ADDENDUM #1

DATE: NOVEMBER 11, 2021

TO CONTRACT DOCUMENTS ENTITLED:

LEE HILLS HALL - RENOVATE SPACES FOR NOVAK LEADERSHIP

INSTITUTE

UNIVERSITY OF MISSOURI

PROJECT NUMBER: CP220031

ADVERTISEMENT DATE: October 27, 2021

PREPARED FOR: The Curators of the University of Missouri

CONSULTANT: International Architects Atelier, Inc.

912 Broadway Suite 300 Kansas City, Missouri 64105 Telephone: (816) 471-6522

Specifications and Drawings 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. <u>Section 092900 – Gypsum Board; Paragraph 3.5D</u>

ADD: 4. Level 5: At all panel surfaces to receive painted finish PT-2.

a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

2. <u>Hazardous Building Material Survey</u>

ADD: Attached Hazardous Building Material Survey Section.

3. Section 020810 – Universal/Hazardous Materials Removal and Disposal

ADD: Attached Universal/Hazardous Materials Removal and Disposal technical

specifications section.

DRAWINGS CHANGES:

1. <u>Drawing Sheet: D400 – REFLECTED CEILING DEMOLITION PLAN</u>

ADD: Enlarged Ceiling Demolition Plan – Classroom 121

REMOVE: Note #35

ADD #1 - Page 1 of 3

Advertisement Date: October 27, 2021

REPLACE WITH: Core drill existing floor slab for new power and data conduit stub up.

Coordinate with owner exact location for connection with lectern provided

by owner. Neatly cut portion of existing gypsum board ceiling in Classroom 121 below as required for access to install conduit. Install new gypsum board and patch and paint to match adjacent surfaces. Scope of work to be done between 12/18/2021 and 1/17/2022 while the

classroom is not occupied. Re: Elect.

2. <u>Drawing Sheet: A302 – ENLARGED FLOOR PLANS</u>

REMOVE: Entire drawing.

REPLACE WITH: Attached Drawing with Revision Submission dated November 11, 2021.

3. Drawing Sheet: A700 – DOOR SCHEDULE & TYPES

REMOVE: Entire drawing.

REPLACE WITH: Attached Drawing with Revision Submission dated November 11, 2021.

RFI's:

1. What is the schedule for Allen Flooring? How much time do they need and when will they start and end their scope of work?

Response: Contractor shall work with Allen Flooring as an owner-secured subcontractor for coordination of the schedule to complete the first phase of construction by 1/17/22. The general expectation is that Allen Flooring will be performing the installation within the first two weeks of January 2022.

2. Demolition Note #33 indicates salvaging and reinstalling of granite tile flooring. Will this be included in the scope of work for Allen Flooring or the contractor? Whoever is to reinstall should be the one to salvage the material.

Response: Contractor shall be responsible for salvaging and reinstalling granite tile flooring in new location as shown in the Issued for Construction Drawings.

3. Elevation W5/A601 and detail B5/A620 indicate installing salvaged fabric wrapped panels. If fabric wrapped panels to be salvaged are not the correct size and cannot be resized to fit the new location, can those wall finishes change to be painted gypsum board?

Response: The desire is to reuse the existing acoustical fabric panels. If during construction it is proven difficult to salvage and modify the fabric panels, in lieu of the fabric panels provide painted gyp board finishes.

4. Are the door frames in the corridor to be painted on both sides or only the corridor side?

Response: All door frame surfaces (corridor and occupied rooms) shall receive paint.

5. Are the doors in the corridor to be painted on both sides or only the corridor side?

<u>Response:</u> Door surface that is exposed to view from the corridor and door edges shall receive paint.

ADD #1 - Page 2 of 3

6. Elevations M13, R10, and R29/A600 indicate signage to be reinstalled. If the signage in the corridor is not able to be removed and reinstalled, can the signage remain on the wall and be painted around?

<u>Response</u>: Corridor room signage can remain as they are on the wall except for signage for Offices 203 & 204 as a part of Alternate #1. Contractor shall patch and repair location of removed signage as a part of Alternate #1.

7. Is trenching involved for the power to the fixed seating and if so, how much? What is the metal plate in detail T18/A302?

Response: Trenching is required only from existing floor stub up locations to the new fixed seating table leg to be used for power infeed. Design intent is that the fixed seating table legs are located at or near the existing stub up locations, but some minor trenching work may be needed once existing furniture has been removed and existing stub up locations are field verified. Trench shall be covered by 1/8" thick galvanized steel plate fastened to concrete floor with countersunk head anchors. Install and feather out underlayment to create even surface with concrete floor and trench cover plate.

8. Where can salvaged materials be stored and general staging take place?

<u>Response</u>: Salvaged materials can be stored in Classroom 214, coordinate with owner representative.

9. What needs to be done to the ceiling in the classroom below Classroom 214?

Response: Refer to the attached drawing D400.

10. What level of finish work is required?

Response: Refer to Specification 092900 changes shown in Addendum 01 narrative.

11. Is there any need to salvage the wood panels being removed according to demolition note #22 in the Lobby for potential future repairs to damaged wood panels in this room?

Response: At contractor's option without adding cost to the project the panels can be salvaged and returned to owner representative.

12. Are the new door frames the same as the existing or are they the more common 2" frames?

Response: Aluminum storefront door frames are to be 2" for doors going into Seminar 202 and Classroom 214. Refer to sheet A700.

ATTACHMENTS:

Hazardous Building Material Survey, Section 020810, D400, A302, A700.

