the work, the employer must notify employees that the material contains asbestos and access to each area will need to be restricted and a containment constructed. Asbestos air monitoring will be required for employees working in these areas unless a previous negative exposure assessment (NEA) has been performed. If a NEA is not available, or if air monitoring results show employee worker exposures are below the OSHA permissible exposure limits (PELs) for asbestos, then only the following OSHA work practice procedures and prohibitions must be followed by the employer for the remainder of the drywall joint compound removal:

- **29 CFR 1926.1101(g)(1)(ii)**, which requires: wet methods, or wetting agents, to control employee exposure during asbestos handling, ... removal, cutting, ... and cleanup, except where employers demonstrate the use of wet methods is infeasible due to for example, the creation of electrical hazards...[and] equipment malfunction...;

- **29 CFR 1926.1101(g)(1)(iii)**, which requires: prompt clean-up and disposal of wastes and debris contaminated with asbestos and placed in leak-tight containers...;

- **29 CFR 1926.1101(g)(3)(i)**, which prohibits: high-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air;

- **29 CFR 1926.1101(g)(3)(ii)**, which prohibits: compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air; and

- **29 CFR 1926.1101(g)(3)(iv)**, which prohibits: employee rotation as a means of reducing employee exposure to asbestos.
If a NEA is not available and air monitoring results show employee worker exposures are at or above the OSHA PELs for asbestos, then all standards relevant to the general work practice control procedures, engineering methods, and prohibitions apply; therefore, the material is to be considered asbestos-containing under EPA standards and will need to be removed by a Missouri licensed asbestos abatement contractor.

Based on this information, the employer has the following options:

1. **Non-Abatement Crew Perform the Work.**
   - A. Employer informs all employees material contains asbestos;
   - B. Non-Abatement Crew sets up a containment;
   - C. Workers begin wet removal methods, prompt clean-up and disposal into leak-tight containers;
   - D. Air monitoring is performed on employees working in containment to determine if worker exposure is below OSHA PELs (note: air monitoring to be performed for 3 consecutive days); and
   - E. Workers continue wet removal methods, prompt clean-up and disposal into leak-tight containers.

If employee exposure levels are observed to be above OSHA PELs, work must stop and option 2 must be implemented.

2. **Material to be Removed by a State of Missouri Licensed Asbestos Abatement Contractor Following Required Asbestos Rules and Regulations.**

Please note that this is not considered as an asbestos-containing material and may be disposed of as a demolition debris; however, the landfill should be contacted to confirm that they do not have any special packaging and disposal requirements.
University of Missouri Teaching Hospital
AHU S2-8 Replacement
For: The Curators of the University of Missouri

1 Hospital Drive
Columbia, MO 65201

TCEP No.: 624-133-16
MU Project: CP162661

Contract Documents
May 2, 2019
PHASING LEGEND

PHASE 1

- Areas marked with a red border indicate areas to be phased in during PHASE 1.
- Areas marked with a gray border indicate areas to be phased in during PHASE 2.
- Areas marked with a white border indicate areas to be phased in during PHASE 3.

PHASING SCOPE NARRATIVE

PHASE 1 SCOPE OF WORK INCLUDES:

- TAB all diffusers and reheat coils at completion of work and temporary work in each phase.
- Install new ductwork, VAV's, and control rough in for each area. Work to occur 1 area at a time.
- Replace duct risers serving 1st and 2nd floor areas during daytime hours.
- Remove and reinstall existing ceiling, lighting, diffusers, and devices for demolition of existing ductwork and installation of new ductwork and TAB.
- Install new piping to VAV boxes in area 1e.
- Coordinate TAB of area 1f with cut over of AHU 28.
- Complete sprinkler modifications on second floor.
- Install AHU 28, louvers, and associated controls/VFD's.
- Associated demolition by GC.
- Install new electrical panel.
- Install new 2nd floor ductwork, VAV's & Control rough in for area 1f and damper off diffusers until AHU 28 is operational.
- Install new heating water piping to VAV boxes in area 1f.
- Install new ductwork, VAV & control rough in for area 1e.
- Install TAB diffuser and reheat coil for office 1W37 at completion of work.
- Under Add Alternate #1, Remove remaining existing ventilation ductwork in corridor.
- Under Base Bid, Remove portion of existing ventilation ductwork for installation of new ductwork serving office 1W37.
- Temporary reconnect ductwork serving areas 1g - 1j. Temporary reconnection work to occur afterhours and weekends. Maintain airflow to occupied areas during

