WATSON TATE SAVORY architecture interiors planning

ADDENDUM NO.: ONE

DATE: 17 July 2013

PROJECT TITLE: HORIZON GROUND AND FOURTH FLOOR UPFIT

University of South Carolina State Project No. H27-6081-AC WTS Project No. 11700/ File 7.0

WTS FILE NO.: 11700 / 7.0

WRITTEN BY: John McLean, AIA. LEED AP J. Sanders Tate, AIA LEED AP

TO: Prospective Bidders / Plan Holders

This addendum is issued pursuant to Article 1.1.1 of the AIA General Conditions of the Contract (A201) in connection with the revision of Bidding Documents which have been previously issued.

Addenda are issued prior to execution of Contract. All instructions contained herein shall be reflected in the Contract Sum and this Addendum will be made a part of the Contract Documents, if, as, and when a Construction Contract is awarded.

This Addendum forms a part of the Contract Documents and modifies the original documents dated 17 June 2013 as noted below. Acknowledge receipt of this Addendum in this space provided on the Bid Form. Failure to do so will subject the Bidder to disqualification.

This Addendum consists of 04 pages and the following attachments:

Drawing M5.01	1 sheet
Drawing M6.50	1 sheet
Drawing M6.51	1 sheet
Drawing M6.52	1 sheet
Drawing PP7.40	1 sheet
Drawing EA1.01	1 sheet
Drawing EA1.41	
Drawing EL6.00	
Drawing EP1.01	1 sheet
Drawing EP1.41	1 sheet
Drawing EP1.51	1 sheet
Drawing EP5.64	1 sheet
Drawing EP5.65	1 sheet
Drawing ET3.01	1 sheet
Drawing E6.11	1 sheet
Drawing E6.41	1 sheet
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A. NON-MANDATORY PRE-BID CONFERENCE:

1. See attached Pre-Bid Conference Memorandum and Pre-Bid Sign In sheet for items discussed at Mandatory Pre-Bid Conference held July 16, 2013 and list of attendees.

B. <u>GENERAL INFORMATION</u>

1. Walker White (mechanical subcontractor) provided a marked up drawing M1.31 that shows the under slab plumbing for the Fourth floor overlaying the existing mechanical layout that is in the ceiling of the third floor. Walker White wanted to share this information with everyone to assist in understanding the scope of above ceiling work at the third floor. This drawing is for information only and is not a part of the Contract Documents

C. ADDITIONAL SITE VISITS:

1. Building will be open for Site Visits by bidders on Friday, July 18, 2009 from 10:00 a.m. to 11:00 a.m. Please enter through door at Loading Dock at South Elevation.

D. REVISIONS TO THE PROJECT MANUAL:

1. USC SUPPLEMENTAL GENERAL CONDITIONS FOR CONSTRUCTION PROJECTS

Page 1 of 3, number 1:Parking shall be as described in this paragraph. The designated lay-down area will be the gravel lot to the west of the building. Only gravel lot, not paved or grassed areas will be used.

- 2. ŠECTION 04200 UNIŤ MASONRY
 - A. Article 2.8.E.1: add "e. Hohmann-Barnard"
- 3. SECTION 06402 INTERIOR ARCHITECURAL WOODWORK
 - A. Article 2.1, Paragraph A: under Fabricators add: "7. Any woodwork fabricator that has a current AWI certificate and maintains it through this project."
- 4. SECTION 08000 GLAZING:

1316 Washington Street, Columbia, 29201 803.799.5181

- A. Article 2.8.A Revise heading "Manufacturer:" to read "Manufacturer must meet the fire ratings listed in Flat Glass Schedule and be listed below:"
 B. Article 2.8.A – add "7. SAFTIFIRST"
- 5. SECTION 08710 FINISH HARDWARE
- SECTION 08710 FINISH HARDWARE Replace Section with revised Section as attached to this addendum.
 SECTION 09512 – SUSPENDED PANEL AND TILE CEILING
- Replace Section with revised Section as attached to this addendum.
 SECTION 09650 RESILIENT FLOORING
- Replace Section with revised Section as attached to this addendum
- 8. SECTION 09680 CARPET
- 9. Replace Section with revised Section as attached to this addendum
- 10. SECTION 10155- TOILET COMPARTMENTS
- A. Article 2.1.A Manufacturers: add "8. Accurate Partitions"
- 11. SECTION 10801 TOILET AND BATH ACCESSORIES
 - A. Article 2.2.D.1 add "Saniflow is an approved equal manufacturer."
- 12. SECTION 12345 METAL LABORATORY CASEWORK AND FUME HOODS
 - A. Prior Approvals : Air Master Systems is an acceptable manufacturer as provided. They meet all specifications. Refer to specification section 11600.2.1.A that states: "The Naming of manufacturer(s) and designation of product is for the purpose of identifying and describing required product and not to limit competition. Other manufacturers capable of producing the same appearance and having the same quality, durability, and performance may be proposed for use on this project subject to Architect's approval, unless noted otherwise. Other approved manufacturers are responsible for all adjustments required to fit their products to the work at no additional cost. Fume hoods shall be provided with adjustable baffles as specified.
 - B. Prior Approvals : Labconco is an acceptable manufacturer as provided. They meet all specifications. Refer to specification section 11600.2.1.A that states: "The Naming of manufacturer(s) and designation of product is for the purpose of identifying and describing required product and not to limit competition. Other manufacturers capable of producing the same appearance and having the same quality, durability, and performance may be proposed for use on this project subject to Architect's approval, unless noted otherwise. Other approved manufacturers are responsible for all adjustments required to fit their products to the work at no additional cost. Fume hoods shall be provided with adjustable baffles as specified.

13.SECTION 12346 - WOOD LABORATORY CASEWORK

Prior Approvals - Cabinet by Design is an acceptable manufacturer as provided. They meet all specifications. Refer to specification section 11600.2.1.A that states: "The Naming of manufacturer(s) and designation of product is for the purpose of identifying and describing required product and not to limit competition. Other manufacturers capable of producing the same appearance and having the same quality, durability, and performance may be proposed for use on this project subject to Architect's approval, unless noted otherwise. Other approved manufacturers are responsible for all adjustments required to fit their products to the work at no additional cost.

14.SECTION 15221 - CHEMICAL WASTE PIPING

A. Replace Section with revised Section as attached to this addendum

15. SECTION 15550 – GENERATOR EXHAUST

A. Paragraph 2.1.A: Add MetalFab as acceptable manufacturer.

16.SECTION 16055 - OVERCURRENT PROTECTIVE DEVICE COORDINATION

A. Replace Section with revised Section as attached to this addendum

REVISIONS TO DRAWINGS:

1.Replace Drawings listed as attachment to this addendum with revised Drawings that are a part of this addendum.