END OF ADDENDUM #1

ADD #1 - Page 3 of 3

Advertisement Date: October 27, 2021

UNIVERSITY of MISSOURI

ENVIRONMENTAL HEALTH AND SAFETY

ASBESTOS SURVEY
PROJECT CP220031
LEE HILLS HALL, ROOMS 202, 214, CORRIDOR C201
10/26/2021

TO: Jody Miller

Planning, Design, and Construction

FROM: Pete Kohler

Environmental Health and Safety

MU EHS has completed an asbestos survey of Rooms 202 and 214, and Corridor C201 in Lee Hills Hall.

The survey is limited to material which will be disturbed by work described in the survey request of 10/8/21.

The asbestos inspection was conducted to satisfy the requirements of 40CFR 61, subpart M, which stipulates that all buildings be "thoroughly inspected" for asbestos before the commencement of renovation or demolition activities. The asbestos inspection was conducted by Pete Kohler (MO Asbestos Inspector #10883, expires 11/05/2021). The survey was conducted in October 2021 and the report was completed October 26, 2021.

The survey request states that the project is: ...primarily a finish replacement project.... involving flooring, ceilings, and lighting.

As a result of sampling and analysis, no asbestos-containing material was identified in the scope of the project.

FIELD OBSERVATIONS

The flooring in Room 202 Lee Hills Hall is carpet tile on concrete. It is not suspect material. The ceiling is 2x4 acoustic ceiling tiles, in a drop ceiling system. These are the same ceiling tiles found in the corridor and in 214. Above the drop ceiling, there are fiberglass batts on the ceiling tile. The ductwork above is bare sheet metal mains with fiberglass flex-duct. The concrete deck above has no sprayon present. A fan unit hangs in the north end of the room, in the space above the ceiling tiles. No suspect material was identified associated with the unit.

The flooring of Corridor C201 is brown rubber sheet goods (or sheet vinyl), on concrete. The sheet goods are put down with clear mastic, which is not suspect. The flooring was sampled and analyzed. It does not contain asbestos. The ceiling is 2x4 ceiling tile, in a suspended metal grid. The ceiling tiles were sampled and analyzed. They do not contain asbestos. Above the drop ceiling, the material is the same as in 202: sheet metal mains, fiberglass flex-duct, with fiberglass insulation on piping. There is no spray-on on the concrete deck. No suspect material was identified above the drop ceiling of the hallway.

The floor of Office 217A has a small section of flooring, behind the front desk, that will be disturbed by the project. This floor is blue sheet vinyl (or sheet rubber). The floor was sampled and analyzed. It does not contain asbestos.

The floor of Room 214 is roll carpeting on concrete. It is not suspect material. The ceiling is 2x4 acoustic ceiling tiles in a drop ceiling system. The ceiling tiles were sampled and analyzed. They do not contain asbestos. Above the drop ceiling, the materials are typical of the building. No suspect material was identified. There are several can lights in the front of this classroom. I did not find suspect heat shield material in these units. Above the drop ceiling, each can has an insulating hood of black neoprene, which is not suspect.

| SAMPLE ID | LOCATION/DESCRIPTION | ANALYSIS |
|-----------|------------------------------|-------------------------|
| 211026-01 | Lee Hills Hall, Corridor | 60% cellulose, 20% |
| | C201, 2x4 ceiling tile, gray | mineral wool, 15% |
| | body | perlite, 5% non-fibrous |
| 211026-02 | Lee Hills Hall, Room 214, | 60% cellulose, 20% |
| | 2x4 ceiling tile, gray body | mineral wool, 15% |
| | | perlite, 5% non-fibrous |

| 211026-03 | Corridor C201, brown | 100% non-fibrous |
|-----------|------------------------|------------------|
| | sheet vinyl flooring | |
| 211026-04 | 217A, blue sheet vinyl | 100% non-fibrous |
| | flooring | |

ASBESTOS SUMMARY:

No asbestos-containing material was identified in the scope of the project.

UNIVERSAL WASTE

If the following objects are to be disposed of, they should be collected by MU EHS Resource Recovery Center (882-3736). The Resource Recovery Center can help with boxes for the fluorescent lights, and will pick up the items when they have been gathered.

Sixty eight (68) 4 foot fluorescent light fixtures, with their bulbs Four (4) exit lights
One smoke detector

TECHNICAL SPECIFICATIONS -UNIVERSAL/HAZARDOUS MATERIALS REMOVAL AND DISPOSAL

For

UNIVERSITY OF MISSOURI PROJECT CP220031 LEE HILLS HALL 202, 214, CORRIDOR C201, 217A

Prepared for

UNIVERSITY OF MISSOURI Campus Facilities Columbia, Missouri 65211

Prepared by UNIVERSITY OF MISSOURI ENVIRONMENTAL HEALTH &SAFETY

PART 1 - GENERAL

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

1.1 WORK COVERED BY CONTRACT DOCUMENTS

1.1.1 The Contractor shall inform him/herself of the conditions for the project, and is responsible for verifying the quantities and location of all work to be performed as outlined in this section. Failure to do so shall not relieve the Contractor of his obligation to furnish all materials and labor necessary to carry out the provisions of the Contract. The work of the Contract can be summarized as follows:

The work consists of the proper removal of the following approximate quantities of hazardous materials from <u>LEE HILLS HALL</u>, 202, 214, <u>Corridor C201</u>, 217A.

