ADDENDUM # 1

DATE: January 03, 2023

TO CONTRACT DOCUMENTS ENTITLED:

LOWRY HALL RENOVATE FIRST FLOOR

UNIVERSITY OF MISSOURI

PROJECT NUMBER: CP220811

ADVERTISEMENT DATE: November 14, 2022

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. Table of Contents
   - **ADD:** Section 1.H – Alternates
   - **ADD:** Division 21 – Fire Protection
   - **ADD:** 210500 – Common Work Results for Fire Protection
   - **ADD:** 211313 – Wet-Pipe Sprinkler Systems

2. Section 1.A – Bid for Lump Sum Contract
   A REVISED "BID" FOR LUMP SUM CONTRACT" FORM. Revisions have been made to paragraph 3.b: Additive Alternate Bids and paragraph 5: Subcontractor List. BIDS MUST BE SUBMITTED ON THE ATTACHED REVISED FORM.

3. Section 1F – Index of Drawings
   - **ADD:** F000 – Fire Protection Coversheet
   - **ADD:** F201 – Level 01 Plan – Fire Protection

4. Section 1H - Alternates
   - **ADD:** SECTION 1.H – ALTERNATES
   - **ADD:** Additive Alternate No. 1 paragraph.

5. Section 210500 – Common Work Results for Fire Suppression

ADD: 210500 - COMMON WORK RESULTS FOR FIRE SUPPRESSION

6. Section 211313 – Wet-Pipe Sprinkler Systems
   ADD: 211313 - WET-PIPE SPRINKLER SYSTEMS

DRAWINGS CHANGES:

1. Drawing Sheet: G001 – GENERAL INFORMATION
   REMOVE: Entire drawing.
   ADD: General Note 14 to X27/G001
   ADD: Fire Protection Drawing Sheets to Sheet Index
   ADD: ALTERNATES Q17/G001
   ADD: Wet-Pipe Sprinkler Systems to Deferred Submittals K17/G001

2. Drawing Sheet: G002 – LIFE SAFETY PLAN / CODE ANALYSIS
   REMOVE: Entire drawing.
   ADD: **"**Risk Category: II" to LIFE SAFETY / CODE ANALYSIS

3. Drawing Sheet: A620 – FINISH SCHEDULE & DETAILS
   REMOVE: Entire drawing.
   REVISE: Keynote 033000.C in Detail B5/A620
   ADD: Keynote 033000.C to Keynotes B1/A620

4. Drawing Sheet: F000 – FIRE PROTECTION COVERSHEET
   ADD: Drawing Sheet F000 – FIRE PROTECTION COVERSHEET

5. Drawing Sheet: F201 – LEVEL 01 PLAN – FIRE PROTECTION
   ADD: Drawing Sheet F201 – LEVEL 01 PLAN – FIRE PROTECTION

ATTACHMENTS:
Table of Contents, Section 1.A, Section 1F, Section 1H, 210500, 211313, G001, G002, A620, F000, F201

END OF ADDENDUM # 1

PROJECT MANUAL FOR:
CP220811 – LOWRY HALL RENOVATE FIRST FLOOR

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END OF SECTION

SECTION 1.A

BID FOR LUMP SUM CONTRACT
ADDENDUM #1

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
c/o Associate Vice Chancellor – Facilities
Room L100, General Services Building
University of Missouri – Columbia
Columbia, MO 65211

1. Bidder, in compliance with invitation for bids for construction work in accordance with Drawings and Specifications prepared by INTERNATIONAL ARCHITECTS ATELIER, entitled "LOWRY HALL RENOVATE FIRST FLOOR", project number CP220811, dated NOVEMBER 14, 2022 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:

Addendum No. _____Dated _____
Addendum No. _____Dated _____
Addendum No. _____Dated _____
Addendum No. _____Dated _____

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 renovate the first floor interiors of Lowry Hall; all as indicated on the Drawings and described in these Specifications for sum of:

_____
_____DOLLARS ($_____).

b. Additive Alternate Bids: **(ADD. #1)**

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: Install an automatic sprinkler system at Level 1 of Lowry Hall only. Main sprinkler branch of Level 1 to terminate within south staircase for future connections. Refer to Fire Protection Drawings. All other sprinkler system components (vertical standpipes in stair, valves, backflow preventers, pumps, connection to building existing water lines, etc.) are not shown in the Fire Protection drawings as they are not a part of this project scope and shall be done in a future, separate project **(ADD #1).**
All for sum of:

_____
_____DOLLARS ($_____).

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 project within one hundred twenty (120) 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.

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.

Work to be performed	Subcontractor Name,	City, State
Electrical		

Mechanical _____

Plumbing _____

Sprinklers (ADD #1) _____

6. SUPPLIER DIVERSITY PARTICIPATION GOALS

a. The Contractor shall have as a goal, subcontracting with Minority Business Enterprise (MBE) of ten percent (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 percent (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/or 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 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.

e. 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."

9. BIDDER'S SIGNATURE

Note: All signatures shall be original; not copies, photocopies, stamped, etc.

Authorized Signature	Date
Printed Name	Title
Company Name	
Mailing Address	
City, State, Zip	
Phone No.	Federal Employer ID No.
Fax No.	E-Mail Address
Circle one: Individual Partnership Corporation Joint Venture	
If a corporation, incorporated under the laws of the State of_____	
Licensed to do business in the State of Missouri? ____yes _____no	

(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.F

INDEX OF DRAWINGS

Drawings referred to in and accompanying Project Manual consist of following sheets **November 14, 2022.**

G000	COVER SHEET
G001	GENERAL INFORMATION
G002	LIFE SAFETY PLAN / CODE ANALYSIS
D100	1ST FLOOR DEMOLITION PLAN
D400	1ST FLOOR CEILING DEMOLITION PLAN
D800	DEMOLITION PHOTOGRAPHS
A001	WALL TYPES
A100	1ST FLOOR PLAN
A400	1ST FLOOR CEILING PLAN
A420	CEILING DETAILS
A600	INTERIOR ELEVATIONS
A610	CASEWORK DETAILS
A620	FINISH SCHEDULE & DETAILS
A700	DOOR SCHEDULE & DETAILS
A710	WINDOW SCHEDULE & DETAILS
F000	FIRE PROTECTION COVERSHEET **(ADD #1)**
F201	LEVEL 01 PLAN – FIRE PROTECTION **(ADD #1)**
M000	MECHANICAL COVERSHEET
P200	LEVEL 00 PLAN – PLUMBING
P201	LEVEL 01 PLAN – PLUMBING
P600	PLUMBING SCHEDULES
M101	LEVEL 01 DEMO PLAN – MECHANICAL
M201	LEVEL 01 PLAN – PIPING
M202	LEVEL 02 PLAN – PIPING
M211	LEVEL 01 PLAN – VENTILATION
M400	MECHANICAL DETAILS
M500	MECHANICAL DIAGRAMS
M600	MECHANICAL SCHEDULES
E000	ELECTRICAL COVERSHEET
E101	LEVEL 01 DEMOLITION PLAN – LIGHTING
E111	LEVEL 01 DEMOLITION PLAN – POWER
E121	LEVEL 01 DEMOLITION PLAN – SYSTEMS
E201	LEVEL 01 PLAN – LIGHTING
E211	LEVEL 01 PLAN – POWER
E221	LEVEL 01 PLAN – SYSTEMS
E400	ELECTRICAL DETAILS
E600	ELECTRICAL SCHEDULES

END OF SECTION

SECTION 1.H **(ADD #1)**

ALTERNATES

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

1. Additive Alternate No. 1: Install an automatic sprinkler system at Level 1 of Lowry Hall only. Main sprinkler branch of Level 1 to terminate within south staircase for future connections. Refer to Fire Protection Drawings. All other sprinkler system components (vertical standpipes in stair, valves, backflow preventers, pumps, connection to building existing water lines, etc.) are not shown in the Fire Protection drawings as they are not a part of this project scope and shall be done in a future, separate project **(ADD #1).**

END OF SECTION

SECTION 210500 - COMMON WORK RESULTS FOR FIRE SUPPRESSION (ADD #1)

This section shall only be used as part of Alternate #1

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Piping materials and installation instructions common to most piping systems.
2. Mechanical sleeve seals.
3. Sleeves.
4. Escutcheons.
5. Coordination drawings.
6. Project record drawings.
7. Equipment installation requirements common to equipment sections.
8. Painting and finishing.
9. Supports and anchorages.

1.3 DEFINITIONS

A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in chases.

D. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

E. The following are industry abbreviations for rubber materials:

1. EPDM: Ethylene-propylene-diene terpolymer rubber.
2. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Mechanical sleeve seals.
2. Escutcheons.

B. Welding certificates.

1.5 QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."

B. Electrical Characteristics for Fire-Suppression Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. Any additional costs as a result of these modifications shall be borne by the contractor. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

B. Protect stored pipes and tubes from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor, if stored inside.

C. Protect flanges, fittings, and piping specialties from moisture and dirt.

1.7 COORDINATION

A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for fire-suppression installations.

B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

C. Coordinate requirements for access panels and doors for fire-suppression items requiring access that are concealed behind finished surfaces. Access panels and doors are specified in Division 08 Section "Access Doors and Frames."

D. Sequence, coordinate, and integrate installations of fire suppression materials and equipment for efficient flow of the Work. Coordinate installation of large equipment requiring positioning before closing in building.

E. Coordinate installation of identifying devices after completing covering and painting, if devices are applied to surfaces. Install identifying devices before installing acoustical ceilings and similar concealment.

1.8 SCHEDULING AND PHASING

A. All fire suppression work shall be scheduled to meet project completion data. Fire suppression work shall be phased for projects requiring phasing of work. Install additional fittings, valves, caps as required to support phasing.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
2. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 PIPE, TUBE, AND FITTINGS

A. Refer to individual Division 21 piping Sections for pipe, tube, and fitting materials and joining methods.

B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.3 JOINING MATERIALS

A. Refer to individual Division 21 piping Sections for special joining materials not listed below.

B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.

1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch maximum thickness unless thickness or specific material is indicated.

a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.

2. AWWA C110, rubber, flat face, 1/8 inch thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.

C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

2.4 MECHANICAL SLEEVE SEALS

A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.

1. Acceptable Manufacturers:

a. Advance Products & Systems, Inc.
b. Calpico, Inc.
c. Metraflex Co.
d. Pipeline Seal and Insulator, Inc. (LINK SEAL)

2. Sealing Elements: EPDM or NBR interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
3. Pressure Plates: Carbon steel. Include two for each sealing element.
4. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.5 SLEEVES

A. Galvanized-Steel Sheet: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

B. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.

C. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

D. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.

1. Underdeck Clamp: Clamping ring with set screws.

2.6 ESCUTCHEONS

A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.

B. One-Piece, Cast-Brass Type: With set screw.

1. Finish: Polished chrome-plated or Rough brass.

C. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.

1. Finish: Polished chrome-plated.

D. One-Piece, Stamped-Steel Type: With set screw or spring clips and chrome-plated finish.

E. Split-Plate, Stamped-Steel Type: With concealed hinge, set screw or spring clips, and chrome-plated finish.

F. One-Piece, Floor-Plate Type: Cast-iron floor plate.

G. Split-Casting, Floor-Plate Type: Cast brass with concealed hinge and set screw.

2.7 COORDINATION DRAWINGS

A. The Contractor shall prepare CAD generated drawings (min. ¼" scale) showing following systems/items as a minimum:

1. Fire suppression piping routing including locations of valves, drops to sprinkler heads, risers, etc.
2. Fire suppression equipment locations and clearances required.

B. The Contractor shall submit the CAD generated drawings to HVAC contractor for coordination with other trades. The drawings shall be submitted either in electronic format or printed copies as requested by HVAC Contractor.

C. The Contractor shall participate in coordination meetings when requested by HVAC Contractor.

2.8 PROJECT RECORD DRAWINGS

A. Drawings shall be furnished in electronic-media (CD-Rewritable type) and at least one hard copy prints.

1. Format: Same CAD program, version and operating system as the original Contract Drawings.
2. Incorporate changes and additional information previously marked on Record prints. Delete, re-draw and add details and notations where applicable.

B. Identify and date each drawing and include the designation "PROJECT RECORD DRAWINGS" or "AS-BUILT DRAWING" in a prominent location.