PHASE 1 WORK IN THIS AREA TO BE SCHEDULED SEPARATELY TO ALLOW ADJACENT AREAS TO REMAIN OCCUPIED (SCHEDULE WORK IN THIS AREA WITH OWNER PRIOR TO START OF CONSTRUCTION). WORK IN THIS AREA TO BE SCHEDULED WITH OWNER PRIOR TO START OF CONSTRUCTION. WORK IN THIS AREA TO BE SCHEDULED WITH OWNER PRIOR TO START OF CONSTRUCTION. WORK IN THIS AREA TO BE SCHEDULED WITH OWNER PRIOR TO START OF CONSTRUCTION. WORK IN THIS AREA TO BE SCHEDULED WITH OWNER PRIOR TO START OF CONSTRUCTION. WORK IN THIS AREA TO BE SCHEDULED WITH OWNER PRIOR TO START OF CONSTRUCTION.

CONSTRUCTION AREA WILL BE UNOCCUPIED DURING CONSTRUCTION.

THE DAY. FULLY CLEAN HALLWAY PRIOR TO OCCUPANCY. START OF CONSTRUCTION. CORRIDOR TO BE RETURNED TO FULL OCCUPANCY DURING AFTER HOURS WORK ONLY. SCHEDULE ALL WORK IN THIS AREA WITH OWNER PRIOR TO START OF CONSTRUCTION.

A WEEK, UNTIL PHASE IS COMPLETE. PROVIDE FULL TEMPORARY CONSTRUCTION ENCLOSURE AROUND AREAS OF WORK WITHIN ROOM.

A WEEK, UNTIL PHASE IS COMPLETE. PROVIDE FULL TEMPORARY CONSTRUCTION ENCLOSURE AROUND AREAS OF WORK WITHIN ROOM.

A WEEK, UNTIL PHASE IS COMPLETE. PROVIDE FULL TEMPORARY CONSTRUCTION ENCLOSURE AROUND AREAS OF WORK WITHIN ROOM.

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A WEEK, UNTIL PHASE IS COMPLETE. PROVIDE FULL TEMPORARY CONSTRUCTION ENCLOSURE AROUND AREAS OF WORK WITHIN ROOM.
PHASING LEGEND

PHASE 1

PHASE 1a

MAINTAIN TEMPORARY EXIT PATH DURING PHASE 1a WORK

PHASE 1b

MAINTAIN EXIT PATH DURING PHASE 1b WORK

PHASE 2

PHASING SCOPE NARRATIVE

**Phase 1a:**
- **Scope of Work:** Includes all work associated with new AHU S2.
- **Demolition:**
  - Associated demolition by GC
  - Remove remaining existing ventilation ductwork in corridor.
  - Under Add Alternate #1, Remove portion of existing ventilation ductwork for installation of new ductwork serving office 1W37

**Phase 1b:**
- **Scope of Work:**
  - Setting of new AHU S2
- **Connect to Heating Water Mains Installed in Phase 1.**
- **Install New Ductwork, VAV's, and Control Rough In for Each Area.**
- **Install New Electrical Conduit and Feeders from Basement to Second Floor.**
- **Install New 2nd Floor Ductwork, VAV’s & Control Rough In for Each Area.**
- **Coordinate TAB of Area 1f with Cut Over of AHU 28.**

**Phase 1c:**
- **Scope of Work:**
  - Complete Sprinkler Modifications on Second Floor.
  - Connect to existing heating and chilled water lines in 2S03 and route through second floor to new VAV's.