Demolition/Construction Waste

Hazardous Waste

Universal Waste

Sixty eight (68) four foot fluorescent light fixtures, with their bulbs

Four (4) exit signs

One smoke detector

Reclaim/Recycle

N/A

Building Materials Painted with Regulated Heavy Metals

N/A

Radioactive Lab History/Activity

N/A

1.2 **CODES AND REGULATIONS:**

- 1.1.2.1 All applicable codes, regulations, standards, statutes, laws, and rules have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith. Where conflicts arise, the most stringent specification shall apply.
 - 1.1.2.2 Federal and State requirements which govern universal and hazardous removal work or hauling and disposal of such waste materials include but are not limited to the following:
 - 1.1.2.2.1 U.S. Department of Labor, Occupational Health and Safety

Administration (OSHA), 29 CFR 1910 and 29 CFR 1926.

- 1.1.2.2.1.1 Construction Industry 29 CFR 1926.1101
- 1.1.2.2.1.2 Respiratory Protection 29 CFR 1910.134
- 1.1.2.2.1.3 Hazard Communication 29 CFR 1910.1200
- 1.1.2.2.1.4 Accident Prevention Signs 29 CFR 1910.145
- 1.1.2.2.2 U.S. Environmental Protection Agency (EPA)

1.1.2.2.1.5 1.1.3 **CONTRACTOR'S DUTIES**

- 1.1.3.1 Except as specifically noted, provide and pay for:
 - Labor, materials, and equipment.
 - Tools, construction equipment, and machinery.
 - Other facilities and services necessary for proper execution and completion of work.
- 1.1.3.2 Pay legally required sales, consumer, use, payroll, privilege and other taxes. Retail sales tax shall not be included in the bid amount.
- 1.1.3.3 Secure and pay for, as necessary for proper execution and completion of work, and as applicable at the time of bids:
 - Permits
 - Government Fees
 - Licenses
 - Except where specifically noted, provide and pay for waste disposal permits and costs
- 1.1.3.4 Give required notices.
- 1.1.3.5 Contractor shall assume full responsibility and liability for compliance with all codes, ordinances, rules, regulations, orders and other legal requirements of Local, State, and Federal public authorities including Environmental Protection Agency (EPA) regulations, Missouri Department of Natural Resources (MDNR) and Occupational Safety and Health Administration (OSHA) which bear on performance work. Where conflicts occur between these specifications and/or the abovementioned regulations, the more stringent shall govern. The Contractor shall hold the owner and owner's air monitoring firm harmless for failure to comply with any applicable work, hauling, safety, health, or other regulations on the part of the contractor, contractor's employees, or contractor's subcontractors.
- 1.1.3.6 If the Contractor observes that any of the Contract Documents are at variance therewith in any respect, he shall promptly notify MU in writing, and any necessary changes shall be accomplished by appropriate modification. It is not the Contractor's responsibility to make certain that the Contract Documents are in accordance with applicable laws,

- statutes, building codes and regulations. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to MU, he shall assume full responsibility therefore and shall bear all cost attributable thereto.
- 1.1.3.7 Enforce strict discipline and good order among employees. Do not employ unfit persons or persons not skilled in assigned task.
- 1.1.3.8 Comply with all applicable federal, state, and local laws regarding job discrimination and payment of prevailing wage rates for the base bid.
- 1.1.3.9 The use of the best available technology, procedures, and methods for preparation, execution, cleanup, disposal, and safety are absolutely required. This compliance is the sole responsibility of the abatement contractor.
- 1.1.3.10 Assume responsibility for the proper and safe execution of the work.
- 1.1.8 **COORDINATION**: The hazard remediation contractor shall be responsible for the coordination of the universal/hazardous materials removal for this project. The hazard remediation contractor shall coordinate with all other on-site contractors and all subcontractors working under separate contracts so as to facilitate the general progress of the work. Each trade shall afford all trades every reasonable opportunity for the installation of their work.

1.2 **STOP WORK**

1.2.1 If the Owner, or his designated representative, presents a written or verbal stop work order, immediately stop all work or that portion of the work designated. A verbal stop work order shall be confirmed by a written stop work order within 24 hours. Do not commence referenced work until authorized in writing by the Owner or his representative.

1.3 CONTRACTOR USE OF PREMISES

- 1.3.1 **GENERAL**: During the construction period for each building, the hazard remediation contractor will have full access to 2nd floor, Lee Hills Hall for construction operations. Owner will keep the elevators operational.
- 1.3.2 **USE OF THE SITE**: Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond areas on which work is indicated are not to be disturbed. Conform to site rules and regulations affecting the work while engaged in project construction.
 - 1.3.2.1 Keep existing driveways and entrances serving the premises clear and available to the Owner and his employees at all times. Contractor will be allowed to use the parking lot to the north of the building for parking and/or storage of materials.
 - 1.3.2.2 Do not unreasonably encumber the site with materials or equipment.

Confine stockpiling of materials and location of storage to areas acceptable to Owner. If additional storage is necessary, obtain and pay for such storage off-site.

- 1.3.2.3 Do not load structure with weight that will endanger structure.
- 1.3.2.4 Assume full responsibility for protection and safekeeping of products stored on premises.
- 1.3.2.5 Move any stored products which interfere with operations of Owner or other contractors.
- 1.3.2.6 Contractor personnel shall utilize only those entrances/exits and parking lots designated by the Owner.
- 1.3.2.7 Contractor shall utilize only those areas designated by the Owner for the storage of equipment and the placement of dumpsters/transport containers.
- 1.3.2.8 Take all cautions necessary to ensure there is no universal and hazardous material contamination to those areas not included in work schedule. Should areas outside the work area become contaminated with hazardous materials, the Contractor shall immediately clean them utilizing the wet cleaning and HEPA vacuum methods specified herein. The hazard remediation contractor is responsible for the proper cleanup of all items in the work areas to maintain a clean and safe environment.
- 1.3.3 **CONTRACTOR'S USE OF THE EXISTING BUILDING**: Maintain the existing building in a safe and weather tight condition throughout the construction period. Take all precautions necessary to protect the building and its occupants during the construction period.
 - 1.3.3.1 Keep areas such as walkways and stairs free from accumulation of waste material, rubbish or construction debris.
 - 1.3.3.2 Smoking or open fires are prohibited within the building or on the premises.