PART 3 - EXECUTION

3.1 PIPING SYSTEMS - COMMON REQUIREMENTS

A. Install piping according to the following requirements and Division 21 Sections specifying piping systems.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.

D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

E. Install piping minimum 8 inches above accessible ceilings to allow sufficient space for ceiling panel removal and service access.

F. Install piping to permit valve servicing.

G. Install piping at indicated slopes.

H. Install piping free of sags and bends.

I. Install fittings for changes in direction and branch connections.

J. Install piping to allow application of insulation.

K. Select system components with pressure rating equal to or greater than system operating pressure.

L. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:

1. New Piping:

    a. Piping with Fitting or Sleeve Protruding from Wall: One-piece, deep-pattern type.
    b. Chrome-Plated Piping: One-piece, cast-brass type with polished chrome-plated finish.
    c. Insulated Piping: One-piece, stamped-steel type with spring clips.
    d. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, cast-brass type with polished chrome-plated finish.
    e. Bare Piping at Ceiling Penetrations in Finished Spaces: One-piece or split-casting, cast-brass type with polished chrome-plated finish.
    f. Bare Piping in Unfinished Service Spaces: One-piece, cast-brass type with rough-brass finish.
    g. Bare Piping in Equipment Rooms: One-piece, cast-brass type.
    h. Bare Piping at Floor Penetrations in Equipment Rooms: One-piece, floor-plate type.

M. Sleeves are not required for core-drilled holes.

N. Permanent sleeves are not required for holes formed by removable PE sleeves.

O. Install sleeves for pipes passing through concrete and masonry walls and concrete floor and roof slabs.

P. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.

1. Cut sleeves to length for mounting flush with both surfaces.

a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches above finished floor level. Extend cast-iron sleeve fittings below floor slab as required to secure clamping ring if ring is specified.

2. Install sleeves in new walls and slabs as new walls and slabs are constructed.
3. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:

   a. Steel Pipe Sleeves: For pipes smaller than NPS 6.
   b. Steel Sheet Sleeves: For pipes NPS 6 and larger, penetrating gypsum-board partitions.
   c. Stack Sleeve Fittings: For pipes penetrating floors with membrane waterproofing. Secure flashing between clamping flanges. Install section of cast-iron soil pipe to extend sleeve to 2 inches above finished floor level. Refer to Division 07 Section "Sheet Metal Flashing and Trim" for flashing.

      1) Seal space outside of sleeve fittings with grout.

Q. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Refer to Division 07 Section "Penetration Firestopping" for materials.

R. Verify final equipment locations for roughing-in.

S. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.2 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and Division 21 Sections specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

E. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

3.3 PAINTING

A. Painting of fire-suppression systems, equipment, and components is specified in Division 09 Sections "Interior Painting."

B. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.4 ERECTION OF METAL SUPPORTS AND ANCHORAGES

A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor fire-suppression materials and equipment.

B. Field Welding: Comply with AWS D1.1.

END OF SECTION 210500

SECTION 211313 - WET-PIPE SPRINKLER SYSTEMS (ADD #1)

This section shall only be used as part of Alternate #1

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Pipes, fittings, and specialties.
2. Fire-protection valves.
3. Sprinklers.
4. Pressure gages.

1.3 DEFINITIONS

A. Standard-Pressure Sprinkler Piping: Wet-pipe sprinkler system piping designed to operate at working pressure of 175 psig maximum.

1.4 SYSTEM DESCRIPTIONS

A. Wet-Pipe Sprinkler System: Automatic sprinklers are attached to piping containing water and that is connected to water supply through alarm valve. Water discharges immediately from sprinklers when they are opened. Sprinklers open when heat melts fusible link or destroys frangible device. Hose connections are included if indicated.

1.5 PERFORMANCE REQUIREMENTS

A. Standard-Pressure Piping System Component: Listed for 175-psig minimum working pressure.

B. Delegated Design: Design sprinkler system(s), including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

1. Contractor shall obtain fire-hydrant flow test records from authorities having jurisdiction.

C. Sprinkler system design shall be approved by Engineer and authorities having jurisdiction.

1. Margin of Safety for Available Water Flow and Pressure: 10 percent, including losses through water-service piping, valves, and backflow preventers.

2. Sprinkler Occupancy Hazard Classifications According to NFPA 13 Unless Otherwise Noted:

    a. Building Service Areas: Ordinary Hazard, Group 1.
    b. Electrical Equipment Rooms: Ordinary Hazard, Group 1.
    c. General Business Occupancy: Light Hazard
    d. General Storage Areas: Ordinary Hazard, Group 2.
    e. Mechanical Equipment Rooms: Ordinary Hazard, Group 1.
    f. Office and Public Areas: Light Hazard.
    g. Restaurant Service Areas: Ordinary Hazard, Group 1.

3. Minimum Density for Automatic-Sprinkler Piping Design According to NFPA 13 Unless Noted Otherwise:

    a. Light-Hazard Occupancy: 0.10 gpm over 1500-sq. ft. area.
    b. Ordinary-Hazard, Group 1 Occupancy: 0.15 gpm over 1500-sq. ft. area.
    c. Ordinary-Hazard, Group 2 Occupancy: 0.20 gpm over 1500-sq. ft. area.
    d. Extra-Hazard, Group 1 Occupancy: 0.30 gpm over 2500-sq. ft. area.
    e. Extra-Hazard, Group 2 Occupancy: 0.40 gpm over 2500-sq. ft. area.
    f. Special Occupancy Hazard: As determined by authorities having jurisdiction.

4. Maximum Protection Area per Sprinkler According to NFPA 13 Unless Noted Otherwise:

    a. Office Spaces and Classrooms: 225 sq. ft.
    b. Storage Areas: 130 sq. ft.
    c. Mechanical Equipment Rooms: 130 sq. ft.
    d. Electrical Equipment Rooms: 130 sq. ft.
    e. Other Areas: According to NFPA 13 recommendations unless otherwise indicated.

5. Total Combined Hose-Stream Demand Requirement: According to NFPA 13 unless otherwise indicated:

    a. Light-Hazard Occupancies: 100 gpm for 30 minutes.
    b. Ordinary-Hazard Occupancies: 250 gpm for 60 to 90 minutes.
    c. Extra-Hazard Occupancies: 500 gpm for 90 to 120 minutes.

D. Seismic Performance: Sprinkler piping shall withstand the effects of earthquake motions determined according to NFPA 13 and ASCE/SEI 7.

1.6 SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

B. Shop Drawings: For wet-pipe sprinkler systems. Include plans, elevations, sections, details, and attachments to other work.

1. Wiring Diagrams: For power, signal, and control wiring.

C. Delegated-Design Submittal: For sprinkler systems indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

D. Coordination Drawings: Sprinkler systems, drawn to minimum ¼" scale, on CAD generated drawings. Refer to Section "Common Work Results for Fire Suppression".

E. Qualification Data: For qualified Installer.

F. Approved Sprinkler Piping Drawings: Working plans, prepared according to NFPA 13, that have been approved by the Engineer, including hydraulic calculations.

G. Welding certificates.

H. Fire-hydrant flow test report.

I. Field Test Reports and Certificates: Indicate and interpret test results for compliance with performance requirements and as described in NFPA 13. Include "Contractor's Material and Test Certificate for Aboveground Piping."

J. Field quality-control reports.

K. Operation and Maintenance Data: For sprinkler specialties to include in emergency, operation, and maintenance manuals.

1.7 QUALITY ASSURANCE

A. Installer Qualifications:

1. Installer's responsibilities include designing, fabricating, and installing sprinkler systems and providing professional engineering services needed to assume engineering responsibility. Base calculations on results of fire-hydrant flow test.

    a. Engineering Responsibility: Preparation of working plans, calculations, and field test reports by a qualified professional engineer.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. NFPA Standards: Sprinkler system equipment, specialties, accessories, installation, and testing shall comply with the following:

1. NFPA 13, "Installation of Sprinkler Systems."
2. NFPA 24, "Installation of Private Fire Service Mains and Their Appurtenances."

1.8 COORDINATION

A. Coordinate layout and installation of sprinklers with other construction that penetrates ceilings, including light fixtures, HVAC equipment, and partition assemblies. Refer to Section "Common Work Results for Fire Suppression" for details.

1.9 EXTRA MATERIALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Sprinkler Cabinets: Finished, wall-mounted, steel cabinet with hinged cover, and with space for minimum of six spare sprinklers plus sprinkler wrench. Include number of sprinklers required by NFPA 13 and sprinkler wrench. Include separate cabinet with sprinklers and wrench for each type of sprinkler used on Project.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, and fitting materials, and for joining methods for specific services, service locations, and pipe sizes.

2.2 STEEL PIPE AND FITTINGS

A. Standard Weight, Black-Steel Pipe: ASTM A 53, Type E, Grade B. Pipe ends may be factory or field formed to match joining method.

B. Schedule 40, Black-Steel Pipe: ASTM A 135 or ASTM A 795, Schedule 40 in NPS 6 and smaller.

C. Standard-Weight, Black-Steel Pipe Nipples: ASTM A 733, made of ASTM A 53, seamless steel pipe with threaded ends.

D. Malleable- or Ductile-Iron Unions: UL 860.

E. Cast-Iron Flanges: ASME B16.1, Class 125.

F. Steel Flanges and Flanged Fittings: ASME B16.5, Class 150.

G. Steel Welding Fittings: ASTM A 234 and ASME B16.9.

H. Grooved-Joint, Steel-Pipe Appurtenances:

1. Acceptable Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Victaulic Company.

2. Pressure Rating: 175 psig minimum.
3. Uncoated, Grooved-End Fittings for Steel Piping: ASTM A 47, malleable-iron casting or ASTM A 536, ductile-iron casting; with dimensions matching steel pipe.
4. Grooved-End-Pipe Couplings for Steel Piping: AWWA C606 and UL 213, rigid pattern, unless otherwise indicated, for steel-pipe dimensions. Include ferrous housing sections, EPDM-rubber gasket, and bolts and nuts.

I. Steel Pressure-Seal Fittings: UL 213, FM-approved, 175-psig pressure rating with steel housing, rubber O-rings, and pipe stop; for use with fitting manufacturers' pressure-seal tools.

2.3 PIPING JOINING MATERIALS

A. Pipe-Flange Gasket Materials: AWWA C110, rubber, flat face, 1/8 inch thick or ASME B16.21, nonmetallic and asbestos free.

1. Class 125, Cast-Iron Flanges and Class 150, Bronze Flat-Face Flanges: Full-face gaskets.
2. Class 250, Cast-Iron Flanges and Class 300, Steel Raised-Face Flanges: Ring-type gaskets.

B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.

2.4 LISTED FIRE-PROTECTION VALVES

A. General Requirements:

1. Valves shall be UL listed or FM approved.
2. Minimum Pressure Rating for Standard-Pressure Piping: 175 psig.

B. Acceptable Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Anvil International, Inc.
2. Crane Co.
3. Globe Fire Sprinkler Corporation.
4. Metraflex, Inc.
5. Milwaukee Valve Company.
6. Mueller Co.; Water Products Division.
7. NIBCO INC.
8. Potter Roemer.
9. Reliable Automatic Sprinkler Co., Inc.
10. Tyco Fire & Building Products LP.
11. Victaulic Company.
12. Viking Corporation.
13. Watts Water Technologies, Inc.

C. Ball Valves:

1. Standard: UL 1091 except with ball instead of disc.
2. Valves NPS 1-1/2 and Smaller: Bronze body with threaded ends.
3. Valves NPS 2 and NPS 2-1/2: Bronze body with threaded ends or ductile-iron body with grooved ends.
4. Valves NPS 3: Ductile-iron body with grooved ends.

D. Bronze Butterfly Valves:

1. Standard: UL 1091.

2. Pressure Rating: 175 psig.
3. Body Material: Bronze.
4. Disc Material: Aluminum bronze.
5. End Connections: Threaded.

E. Iron Butterfly Valves:

1. Standard: UL 1091.
2. Pressure Rating: 175 psig.
3. Body Material: Cast or ductile iron.
4. Disc Material: Aluminum Bronze.
5. Style: Lug or wafer.
6. End Connections: Grooved.