**Phase 1d:**
- **Scope of Work:**
  - Install New Lighting, Devices & Associated Electrical Work
  - Install New Electrical Conduit and Feeders from Basement to Second Floor. All Work in Corridor to Occur After Hours and to Be Scheduled with Owner.

**Phase 1e:**
- **Scope of Work:**
  - Install New Ductwork, VAV's & Control Rough In for Each Area.
  - Associated Demolition by GC

**Phase 1f:**
- **Scope of Work:**
  - TAB All Diffusers and Reheat Coils at Completion of Work and Temporary Work in Each Phase.

**Phase 1g:**
- **Scope of Work:**
  - Install New Ductwork, VAV's & Control Rough In for Area 1e.
  - Install New Heating Water Piping to VAV Boxes in Area 1f.

**Phase 1h:**
- **Scope of Work:**
  - Install New Ductwork, VAV's & Control Rough In for Area 1f and Damper Off Diffusers Until AHU 28 is Operational.

**Phase 1i:**
- **Scope of Work:**
  - Connect to Heating Water Mains Installed in Phase 1h Area.

**Phase 1j:**
- **Scope of Work:**
  - Temporary Reconnection Work to Occur After Hours and Weekends. Maintain Airflow to Occupied Areas During Daytime Hours.

**Phase 1k:**
- **Scope of Work:**
  - Complete Sprinkler Modifications on Second Floor.
  - Connect to Existing Heating and Chilled Water Lines in 2S03 and Route Through Second Floor to New VAV's.
GENERAL DEMOLITION NOTES

1. REMOVE LABELS THAT ARE NOT INTENDED TO BE PERMANENT.
2. ALL PRODUCTS AND EQUIPMENT SHALL BE KEPT CLEAN AND SAFE.
3. ARE ABANDONED AND NOT INTENDED FOR REUSE. PREPARE WORKERS FROM LEAD HAZARDS.
4. LEAD HAZARD EXISTS. LEAD PAINT CAN BE PRESENT ON OLDER SURFACES. THE CONTRACTOR IS ADVISED THAT HE/SHE IS LEGAL TO COMPLETE.
5. GLASS IN DOORS AND WINDOWS.
6. B. CLEAN ALL TRANSPARENT SURFACES, INCLUDING MIRRORS AND CONSTRUCTION AREA SHALL BE KEPT CLEAN AND SAFE.
7. DISPOSE OF ORIGINAL CONDITION.
8. THIS CONTRACT, AND SHALL RESTORE ALL DAMAGE TO IT'S SURFACE FOR NEW FINISH.
9. REMOVE ALL SURFACE MOUNTED OBJECTS IN AREA OF WORK THAT BASES AND PLUMBING, ETC.
10. THE INSTALLATION OF NEW WORK WITHIN EXISTING CONDITIONS.
11. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE SCOPE OF WORK THAT IS TO OCCUR AND COORDINATE ANY SALVAGEABLE ITEMS.
12. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL OF ALL ORIGINAL CONDITION.
13. USE RECLAIMED OR SALVAGED MATERIALS WHEREVER POSSIBLE. RECLAIMED MATERIALS TO BE ADDED TO CONSTRUCTION.
14. THE INSTALLATION OF NEW ACOUSTICAL PANEL CEILING BY OWNER. COORDINATE INSTALLATION OF NEW MECHANICAL WORK WITH TH-1W42 OFFICE CORRIDOR.
15. ALL PENETRATIONS. COORDINATE WITH MECHANICAL.