1.4 OWNER OCCUPANCY

1.4.1 PARTIAL OWNER OCCUPANCY: The Owner reserves the right to occupy areas of the building in which universal/hazardous waste removal has been completed, provided that such occupancy does not substantially interfere with completion of the work. The Owner also reserves the right to occupy portions of the building not involved in this Scope of Work. Such partial occupancy shall not constitute acceptance of the work or any part of the work. The Owner shall also maintain the right to access areas where no universal and hazardous waste work is being performed.

2.1 SUBMITTAL REQUIREMENTS

2.1.1 The following will be submitted by the contractor prior to commencement of work

for approval by Owner's Certified Industrial Hygienist (one copy for the Owner's Representative). The Owner's C.I.H. will return reviewed copies to contractor and Owner's Representative.

- 2.1.1.1 One copy of any Safety Data Sheets (SDS) for products to be used by the contractor in the performance of his work. Contractor will also maintain copies of SDS on site per OSHA.
- 2.1.2 Submit the following for all Supervisor(s) and Workers who will be on the project site prior to commencement of work:
 - 2.1.2.1 A list of project personnel and contact phone numbers
 - 2.1.2.2 Current training certificates, if applicable
 - 2.1.2.3 Physician's Statement that each person is physically fit to wear a respirator, if respirator use is required
 - 2.1.2.4 Respirator Fit Test, if respirator use is required
- 2.1.3 Submit a detailed plan of the procedures proposed for use in complying with requirements of this specification. Include in the plan the layout and location of work areas, route of ingress and egress for the work areas, methods used to assure safety of building occupants and visitors, method of removal of material, and disposal container requirements for lead based paint material to be disposed.
- 2.1.4 Proposed disposal site for lead-based paint materials, including a disposal plan to detail type of disposal container, method of transportation to disposal site, and waste hauler.
- 2.1.5 Any other submittals as required by MU.
- 2.1.6 Upon completion of the universal/hazardous material removal, submit to the Owner's Representative, copies of hazardous materials shipping records, disposal receipts, incineration documentation, etc. for all hazardous materials removed from the project site.
- 2.1.7 Upon completion of the universal waste/hazardous material removal, the following information shall be submitted by the Owner's C.I.H. to the contractor:
 - 2.1.7.1 Construction and demolition waste landfill receipts, disposal receipts, truck tickets, incineration/recycling receipts and documentation.
 - 2.1.7.2 Written visual certification from the Owner's Certified Industrial Hygienist that universal waste/hazardous material have been removed from the facility.
- 2.2 **TERMINOLOGY** (Definitions)
 - 2.2.1 <u>APPROVED Construction and Demolition WASTE DISPOSAL SITE</u>: A permitted solid waste landfill that is authorized by the Missouri Department of Natural Resources to receive construction and demolition wastes.
 - 2.2.2 **AUTHORIZED VISITOR**: The Building Owner, the Building Owner's

- representative, MU personnel, or a representative of any regulatory or other agency having jurisdiction over the project.
- 2.2.3 **BARRIER**: Any surface that seals off the work area to non-authorized personnel from entering the work area.
- 2.2.4 **BUILDING OWNER**: A representative of the University of Missouri.
- 2.2.5 <u>DISPOSAL CONTAINER</u>: A properly labeled container for universal/hazardous materials. The proposed disposal container for lead-based paint will be provided to the Owner's Representative and part of the hazard remediation contractor's prework
- 2.2.6 <u>HEPA VACUUM EQUIPMENT</u>: High efficiency particulate air filtered vacuuming equipment with a filter system capable of collecting and retaining hazardous particulates. Filters should be of 99.97% efficiency for retaining particulates greater than 0.3 microns.
- 2.2.7 **ON-SITE REPRESENTATIVE**: MU's full-time representative responsible for air monitoring and enforcement of the specifications.
- 2.2.8 **OWNER'S CERTIFIED INDUSTRIAL HYGIENIST (C.I.H.)**: An Industrial Hygienist, certified in comprehensive practice by the American Board of Industrial Hygiene (ABIH).
- 2.2.9 **HAZARDOUS MATERIAL SHIPMENT RECORD/DISPOSAL RECEIPT**: The shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of universal/hazardous materials.
- 2.2.10 <u>WET CLEANING/WIPING</u>: The process of eliminating contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water, and by afterwards disposing of these cleaning tools as necessary.
- 2.2.11 WORK AREA: A specific isolated area in which universal/hazardous waste materials are required to be handled. The area is designated as a work area from the time that the area is secured and access restrictions are in place. The area remains designated as a work area until the time that it has been cleaned in accordance with any requirements applicable to the operations conducted.

2.3 **EXISTING CONDITIONS**

2.3.1 Building Owner and Contractor shall agree on building conditions prior to commencement of work. It shall be the Contractor's responsibility to replace or repair to the Owner's satisfaction, prior to close-out of the project, all damaged items caused by the Contractor and not proven otherwise. All items damaged prior to remediation shall be noted during preconstruction walk-through.

3.1 PERSONNEL PROTECTION REQUIREMENTS

3.1.1 Prior to commencement of work, the workers shall be instructed and shall be

knowledgeable on the hazards of the universal hazardous materials involved and other environmental exposures, use and fitting of respirators, protective clothing, decontamination procedures, and all aspects of remediation work procedures; workers shall have medical examinations.