F. Check Valves:

1. Standard: UL 312.
2. Pressure Rating: 250 psig minimum.
3. Type: Swing check.
4. Body Material: Cast iron.
5. End Connections: Flanged or grooved.

G. Bronze OS&Y Gate Valves:

1. Standard: UL 262.
2. Pressure Rating: 175 psig.
3. Body Material: Bronze.
4. End Connections: Threaded.

H. Iron OS&Y Gate Valves:

1. Standard: UL 262.
2. Pressure Rating: 250 psig minimum.
3. Body Material: Cast or ductile iron.
4. End Connections: Flanged or grooved.

I. Indicating-Type Butterfly Valves:

1. Standard: UL 1091.
2. Pressure Rating: 175 psig minimum.
3. Valves NPS 2 and Smaller:

    a. Valve Type: Ball or butterfly.
    b. Body Material: Bronze.
    c. End Connections: Threaded.

4. Valves NPS 2-1/2 and Larger:

    a. Valve Type: Butterfly.
    b. Body Material: Cast or ductile iron.
    c. Disc Material: Aluminum bronze.
    d. End Connections: Flanged, grooved, or wafer.

5. Valve Operation: Integral electrical, 115-V ac, prewired, two-circuit, supervisory switch visual indicating device.

J. NRS Gate Valves:

1. Standard: UL 262.
2. Pressure Rating: 250 psig minimum.
3. Body Material: Cast iron with indicator post flange.
4. Stem: Nonrising.
5. End Connections: Flanged or grooved.

2.5 SPECIALTY VALVES

A. General Requirements:

1. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
2. Pressure Rating:

   a. Standard-Pressure Piping Specialty Valves: 175 psig minimum.

3. Body Material: Cast or ductile iron.
4. Size: Same as connected piping.
5. End Connections: Flanged or grooved.

B. Acceptable Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Globe Fire Sprinkler Corporation.
2. Reliable Automatic Sprinkler Co., Inc.
3. Tyco Fire & Building Products LP.
4. Victaulic Company.
5. Viking Corporation.

C. Automatic (Ball Drip) Drain Valves:

1. Standard: UL 1726.
2. Pressure Rating: 175 psig minimum.
3. Type: Automatic draining, ball check.
4. Size: NPS 3/4.
5. End Connections: Threaded.

2.6 SPRINKLER SPECIALTY PIPE FITTINGS

A. Branch Outlet Fittings:

1. Standard: UL 213.
2. Pressure Rating: 175 psig minimum.
3. Body Material: Ductile-iron housing with EPDM seals and bolts and nuts.
4. Type: Mechanical-T and -cross fittings.

5. Configurations: Ductile-iron housing with branch outlets.
6. Size: Of dimension to fit onto sprinkler main and with outlet connections as required to match connected branch piping.
7. Branch Outlets: Grooved, plain-end pipe, or threaded.

B. Flow Detection and Test Assemblies:

1. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
2. Pressure Rating: 175 psig minimum.
3. Body Material: Cast- or ductile-iron housing with orifice, sight glass, and integral test valve.
4. Size: Same as connected piping.
5. Inlet and Outlet: Threaded.

C. Branch Line Testers:

1. Standard: UL 199.
2. Pressure Rating: 175 psig.
3. Body Material: Brass.
4. Size: Same as connected piping.
5. Inlet: Threaded.
6. Drain Outlet: Threaded and capped.
7. Branch Outlet: Threaded, for sprinkler.

D. Sprinkler Inspector's Test Fittings:

1. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
2. Pressure Rating: 175 psig minimum.
3. Body Material: Cast- or ductile-iron housing with sight glass.
4. Size: Same as connected piping.
5. Inlet and Outlet: Threaded.

E. Adjustable Drop Nipples:

1. Standard: UL 1474.
2. Pressure Rating: 250 psig minimum.
3. Body Material: Steel pipe with EPDM-rubber O-ring seals.
4. Size: Same as connected piping.
5. Length: Adjustable.
6. Inlet and Outlet: Threaded.

2.7 SPRINKLERS

A. Acceptable Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Globe Fire Sprinkler Corporation.
2. Reliable Automatic Sprinkler Co., Inc.
3. Tyco Fire & Building Products LP.

4. Victaulic Company.
5. Viking Corporation.

B. General Requirements:

1. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
2. Type: All sprinklers shall be quick response type.
3. Pressure Rating for Automatic Sprinklers: 175 psig minimum.

C. Sprinkler Finishes:

1. Chrome plated.
2. Bronze.
3. Painted.

D. Sprinkler Escutcheons: Materials, types, and finishes for the following sprinkler mounting applications. Escutcheons for concealed, flush, and recessed-type sprinklers are specified with sprinklers.

1. Ceiling Mounting: Chrome-plated steel, one piece, flat.
2. Sidewall Mounting: Chrome-plated steel, one piece, flat.

E. Sprinkler Guards:

1. Standard: UL 199.
2. Type: Wire cage with fastening device for attaching to sprinkler.

2.8 PRESSURE GAGES

A. Acceptable Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. AMETEK; U.S. Gauge Division.
2. Ashcroft, Inc.
3. Brecco Corporation.
4. WIKA Instrument Corporation.

B. Standard: UL 393.

C. Dial Size: 3-1/2- to 4-1/2-inch diameter.

D. Pressure Gage Range: 0 to 250 psig.

E. Water System Piping Gage: Include "WATER" or "AIR/WATER" label on dial face.

PART 3 - EXECUTION

3.1 PREPARATION

A. Perform fire-hydrant flow test according to NFPA 13 and NFPA 291. Use results for system design calculations required in "Quality Assurance" Article.

B. Report test results promptly and in writing.

3.2 PIPING INSTALLATION

A. Piping Standard: Comply with requirements for installation of sprinkler piping in NFPA 13.

B. Install seismic restraints on piping. Comply with requirements for seismic-restraint device materials and installation in NFPA 13.

C. Use listed fittings to make changes in direction, branch takeoffs from mains, and reductions in pipe sizes.

D. Install unions adjacent to each valve in pipes NPS 2 and smaller.

E. Install flanges, flange adapters, or couplings for grooved-end piping on valves, apparatus, and equipment having NPS 2-1/2 and larger end connections.

F. Install "Inspector's Test Connections" in sprinkler system piping, complete with shutoff valve, and sized and located according to NFPA 13.

G. Install sprinkler piping with drains for complete system drainage.

H. Install sprinkler control valves, test assemblies, and drain risers adjacent to standpipes when sprinkler piping is connected to standpipes.

I. Install automatic (ball drip) drain valve at each check valve for fire-department connection, to drain piping between fire-department connection and check valve. Install drain piping to and spill over floor drain or to outside building.

J. Install alarm devices in piping systems.

K. Install hangers and supports for sprinkler system piping independent of all other systems according to NFPA 13. Comply with requirements for hanger materials in NFPA 13.

L. Install pressure gages on riser or feed main, at each sprinkler test connection, and at top of each standpipe. Include pressure gages with connection not less than NPS 1/4 and with soft metal seated globe valve, arranged for draining pipe between gage and valve. Install gages to permit removal, and install where they will not be subject to freezing.

M. Fill sprinkler system piping with water.

3.3 JOINT CONSTRUCTION

A. Install couplings, flanges, flanged fittings, unions, nipples, and transition and special fittings that have finish and pressure ratings same as or higher than system's pressure rating for aboveground applications unless otherwise indicated.

B. Install unions adjacent to each valve in pipes NPS 2 and smaller.

C. Install flanges, flange adapters, or couplings for grooved-end piping on valves, apparatus, and equipment having NPS 2-1/2 and larger end connections.

D. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

E. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.

F. Flanged Joints: Select appropriate gasket material in size, type, and thickness suitable for water service. Join flanges with gasket and bolts according to ASME B31.9.

G. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.

H. Steel-Piping, Roll-Grooved Joints: Roll rounded-edge groove in end of pipe according to AWWA C606. Assemble coupling with housing, gasket, lubricant, and bolts. Join steel pipe and grooved-end fittings according to AWWA C606 for steel-pipe grooved joints.

3.4 VALVE AND SPECIALTIES INSTALLATION

A. Install listed fire-protection valves, trim and drain valves, specialty valves and trim, controls, and specialties according to NFPA 13 and authorities having jurisdiction.

B. Install listed fire-protection shutoff valves supervised open, located to control sources of water supply except from fire-department connections. Install permanent identification signs indicating portion of system controlled by each valve.

C. Install check valve in each water-supply connection. Install backflow preventers instead of check valves in potable-water-supply sources.

D. Specialty Valves:

1. General Requirements: Install in vertical position for proper direction of flow, in main supply to system.

3.5 SPRINKLER INSTALLATION

A. Install sprinklers in suspended ceilings in center of narrow dimension of acoustical ceiling panels.

3.6 ESCUTCHEON INSTALLATION

A. Install escutcheons for penetrations of walls, ceilings, and floors.

B. Escutcheons for New Piping:

1. Piping with Fitting or Sleeve Protruding from Wall: One piece, deep pattern.
2. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One piece, cast brass with polished chrome-plated finish.
3. Bare Piping at Ceiling Penetrations in Finished Spaces: One piece, cast brass with polished chrome-plated finish.
4. Bare Piping in Unfinished Service Spaces: One piece, cast brass with rough-brass finish or stamped steel with set-screw or spring clips.
5. Bare Piping in Equipment Rooms: One piece, cast brass stamped steel with set-screw or spring clips.
6. Bare Piping at Floor Penetrations in Equipment Rooms: One-piece floor plate.

3.7 SLEEVE INSTALLATION

A. General Requirements: Install sleeves for pipes and tubes passing through penetrations in floors, partitions, roofs, and walls.

B. Sleeves are not required for core-drilled holes.

C. Permanent sleeves are not required for holes formed by removable PE sleeves.

D. Cut sleeves to length for mounting flush with both surfaces unless otherwise indicated.

E. Install sleeves in new partitions, slabs, and walls as they are built.

F. For interior wall penetrations, seal annular space between sleeve and pipe or pipe insulation using joint sealants appropriate for size, depth, and location of joint. Comply with requirements for joint sealants in Division 07 Section "Joint Sealants."

G. For exterior wall penetrations above grade, seal annular space between sleeve and pipe using joint sealants appropriate for size, depth, and location of joint. Comply with requirements for joint sealants in Division 07 Section "Joint Sealants."

H. Seal space outside of sleeves in concrete slabs and walls with grout.

I. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation unless otherwise indicated.

J. Install sleeve materials according to the following applications:

1. Sleeves for Piping Passing through Concrete Floor Slabs: Galvanized-steel pipe.
2. Sleeves for Piping Passing through Concrete Floor Slabs of Mechanical Equipment Areas or Other Wet Areas: Galvanized-steel pipe.

    a. Extend sleeves 2 inches above finished floor level.
    b. For pipes penetrating floors with membrane waterproofing, extend cast-iron sleeve fittings below floor slab as required to secure clamping ring if ring is specified. Secure flashing between clamping flanges. Install section of cast-iron soil pipe to extend sleeve to 2 inches above finished floor level. Comply with requirements for flashing in Division 07 Section "Sheet Metal Flashing and Trim."

3. Sleeves for Piping Passing through Gypsum-Board Partitions:

    a. Galvanized-steel-pipe sleeves for pipes smaller than NPS 6.
    b. Galvanized-steel-sheet sleeves for pipes NPS 6 and larger.
    c. Exception: Sleeves are not required for water-supply tubes and waste pipes for individual plumbing fixtures if escutcheons will cover openings.

4. Sleeves for Piping Passing through Concrete Roof Slabs: Molded PE or Galvanized-steel pipe.
5. Sleeves for Piping Passing through Exterior Concrete Walls:

    a. Galvanized-steel-pipe sleeves for pipes smaller than NPS 6.
    b. Cast-iron wall-pipe sleeves for pipes NPS 6 and larger.
    c. Install sleeves that are large enough to provide 1-inch annular clear space between sleeve and pipe or pipe insulation when sleeve seals are used.

6. Sleeves for Piping Passing through Interior Concrete Walls:

    a. Galvanized-steel-pipe sleeves for pipes smaller than NPS 6.
    b. Galvanized-steel-sheet sleeves for pipes NPS 6 and larger.

K. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements for firestop materials and installations in Division 07 Section "Penetration Firestopping."