FIRST FLOOR REFLECTED CEILING NEW WORK PLAN - PHASE 1

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

1. REMOVE LABELS THAT ARE NOT INTENDED TO BE PERMANENT.
2. ALL PRODUCTS AND EQUIPMENT SHALL BE KEPT CLEAN AND SAFE.
3. ARE ABANDONED AND NOT INTENDED FOR REUSE. PREPARE WORKERS FROM LEAD HAZARDS.
4. LEAD HAZARD EXISTS. LEAD PAINT CAN BE PRESENT ON OLDER SURFACES. THE CONTRACTOR IS ADVISED THAT HE/SHE IS LEGAL TO COMPLETE.
5. GLASS IN DOORS AND WINDOWS.
6. B. CLEAN ALL TRANSPARENT SURFACES, INCLUDING MIRRORS AND CONSTRUCTION AREA SHALL BE KEPT CLEAN AND SAFE.
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13. USE RECLAIMED OR SALVAGED MATERIALS WHEREVER POSSIBLE. RECLAIMED MATERIALS TO BE ADDED TO CONSTRUCTION.
14. THE INSTALLATION OF NEW ACOUSTICAL PANEL CEILING BY OWNER. COORDINATE INSTALLATION OF NEW MECHANICAL WORK WITH TH-1W42 OFFICE CORRIDOR.
15. ALL PENETRATIONS. COORDINATE WITH MECHANICAL.
1. The Contractor shall verify all existing dimensions and conditions prior to commencement of the work. It shall be the Contractor's responsibility to coordinate installation of new work within these existing conditions. Any deviations in existing conditions of dimensions indicated shall be coordinated with the Architect and Owner's Representative in order to modify plans accordingly.

2. All dimensions are to face of GYP. BD. and face of existing walls.

3. New ceilings in existing building shall be installed at existing height, unless otherwise noted.

4. Contractor to remove abandoned piping, conduit, wiring, and ductwork, and reroute existing to remain piping, conduit, wiring, and ductwork as required to install new ductwork as close to structure as possible. Ref: Mech & Elec. Drawings

General Plan Notes

New Outside Air Intake or Relief Air Louvers to be installed in existing curtain wall system. Ref. Mech.

New Shaft Wall. Tape & Mud all joints, seal wall at floor and structure above, and at all penetrations per wall type.

Concrete housekeeping pad, coordinate exact location and size with requirements of AHU. Ref: Mech.

Provide temporary construction barrier and exit door during Phase 1 & 1A construction. Paint wall to match existing. Provide wall base to match existing on corridor 2W46 side. Coordinate with Owner for attic stock. Install prior to beginning construction.

Temporary exit door. Match existing type & finish. Install prior to beginning construction.

Infill and patch wall to maintain 1-hour fire rating. Seal around all penetrations. Coordinate with Mechanical.

Infill and patch shaft wall around duct penetration. Seal around all penetrations to maintain fire rating per code plan. Coordinate with Mechanical.

Reinstall or replace portion of curtain wall framing and glazing to match existing as required where removed for installation of new mechanical unit.

Reinstall portion of GYP. BD. and metal stud framing to match existing as required where removed for installation of new mechanical unit.

Infill 42" x 60" louver opening with insulated metal panel over metal stud framing.
FIRE SUPPRESSION PIPING SCHEMATIC

1. SPRINKLER HEADS ARE TO BE LOCATED IN THE CENTER OF THE CEILING PADS.
2. ALL PIPING RUNOUTS TO SPRINKLERS TO BE TAPPED TO THE TOP OF THE SPRINKLER MAIN.

GENERAL NOTES (FOR ALL PLANS ON SHEET):
1. THE INTENT OF THESE FIRE SUPPRESSION DRAWINGS ARE TO INDICATE THE AREAS OF WORK WHICH WILL REQUIRE SPRINKLER ALTERATIONS. ALL AREAS WILL HAVE EXISTING SPRINKLER MAINS AND THAT THE EXTENT OF WORK WILL BE NEW BRANCH ROUTING AND SPRINKLER HEAD LOCATIONS. COORDINATE NEW BRANCH ROUTING WITH NEW DUCT MAINS IN SPACE. PIPING WILL LIKELY NEED TO BE INSTALLED ABOVE DUCT MAIN TO CONSERVE SPACE.
2. FOR AREAS WITH CEILINGS, PROVIDE SPRINKLER HEAD IN CENTER OF CEILING TILE.
3. FOR SPRINKLER PIPING CURRENTLY SUPPORTED BY PLASTER CEILING THAT IS DEMOLISHED, RE-SUPPORT PIPING TO EXISTING STRUCTURE.
1. ALL WORK SHOWN SHALL BE COMPLETED UNDER PHASE 1.
2. ALL EXISTING WORK TO REMAIN IS SHOWN IN LIGHT LINEWEIGHT. ALL NEW WORK IS SHOWN IN HEAVY LINEWEIGHT.