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

3.2 MATERIALS

- 3.2.1 Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name.
 - 3.2.1.1 Store all materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination.
 - 3.2.1.2 Damaged or deteriorating materials shall not be used and shall be removed from the premises.
- 3.2.2 **PLASTIC SHEETING**: A minimum 6-mil (or as specified).
- 3.2.3 **TAPE**: Capable of sealing joints of adjacent sheets of polyethylene and for attachment of polyethylene sheets to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water, duct tape, poly prep tapes or approved equal.
- 3.2.4 <u>ADHESIVES</u>: Capable of sealing joints of adjacent sheets of polyethylene and for attachment of polyethylene sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.
- 3.2.5 **IMPERMEABLE CONTAINERS**: Suitable to receive and retain any hazardous materials until disposal by the owners rep. The containers shall be labeled as required by owner. Containers must be resistant to damage and rupture.
- 3.2.6 **WARNING LABELS AND SIGNS**: As required by owner.

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

3.3 TOOLS AND EQUIPMENT

- 3.3.1 Provide suitable tools for universal/hazardous waste removal and disposal.
 - 3.3.1.1 <u>Water Sprayer</u>: Airless or a low pressure sprayer for amended water application as applicable.
 - 3.3.1.2 <u>Air-Purifying Equipment</u>: High Efficiency Particulate Air Filtration Systems (HEPA) shall comply with ANSI Z9.2-91. No air movement system or air equipment should discharge particulates outside the work area. Thus, the negative air unit shall be equipped with a three filter bank with the last being the HEPA filter capable of removing 99.97% of fibers/particulates >0.3 microns.
 - 3.3.1.3 <u>Scaffolding</u>: As required to accomplish the specified work and meet all applicable safety regulations.
 - 2.3.1.4 Vacuums: Use HEPA type from a known manufacturer.
 - 2.3.1.5 Other tools and equipment as necessary.

3.4 SUPERVISION OF UNIVERSAL/HAZARDOUS Material REMOVAL

- 3.4.1 The contractor shall designate a competent supervisor subject to the approval of the Owner's C.I.H. and the Owner's Representative. The supervisor shall be the Contractor's representative on the project, shall meet the requirements of all applicable regulations, and perform or meet the following minimum requirements:
 - 3.4.1.1 Be knowledgeable in all aspects of removal, cleanup and proper disposal of universal hazardous materials as listed in the Scope of Work.
 - 3.4.1.2 Be onsite and supervise all removal, cleanup and disposal activities.
 - 3.4.1.3 Maintain a daily log on the project documenting events, violations, problems, equipment failures, accidents, and inspections.
 - 3.4.1.4 Be responsible for implementation of first aid, safety training, respiratory protection, and ensuring all workers are trained in emergency procedures.
 - 3.4.1.5 Be responsible for conducting a visual inspection of the work area prior to a visual inspection by the Owner's Certified Industrial Hygienist. Inspection shall be documented.

3.5 **WORKER PROTECTION / TRAINING**

3.5.1 The contractor shall be responsible for providing his employees with proper respiratory protection, respiratory training, a written respirator program, medical examinations, maintaining medical records, protective clothing and equipment to

- comply with OSHA requirements, if necessary
- 3.5.2 All workers shall be trained in the dangers inherent in handling universal waste, and hazardous materials, in proper work procedures, and personal protective measures.

3.6 OWNER'S CERTIFIED INDUSTRIAL HYGIENIST

- 3.6.1 It will be the Owner's responsibility to hire a Certified Industrial Hygienist. The Certified Industrial Hygienist will also be required to perform the following duties as a minimum:
 - 3.6.1.1 Approval of the Contractor's work plan and methods of remediation to meet regulatory requirements and ensure the health and safety of University faculty, staff, and students.
 - 3.6.1.2 Verify that the Contractor is satisfactorily performing the work in accordance with OSHA regulations.
 - 3.6.1.3 Visual inspection of the work areas.
 - 3.6.1.4 Certify in writing that the Contractor's procedures, methods, and practices were, to the best of his/her knowledge and belief, in compliance with current EPA, OSHA, State, and Local applicable regulations, that the work areas meet the requirements for a final visual inspection prior to re-occupancy, and an accounting of any known deviations.

3.7 SEPARATION OF WORK AREAS FROM NONWORK AREAS

3.7.1 Visual separation shall be accomplished at all "see-through" locations using opaque polyethylene. This separation shall not be incorporated within the other seals involved on this project.

3.8 EMERGENCY PROTECTION PLAN / FIRE EXITS

- 3.8.1 The contractor shall be responsible for developing a written Emergency Protection Plan and shall maintain this plan onsite. The plan shall include considerations of fire, explosion, toxic atmospheres, electrical hazards, slips, falls, and heat related injury. All employees shall be instructed and trained in the procedures.
- 3.8.2 The Emergency Protection Plan shall also include written notification of police, fire, and medical personnel of the planned remediation activities, work schedule, and layout of the work area, particularly barriers that may affect response capabilities.
- 3.8.3 Designate and maintain emergency and fire exits from the work area in accordance with local codes and regulations. All exits shall be clearly marked with fluorescent tape or red paint and shall be clearly visible from any part of the work area.