END OF ADDENDUM

PRE-BID CONFERENCE MEMORANDUM

DATE:	17 July 2013
DATE OF MEETING:	16 July, 2013 10:00 a.m.
LOCATION OF MEETING:	USC FACILITIES & PLANNING 743 Greene Street Columbia, SC
TO:	File
FROM:	J. Sanders Tate, AIA, LEED AP
RE:	HORIZON GROUND AND FOURTH FLOORS UPFIT University of South Carolina State Project No. H27-6081-AC WTS Project No. 11700/ File 7.0
SUBJECT:	Non – Mandatory Pre-Bid Conference
ATTENDING:	See attached sign-in sheet

- A. Pete Fisher of USC opened the meeting verifying that this was a non-mandatory pre-bid meeting and introduced Juaquana Brookins with USC and Sanders Tate with Watson Tate Savory. Juaquana then reviewed the requirements of the <u>Manual For Planning and Execution of State Permanent Improvements</u>, Part II, Chapter 6 and provided Bidders information for submitting a responsive bid:
 - 1. Bid date is Thursday, August 1 at 2:00 p.m. at USC Facilities & Planning Office Room 53 at 743 Greene Street, Columbia.. No bids received after 2:00 will be opened and Bidders are urged to arrive a few minutes early and check the clock inside the room.
 - 2. Bids shall be hand delivered or mailed. Bids shall be addressed to Michelle Adams as noted on the SE-310 Invitation for Bids included in the project manual.
 - 3. The Bid Security is 5% of the Base Bid amount and must be included with the bid. Bid Security must be submitted with the bid on the AIA A310 form included in the project manual, by electronic bid bond, or by certified cashier check.
 - 4. Modifications to bids made on the outside envelope of the bid will not be considered.
 - 5. Successful bidder will be required to provide Payment and Performance bonds on the forms provided in the project manual.
 - 6. Successful bidder will be required to provide Builder's Risk insurance as specified in the Bidding Documents.

- 7. Contractors should review AIA Instructions to Bidders and 00201-OSE Standard Supplementary Instructions to Bidders for a list of items which may cause bids to be considered non-responsive. These items include but or not limited to:
 - a. Bid delivered late
 - b. Bid Security not attached
 - c. Qualification of Bid
 - d. Subcontractors not listed
 - e. Addenda not acknowledged
- B. Juaquana Brookins and Sanders Tate with Watson Tate Savory reviewed specific bidding requirements:
 - 1. Substitution requests must be received by Watson Tate Savory no later than 6:00 p.m. on Monday, July 22, 2013, to allow substitution approvals to be issued by addenda.
 - 2. Friday, July 26, 2013 by midnight is the last day for Addenda to be issued by the Architect, except to change the date of the bid.
 - 3. Contract Time and Liquidated Damages requirements on the Bid Form were reviewed.
 - 4. Contract time for Base Bid is 270 days.
 - 5. Liquidated damages are \$500.00 per day Substantial Completion
 - 6. Subcontractors shall be listed for disciplines listed on Bid Form (Air Conditioning Installer, Electrical Installer, and Heating installer)
 - 7. The subcontractors required are to be listed individually. If the General Contractor intends to perform the listed work themselves, then list the name of the General Contractor in the space provided. All subcontractors to be properly licensed at the time of the bid. If two companies are performing the work the work "and" should be used not "or".
- C. Sanders Tate with WTS reviewed project conditions:
 - 1. Finished locations at the building: 4 story Building Lobby, Stair @ located in NE corner of building and Elevator Lobbies at the north passenger building will be off limits to the Upfit Contractor. Floors 1,2, and 3 are off limits to the Upfit Contractor accept for access coordinated with USC.
 - 2. Larger utility elevator and Stair No. 3 at the South end of the building will be allowed to be used by the Upfit Contractor.
 - 3. No toilet facilities are provided by the Owner.
 - 4. All utility disruptions in the occupied building will need to be scheduled in advance with USC.
 - 4. At least one addendum will be issued. Bidders are responsible for getting all addenda from the USC purchasing website.
- D. Attendees were invited to visit the site after the meeting. Building will be open for an additional site visit on Friday, July 19, 2013 from 10:00 a.m. to 11:00 a.m.

Attachments: Pre-Bid Conference sign-in sheets

END OF MEMORANDUM

Horizon Ground & Fourth Floors Upfit/H27-6081-AC Project Name & Number: Pre Bid

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* By signing and providing your email address, you are authorizing the University of South Carolina to send you information electronically.

Horizon Ground & Fourth Floors Upfit/H27-6081-AC Project Name & Number: Pre Bid Date & ⁻

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Horizon Ground & Fourth Floors Upfit/H27-6081-AC July 16, 2013 @ 10am Project Name & Number: Pre Bid Date & Time:

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Horizon Ground & Fourth Floors Upfit/H27-6081-AC July 16, 2013 @ 10am Project Name & Number:

Pre Bid Date & Time:

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* By signing and providing your email address, you are authorizing the University of South Carolina to send you information electronically.

Addendum 1 Electrical RFI SSOE Responses

ET3.01 General Note:

A states, " Owner to provide and pull Cat6 Cable. Build out data closet, and punch down. Electrical Contractor to provide and install all conduit, cable tray, wall penetrations, sleeves......support infrastructure." This is correct

Also in <u>Spec 16715 Part 1.2.C.</u> All cables and related terminations, data closet provisioning for V/D/CATV, support and grounding hardware shall be furnished, installed, wire, tested, labeled, and documented by USC University Technology Services as detailed in this document.....**This is** correct

- G. V/D Contractor is responsible for sleeving and sealing openings Revise "Voice/Data Cabling Installer" to "Electrical Contractor"
- K. V/D installer must take care to fasten cables... Revise "Voice/Data Cabling Installer" to "Owner"
- L. The Voice and Data Contractor shall terminate and label each new cable... Revise "Voice/Data Cabling Installer" to "Owner". Also item M, N, P, and Q shall be revised from "Voice/Data Cabling Installer" to "Owner"
- Is note A and spec 16715 Part 1.2.C. a misprint? Should our trade be responsible for the complete purchase and installation of cabling system? There are many contradictions referencing our responsibility/their responsibility. Please advise. Electrical Contractor scope is limited and USC will be responsible for all items as indicated in Note A and Spec 16715 part 1.2.C.

SECTION 08710 - FINISH HARDWARE

PART 1 - GENERAL

- 1.1 RELATED DOCUMENTS:
 - A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division - 1 Specification sections, apply to work of this section.
 - B. Hollow metal frames are specified with door frames elsewhere in Division 8.
 - C. Aluminum entrance doors are specified elsewhere in Division 8.
 - D. Wood doors are specified elsewhere in Division 8.
 - E. Paint Division 9.
 - F. Electrical Section Division 16.