GENERAL NOTES:

1. PROVIDE VORTEX SHEDDING AIRFLOW MEASURING STATION, TEK-AIR OR EQUIVALENT. SEE SPECIFICATION SECTION 23 09 00 FOR MORE INFORMATION.
2. RELOCATE EXISTING FIRE ALARM CONDUITS IN THIS AREA TO ALLOW DUCTWORK INSTALLATION.
3. RELOCATE EXISTING UNIT HEATER AND ASSOCIATED PIPING/CONTROLS TO THE EAST AS REQUIRED TO ALLOW INSTALLATION OF NEW AHU AND ASSOCIATED RELIEF AIR DUCTWORK.

PLAN NOTES:

PROVIDE VORTEX SHEDDING AIRFLOW MEASURING STATION, TEK-AIR OR EQUIVALENT. SEE SPECIFICATION SECTION 23 09 00 FOR MORE INFORMATION.

RELOCATE EXISTING FIRE ALARM CONDUITS IN THIS AREA TO ALLOW DUCTWORK INSTALLATION.

RELOCATE EXISTING UNIT HEATER AND ASSOCIATED PIPING/CONTROLS TO THE EAST AS REQUIRED TO ALLOW INSTALLATION OF NEW AHU AND ASSOCIATED RELIEF AIR DUCTWORK.
FIRST FLOOR ELECTRICAL DEMOLITION PLAN

KEY NOTE DESCRIPTION

1. REMOVE ALL EXISTING LIGHT FIXTURES FROM THIS AREA AS SHOWN. EXISTING CIRCUIT(S) AND LIGHTING CONTROLS ARE TO BE USED TO FEED NEW FIXTURES. ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL OTHER CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT ABOVE CEILING WORK IN THIS AREA MAY BE COMPLETED. REINSTALL STORED ITEMS IN PRE-CONSTRUCTION LOCATION UPON COMPLETION OF WORK. COORDINATE EXACT SCOPE OF WORK WITH OWNER AND ALL OTHER TRADES. SEE THE FIRST FLOOR ELECTRICAL PLAN, GENERAL DEMOLITION NOTES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

2. DEMOLITION WORK IN THIS AREA TO BE PERFORMED BY OWNER AS PART OF TH-1W42 OFFICE RENOVATION PROJECT. COORDINATE ANY WORK IN THIS AREA ASSOCIATED WITH AHU S2-8 PROJECT WITH OWNER AND TH-1W42 OFFICE RENOVATION PROJECT SCHEDULE.

3. ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT ABOVE CEILING WORK IN THIS AREA MAY BE COMPLETED. REINSTALL STORED ITEMS IN PRE-CONSTRUCTION LOCATION UPON COMPLETION OF WORK. COORDINATE EXACT SCOPE OF WORK WITH OWNER AND ALL OTHER TRADES. SEE THE FIRST FLOOR ELECTRICAL PLAN, GENERAL DEMOLITION NOTES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

4. ELECTRICAL CONTRACTOR TO DEMO ELECTRICAL CONNECTIONS ASSOCIATED WITH FAN COIL UNIT IN THIS AREA. COORDINATE EXACT SCOPE OF WORK WITH OWNER AND OTHER TRADES. SEE MECHANICAL DEMOLITION PLANS FOR ADDITIONAL INFORMATION.

5. AS A PART OF ADD ALTERNATE #1, ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT ABOVE CEILING WORK IN THIS AREA MAY BE COMPLETED. REINSTALL STORED ITEMS IN PRE-CONSTRUCTION LOCATION UPON COMPLETION OF WORK. COORDINATE EXACT SCOPE OF WORK WITH OWNER AND ALL OTHER TRADES. SEE THE MECHANICAL PLANS, FIRST FLOOR ELECTRICAL PLAN, GENERAL DEMOLITION NOTES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

ALL DEVICES SHOWN "LIGHT" ARE EXISTING TO REMAIN OR BE REUSED. ALL DEVICES SHOWN "DARK" AND DASHED ARE EXISTING TO BE DEMOLISHED.