3.8 IDENTIFICATION

A. Install labeling and pipe markers on equipment and piping according to requirements in NFPA 13.

B. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.9 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

1. Leak Test: After installation, charge systems and test for leaks. Repair leaks and retest until no leaks exist.
2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
3. Flush, test, and inspect sprinkler systems according to NFPA 13, "Systems Acceptance" Chapter.
4. Sprinkler systems shall be hydrostatically tested at 200 psi for 2 hours in accordance with NFPA 13.
5. Energize circuits to electrical equipment and devices.
6. Coordinate with fire-alarm tests. Operate as required.
7. Verify that equipment hose threads are same as local fire-department equipment.

C. Sprinkler piping system will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

3.10 CLEANING

A. Clean dirt and debris from sprinklers.

B. Remove and replace sprinklers with paint other than factory finish.

3.11 PIPING SCHEDULE

A. Piping between Fire-Department Connections and Check Valves: Galvanized, standard-weight steel pipe with threaded ends; cast-iron threaded fittings; and threaded or grooved ends; grooved-end fittings; grooved-end-pipe couplings; and grooved joints.

B. Sprinkler specialty fittings may be used, downstream of control valves, instead of specified fittings.

C. Standard-pressure, wet-pipe sprinkler system, NPS 2 and smaller, shall be one of the following:

1. Standard-weight, black-steel pipe with threaded ends; uncoated, gray-iron threaded fittings; and threaded joints.

D. Standard-pressure, wet-pipe sprinkler system, NPS 2-1/2 and larger, shall be one of the following:

1. Standard-weight, black-steel pipe with roll-grooved ends; uncoated, grooved-end fittings for steel piping; grooved-end-pipe couplings for steel piping; and grooved joints.

3.12 SPRINKLER SCHEDULE

A. Use sprinkler types in subparagraphs below for the following applications:

1. Rooms without Ceilings: Upright sprinklers.

2. Rooms with Suspended Ceilings: Concealed sprinklers.
3. Wall Mounting: Concealed sidewall sprinklers.
4. Spaces Subject to Freezing: Upright, pendent, dry sprinklers; and sidewall, dry sprinklers as indicated.
5. Special Applications: Extended-coverage, flow-control, sprinklers where indicated.

B. Provide sprinkler types in subparagraphs below with finishes indicated.

1. Concealed Sprinklers: Rough brass, with factory-painted cover plate color as directed by Architect.
2. Upright and Pendent Sprinklers: Chrome plated in finished spaces exposed to view; rough bronze in unfinished spaces not exposed to view; wax coated where exposed to acids, chemicals, or other corrosive fumes.

END OF SECTION 211313

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1. ALL WORK SHALL COMPLY WITH FEDERALLY MANDATED ADA, ALL APPLICABLE CODES, AND STANDARDS.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS. ANY DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND DRAWINGS SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ARCHITECT PRIOR TO CONSTRUCTION. ALL DIMENSIONS OF EXISTING CONSTRUCTION ARE TO PROVIDE THE CONTRACTOR WITH APPROXIMATE SIZES AND ARE NOT INTENDED TO BE USED FOR CONSTRUCTION PURPOSES. ALL DIMENSIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
3. CONTRACTOR SHALL USE EXTREME CARE AND TAKE PRECAUTION DURING CONSTRUCTION SO AS NOT TO DAMAGE EXISTING ADJACENT FACILITIES. ANY DAMAGE DONE TO EXISTING FACILITIES DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER WITHOUT ADDITIONAL COST TO THE OWNER.
4. ALL DIMENSIONS ARE NOMINAL AND ARE FINISH TO FINISH OR FACE TO FACE OF CONSTRUCTION UNLESS OTHERWISE NOTED.
5. UNLESS OTHERWISE NOTED, CONTRACTOR SHALL PATCH OR REPAIR, PAINT OR RESTORE AND REFINISH (AS APPLIES) ALL ADJACENT SURFACES AFFECTED BY NEW CONSTRUCTION OR DEMOLITION.
6. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS. COORDINATE DUMPSTER LOCATION AND ACCESS WITH THE OWNER AS REQUIRED.
7. SHOULD ANY DOUBT OR QUESTION ARISE WITH RESPECT TO THE TRUE MEANING OF THE DRAWINGS OR SPECIFICATIONS, REFERENCE SHALL BE MADE TO THE ARCHITECT WHOSE DECISIONS THEREON SHALL BE FINAL AND CONCLUSIVE.
8. CONTRACTOR SHALL NOT ENGAGE IN ANY ACTIVITY WHICH MAY ENDANGER THE PUBLIC.
9. CONTRACTOR IS REQUIRED, PRIOR TO THE START OF CONSTRUCTION, TO SURVEY THE AREAS WHICH WOULD BE AFFECTED BY THE CONSTRUCTION FOR DOCUMENTATION OF EXISTING DAMAGES.
10. CONTRACTOR IS ALLOWED TO STORE MATERIALS ONLY IN DESIGNATED LOCATIONS AS APPROVED BY THE OWNER REPRESENTATIVE.
11. CONTRACTOR IS REQUIRED TO PROVIDE EQUIPMENT AND TOOLS REQUIRED OR NECESSARY FOR THE OWNER, ARCHITECT, AND ENGINEER TO REVIEW THE CONSTRUCTION IN PROGRESS AND DURING INSPECTIONS.
12. CONTRACTOR SHALL PROVIDE TEMPORARY LIGHTS DURING THE CONSTRUCTION OF THE PROJECT AS REQUIRED FOR THE SAFETY AND SECURITY OF THE PUBLIC FOR ALL AREAS AFFECTED BY CONSTRUCTION AS REQUIRED TO ACHIEVE MIN 1/2 FOOT CANDLE LIGHT LEVEL.
13. CONTRACTOR IS RESPONSIBLE TO MAINTAIN AND PROTECT THE REQUIRED FIRE EXITS AND ROUTE TO THOSE EXITS AT ALL TIMES.
14. THE BUILDING WILL BE OCCUPIED DURING THE CONSTRUCTION PERIOD AND ANY DISRUPTION TO NORMAL BUILDING OPERATIONS SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE AT LEAST 72 HOURS PRIOR TO COMMENCING WORK. (1)

GENERAL NOTES | X27

SHEET INDEX - GENERAL

G000 COVER SHEET
G001 GENERAL INFORMATION
G002 LIFE SAFETY PLAN / CODE ANALYSIS

SHEET INDEX - ARCHITECTURAL

D100 1ST FLOOR DEMOLITION PLAN
D400 1ST FLOOR CEILING DEMOLITION PLAN
D800 DEMOLITION PHOTOGRAPHS
A001 WALL TYPES
A100 1ST FLOOR PLAN
A400 1ST FLOOR CEILING PLAN
A420 CEILING DETAILS
A600 INTERIOR ELEVATIONS
A610 CASEWORK DETAILS
A620 FINISH SCHEDULE & DETAILS
A700 DOOR SCHEDULE & DETAILS
A710 WINDOW SCHEDULE & DETAILS

SHEET INDEX - FIRE PROTECTION

F000 FIRE PROTECTION COVERSHEET
F201 LEVEL 01 PLAN - FIRE PROTECTION

(1)

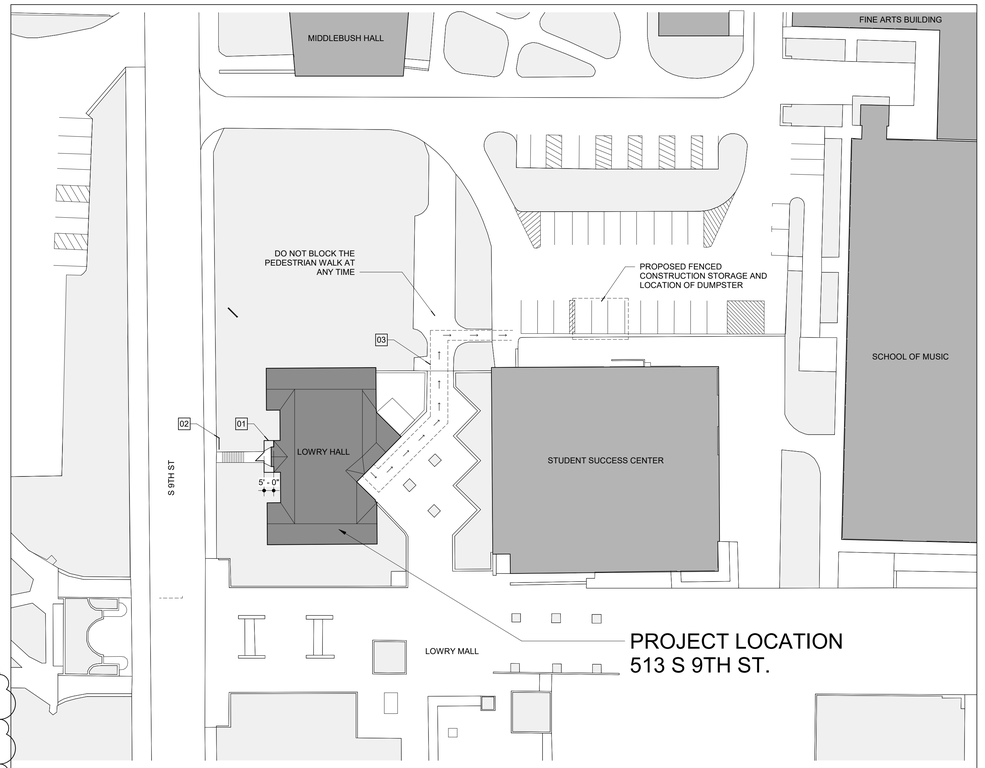
SHEET INDEX - MECHANICAL & PLUMBING

M000 MECHANICAL COVERSHEET
P200 LEVEL 00 PLAN - PLUMBING
P201 LEVEL 01 PLAN - PLUMBING
P600 PLUMBING MATERIALS LIST AND DETAILS
M101 LEVEL 01 DEMOLITION PLAN – MECHANICAL
M201 LEVEL 01 PLAN – PIPING
M202 LEVEL 02 PLAN – PIPING
M211 LEVEL 01 PLAN – VENTILATION
M400 MECHANICAL DETAILS
M500 MECHANICAL DIAGRAMS
M600 MECHANICAL SCHEDULES

SHEET INDEX - ELECTRICAL

E000 ELECTRICAL COVERSHEET
E101 LEVEL 01 DEMOLITION PLAN - LIGHTING
E111 LEVEL 01 DEMOLITION PLAN - POWER
E121 LEVEL 01 DEMOLITION PLAN - SYSTEMS
E201 LEVEL 01 PLAN - LIGHTING
E211 LEVEL 01 PLAN - POWER
E221 LEVEL 01 PLAN - SYSTEMS
E400 ELECTRICAL DETAILS
E600 ELECTRICAL SCHEDULES

SHEET INDEX | X17



01 INSTALL 8'-0" TALL CHAIN LINK CONSTRUCTION FENCE AND CONSTRUCTION GATE WITH LOCKSET. ALIGN WITH BUILDING LINE.

02 INSTALL TEMPORARY SIGNAGE AT BOTTOM OF STAIRS DIRECTING PEDESTRIAN TRAFFIC AWAY FROM CONSTRUCTION PER IBC 3306.1.

03 PATH FOR DEMOLITION DEBRIS REMOVAL. CONTRACTOR SHALL PROTECT ALL EXISTING INTERIOR AND EXTERIOR FLOORING FINISHES AND ADJACENT FINISHED TO REMAIN ALONG PATH TO DUMPSTER.