1.2 DESCRIPTION OF WORK:

- A. Definition: "Finish Hardware" includes items known commercially as finish hardware which are requested for swinging, sliding and folding doors, except special types of unique and non-matching hardware specified in the same section as the door and door frame.
- B. Extent of finish hardware required is indicated on drawings and in schedules.

1.3 QUALITY ASSURANCE:

- A. Supplier: A recognized architectural finish hardware supplier, with warehousing facilities, who has been furnishing hardware in the project's vicinity for a period of not less than 2 years, and who is available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor.
- B. Fire-Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80 and local building code requirements. Provide only hardware which has been tested and listed by UL or FM for types and sizes of doors required and complies with requirements of the door and door frame labels.
- C. Americans with Disabilities Act (ADA): Provide and install finish hardware in accordance with requirements of Americans with Disabilities Act (ADA). Specifically, comply with ADA sections relating to accessibility and usability.

Notification of Architect: Before installation of finish hardware, notify Architect of any Contract Document requirements that are suspected to be in noncompliance

with ADA.

ANSI Standards for Physically Handicapped: Finish Hardware shall comply with: A American National Standard for Buildings and Facilities -- Providing Accessibility and Usability for Physically Handicapped People@ (ANSI A117.1-1986). 1986 edition, by American National Standards Institute, Inc.; New York, New York. Before installation of finish hardware, Notify Architect of any Contract Document requirements that are suspected to be in noncompliance with ANSI A117.1-1986. In addition, before installation of finish hardware, notify Architect of conflicting requirements of ADA and ANSI A117.1-1986.

1.4 SUBMITTALS:

- A. Product Data: Submit manufacturers technical product data for each item of hardware in accordance with Division-1 section "Submittals". Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finish.
- B. Vertical Hardware Schedule: Submit final hardware schedule in manner indicated below. Coordinate hardware with doors, frames, and related work to ensure proper size, thickness, hand, function and finish of hardware.
 - 1. Final Hardware Schedule Content: Based on finish hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:
 - a. Type, style, function, size and finish of each hardware item.
 - b. Name and manufacturer of each item.
 - c. Fastening and other pertinent information.
 - d. Location of hardware set cross-referenced to indications on Drawings both on floor plans and in door schedule.
 - e. Explanation of all abbreviations, symbols, codes, etc. contained in schedule.
 - f. Door and frame sizes and materials.
 - g. Keying information.
- C. Submittal Sequence: Submit schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work (e.g.,hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by finish hardware, and other information essential to the coordination review of hardware schedule.
- D. Templates: Furnish hardware templates to each fabricator of doors, frames, and other work being factory-prepared for the installation of hardware. Upon request, check shop drawings of other such others work to confirm that adequate provisions are made for proper location and installation of hardware.
- E. Wiring Diagrams: Furnish wiring diagrams, include elevation drawings and

operation narrative.

F. Operations and Maintenance Data: After installation, representative templates, instructions sheets and installation details shall be provided to the owner when building is accepted. Include one copy of each hardware schedule, keying and wiring diagrams.

1.5 PRODUCT HANDLING:

- A. Tag each item or package separately, with identification related to final hardware schedule, and include basic installation instructions with each item or package.
- B. Packaging of hardware, is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packaged in the same container.
- C. Inventory hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.
- D. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.

PART 2 - PRODUCTS

- 2.1 SCHEDULED HARDWARE:
 - A. Requirements for design, grade, function, finish, size and other distinctive qualities of each type of finish hardware is indicated in the Hardware Schedule at the end of this section. Products are identified by using hardware designation numbers of the following.
 - 1. Manufacturer's Product Designations: One or more manufacturers are listed for each hardware type required.
 - Warranty: Provide published warranties in accordance this Section . LOCKSETS: 5 years DOOR CLOSERS: 10 years EXIT DEVICES: 5 years OTHER HARDWARE: One year
 - 3. Maintenance Materials: Provide special wrenches and tools applicable to each different or special hardware component. Provide maintenance tools and accessories supplied by hardware component manufacturer to owner representative.

2.2 ACCEPTABLE MANUFACTURES:

 A. Hinges: PBB Inc., Hager, McKinney Locksets: Corbin Russwin ML2000 LWA, Sargent 8200 LNJ, Yale 8800CRR Cylinders: INTERCHANGEABLE Exit Device: Corbin Russwin, Yale Electronic locks: Corbin Russwin, Sargent, Yale Closers: Corbin Russwin, Norton, Sargent, Yale Overhead stops and pivots: Rixson Flat Goods: McKinney, Trimco, Rockwood, McKinney Gasketing: McKinney, Pemko, Reese, Zero

Substitutions: In accordance with Instructions to Bidders.

- Β.
- 1. Provide closers with the following functions: Unitrol shock absorber foot, independent sweep, fast latch, hydraulic check AV@ grooved valves, accessibility by Handicapped, delay action, adjustable spring tensions. Closers must meet barrier free requirements. Closers must have two-tooth engagement rack and pinion. All valves must be accessible without removing closer from the door. Cover must not have slotted cover. Cover must be secured with screw holes in cover. Provide installation and sizing instructions in cover.
- 2. Closers shall have cast aluminum alloy shell. Closer shall be surface mounted and shall project no more than 2 1/8" from the surface of the door. Closer shall be non-handed. Closers shall be mounted on side of door not seen from common area.
- 3. Exit Devices (as scheduled) "touchbar" Provide all exposed surfaces same material and finish. Exit device must have free wheeling outside trim when device is locked. Touch bar must not protrude from housing when pad is compressed.
- 4. Latchbolt shall be investment cast stainless steel pullman type with 3/4" throw. All devices to be furnished with auxiliary dead-latching mechanism. Roller strike shall be furnished.
- 5. Unless otherwise specified. Vandal resistant outside lever escutcheon trim shall be heavy duty cold forged constructed incorporating four threaded studs for through-bolting. All escutcheon trim shall be UL listed and constructed with beveled edges. Rigid levers while locked or manual type clutch mechanisms are not acceptable.
- 6. Exit Devices must be proper height and width.
- 7. Hinges must be proper weight and size for door width and thickness.

2.3 MATERIALS AND FABRICATION:

General:

A. Hand of Door: Drawings show direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.

- B. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacture's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units by applicable ANSI A 156 series standard for each type hardware item and with ANSI A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.
- C. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated.
- D. Furnish screws for installation, with each hardware item. Provide Phillips flathead screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of such other work as closely as possible, including "prepared for paint" in surfaces to receive painted finish.

2.4 LOCK CYLINDERS AND KEYING:

- A. General: Supplier will meet with Owner to finalize keying requirements and to obtain final instructions in writing.
- B. Comply with Owner's instructions for master keying and except as otherwise indicated, provide individual change key for each lock which is not designated to be keyed alike with a group of related locks.
 - 1. Permanently inscribe each key with number or lock that identifies cylinder manufacturer key symbol, and notation "DO NOT DUPLICATE".
- C. Key Material: Provide keys of nickel silver only.
- D. Key Quantity: Furnish 2 change keys for each lock.
 - 1. Deliver permanent keys to Owner's representative.
 - 2. Factory construction key project.