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

FIRST FLOOR ELECTRICAL DEMOLITION PLAN

A - 06 06/05/2019 ADD #06

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

ROOF ELECTRICAL DEMOLITION PLAN

SEE THE PROJECT ALTERNATE DESCRIPTIONS, ARCHITECTURAL CONSTRUCTION PHASING PLANS AND PHASING SCOPE NARRATIVE FOR ADDITIONAL INFORMATION.

ROOF ELECTRICAL DEMOLITION PLAN NOTES

KEY NOTE DESCRIPTION

1. ELECTRICAL CONNECTIONS FOR EXISTING AHU TO REMAIN.

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

ROOF ELECTRICAL DEMOLITION PLAN

A - 06 06/05/2019 ADD #06

E0.21
SECOND FLOOR ELECTRICAL DEMOLITION PLAN - PHASE 1

NOTES

1. ELECTRICAL CONTRACTOR SHALL REMOVE ELECTRICAL CONNECTIONS TO ALL MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS TO BE REMOVED IN PHASE 1. ELECTRICAL WORK ASSOCIATED WITH MECHANICAL EQUIPMENT SHALL BE DONE.

2. CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

3. CONTRACTOR SHALL CAREFULLY INSPECT ALL LIGHTING, POWER, AND AUXILIARY INTERCONNECTS TO VERIFY THAT CIRCUITING/CABLING SERVING ANY DEVICES/EQUIPMENT IN AREA OF DEMOLITION WORK AS DENOTED BY KEYNOTE #1 THAT INTERFERES WITH THE NEW DUCTWORK INSTALLATION AND SHALL MEET ALL SEISMIC REQUIREMENTS AS LISTED IN SPEC. ITEMS SHALL BE ASSOCIATED WITH NEW DUCTWORK. TELECOM CABLING SERVING DEVICES NOT IN THIS PROJECT'S AREA OF WORK SHALL BE REMOVED.

4. ANY CONDUIT OR CABLING SERVING DEVICES/EQUIPMENT NOT LOCATED IN THIS AREA. CONDUIT AND WIRING SHALL BE DEMOED AS REQUIRED TO CLEAR PATH FOR NEW DUCTWORK. COORDINATE EXACT SCOPE OF WORK WITH OWNER AND ALL OTHER TRADES. SEE THE MECHANICAL PLANS, GENERAL DEMOLITION NOTES AND PROJECT UNIT PRICING FOR ADDITIONAL INFORMATION.

1. EXISTING BRANCH CIRCUIT CONDUIT BANK LOCATED IN THIS AREA. CONDUIT AND WIRING SHALL BE REWORKED AS REQUIRED TO CLEAR PATH FOR NEW DUCTWORK, EXISTING CONDUIT AND WIRING SHALL BE REWORKED AS NEEDED TO PROTECT, SUPPORTED AND RELOCATED AS REQUIRED TO ACCOMMODATE ALL WORK ASSOCIATED WITH MECHANICAL EQUIPMENT. COORDINATE EXACT SCOPE OF WORK WITH ALL OTHER TRADES.

2. DO NOT USE NEW DUCTWORK FOR LIGHT FIXTURES AND OTHER ELECTRICAL DEVICES THAT ARE TO REMAIN AND ARE NOT TO BE DEMOLISHED. UNDER NO CIRCUMSTANCES, UNLESS INSTRUCTED BY OWNER, SHALL ANY PORTIONS OF THE BUILDING THAT ARE TO REMAIN ARE NOT INADVERTENTLY REMOVED. CONTRACTOR SHALL BE RESPONSIBLE FOR RE-PROTECTING, SUPPORTED, RELOCATED AS REQUIRED TO CLEAR PATH FOR NEW DUCTWORK.