STAGING AND SITE PLAN | Q1

SCALE: 1/32" = 1'-0"

1. PRIOR TO COMMENCING DEMOLITION WORK, THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL EXISTING UTILITIES AND MAKE PROVISION THAT NO INTERRUPTION OF SERVICES OCCUR TO OTHER BUILDING TENANTS. COORDINATE ANY SERVICE INTERRUPTIONS WITH OWNER.
2. ALL MATERIALS NOT REQUIRED TO BE REMOVED FOR THE EXECUTION OF THE PROJECT SHALL BE LEFT IN PLACE AND PROTECTED FROM DAMAGE DURING DEMOLITION. ANY ITEMS DAMAGED DURING DEMOLITION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
3. THE OWNER ASSUMES NO RESPONSIBILITY FOR ACTUAL CONDITIONS OF ITEMS TO BE DEMOLISHED.
4. CUT AND REMOVE/REPLACE ALL PORTIONS OF EXISTING CONSTRUCTION AS REQUIRED TO ALLOW ACCESS TO ITEMS NOTED FOR DEMOLITION AND FOR PROPER INSTALLATION OF NEW CONSTRUCTION.
5. AT ANY TIME DURING DEMOLITION, IF ANY CONTRACTOR DISCOVERS HAZARDOUS MATERIALS, STOP WORK AND NOTIFY THE OWNER AND ARCHITECT IMMEDIATELY.
6. LEAVE ALL MAJOR STRUCTURAL COLUMNS AND BEAMS UNDISTURBED. CONTRACTOR SHALL SURVEY THE CONDITION OF THE BUILDING TO DETERMINE WHETHER REMOVING ANY ELEMENT MIGHT RESULT IN STRUCTURAL DEFICIENCY OR UNPLANNED COLLAPSE OF ANY PORTION OF THE STRUCTURE REMAINING. IF ANY SUCH CONDITION EXISTS, OR RESULTS DURING THE PROCESS OF DEMOLITION, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE AND ARCHITECT IMMEDIATELY.
7. ALL DASHED LINES ON DRAWINGS INDICATE ITEMS TO BE REMOVED, U.N.O.
8. ALL DEMOLITION MUST REMAIN INSIDE CONSTRUCTION LIMITS, U.N.O.
9. RETAIN AND PROTECT ALL SALVAGEABLE MATERIALS SELECTED BY OWNER AND ARCHITECT FOR REUSE ELSEWHERE. CONTRACTOR SHALL CATALOG ALL MATERIAL REMOVED FOR SALVAGE WITH ORIGINAL LOCATION AND LOCATION OF STORAGE. ALL SALVAGED MATERIALS SHALL BE CLEANED AND STORED IN A DRY PLACE ON THE SITE, ELEVATED OFF THE GROUND WITH ADEQUATE AIR FLOW AND PROTECTION FROM THE WEATHER AS NECESSARY.
10. NEATLY CUT OPENINGS AND HOLES PLUMB, SQUARE AND TRUE TO DIMENSIONS REQUIRED. USE CUTTING METHODS LEAST LIKELY TO DAMAGE CONSTRUCTION TO REMAIN/ADJOINING CONSTRUCTION.
11. CONTRACTOR SHALL COMPLETELY REMOVE ALL DEMOLISHED MATERIALS FROM SITE. ALL DEMOLISHED MATERIALS WILL BECOME PROPERTY OF THE CONTRACTOR UNLESS THEY ARE TO BE REUSED, OR AS OTHERWISE NOTED OR INSTRUCTED. AND TO BE DISPOSED OF LEGALLY. REMOVE DEBRIS, RUBBISH, AND OTHER MATERIALS DAILY FROM CONSTRUCTION SITE.
12. CONTRACTOR SHALL COORDINATE ALL DEMOLITION WORK REQUIRED FOR ONE TRADE WITH OTHER TRADES THAT WILL BE AFFECTED BY THAT WORK.

GENERAL DEMOLITION NOTES | Q27

NOT USED | T17

ALTERNATE #1:

INSTALL AN AUTOMATIC SPRINKLER SYSTEM AT LEVEL 1 OF LOWRY HALL ONLY. MAIN SPRINKLER BRANCH OF LEVEL 1 TO TERMINATE WITHIN SOUTH STAIRCASE FOR FUTURE CONNECTIONS. REFER TO FIRE PROTECTION DRAWINGS.

ALL OTHER SPRINKLER SYSTEM COMPONENTS (VERTICAL STANDPIPES IN STAIR, VALVES, BACKFLOW PREVENTERS, PUMPS, CONNECTION TO BUILDING EXISTING WATER LINES, ETC.) ARE NOT SHOWN IN THE FIRE PROTECTION DRAWINGS AS THEY ARE NOT A PART OF THIS PROJECT SCOPE AND SHALL BE DONE IN A FUTURE, SEPARATE PROJECT.

ALTERNATES | Q17 (1)

I, MAJID AMIRAHMADI, MISSOURI REGISTERED ARCHITECT, DO HEREBY ACCEPT PROFESSIONAL RESPONSIBILITY FOR THE ATTACHED ARCHITECTURAL DRAWINGS. I HEREBY DISCLAIM ANY RESPONSIBILITY FOR ALL OTHER DRAWINGS INCLUDED IN THIS SET OF CONSTRUCTION DOCUMENTS, THEY BEING THE RESPONSIBILITY OF OTHER PROFESSIONALS.

STATE OF MISSOURI · MAJID AMIRAHMADI · NUMBER A-005077 · ARCHITECT

MAJID AMIRAHMADI, AIA
INTERNATIONAL ARCHITECTS ATELIER
11-14-2022

PROFESSIONAL DISCLAIMER | H27

DEFERRED SUBMITTAL ITEMS:

DIGITAL, ADDRESSABLE FIRE ALARM SYSTEMS RE: 283111
WET-PIPE SPRINKLER SYSTEMS RE: 211313 (1)

SPECIAL INSPECTIONS:

CAST-IN-PLACE CONCRETE
1. REINFORCING PLACEMENT FOR CONCRETE SLABS
2. CONCRETE PLACEMENT AND MATERIAL TESTING

PENETRATION FIRESTOPPING

DEFERRED SUBMITTALS & SPECIAL INSP. | K17

I, PHILLIP I. PARRA, MISSOURI REGISTERED ENGINEER, DO HEREBY ACCEPT PROFESSIONAL RESPONSIBILITY FOR THE ATTACHED MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS. I HEREBY DISCLAIM ANY RESPONSIBILITY FOR ALL OTHER DRAWINGS INCLUDED IN THIS SET OF CONSTRUCTION DOCUMENTS, THEY BEING THE RESPONSIBILITY OF OTHER PROFESSIONALS.

STATE OF MISSOURI · PHILLIP I. PARRA · NUMBER E-28366 · REGISTERED PROFESSIONAL ENGINEER

11/14/2022

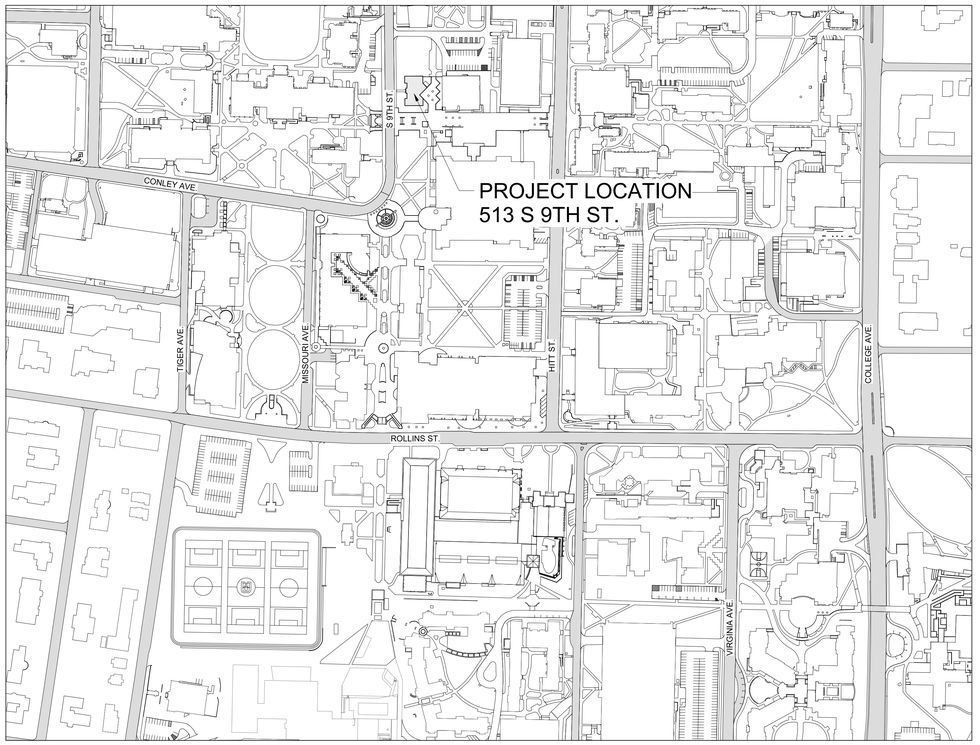
PHILLIP I. PARRA , PE
IMEG CORP.

PROFESSIONAL DISCLAIMER | B27

SPOT ELEVATION
PLAN NOTES
DOOR TAG
ROOM TAG (001 / ROOM NAME)
NORTH ARROW
DEMO NOTES
EQUIPMENT TAG
WINDOW TAG: WINDOW NUMBER, WINDOW TYPE, RE: A710
REVISION TAG
WALL TAG
SPAN DIRECTION

EXTERIOR ELEVATION MARKER: DRAWING NUMBER / SHEET NUMBER
INTERIOR ELEVATION MARKER: SHEET NUMBER / DRAWING NUMBER
BUILDING SECTION MARKER: DRAWING NUMBER / SHEET NUMBER
WALL SECTION MARKER: DRAWING NUMBER / SHEET NUMBER
DETAIL SECTION MARKER: DRAWING NUMBER / SHEET NUMBER
CALLOUT

ARCHITECTURAL SYMBOLS | B17



CAMPUS MAP | B1

SCALE: 1" = 200'-0"

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FOR THE CURATORS OF
THE UNIVERSITY OF MISSOURI

LOWRY HALL RENOVATE FIRST FLOOR

PROJECT NUMBER: CP220811

THE UNIVERSITY OF MISSOURI

ISSUED FOR BID

513 S 9th St (at Lowry Mall)
Columbia, MO 65211
United States

DATE:	11/14/2022
PROJ. NO.:	CP220811
DESIGNED BY:	IC, JL
DRAWN BY:	IC, JL
CHECKED BY:	JL, MA
APPROVED BY:	MA

SEAL:

STATE OF MISSOURI · MAJID AMIRAHMADI · NUMBER A-005077 · ARCHITECT
11-14-2022

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NO.	REVISION SUBMISSION	DATE
0	ISSUED FOR BID	11/14/2022
1	ADDENDUM #1	01/03/2023

GENERAL INFORMATION

G001

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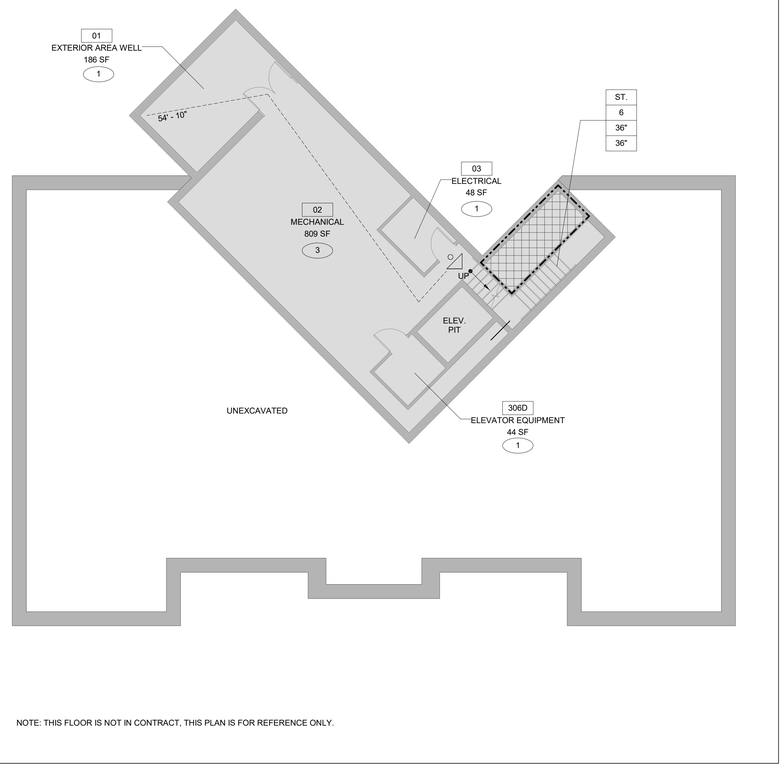
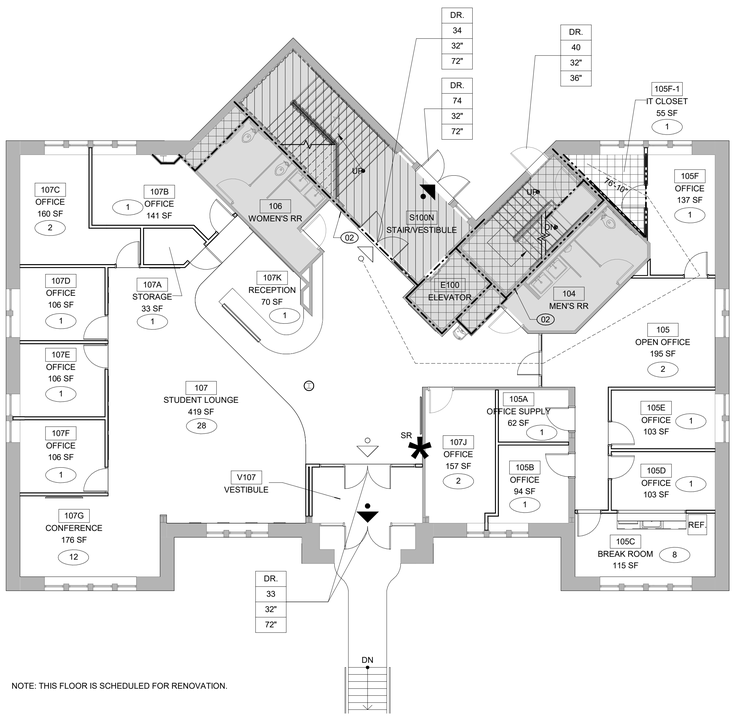