2.5 HARDWARE FINISHES:

- A. Provide matching finishes for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door opening. In general, match items to the manufacture's standard finish for the latch and lockset or (push-pull units if no latch-lock sets) for color and texture.
- B. Provide finishes which match those established by BHMA.
- C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's

standards, but in no cases less than specified for the applicable units of hardware by referenced standards.

D. Provide unless specified in schedule. 652 satin chrome plated on steel US26D 626 satin chrome plated on brass or bronze US26D 630 satin stainless steel US32D 689 satin aluminum sprayed AL PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware institute, except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect.
- B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface preparations with finishing work specified in Division 9 sections. Do not install surface-mounted items until finishes have completed on the substrate.
- C. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- D. Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- E. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant.

3.2 ADJUST AND CLEAN:

- A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made at no expense to the Owner.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

PART 4 SCHEDULE

HARDWARE SET 1 H006, H008, H406A, H407

EA	CH TO HAVE:	
6	BUTTS	TA2714 4 2 X 4 2 652
1	EXIT DEVICE	ED5470 B M55 + L955 + M67 630
1	EXIT DEVICE	ED5470 B M55 + M67 630
1	RIM CYL	1E72 626
2	CLOSER	CLP7500 + 2022 SNB 689
2	KICK PLATE	8 X 2 LDW 0.050 630
1	SMOKE SEAL	S77D
AS	TRAGAL BY DOO	R MANUFACTURE IF NEEDED

HARDWARE SET 2 H006A, H007A, H007B, H406B, H406C

EACH TO HAVE:

6	BUTTS	T4A3786 4 2 X 4 2 652				
2	EXIT DEVICE	ED5470 B M55 W048 630				
2	CLOSER	CLP 7500 + SNB 689				
2	KICK PLATE	8 X 2 LDW .050 630				
1	SMOKE SEAL	S77D				
AS	ASTRAGAL BY DOOR MANUFACTURE IF NEEDED					

HARDWARE SET 3 414, 416, 419, 424B

EACH TO HAVE:

3	BUTTS	TA2714 4 2 X 4 2 652
1	LOCKSET	ML2057 LWA 630 LC
1	MORTISE CYL	1E74 626
1	CLOSER	CLP7500 SNB 689
1	KICKPLATE	8 X 2 LDW.050 630
1	SMOKE SEAL	S77D

HARDWARE SET 4

008, 009, 010, 011, 012, 013, 014, 015, 016, 017, 018, 019, 022A, 023A, 037A, 037B, 038, 401, 402, 403, 404, 407, 408A, 410A, 411A, 412A, 412B, 412C, 412D, 412F, 424A, 424C, 424D, 424F, 425, 426, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439

EACH TO HAVE:

3	BUTTS	TA2714 4 2 X 4 2 652
-1	LOCKSET	

- LOCKSET ML2051 LWA 630 LC 1 1 MORTISE CYL 1E74 626
- WALL or FLOORSTOP 403 or 441CU 630 1 608
- 3 SILENCER

Note coordinate strike plate LIP with aluminum frame depth

HARDWARE SET 5 HORIZON I GROUND & FOURTH UPFIT BETA RESEARCH FACILITY CONSTRUCTION WTS NO.: 11700

McKINNEY C/R C/R BEST NORTON ROCKWOOD PEMKO

McKINNEY C/R NORTON ROCKWOOD PEMKO

McKINNEY C/R BEST NORTON ROCKWOOD PEMKO

McKINNEY C/R BEST ROCKWOOD ROCKWOOD 004, 005, 405, 406

EACH TO HAVE:

HARDWARE SET 6

3	BUTTS	TA2714 4 2 X 4 2 652
1	PUSH PLATE	70C 4 X 16 630
1	PULL PLATE	105 X 70C 4 X 16 630
1	CLOSER	7500 SNB 689
1	KICK PLATE	8 X 2 LDW .050 630
1	WALL STOP	403 630
3	SILENCER	608

McKINNEY ROCKWOOD ROCKWOOD ROCKWOOD ROCKWOOD ROCKWOOD

416A EACH TO HAVE: BUTTS TA2714 4 2 X 4 2 652 **McKINNEY** 3 1 LOCKSET ML2051 LWA 630 LC C/R 1 MORT CYLINDER 1E74 626 BEST CLOSER CLP7500 689 NORTON 1 1 KICK PLATE 8 X 2 LDW .050 630 McKINNEY 3 SILENCER 608 ROCKWOOD HARDWARE SET 7 021E, 024, 032A, 420A, 421B

EACH TO HAVE:

6 BUTTS TA2714 4 ¹/₂ X 4 2 652 1 SET AUTO FLUSHBOLTS 1942 626 1672 600 COORDINATOR 1 2 MOUNTING BRKTS 1601 600 DUST PRF STRIKE 570 626 1 1 LOCKSET ML2051 LWA 630 LC MORT CYLINDER 1E74 626 1 2 CLP 7500 689 CLOSER 2 KICK PLATE 8 X 2 LDW .050 630

1 SMOKE SEAL S77D

HARDWARE SET 8 006, 007A, 021B, 025, 026, 027, 029A, 030A, 031A, 415, 417, 417A, 418, 420B, 421A

EACH TO HAVE:

6	BUTTS	TA2714 4 ½ X 4 ½ 652	
2	FLUSH BOLTS	555 626	
1	DUST PROOF STK	570 626	
1	LOCKSET	ML2051 LWA 630 LC	
1	MORT CYLINDER	1E74 626	
1	DOOR CLOSER	7500 SNB 689	
1	KICK PLATE	8 X 2 LDW .050 630	
1	SMOKE SEAL	S77D	
HORIZON I GROUND & FOURTH UPFIT			
BETA RESEARCH FACILITY CONSTRUCTION			
WTS NO.: 11700			

McKINNEY ROCKWOOD ROCKWOOD C/R BEST NORTON ROCKWOOD PEMKO

McKINNEY

ROCKWOOD

ROCKWOOD

ROCKWOOD

ROCKWOOD

ROCKWOOD

C/R

BEST

NORTON

PEMKO

NOTE: IN FIRE LABEL OPENINGS SUBSTIUTE 1502 4 ½ X 4 ½ 652 SPRING HINGE FOR TA2714 4 ½ X 4 ½ 652 BUTTS ON INACTIVE LEAF OF PAIR.