3.9 LOCAL AREA PROTECTION / SITE SECURITY

- 3.9.1 The contractor shall secure the work areas to make sure of no inadvertent entry. Any breach to the exterior of the building shall be secured by the hazard remediation contractor. The Contractor shall be responsible for maintaining security of the remediation areas throughout the contract period.
- 3.9.2 The contractor shall be responsible for all areas of the building used by contractor and/or subcontractors in the performance of the work. Contractor shall exert full control over the actions of all employees and other persons with respect to the use and preservation of the existing building, except such controls as may be specifically reserved to the owner.
- 3.9.3 Contractor has the right to exclude from the work area all persons who have no purpose related to the work or its inspection, and shall require all persons in the work area to observe the same regulations required of Contractor's employees.
- 3.9.4 The contractor shall have control of site security during remediation operations in order to protect the work environment and equipment. Contractor shall have the owner's assistance in notifying building occupants of impending activity and enforcement of restricted access by owner's employees.
- 3.9.5 The contractor shall keep a minimum of two (2) 10lb type ABC fire extinguishers onsite. One shall be maintained outside the work area and one inside each work area. Contractor employees shall be trained in the operation of fire extinguishers.
- 3.9.6 The contractor shall maintain the work area free from rubbish, debris, and dirt, and keep a clean, safe working area.

3.10 UNIVERSAL WASTE/HAZARDOUS MATERIALS REMOVAL OPERATIONS

3.10.1 Any light fixtures, housings, etc. concealing items considered to be universal waste/hazardous material shall be removed, containerized, labelled, and left on site for disposal by MU EHS. This does not include refrigerant or CHC/HCFC-containing equipment which are being replaced by the contractor. It does not include TCLP ceramic tile, which should be handled by the contractor.

3.10.2 MATERIALS PAINTED WITH RCRA-Metals PAINT -

It is anticipated that these items will be removed as part of the demolition process and will be segregated from the remainder of the demolition debris. It is anticipated that these items will be hauled away and disposed of in a sanitary landfill approved by the State of Missouri to accept construction and demolition waste. These areas should be sealed off with polyethylene sheeting over the doors, vents, windows, or any other openings into/out of the area.

3.10.3 **FLUORESCENT LIGHT TUBES** may contain small amounts of Mercury. This can potentially be harmful to human health and the environment. The bulbs should be placed in fiberboard boxes provided by MU EHS to minimize breakage. MU EHS will manage disposal of this material.