NOTE: THIS FLOOR IS NOT IN CONTRACT, THIS PLAN IS FOR REFERENCE ONLY.

0' 4' 8' 16'

BASEMENT CODE PLAN | Q23

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



NOTE: THIS FLOOR IS SCHEDULED FOR RENOVATION.

0' 4' 8' 16'

1ST FLOOR CODE PLAN | Q10

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

01	EXISTING FLOOR SLAB IS 3-1/2" REINFORCED CAST-IN-PLACE CONCRETE ON TOP OF CORRUGATED STEEL DECK AND STEEL JOISTS WITH SUSPENDED DRYWALL CEILING WHICH EXCEEDS 1/2 HOUR RATING PER TABLE 721.1(3).
02	EXISTING WALL IS 7-5/8" C.M.U. W/ 1/2" GYPSU BOARD ON EACH SIDE WHICH EXCEEDS 1/2 HOUR AND 1 HOUR RATING PER TABLE 721.1(2)
03	EXISTING WALL IS 45 MINUTE RATED PER UL DESIGN NO. U425
04	EXISTING DOOR IS LABELED AND RATED FOR 1 HOUR FIRE RESISTANCE
X	OCCUPANTS PER ROOM
DR. X / ST. X	DR. = DOOR WIDTH ST. = STAIR WIDTH
X X	OCCUPANCY
X X	REQUIRED EXIT WIDTH (INCHES)
X X	PROVIDED EXIT WIDTH (INCHES)
	INDICATES POINT OF EGRESS ACCESS
	INDICATES POINT OF EGRESS DISCHARGE
SR	INDICATES LOCATION OF FIRE EXTINGUISHER IN SEMI-RECESSED CABINET

NOT IN CONTRACT

EGRESS TRAVEL PATH

INDICATES 1/2-HOUR FIRE RESISTIVE CONSTRUCTION

INDICATES 1-HOUR FIRE RESISTIVE CONSTRUCTION

INDICATES 1/2-HOUR RATED ENCLOSURE

INDICATES 1-HOUR RATED ENCLOSURE

LIFE SAFETY LEGEND | Z1

Applicable Codes:	2021 International Building Code (IBC) 2021 International Existing Building Code (IEBC), Level 2 Alteration 2021 International Plumbing Code (IPC) 2021 International Mechanical Code (IMC) 2021 International Fire Code 2020 National Electrical Code (NFPA 70 NEC) 2021 Installation of Air Conditioning and Ventilating Systems (NFPA 90A) 2022 National Fire Alarm Code (NFPA 72) 2019 ASHRAE 90.1 – Energy Standard for Buildings 2010 ADA Standards of Accessible Design University of Missouri Consultant Procedures and Design Guidelines
Work Area:	Basement: 0 sq ft Work Area / 1,315 sq ft Level Area = 0% Level 1: 3,730 sq ft Work Area / 5,315 sq ft Level Area = 70% Level 2: 0 sq ft Work Area / 5,315 sq ft Level Area = 0% Level 3: 0 sq ft Work Area / 5,315 sq ft Level Area = 0% Total: 3,730 sq ft Work Area / 17,260 sq ft Level Area = 21.6% Work to Building Area
Occupancy:	B: Offices, Student Lounges under 50 Occupants
Type of Construction:	Type III-B
Risk Category:	II
Building Height (Stories):	3 stories with a basement
Allowable Building Height:	3 stories above grade plane (IBC Table 504.4)
Building Height:	47'-8 ½" above grade plane
Allowable Building Height:	55'-0" above grade plane (IBC Table 504.3)
Building Area:	Basement – Approx. 1,315 gross square feet First Floor – Approx. 5,315 gross square feet Second Floor – Approx. 5,315 gross square feet Third Floor - Approx. 5,315 gross square feet
Allowable Building Area:	19,000 gross square feet per story (IBC Table 506.2)
Mixed Use Group Approach:	Non-Separated (IBC 508.3)
Passive Fire Resistive Requirements:	
-Exterior Bearing Walls	2-hour (IBC Table 601)
-Interior Bearing Walls	0-hour (IBC Table 601)
-Exterior Non-Bearing Walls	0-hour, greater than 30 feet fire separation distance (IBC Table 705.5)
-Structural Frame	0-hour (IBC Table 601)
-Floors	0-hour (IBC Table 601)
-Roof	0-hour (IBC Table 601)
-Shafts	1-hour at shafts exceeding three stories (IEBC 802.2.1)
-Exit Stair Enclosures	0.5-hour minimum at enclosures not exceeding three stories (IEBC 802.2.1, Exception #5) 1-hour at enclosures exceeding three stories (IEBC 802.2.1)
-Exit Stair Openings	0.75-hour (IBC Table 716.1(2) "Other fire barriers")
Interior Finishes (IBC Table 803.13):	Interior exit stairways and ramps and exit passageways: Class A Corridors and enclosure for exit access stairways: Class B Rooms and enclosed spaces: Class C
Active Fire Protection:	
-Automatic Sprinkler System	Existing at Level 1 Exit Access Glass Storefront Only; Not Required (IBC 903 & IEBC 803.2.2, Item #1)
-Fire Extinguishers	Required (IBC 906.1)
-Fire Alarm	Existing in Building, Required in Work Area (IBC 907.2 and IEBC 803.4.2)
Egress:	
-Stairs - Exit Width	0.3 inches per person (IBC 1005.3.1) 44 inches minimum (IBC 1011.2) 36 inches minimum serving occupant load less than 50 (IBC 1011.2 Exc. 1)
-Doors - Exit Width	0.2 inches per person (IBC 1005.3.2) 32 inches minimum clear width (IBC 1010.1.1)
-Corridors - Exit Width	44 inches minimum (IBC 1020.2)
Common Path of Egress Travel (IBC Table 1006.2.1)	B: 100 feet when Occupant Load is ≤ 30. 75 feet when Occupant Load is >30.
Exit Access Travel Distance (IBC Table 1017.2)	B: 200 feet
Dead End Corridors	B: 35 feet or less than 2.5 times least width of dead-end corridor. (IBC 1020.5, Exception #3 and IEBC 804.7)
Number of Exits Required from Spaces	1 existing exit required and provided at Basement Level. (IEBC 804.4) 2 existing exits required and provided at Levels 1-3. (IEBC 804.4)
Accessible Entrances	1 required, 1 provided (IEBC 306.7.5)
Emergency Power:	
Exit Signs (IBC 1013)	Required
Emergency Lighting (IBC 1008.2)	Required at means of egress (IBC 1008.2 and 1008.3)
Plumbing Fixtures:	

Basement Floor – Occupancy B – 6 Occupants
3 Men / 3 Women

	Water Closets / Urinals	Lavatories	D.F.
Required	0.06 Men / 0.06 Women	0.04 Men/0.04 Women	0.06

1st Floor – Occupancy B – 66 Occupants
33 Men / 33 Women

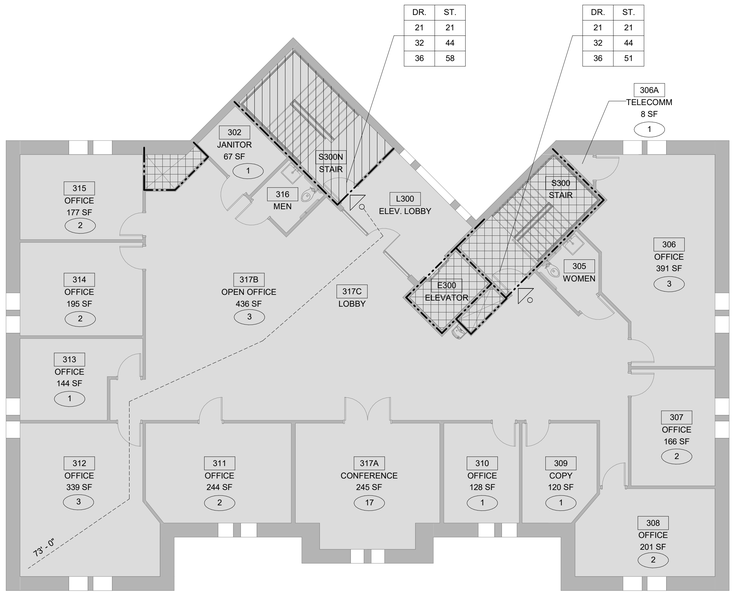
	Water Closets / Urinals	Lavatories	D.F.
Required	1.32 Men / 1.32 Women	0.825 Men/0.825 Women	0.66
Provided Total:	2 Men (1 ADA) / 2 Women (1 ADA) 1 Unisex at 3rd Floor	2 Men / 2 Women 1 Unisex at 3rd Floor	1 @ 1st Floor 1 @ 3rd Floor

NOTE: THIS FLOOR IS NOT IN CONTRACT, THIS PLAN IS FOR REFERENCE ONLY.

0' 4' 8' 16'

2ND FLOOR CODE PLAN | B23

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



NOTE: THIS FLOOR IS NOT IN CONTRACT, THIS PLAN IS FOR REFERENCE ONLY.