HARDWARE SET 9 020A, 020B, 028, 032B, 416A

EACH TO HAVE:

3	BUTTS	TA2714 4 ½ X 4 2 652
1	LOCKSET	ML2051 LWA 630 LC
1	MORT CYLINDER	1E74 626
1	OH STOP	9 ADJ -336 652
1	KICK PLATE	8 X 2 LDW .050 630
3	SILENCER	608

HARDWARE SET 9A 007C

EACH TO HAVE:

3	HW HINGE	T4A3786 5 X 4 ½ 652
1	LOCKSET	ML2057 LWA 630 LC
1	MORT CYLINDER	1E74 626
1	SMOKE CLOSER	7204 MPO 689
1	KICK PLATE	8 X 2 LDW .050 630
1	SMOKE SEAL	S77D

NOTE: SMOKE CLOSER MUST BE CONNECTED TO FIRE ALARM SYSTEM.

HARDWARE SET 10 ST03C

EACH TO HAVE:

3	BUTTS	TA2714 4 ½ X 4 ½ 652	McKINNEY
1	EXIT DEVICE	ED5200A + L955 M54 630	C/R
1	RIM CYLINDER	1E72 626	BEST
1	CLOSER	7500 – 2022 SNB 689	NORTON
1	KICKPLATE	8 X 2LDW .050 630	ROCKWOOD
1	WALL STOP	403 626	ROCKWOOD
3	SILENCER	608	ROCKWOOD

HARDWARE SET 11 V003 ALL HARDWARE BY DOOR MANUFACTURE

HARDWARE SET 12 020C, 020D, 021A, 021F, 022B, 023B, 029B, 030B, 031B, 040, 408B, 410B, 411B, 412E, 417B, 420C, 420D, 421C, 421D, 424E

EACH TO HAVE: 3 BUTTS TA2714 4 ½ X 4 ½ 652 HORIZON I GROUND & FOURTH UPFIT BETA RESEARCH FACILITY CONSTRUCTION WTS NO.: 11700

McKINNEY

McKINNEY

McKINNEY

C/R BEST NORTON ROCKWOOD PEMKO

C/R BEST RIXSON ROCKWOOD ROCKWOOD

08710 - 9

1	LOCKSET	ML2051 LWA 630 LC
1	MORT CYLINDER	1E74 626
1	CLOSER	CLP 7500 689
1	KICK PLATE	8 X 2 LDW .050 630
1	SMOKE SEAL	S77D

C/R BEST NORTON ROCKWOOD PEMKO

EXISTING

ST02, ST03B, V002, H004, 001, 002, 003, 033, 033A, 034, 035A, 035B, 036, 039A, 039B, ST401, ST402, ST403, H401, H405, 413, 427, 440.

END OF SECTION 08710

SECTION 09512 – SUSPENDED PANEL AND TILE CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes acoustical tiles and concealed suspension systems for ceilings.

1.2 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Coordination Drawings: Drawn to scale and coordinating penetrations and ceilingmounted items. Show the following:
 - 1. Ceiling suspension assembly members.
 - 2. Method of attaching hangers to building structure.
 - 3. Size and location of initial access modules for acoustical tile.
 - 4. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.
- C. Samples: For each acoustical tile, for each concealed suspension system member, and for each color and texture required.
- D. Product test reports.
- E. Research/evaluation reports.
- F. Maintenance data.

1.3 QUALITY ASSURANCE

- A. Acoustical Testing Agency Qualifications: An independent testing laboratory or an NVLAP-accredited laboratory.
 - 1. Surface-Burning Characteristics: Acoustical tiles complying with ASTM E 1264 for Class A materials, when tested per ASTM E 84.
- B. Seismic Standard: Comply with the following:
 - 1. ASTM E 580.
 - 2. IBC site category "C".

1.4 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Ceiling Units: Full-size units equal to 1.0 percent of quantity installed, but not fewer than 400 square feet of tile.
 - 2. Suspension System Components: Quantity of each concealed grid and exposed component equal to 1.0 percent of quantity installed, but not fewer than 400 square feet of grid.

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PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
- B. Products: Subject to compliance with requirements, provide one of the products specified.
- 2.2 GENERAL
 - A. Acoustical Tile Standard: Comply with ASTM E 1264.
 - B. Metal Suspension System Standard: Intermediate Duty System, comply with ASTM C 635.
 - C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated.
 - D. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire; ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 - 1. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- (2.69-mm-) diameter wire.
 - E. Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical tile edge details and suspension systems indicated; formed from sheet metal of same material and finish as that used for exposed flanges of suspension system runners.
 - 1. Ceiling systems designed to meet requirements for installation in IBC site category "C".
- 2.3 ACOUSTICAL CEILING TILES-TYPE 1: ACT 1
 - A. Ceiling Type I Products:
 - 1. Armstrong; Optima Tegular 3250 2x2
 - 2. BPB; Capaul Symphony F 1342B OVT- 1 2x2
 - 3. USG; Halcyon S/L 98223
 - 4. Equal product approved during bidding process.
 - B. Color: White for acoustical tile.
 - C. LR: Not less than .85.
 - D. NRC: Not less than .90, Type E-400 mounting per ASTM E 795.
 - E. Edge Detail: Beveled, and rabbeted.
 - F. Thickness: 1 inch.

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- G. Size: As indicated on Drawings.
- H. Sag Warranty: Minimum of 10 years.
- 2.4 METAL SUSPENSION SYSTEM
 - A. Products:
 - 1. Manufacturer's standard system by ceiling manufacturer for seismic category "C".
 - B. Direct-Hung Suspension System: Intermediate structural classification for seismic category "C".
 - C. Wall molding shall br Donn MS 154 Shadow Molding or equivalent from tile manufacturer
- 2.5 ACOUSTICAL CEILING TILES TYPE : ACT 2
 - A. Ceiling Type 2 Products:
 - 1. Basis of Design Manufacturers:
 - a. Armstrong; Clean Room Mylar 1715 with Armstrong Prelude 7300 ID Grid and 7800 Wall Molding and .55 NRC.
 - b. USG; Clean Room Clima Plus 56060 with Donn DX 24 ID Grid and M7 Wall Molding and .55 NRC.
 - c. Equal product approved during bidding process.
 - B. Classification: Tile, Type IV, Mineral base with membrane-faced overlay; Form 2, water felted.
 - 1. Pattern E.
 - C. Color: White.
 - D. LR: Not less than .79.
 - E. NRC: Not less than 0.55, Type E mounting per ASTM E 795.
 - F. CAC: Not less than 0.35.
 - G. Edge Detail: Square edge.
 - H. Thickness: ³/₄ inch.
 - I. Size: 2' x 2'.
 - J. Mold/Mildew Inhibitor: Mildecide treatment on face and back of tile to inhibit growth of mold and mildew.
 - K. Sag Warranty: Minimum of 10 years.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install acoustical tile ceilings to comply with ASTM C 636 and seismic requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook." Owner's building inspector will inspect seismic required bracing and suspension.