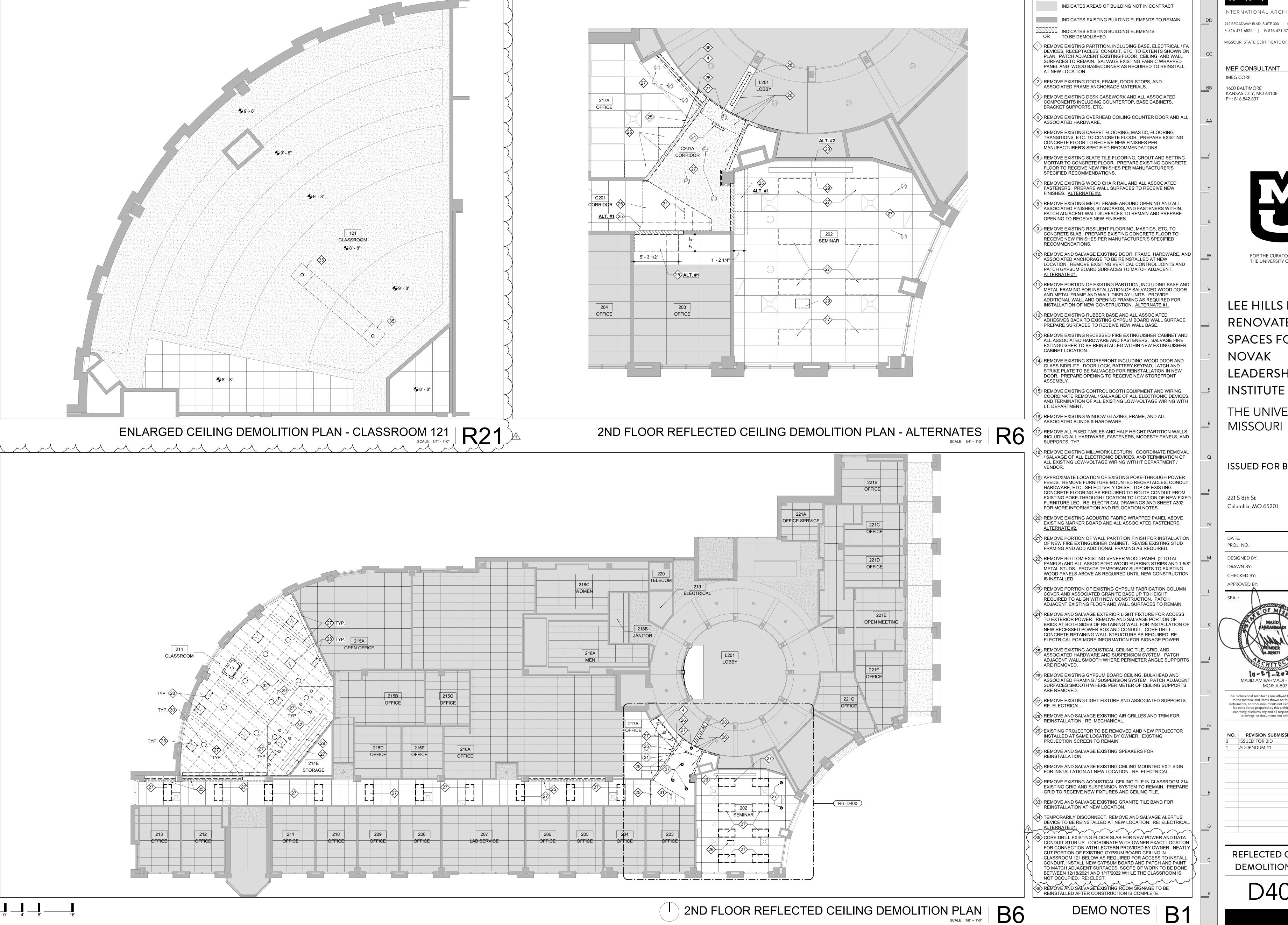
- 3.10.4 POLYCHLORINATED BIPHENYL (PCBS) are a known carcinogenic material. Its use was discontinued January 1, 1979. Due to the age of the building, it should be assumed that any ballast can contain PCBs unless it is labeled as PCB free by the manufacturer. Due to this, any light ballasts presumed to contain PCBs should be properly disposed of. MU Environmental Health and Safety will provide collection container for this purpose. Non-PCB ballasts will also be managed by MU Environmental Health and Safety. Collection containers will be provided to the contractor upon their request.
- 3.10.5 **SMOKE DETECTORS** are typically ionization smoke detectors that may contain a small amount of radioactive material. MU Environmental Health and Safety will provide collection containers for this material and will also be responsible for the disposal of this material.
- 3.10.6 **FIRE ALARMS (STROBE LIGHT)** are typically not considered a universal or hazardous waste. However, for the purposes of this project, these items should be collected by the contractor and managed by MU Environmental Health and Safety. Collection containers will be provided to the contractor upon their request.
- 3.10.7 **EXIT SIGNS AND EMERGENCY LIGHTS** typically have backup batteries that may contain small amounts of lead. Some exit signs are powered by a small amount of radioactive material. Powered exit signs and emergency lights should have the battery removed and disposed of by MU Environmental Health and Safety. Non powered exit signs should be assumed to contain radioactive material and should be collected for disposal via MU Environmental Health and Safety. MU Environmental Health and Safety will provide collection containers for these items.
- 3.10.8 **DRINKING FOUNTAINS**: Some drinking fountains have reservoirs that may contain lead and a CFC/HCFC refrigerant that must be recovered. The lead reservoirs should be removed and recycled. The CFC/HCFC refrigerant must be recovered by a contractor licensed and trained in this type of work. The remainder of the unit should be managed as scrap metal.
- 3.10.9 **DOOR CLOSURES**: Some of the older door closures have oil reservoirs for lubrication. These oils may contain small amounts of PCBs. MU Environmental Health and Safety will provide a collection container for this material, and will be responsible for disposal.
- 3.10.10 **THERMOSTATS** may contain Mercury. This can potentially be harmful to human health and the environment. Mercury containing thermostats shall be disposed of as a hazardous waste. MU EHS will provide a collection container for this material, and will be responsible for disposal.