3. TELECOM CABLING SERVING DEVICES NOT IN THIS PROJECT'S AREA OF WORK SHALL BE REMOVED.

4. CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

5. CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL OTHER EXISTING LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

6. CONTRACTOR SHALL REMARK ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

7. CONTRACTOR SHALL REMARK ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

8. CONTRACTOR SHALL REMARK ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

9. CONTRACTOR SHALL REMARK ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

10. CONTRACTOR SHALL REMARK ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

11. CONTRACTOR SHALL REMARK ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

12. CONTRACTOR SHALL REMARK ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

13. CONTRACTOR SHALL REMARK ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

14. CONTRACTOR SHALL REMARK ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

15. CONTRACTOR SHALL REMARK ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

16. CONTRACTOR SHALL REMARK ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

17. CONTRACTOR SHALL REMARK ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

18. CONTRACTOR SHALL REMARK ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

19. CONTRACTOR SHALL REMARK ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.

20. CONTRACTOR SHALL REMARK ELECTRICAL CONTRACTOR TO DISCONNECT, REMOVE AND STORE ALL LIGHT FIXTURES, OVERHEAD/CEILING MOUNTED ELECTRICAL AND LIGHTING DEVICES, EXIT SIGNS, ETC. AS NECESSARY SO THAT OVERHEAD/ABOVE CEILING WORK CAN BE COMPLETED COMPLETELY REMOVED, CONTRACTOR TO RE-HANG ITEMS FROM STRUCTURE ABOVE.
FIRST FLOOR ELECTRICAL PLAN

1. AS A PART OF ADD ALTERNATE #1, EXISTING LIGHT FIXTURES AND CEILING MOUNTED DEVICES THAT WERE STORED FOR REINSTALLATION ARE TO BE INSTALLED WHERE PREVIOUSLY LOCATED OR AS COORDINATED WITH THE OWNER. LIGHT FIXTURES SHALL BE RECONNECTED TO EXISTING CIRCUIT AND CONTROLS. SEE THE FIRST FLOOR ELECTRICAL DEMOLITION PLAN FOR ADDITIONAL INFORMATION.

2. ROUTE THE NEW CIRCUIT TO AN EXISTING LIFE SAFETY SPARE BREAKER OR NEW LIFE SAFETY 20AMP, 1 POLE CIRCUIT BREAKER LOCATED IN PANEL '1W44'.

3. PROVIDE 120V CIRCUIT TO COMBINATION FIRE/SMOKE DAMPER. PROVIDE ALL NECESSARY CONNECTIONS TO DAMPER SO THAT UPON FIRE ALARM CONDITIONS OR DUCT SMOKE DETECTOR ACTIVATION, THE DAMPER SHALL BE FULLY INTEGRATED FOR COMPLETE FUNCTIONALITY.

4. EXISTING LIGHT FIXTURES AND CEILING MOUNTED DEVICES THAT WERE STORED FOR REINSTALLATION ARE TO BE INSTALLED WHERE PREVIOUSLY LOCATED OR AS COORDINATED WITH THE OWNER. LIGHT FIXTURES SHALL BE RECONNECTED TO EXISTING CIRCUIT AND CONTROLS. SEE THE FIRST FLOOR ELECTRICAL DEMOLITION PLAN FOR ADDITIONAL INFORMATION.

5. PROVIDE NEW DUAL TECHNOLOGY CEILING/WALL MOUNT OCCUPANCY SENSOR (WATTSTOPPER #DT-200 OR ENGINEER APPROVED EQUAL) AND REQUIRED POWER PACK (WATTSTOPPER #BZ-250 OR ENGINEER APPROVED EQUAL) AND CONTROLS THAT SERVED PREVIOUS LIGHT FIXTURES. EXISTING CEILING MOUNTED DEVICES THAT WERE STORED FOR REINSTALLATION ARE TO BE INSTALLED IN CEILING WHERE PREVIOUSLY LOCATED OR AS COORDINATED WITH THE OWNER. See the mechanical drawings for additional information.