- B. Measure each ceiling area and establish layout of acoustical tiles to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width tiles at borders.
- C. Suspend ceiling hangers from building's structural members, plumb and free from contact with insulation or other objects within ceiling plenum. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers, use trapezes or equivalent devices.
 - 1. Do not support ceilings directly from permanent metal forms or floor deck; anchor into concrete slabs.
 - 2. Do not attach hangers to steel deck tabs or to steel roof deck.
 - 3. Do not disturb existing sprayed fire proofing material. Notify General Contractor if any fireproofing material is accidentally disturbed so repairs can be made.
- D. Install edge moldings and trim at perimeter of acoustical tile ceiling area and where necessary to conceal edges of acoustical units. Screw attach moldings to substrate with concealed fasteners at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet (3.2 mm in 3.66 m). Miter corners accurately and connect securely.
- E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- F. Install acoustical tiles in coordination with suspension system and exposed moldings and trim. Place splines or suspension system flanges into kerfed edges so tile-to-tile joints are closed by double lap of material. Fit adjoining tile to form flush, tight joints. Scribe and cut tile for accurate fit at borders and around penetrations through tile. Hold tile field in compression by inserting leaf-type, spring-steel spacers between tile and moldings, spaced 12 inches (305 mm) o.c.

END OF SECTION 09512

SECTION 09650 - RESILIENT FLOORING

PART 1 - GENERAL

- 1.1 SECTION INCLUDES
 - A. Resilient tile flooring and base.
- 1.2 SYSTEM DESCRIPTION
 - A. Floor Materials: Conform to applicable code for flame/fuel/smoke rating requirements of Class "A" interior finish in accordance with ASTM E84.
- 1.3 SUBMITTALS
 - A. Submit color chips from manufacturer's premium line of colors for initial selection.
- PART 2 PRODUCTS
- 2.1 TILE MATERIALS
 - A. Manufacturers
 - 1. Tarkett.
 - 2. Azrock.
 - 3. Armstrong.
 - 4. Equal product approved during the bidding period
 - B. Vinyl Composition Tile: FS SS-T-312, Type IV Composition 1; 12 x 12 inch size; 1/8" thick, marbleized design.

2.2 BASE MATERIALS

- A. Manufacturer: Roppe 701 Series or approved equivalent.
- B. Base: FS SS-W-40; rubber, 4" high, 1/8" thick; top set coved.
- C. Base Accessories: Premolded end stops and external corners of same material, size and color as base.

2.3 ACCESSORIES

- A. Sub-floor filler: Type recommended by floor material manufacturer.
- B. Primers and Adhesives: Waterproof, type recommended by floor material manufacturer.
- C. Edge Strips: Flooring material.
- D. Sealer and Wax: Types recommended by floor material manufacturer.

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2.4 COLORS

- A. Tile Flooring: Color as selected.
- B. Base: Color as selected.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Verify that substrate surfaces are smooth and flat with maximum variation of 3/16" in 10 ft.
- B. Verify concrete floors are dry to a maximum moisture content of 7%, and exhibit negative alkalinity, carbonization and dusting.
- C. Fill low spots and other defects with sub-floor filler
- D. Vacuum clean substrate.
- E. Apply primer to surfaces.
- 3.2 INSTALLATION TILE MATERIAL
 - A. Install in accordance with manufacturer=s instructions.
 - B. Spread adhesive and set flooring in place. Press with heavy roller to attain full adhesion.
 - C. Install tile flooring with joints and seams parallel to building lines.
 - D. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar. Install edge strips where flooring terminates.
 - E. Scribe flooring to appurtenances to produce tight joints.
- 3.3 INSTALLATION
 - A. Adhere base tight to wall and floor surfaces.
 - B. Fit joints tight and vertical. Miter internal corners. At external corners, V-cut back of base strip to 2/3 of its thickness and fold.
- 3.4 CLEANING
 - A. Remove excess adhesive from surfaces without damage.
 - B. Clean, seal and wax surfaces in accordance with manufacturer's instructions.

HORIZON I GROUND & FOURTH FLOORS UPFIT BETA RESEARCH FACILITY CONSTRUCTION STATE PROJECT NO.: H27-6081-AC / WTS PROJECT NO.: 11700 C. Protect floors until Substantial Completion

END OF SECTION 09650

SECTION 09680 - CARPET

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes carpet and installation.
- B. Provider/Installer review and understand patterns, seaming, repeats etc. in sufficient detail for floor plans to insure all these variables are covered in bid provided.

1.2 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Shop Drawings: Include the following:
 - 1. Seam locations.
 - 2. Pattern type, repeat, location, direction, and starting point.
 - 3. Pile direction.
 - 4. Insets and borders.
 - 5. Transition, and other accessory strips.
 - 6. Transition details to other flooring materials.
- C. Samples: For each for each carpet, exposed accessory and for each color and pattern required.
- D. Product Schedule: Use same room and product designations indicated for offices and corridors.
- E. Maintenance data.
- 1.3 QUALITY ASSURANCE
 - A. Installer Qualifications: A qualified installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.
- 1.4 DELIVERY, STORAGE, AND HANDLING
 - A. Comply with CRI 104, Section 5, "Storage and Handling."
- 1.5 PROJECT CONDITIONS
 - A. General: Comply with CRI 104, Section 6.1, "Site Conditions; Temperature and Humidity."
 - B. Environmental Limitations: Do not install carpet until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

- C. Do not install carpet over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet, install carpet tile before installing these items.

1.6 WARRANTY

A. Carpet Warranty: Manufacturer's standard form in which manufacturer agrees to replace carpet that does not comply with requirements or that fails within 10 years from date of Substantial Completion. Warranty does not include deterioration or failure of carpet from unusual traffic, failure of substrate, vandalism, or abuse. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, and delamination.

PART 2 - PRODUCTS

2.1 CARPET

- A. Install pattern in direction to minimize seams but keep pattern consistent in a corridor or room..
 - a. Offices and other rooms called for carpet other corridors: Bentley Prince Street 4TS240620R "Tall Story"
 - b. Corridors: Bentley Prince Street 8NH300630R – "New Gotham"

PART 3 - EXECUTION

- 3.1 INSTALLATION
 - A. Comply with CRI 104, Section 8, "Direct Glue-Down."
 - B. Maintain uniformity of carpet direction and lay of pile. At doorways, center seams under door in closed position. Bind or seal cut edges as recommended by carpet manufacturer.
 - C. Protect new flooring until Substantial Completion.

END OF SECTION 09680

SECTION 15221 - CHEMICAL-WASTE PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes piping and specialties for the following systems:
 - 1. Chemical-waste and vent, gravity-flow, nonpressure piping system designated "chemical waste."

1.3 DEFINITIONS

- A. HDPE: High-density polyethylene plastic.
- B. PVDF: Polyvinylidene fluoride plastic.