3.10.11 WINDOW AIR CONDITIONING UNITS: Where possible, these window units should be removed and stored for use elsewhere. Otherwise these units may contain CFC/HCFC refrigerants that must be recovered. CFC/HCFC refrigerants are suspected to damage the atmosphere. The CFC/HCFC refrigerant must be recovered by a contractor licensed and trained in this type of work. The remainder of the unit should be managed as scrap metal.

3.12 REESTABLISHMENT OF THE WORK AREA

3.1-2.1 Reestablishment of the work area shall only occur after the Contractor has received a final visual inspection from the Owner's C.I.H. documenting that the universal/hazardous waste materials have been removed from the project site.

END OF SECTION



INTERNATIONAL ARCHITECTS ATELIER

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THE UNIVERSITY OF MISSOURI

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THE UNIVERSITY OF

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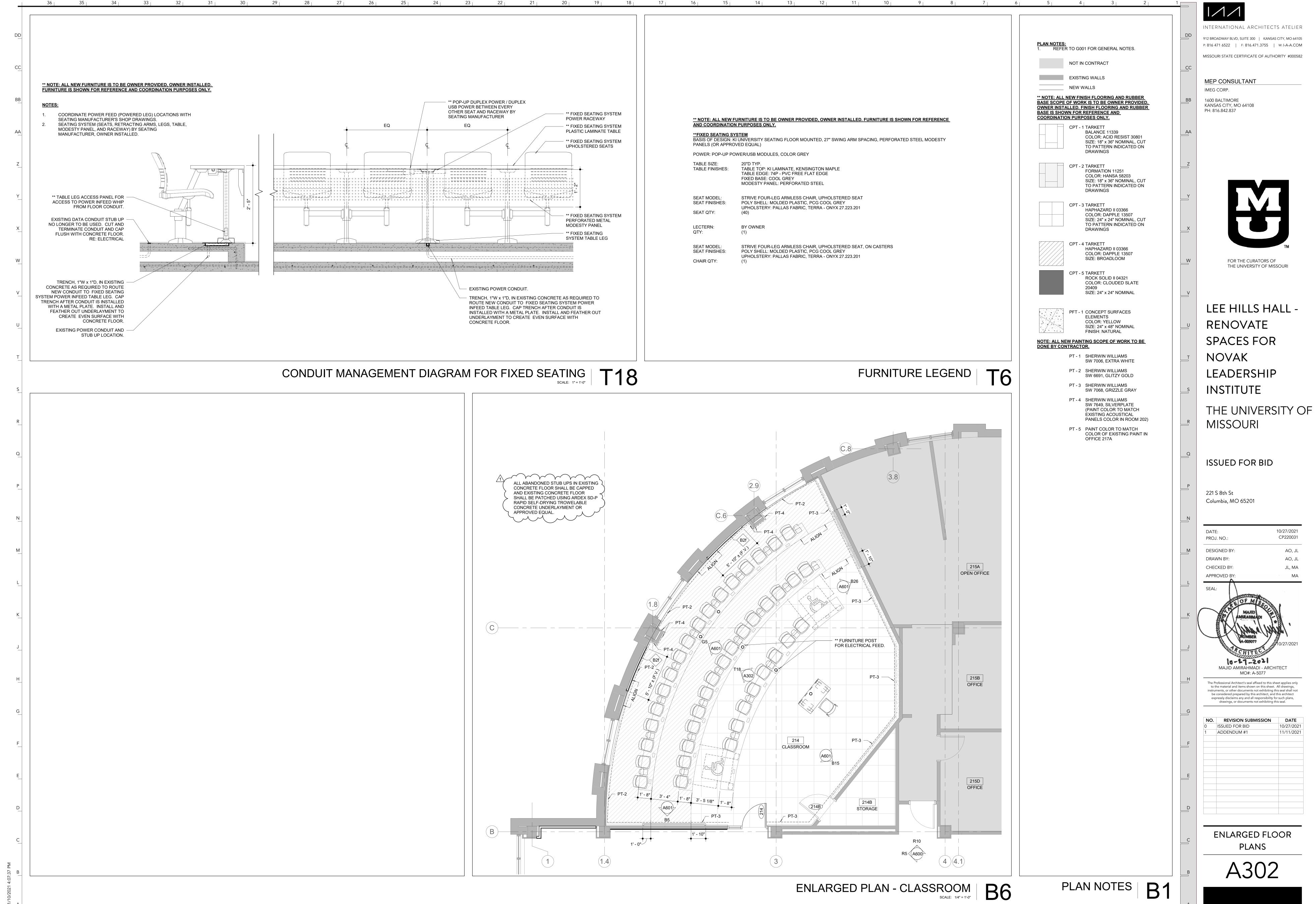
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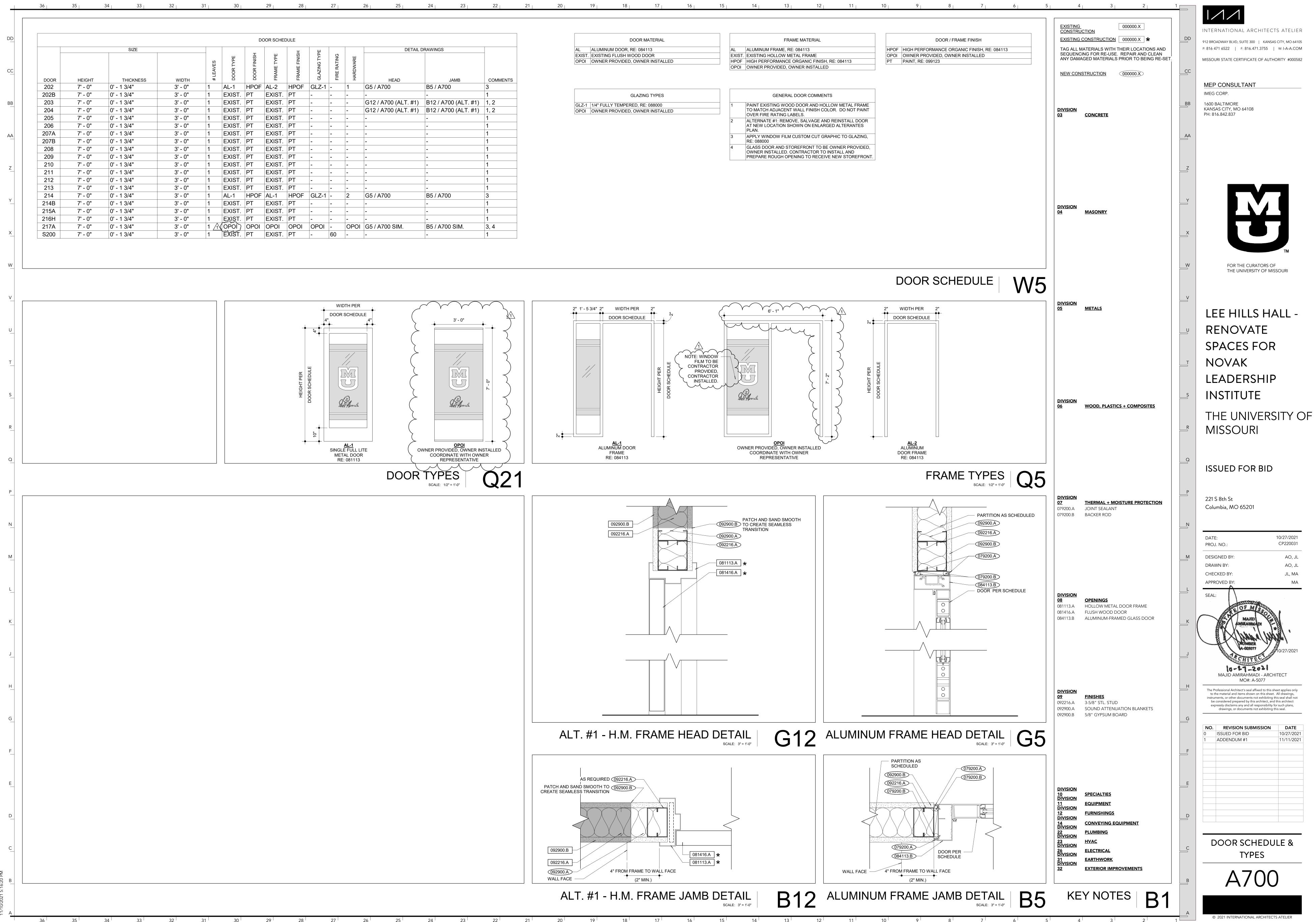
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