6. EMERGENCY LIGHT FIXTURE(S) TO BE INSTALLED AS REQUIRED TO MATCH PREVIOUS LIGHT FIXTURE LAYOUT.

7. ROUTE THE NEW CIRCUIT TO AN EXISTING SPARE OR NEW 20AMP, 1 POLE CIRCUIT BREAKER LOCATED IN WORK IN THIS AREA TO BE PERFORMED BY OWNER AS PART OF TH-1W42 OFFICE RENOVATION PROJECT.

8. PROVIDE MOUNTING BRACKET AS NECESSARY FOR OCCUPANCY SENSOR. OCCUPANCY SENSOR SHALL BE FULLY INTEGRATED FOR COMPLETE FUNCTIONALITY.

9. EXISTING POWER SUPPLIES IN JANITOR/TRASH HOLDING 1S170. COORDINATE EXACT ENCLOSED POWER TRANSFORMERS/ENCLOSED POWER SUPPLIES. NEW POWER SUPPLIES SHALL BE LOCATED NEAR TRANSFORMERS/ENCLOSED POWER SUPPLY FOR VAV'S SERVING THE PROJECT AREA. PROVIDE ALL NECESSARY CONNECTIONS TO TRANSFORMERS/ENCLOSED POWER SUPPLIES. NEW POWER SUPPLIES SHALL BE LOCATED NEAR TRANSFORMERS/ENCLOSED POWER SUPPLY FOR VAV'S SERVING THE PROJECT AREA. PROVIDE ALL NECESSARY CONNECTIONS TO TRANSFORMERS/ENCLOSED POWER SUPPLY FOR VAV'S SERVING THE PROJECT AREA.
SECOND FLOOR ELECTRICAL PLAN - PHASE 1

1. Provide 120V electrical connection for powering mechanical control transformer/enclosed power supplies. Coordinate exact enclosure power supply for VAV's serving the project area. Provide all necessary conduit and wire for a complete and functional connection details with the mechanical contractor.

2. Provide all necessary relays and connections so upon initiation of the smoke detector, the damper so that upon fire alarm conditions or duct smoke detector activation, the damper closes. Coordinate exact connection requirements and location with the mechanical contractor.

3. Required 120V electrical connections to mechanical contractor provided and installed.

4. Provide 120V circuit to AHU integral receptacles. Fully coordinate all requirements with the mechanical contractor.

5. Unistrut mounted VFD provided by the mechanical contractor and installed by the electrical contractor. Relocated fixture shall be reconnected to existing circuit that previously served fixture.

6. Provide 120V connection to mechanical control panel. Coordinate exact location and smoke duct detector to be located in the supply and return side of the air handling unit.

7. Existing light fixtures and ceiling mounted devices that were stored for reinstallation are not used.

8. Provide 120V connection to mechanical control transformers/enclosed power supplies. Coordinate exact enclosed power supply for VAV's serving the project area. Provide all necessary conduit and wire for a complete and functional connection details with the mechanical contractor.

9. Provide all necessary conduit and wire for a complete and functional connection details with the mechanical contractor.

10. Owner's building controls manager. See the mechanical drawings for additional information, connection details with the mechanical contractor.

Sheets:
- E1.01: First Floor Electrical
- E1.02: Second Floor Electrical
- E1.03: Third Floor Electrical
- E1.04: Basement Electrical

Notes:
- SHEET HISTORY:
- SHEET HISTORY:
- SHEET HISTORY:
- SHEET HISTORY:
- SHEET HISTORY:

Contract Documents:
- University of Missouri
- Teaching Hospital AHU
- 12-8 Replacement
- C.06 - 06/05/2019 ADD #06
- A - 06 06/05/2019 ADD #06
- A - 02 05/17/2019 ADD #02
- S2-8 Replacement
- TCEP No.: 624-133-16
- UM Project: CP162661
- May 2, 2019

Key Plan:
- Key Plan
- Key Plan
- Key Plan
- Key Plan
- Key Plan

Interiors
- Landscape Architecture
- Architecture
- Interiors
- Interiors
- Interiors