0' 4' 8' 16'

3RD FLOOR CODE PLAN | B10

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

LIFE SAFETY/CODE ANALYSIS | B1

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United States

DATE:	11/14/2022
PROJ. NO.:	CP220811
DESIGNED BY:	CM, JL
DRAWN BY:	CM, JL
CHECKED BY:	MA
APPROVED BY:	MA

SEAL:

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NO.	REVISION SUBMISSION	DATE
0	ISSUED FOR BID	11/14/2022
1	ADDENDUM #1	01/03/2023

LIFE SAFETY PLAN / CODE ANALYSIS

G002

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ROOM FINISH SCHEDULE

ROOM NO.	NAME	FLOOR FINISH	BASE FINISH	WALLS				CEILING FINISH	COMMENTS
				NORTH	EAST	SOUTH	WEST		
100	LOBBY	LVT-1	RB, SS	PT-1, PT-2	PT-1, PT-2	PT-1	PT-1	GBC-2	
104	MEN'S RR	CFT-1, EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	1
105	OPEN OFFICE	CPT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
105A	OFFICE SUPPLY	CPT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
105B	OFFICE	CPT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
105C	BREAK ROOM	LVT-1	RB	PT-1	PT-1, PL-1 & 2	PT-3	PT-1	ACT-1	
105D	OFFICE	CPT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
105E	OFFICE	CPT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
105F	OFFICE	CPT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
107	STUDENT LOUNGE	CPT-1	RB	PT-1	PT-1, PT-2	PT-1	PT-1	ACT-1, GBC-1	
107A	STORAGE	LVT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
107B	OFFICE	CPT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
107C	OFFICE	CPT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
107D	OFFICE	CPT-1	RB	PT-1	PT-2	PT-1	PT-1	ACT-1	
107E	OFFICE	CPT-1	RB	PT-1	PT-4	PT-1	PT-1	ACT-1	
107F	OFFICE	CPT-1	RB	PT-1	PT-3	PT-1	PT-1	ACT-1	
107G	CONFERENCE	CPT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
107J	OFFICE	CTP-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
107K	RECEPTION	VINYL-1	RB	PT-1	PT-1	PT-2	-	ACT-1, GBC-1	
C105	CORRIDOR	CPT-1	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	
V107	VESTIBULE	LVT-1, CPT-2	RB	PT-1	PT-1	PT-1	PT-1	ACT-1	

FLOOR FINISHES	
CFT	CERAMIC FLOOR TILE, RE: 093013
CPT	CARPET TILE, RE: 096813
EXIST.	EXISTING FLOOR FINISH TO REMAIN
VINYL	RESILIENT TILE FLOORING, RE: 096519

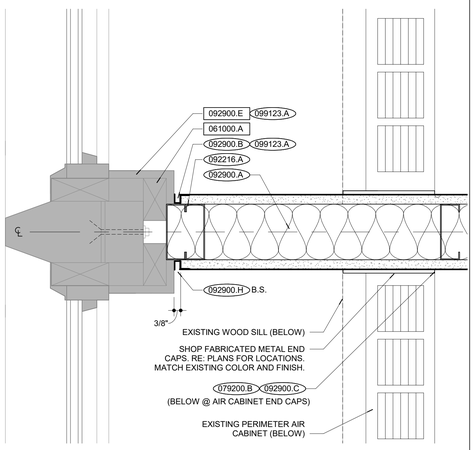
BASE FINISHES	
RB	RESILIENT BASE, RE: 096513
SS	STAINLESS STEEL BASE, RE: 064023

WALL FINISHES	
PT	PAINT, RE: 099123

CEILING FINISHES	
ACT	ACOUSTICAL CEILING TILE, RE: 095113
GBC	GYPSUM BOARD CEILING, PAINT RE: 099123

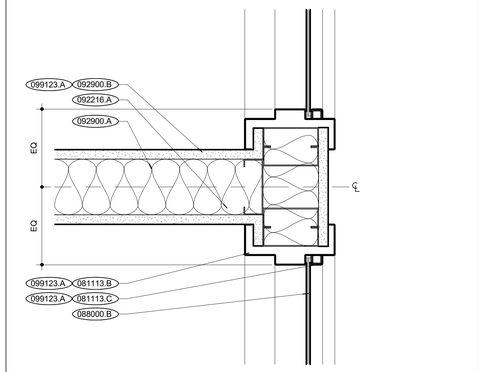
COMMENTS	
1	PATCH AND REPAIR EXISTING FINISHES AS REQUIRED AFTER NEW CONSTRUCTION IS INSTALLED

ROOM FINISH SCHEDULE | V5



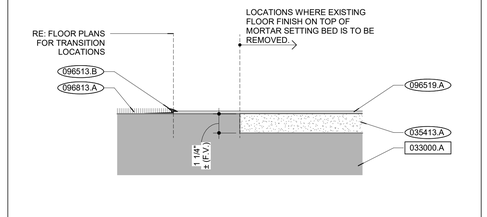
WALL TO EXIST. WINDOW DETAIL | L21

SCALE: 3" = 1'-0"



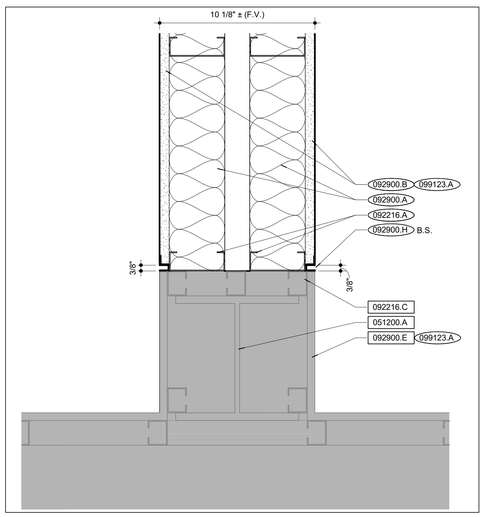
DETAIL AT STOREFRONT MULLION | L13

SCALE: 3" = 1'-0"



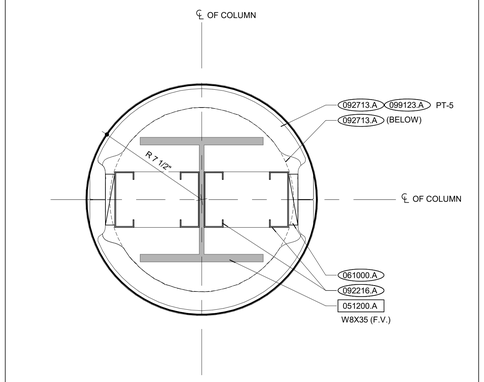
FLOOR TRANSITION DETAIL | L5

SCALE: 3" = 1'-0"



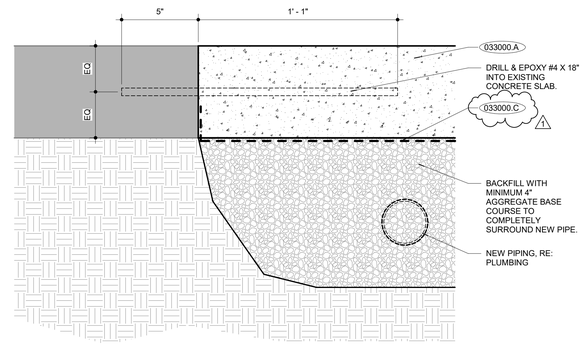
VESITBULE PLAN DETAIL | B29

SCALE: 3" = 1'-0"



COLUMN COVER DETAIL | B21

SCALE: 3" = 1'-0"



FLOOR PATCH DETAIL | B5

SCALE: 3" = 1'-0"

KEYNOTES | B1

DIVISION 03 — CONCRETE
033000.A REINFORCED CONCRETE PATCH W/FIBER
033000.C 6 MIL VAPOR BARRIER 1
035413.A HIGH FLOW, FIBER REINFORCED, SELF-LEVELING UNDERLAYMENT

DIVISION 04 — MASONRY

DIVISION 05 — METALS
051200.A EXISTING STEEL COLUMN

DIVISION 06 — WOOD, PLASTICS + COMPOSITES
061000.A WOOD BLOCKING

DIVISION 07 — THERMAL + MOISTURE PROTECTION
079200.B BACKER ROD

DIVISION 08 — OPENINGS
081113.B HOLLOW METAL STOREFRONT FRAME
081113.C GLASS STOPS
088000.B GLAZING

DIVISION 09 — FINISHES
092216.A 3-5/8" STL. STUD
092216.C 1-1/2" STL. STUD
092713.A GFRG COLUMN COVER
092900.A SOUND ATTENUATION BLANKETS
092900.B 5/8" GYPSUM BOARD
092900.C ACOUSTICAL JOINT SEALANT
092900.E 1/2" GYPSUM BOARD
092900.H ALUMINUM F-REVEAL SHAPE TRIM
096513.B FLOOR TRANSITION STRIP
096519.A RESILIENT VINYL FLOORING
096813.A CARPET TILE
099123.A PAINT

DIVISION 10 — SPECIALTIES
DIVISION 11 — EQUIPMENT
DIVISION 12 — FURNISHINGS
DIVISION 14 — CONVEYING EQUIPMENT
DIVISION 22 — PLUMBING
DIVISION 23 — HVAC
DIVISION 26 — ELECTRICAL
DIVISION 31 — EARTHWORK
DIVISION 32 — EXTERIOR IMPROVEMENTS

EXISTING CONSTRUCTION 000000.X

EXISTING CONSTRUCTION 000000.X *

TAG ALL MATERIALS WITH THEIR LOCATIONS AND SEQUENCING FOR RE-USE. REPAIR AND CLEAN ANY DAMAGED MATERIALS PRIOR TO BEING RE-SET

NEW CONSTRUCTION 000000.X

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FOR THE CURATORS OF
THE UNIVERSITY OF MISSOURI

LOWRY HALL RENOVATE FIRST FLOOR

PROJECT NUMBER: CP220811

THE UNIVERSITY OF MISSOURI

ISSUED FOR BID

513 S 9th St (at Lowry Mall)
Columbia, MO 65211
United States

DATE:	11/14/2022
PROJ. NO.:	CP220811
DESIGNED BY:	JL
DRAWN BY:	IC, JL
CHECKED BY:	JL, MA
APPROVED BY:	MA

SEAL:

STATE OF MISSOURI
MAJID AMIRAHMADI
A-005077
ARCHITECT
11-14-2022

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NO.	REVISION SUBMISSION	DATE
0	ISSUED FOR BID	11/14/2022
1	ADDENDUM #1	01/03/2023

FINISH SCHEDULE & DETAILS

A620

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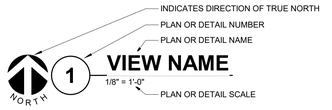
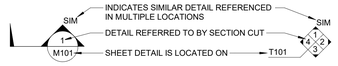
1/3/2023 2:40:42 PM

VIEW KEY

NAME — LEVEL NAME
10'-0" — HEIGHT ABOVE PROJECT 0'-0"

1 — INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED, SPECIFIC TO THE SHEET AND/OR DETAIL





LINE TYPE AND TAG KEY:

NEW WORK BY THIS CONTRACTOR (WIDE LINE)
——— NEW
– – – – – – EXISTING TO BE REMOVED (SHORT DASHED PATTERN)
— — — NEW UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)
——— EXISTING
– – – – – – EXISTING TO BE REMOVED BY OTHERS (SHORT DASHED PATTERN)
— — — EXISTING UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

HALFTONING DOES NOT MODIFY SCOPE.

'TAG'-E — TAGS WITH DASH 'E' INDICATES THE REFERENCED OBJECT IS EXISTING

TAG — UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST

INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

CONTRACTOR ABBREVIATION KEY

ABBR:	DESCRIPTION:
A.C.	ASBESTOS ABATEMENT CONTRACTOR
A.V.C.	AUDIO/VISUAL CONTRACTOR
C.C.	CIVIL CONTRACTOR
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
F.S.C.	FOOD SERVICE CONTRACTOR
G.C.	GENERAL CONTRACTOR
H.C.	HEATING CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
N.C.C.	NURSE CALL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
S.C.	SECURITY CONTRACTOR
T.C.	TECHNOLOGY CONTRACTOR
T.C.C.	TEMPERATURE CONTROLS CONTRACTOR
V.C.	VENTILATION CONTRACTOR

FIRE PROTECTION SYMBOL LIST

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
CAF	COMPRESSED AIR - FIRE PROTECTION
DFP	DRAIN
FP	FIRE PROTECTION
FPD	FIRE PROTECTION - DRY SYSTEM
W	SERVICE WATER - POTABLE
	PIPE CAP
	PIPE DOWN
	PIPE UP OR UP/DOWN
	UNION/FLANGE
	DIRECTION OF FLOW IN PIPE
	ROUTE TO DRAIN
	SHUTOFF VALVE NORMALLY OPEN
	AUTOMATIC DRAIN VALVE
	AIR PRESSURE MAINTENANCE DEVICE
	AIR SUPERVISORY SWITCH
	ANGLE VALVE
	BUTTERFLY VALVE WITH MONITOR SWITCH
	CHECK VALVE
	BACKFLOW PREVENTER
	INSPECTOR TEST AND DRAIN VALVE
	OS&Y GATE VALVE
	OS&Y GATE VALVE WITH MONITOR SWITCH
F	FLOW SWITCH
P	PRESSURE SWITCH
P	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
	MONITOR SWITCH
	AREA BOUNDARY
NO HATCH	LIGHT HAZARD
	ORDINARY GROUP 1
	ORDINARY GROUP 2
	DEMOLITION
	EXTRA GROUP 1
	EXTRA GROUP 2
	SPRINKLER - WALL MOUNTED
	SPRINKLER
	SPRINKLER - CONCEALED
	SPRINKLER
	SPRINKLER
	SPRINKLER
A	SPRINKLER
A	SPRINKLER