1.4 PERFORMANCE REQUIREMENTS

- A. Gravity-Flow, Nonpressure-Piping Pressure Rating: 10-foot (3-m) head of water.
- 1.5 SUBMITTALS
 - A. Product Data: For chemical-waste piping materials, components, and specialties and for neutralization systems.
 - B. Maintenance Data: For neutralization systems and tanks to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain pipe, fittings, and joining materials for each piping system through one source from a single manufacturer.
- B. Product Options: Drawings indicate size, profiles, and dimensional requirements of chemical-waste specialties and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."
- C. Piping materials shall bear label, stamp, or other markings of specified testing laboratory.

- D. Comply with ASME B31.3, "Process Piping."
- E. Comply with NFPA 70.
- 1.7 DELIVERY, STORAGE, AND HANDLING
 - A. Deliver and store piping and specialties with sealing plugs in ends or with end protection.

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.
 - a. Zurn Industries Limited, Fuseal, Orion, Enfield, R&G Sloan, FRP (Fiberglass Reinforced Plastic Pipe), Smith Fiberglass Products, Inc.

2.2 PIPING MATERIALS

- A. Refer to Part 3 "Piping Applications" Article for applications of pipe, tube, fitting, and joining materials.
- 2.3 PIPE AND FITTINGS
 - A. Pipe: Fire Retardant and Smoke Development (Above Floor in Plenum Space)
 - 1. Pipe shall be manufactured to Schedule 40 PVDF (polyvinylidene fluoride) pipe dimensions and tolerances in accordance with ASTM F 1412 and D 3222. Pipe to be chemically resistant and fire-retardant material.
 - 2. Above floor installations require that piping systems meet D 2843 ASTM E 84 25/50 for flame spread and smoke development and UL723 and UL910 for flame propagation and smoke density in environmental spaces. Pipe and fitting system shall be made of PVDF (polyvinylidene fluoride).

- B. Fittings: Fire-Retardant and Smoke Development (Above Floor in Plenum Space)
 - 1. Fittings shall be manufactured to Schedule 40 PVDF (polyvinylidene fluoride) pipe dimensions of a chemically resistant and fire-retardant material conforming to ASTM D 4101. Fittings to conform to applicable tolerances in ASTM F 1412. Fittings shall be made of PVDF (polyvinylidene fluoride).
- C. Pipe: Non-Flame-Retardant (Below and Above Floor; Not to be Used in Plenum Space)
 - 1. Pipe shall be manufactured to Schedule 40 polypropylene pipe dimensions and tolerance in accordance with ASTM F 1412, ASTM D 3311. Pipe to be supplied in 10-foot lengths and manufactured with a chemically resistant polypropylene material conforming to ASTM D 4101.
 - 2. Underground installation of pipe shall be in accordance with Practice ASTM D 2311 "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewer and Other Gravity-Flow Application," except aggregate size shall be limited to 1/2inch for angular and 3/4-inch for rounded particles. Non-flame-retardant pipe can be used in underground applications.
- D. Joints
 - 1. Pipe and fittings are jointed by either heat fusion or by using mechanical Joints.
 - a. Mechanical or Electrofusion (Above Floor Only): Pipe and fittings shall be joined by the use of a electrofushion wire seal system of mechanical seal that has a chemical resistance equal to the pipe and fittings. The mechanical joint system shall incorporate a positive mechanical system (groove) for axial restraint.
 - b. Electrofusion (Below Floor Only): Pipe and fittings shall be joined by the use of the "Fusion Lock[™] heavy-gage resistance wire seal that can be rotated in the socket to desired position.

PART 3 - EXECUTION

3.1 EXCAVATION

- A. Refer to Division 2 Section "Earthwork" for excavating, trenching, and backfilling.
- 3.2 PIPING APPLICATIONS
 - A. Transition and special fittings with pressure ratings at least equal to piping pressure rating may be used in applications noted above in Part 2.
- 3.3 PIPING INSTALLATION

- A. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for basic piping installation.
- B. Install piping next to equipment, accessories, and specialties to allow service and maintenance.
- C. Transition and special fittings with pressure ratings at least equal to piping pressure rating may be used, unless otherwise indicated.
- 3.4 JOINT CONSTRUCTION
 - A. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for basic piping joint construction. If specific joint construction is not indicated, follow piping manufacturer's written instructions.

3.5 HANGER AND SUPPORT INSTALLATION

- A. Refer to Division 15 Section "Mechanical Vibration and Seismic Controls" for seismicrestraint devices.
- B. Refer to Division 15 Section "Hangers and Supports" for pipe hanger and support devices. Install the following:
 - 1. Vertical Piping: MSS Type 8 or MSS Type 42, riser clamps.
 - 2. Individual, Straight, Horizontal Piping Runs:
 - a. 100 Feet (30 m) and Less: MSS Type 1, adjustable, steel clevis hangers.
 - b. Longer Than 100 Feet (30 m): MSS Type 43, adjustable roller hangers.
 - c. Longer Than 100 Feet (30 m), if Indicated: MSS Type 49, spring cushion rolls.
 - 3. Multiple, Straight, Horizontal Piping Runs 100 Feet (30 m) or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
 - 4. Base of Vertical Piping: MSS Type 52, spring hangers.
- C. Install supports according to Division 15 Section "Hangers and Supports."
- D. Support horizontal piping and tubing within 12 inches (300 mm) of each fitting and coupling.
- E. Support vertical piping and tubing at base and at each floor.
- F. Rod diameter may be reduced 1 size for double-rod hangers, to a minimum of 3/8 inch (10 mm).
 - 1. NPS 1/2 (DN 15) and Smaller: 30 inches (760 mm) with 3/8-inch (10-mm) rod.
 - NPS 3/4 to NPS 1-1/2 (DN 20 to DN 40): 36 inches (910 mm) with 3/8-inch (10mm) rod.

- 3. NPS 2 (DN 50): 36 inches (910 mm) with 3/8-inch (10-mm) rod.
- 4. NPS 2-1/2 and NPS 3 (DN 65 and DN 80): 42 inches (1070 mm) with 1/2-inch (13-mm) rod.
- 5. NPS 4 (DN 100): 48 inches (1220 mm) with 5/8-inch (16-mm) rod.
- 6. NPS 6 (DN 150): 48 inches (1220 mm) with 3/4-inch (19-mm) rod.
- G. Install supports for vertical PVDF piping NPS 1-1/2 (DN 40) every 48 inches (1220 mm) and NPS 2 (DN 50) and larger every 72 inches (1830 mm).
- H. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.

3.6 CONNECTIONS

- A. Drawings indicate general arrangement of piping and specialties. The following are specific connection requirements:
- B. Install piping adjacent to equipment to allow service and maintenance.
- C. Connect chemical-waste piping to sinks, specialties, accessories, and equipment. Use chemical-resistant coupling, adapter, or fitting as required for materials being joined.
- 3.7 LABELING AND IDENTIFICATION
 - A. Install labeling and pipe markers on equipment and piping according to requirements in Division 15 Section "Basic Mechanical Materials and Methods."