FIRE PROTECTION ABBREVIATION KEY

ABBR:	DESCRIPTION:
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
BFP	BACKFLOW PREVENTER
I.E.	INVERT ELEVATION
N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
SCCR	SHORT CIRCUIT CURRENT RATING
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTES

FIRE HYDRANT FLOW TEST DATA

TEST DATE:	12/02/2022
RESIDUAL HYDRANT #:	MUH-188
HYDRANT ELEVATION:	—
LOCATION:	S OF MIDDLEBUSH
STATIC PRESSURE:	60 PSI
RESIDUAL PRESSURE:	50 PSI
FLOW HYDRANT #:	MUH-035
HYDRANT ELEVATION:	—
LOCATION:	S OF MIDDLEBUSH
STATIC PRESSURE:	50 PSI
TOTAL FLOW:	1186 GPM
SIZE OF MAIN:	12"

NORTH 1 **TEST HYDRANT LOCATION**
1/8" = 1'-0"

FIRE PROTECTION GENERAL NOTES:

1. **ALL SPRINKLER WORK IS TO BE DONE AS PART OF ALTERNATE #1 ONLY.**
2. THE SYMBOLS AND THE MATERIAL LIST ARE FOR THE CONVENIENCE OF THE CONTRACTOR. CONTRACTOR SHALL VERIFY QUANTITIES AND FURNISH ALL MATERIALS REQUIRED FOR FULLY OPERATIONAL SYSTEMS, WHETHER SPECIFIED OR NOT.
3. CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE, BUT ARE GIVEN AS AN AID TO THE CONTRACTOR AND TO INDICATE THE QUALITY REQUIRED. CONTRACTOR IS RESPONSIBLE FOR COMPLETE DESCRIPTION OF MATERIAL ON THESE DRAWINGS AND IN THE SPECIFICATIONS BEFORE ORDERING. THE DESCRIPTION OF THE MATERIAL TAKES PRECEDENCE OVER THE CATALOG NUMBER. THE FIRST MANUFACTURER IS THE BASIS OF DESIGN.
4. CENTER SPRINKLERS IN CEILING TILES IN BOTH DIRECTIONS IN ALL AREAS. IN AREAS WITH 2'X4' CEILING TILES CENTERING USING A 2'X2' CEILING PATTERN IS ACCEPTABLE. SPRINKLER HEADS SHALL BE ALIGNED WITH OTHER SPRINKLERS HEADS, LIGHTING, DIFFUSERS, AND ANY OTHER FEATURES IN THE CEILING.
5. NEW SPRINKLERS SHALL BE QUICK RESPONSE TYPE, UNLESS OTHERWISE NOTED. CONTRACTOR SHALL NOT MIX STANDARD RESPONSE SPRINKLERS WITH QUICK RESPONSE SPRINKLERS IN UNPARTITIONED SPACES.
6. PROVIDE COVERAGE ABOVE AND BELOW ALL DUCTWORK GREATER THAN 48" WIDE.
7. PROVIDE COVERAGE ABOVE (IF APPLICABLE) AND BELOW FLOATING CEILINGS, REFER TO ARCHITECTURAL PLANS.
8. FIRE PROTECTION PIPE ROUTING IS SHOWN FOR GENERAL LAYOUT. DETERMINE EXACT NUMBER OF SPRINKLERS, PIPE SIZING, AND PIPE ROUTING.
9. THE FIRE PROTECTION SYSTEM SHALL BE DESIGNED TO MEET OWNER'S INSURANCE COMPANY STANDARDS WHERE APPLICABLE. THE MORE STRINGENT OF THE OWNER'S INSURANCE UNDERWRITER'S DESIGN CRITERIA AND THE NFPA STANDARDS SHALL BE USED.
10. ALL BUILDING AREA SHALL BE FULLY SPRINKLERED INCLUDING CANOPIES, WALKWAYS, OVERHANGS, SOFFITS, AND BUILDING PROJECTIONS. ALL ACCESSIBLE COMBUSTIBLE CONCEALED SPACES SHALL BE FULLY PROTECTED BY THE SPRINKLER SYSTEM.
11. EACH ASSEMBLY SHALL INCLUDE BUTTERFLY CONTROL VALVE INDICATING "OPEN" OR "CLOSED" POSITION, TEST INSPECTION VALVE, FLOW SWITCH AND PRESSURE GAUGES.
12. PROVIDE RISER ROOM IDENTIFICATION SIGNAGE OUTSIDE THE FIRE RISER ROOM. COORDINATE EXACT SIGN LANGUAGE WITH AHJ.
13. WHERE FEASIBLE INSTALL PIPES HIGH AS POSSIBLE TO AVOID CONFLICT WITH OTHER DISCIPLINES, AND TO REDUCE THE AMOUNT OF REQUIRED ROD STIFFENER SUPPORTS.
14. INSTALL SYSTEM DRAINS AT LOW POCKET AREAS CONTAINING FIVE GALLONS OF WATER OR MORE, PROVIDE WITH ISOLATION VALVE AND THREADED HOSE CONNECTION.
15. MAIN PIPING PASSING BELOW SKYLIGHTS OR CLERESTORIES ARE NOT PERMITTED.
16. FOLLOW STRUCTURAL DETAILS WHEN PENETRATING OR PASSING THROUGH STRUCTURAL ELEMENTS. ALTERNATE DESIGNS WILL NEED TO BE APPROVED THROUGH THE STRUCTURAL ENGINEER.
17. PROVIDE INTERMEDIATE TEMPERATURE SPRINKLER HEADS WHERE REQUIRED BY NFPA 13 UNLESS OTHERWISE NOTED.
18. FINAL HEAD LOCATION, TYPE AND FINISH SHALL BE REVIEWED AND APPROVED BY THE ARCHITECT.
19. A GRAPHIC ANNUNCIATOR PANEL SHALL BE PROVIDED TO INCLUDE AREAS BEING PROVIDED WITH A PRE-ACTION OR CLEAN AGENT SYSTEM WHICH HAVE CONCEALED AREAS.
20. EXACT LOCATION OF THE ALL PANELS SHALL BE VERIFIED ON SITE AND COORDINATED WITH THE ELECTRICAL CONTRACTOR.
21. PAINT ALL EXPOSED PIPING TO MATCH BACKGROUND OR AS DIRECTED BY THE ARCHITECT.
22. THE OWNER MUST BE NOTIFIED PRIOR TO EACH AND EVERY DRAINING OR RECHARGING OF THE SPRINKLER SYSTEM.
23. THE CONTRACTOR SHALL PREPARE A COORDINATED SET OF SHOP DRAWINGS AND SHALL OBTAIN APPROVAL FROM THE AUTHORITIES HAVING JURISDICTION AND THE LOCAL FIRE DEPARTMENT PRIOR TO ANY INSTALLATION.
24. DRAWINGS SHOW LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC. AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
25. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS. INCLUDING THOSE OF OTHER TRADES.

FIRE PROTECTION SHEET INDEX

F000	FIRE PROTECTION COVERSHEET
F201	LEVEL 01 PLAN - FIRE PROTECTION
GRAND TOTAL: 2	

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FOR THE CURATORS OF
THE UNIVERSITY OF MISSOURI

LOWRY HALL RENOVATE FIRST FLOOR

PROJECT NUMBER: CP220811

THE UNIVERSITY OF MISSOURI

ISSUED FOR BID

513 S 9th St (at Lowry Mall)
Columbia, MO 65211
United States

DATE:	11/14/2022
PROJ. NO.:	CP220811
DESIGNED BY:	CSB
DRAWN BY:	CSB
CHECKED BY:	SGB
APPROVED BY:	SGB

SEAL:

Phillip I. Parra E-28366
November 14, 2022

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1	Addendum #1	01/03/2023

FIRE PROTECTION COVERSHEET

F000 2

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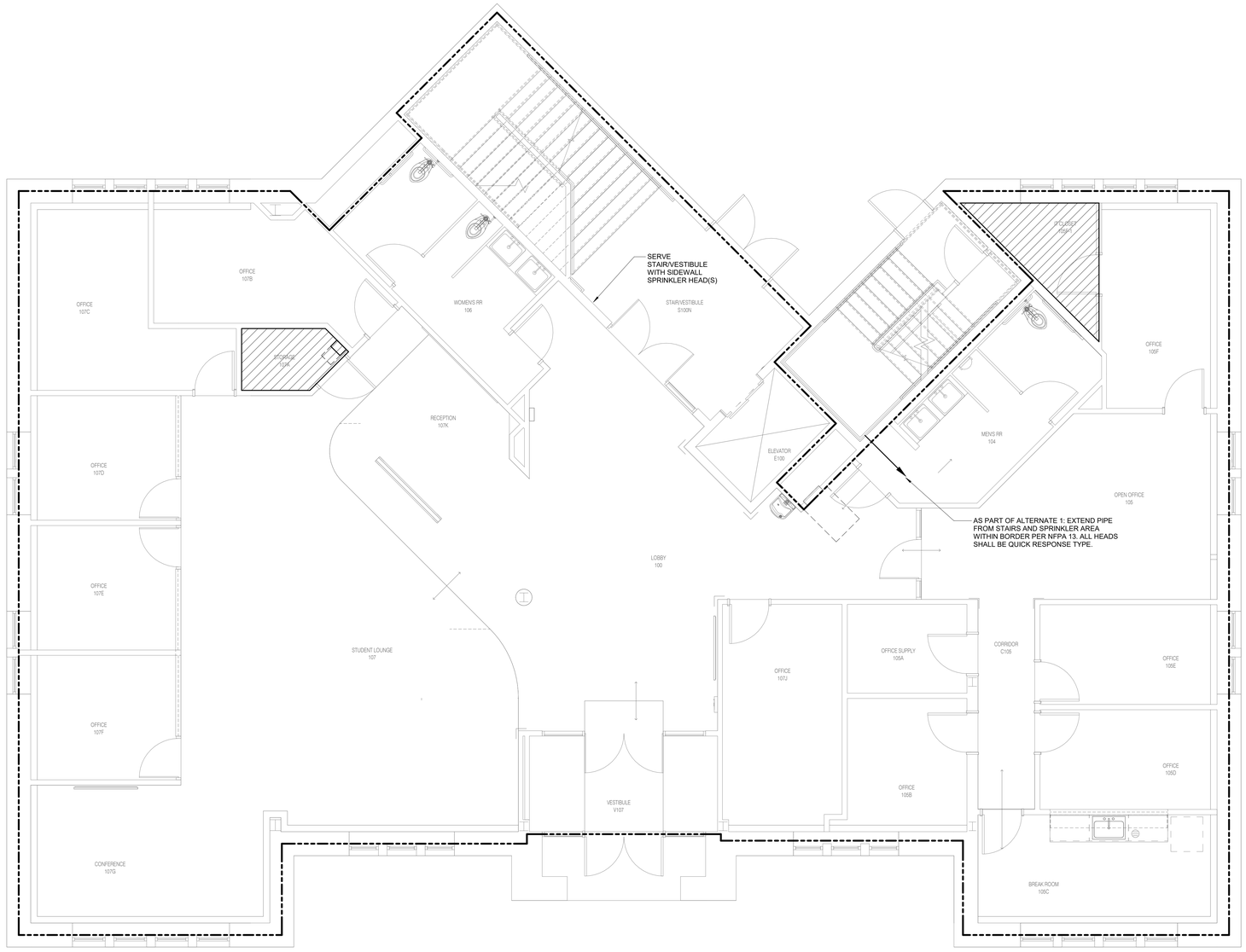

SHEET NOTES:

1. SEE SHEET F000 FOR GENERAL NOTES SYMBOLS AND ABBREVIATIONS
2. ALL SPRINKLER WORK IS TO BE DONE AS PART OF ALTERNATE 1

LEVEL 01 PLAN - FIRE PROTECTION | B6
SCALE: 1/4" = 1'-0"

PLAN NOTES | B1

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SEAL:

STATE OF MISSOURI
PHILLIP I. PARRA
NUMBER E-28366
REGISTERED PROFESSIONAL ENGINEER

Phillip I. Parra E-28366
November 14, 2022

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LEVEL 01 PLAN - FIRE PROTECTION

F201

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