3.8 FIELD QUALITY CONTROL

- A. Chemical-Waste Piping Inspection:
 - 1. Do not enclose, cover, or put drainage and vent piping into operation until it is inspected and approved by authorities having jurisdiction.
 - 2. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:
 - a. Roughing-in Inspection: Arrange for inspection of piping system before concealing after system roughing-in and before setting fixtures and equipment.
 - b. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
 - 3. Reinspections: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
 - 4. Reports: Prepare inspection reports and have them signed by authorities having

jurisdiction.

- B. Chemical-Waste Piping Testing: Test systems according to procedures of authorities having jurisdiction or, in absence of published procedure, according to the following:
 - 1. Test for leaks and defects in new piping systems and parts of existing systems that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of system tested.
 - 2. Leave uncovered and unconcealed new, altered, extended, or replaced piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.
 - 3. Rough Plumbing Test Procedure: Test piping at completion of piping roughingin. Tightly close all openings in piping system, and fill with water to point of overflow, but not less than 10-foot (3-m) head of water. From 15 minutes before test starts through completion of test, water level must not drop. Inspect joints for leaks.
 - 4. Finished Plumbing Test Procedure: After plumbing fixtures and equipment have been set and their traps filled with water, test connections and prove gastight and watertight. Plug stack openings on roof and building drain where it leaves building, and introduce air into system equal to pressure of 1-inch wg (250 Pa). Use U-tube or manometer inserted in trap of fixture to measure pressure. Air pressure must remain constant without introducing additional air throughout period of inspection. Inspect fixture connections for gas and water leaks.
 - 5. Repair leaks and defects with new materials and retest system or portion thereof until satisfactory results are obtained.
 - 6. Prepare reports for tests and required corrective action.

3.9 CLEANING

- A. Use procedures prescribed by authorities having jurisdiction or, if not prescribed, use procedures described below:
 - 1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
 - 2. Clean piping by flushing with potable water.

END OF SECTION

SECTION 16055 - OVERCURRENT PROTECTIVE DEVICE COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes computer-based, fault-current and overcurrent protective device coordination studies. Protective devices shall be set based on results of the protective device coordination study.
 - 1. Coordination of series-rated devices is permitted where indicated on Drawings.
 - 2. Contractor shall coordinate with Owner to update existing overcurrent coordination study to include addition of:
 - a. New Main circuit breaker
 - b. New circuit breakers in switchboard DS-1 and EDS-1
 - c. New Generator and new associated Generator breakers
 - d. New busway plug-in units on 2000A busway riser.
 - e. New MCC-PB8 and EMCC-PB8 motor contribution.
 - 3. Coordinate with Owner to obtain and update existing electronic file and provide repots and submittals as required in this specification.

1.3 SUBMITTALS

- A. Product Data: For computer software program to be used for studies.
- B. Product Certificates: For coordination-study and fault-current-study computer software programs, certifying compliance with IEEE 399.
- C. Qualification Data: For coordination-study specialist.
- D. Other Action Submittals: The following submittals shall be made after the approval process for system protective devices has been completed. Submittals may be in digital form if license is available for Owner's use.
 - 1. Coordination-study input data, including completed computer program input data sheets.
 - 2. Study and Equipment Evaluation Reports.
 - 3. Coordination-Study Report.

1.4 QUALITY ASSURANCE

- A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are not acceptable.
- B. Coordination-Study Specialist Qualifications: An entity experienced in the application of computer software used for studies, having performed successful studies of similar magnitude on electrical distribution systems using similar devices.
 - 1. Professional engineer, licensed in the state where Project is located, shall be responsible for the study. All elements of the study shall be performed under the direct supervision and control of engineer.
- C. Comply with IEEE 242 for short-circuit currents and coordination time intervals.
- D. Comply with IEEE 399 for general study procedures.

PART 2 - PRODUCTS

2.1 COMPUTER SOFTWARE DEVELOPERS

- A. Available Computer Software Developers: Subject to compliance with requirements, companies offering computer software programs that may be used in the Work include, but are not limited to, the following:
- B. Computer Software Developers: Subject to compliance with requirements, provide products by one of the following:
- C. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
 - 1. EDSA Micro Corporation.
 - 2. ESA Inc.
 - 3. SKM Systems Analysis, Inc.

2.2 COMPUTER SOFTWARE PROGRAM REQUIREMENTS

- A. Comply with IEEE 399.
- B. Analytical features of fault-current-study computer software program shall include "mandatory," "very desirable," and "desirable" features as listed in IEEE 399.
- C. Computer software program shall be capable of plotting and diagramming time-currentcharacteristic curves as part of its output. Computer software program shall report device settings and ratings of all overcurrent protective devices and shall demonstrate selective coordination by computer-generated, time-current coordination plots.
 - 1. Optional Features:

- a. Arcing faults.
- b. Simultaneous faults.
- c. Explicit negative sequence.
- d. Mutual coupling in zero sequence.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine Project overcurrent protective device submittals for compliance with electrical distribution system coordination requirements and other conditions affecting performance. Devices to be coordinated are indicated on Drawings.
 - 1. Proceed with coordination study only after relevant equipment submittals have been assembled. Overcurrent protective devices that have not been submitted and approved prior to coordination study may not be used in study.

3.2 POWER SYSTEM DATA

- A. Gather and tabulate the following input data to support coordination study:
 - 1. Product Data for overcurrent protective devices specified in other Division 16 Sections and involved in overcurrent protective device coordination studies. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.
 - 2. Impedance of utility service entrance.
 - 3. Electrical Distribution System Diagram: In hard-copy and electronic-copy formats, showing the following:
 - a. Circuit-breaker and fuse-current ratings and types.
 - b. Relays and associated power and current transformer ratings and ratios.
 - c. Transformer kilovolt amperes, primary and secondary voltages, connection type, impedance, and X/R ratios.
 - d. Generator kilovolt amperes, size, voltage, and source impedance.
 - e. Cables: Indicate conduit material, sizes of conductors, conductor material, insulation, and length.
 - f. Busway ampacity and impedance.
 - g. Motor horsepower and code letter designation according to NEMA MG 1.
 - 4. Data sheets to supplement electrical distribution system diagram, crossreferenced with tag numbers on diagram, showing the following:
 - a. Special load considerations, including starting inrush currents and frequent starting and stopping.
 - b. Transformer characteristics, including primary protective device, magnetic inrush current, and overload capability.
 - c. Motor full-load current, locked rotor current, service factor, starting time, type of start, and thermal-damage curve.

- d. Generator thermal-damage curve.
- e. Ratings, types, and settings of utility company's overcurrent protective devices.
- f. Special overcurrent protective device settings or types stipulated by utility company.
- g. Time-current-characteristic curves of devices indicated to be coordinated.
- h. Manufacturer, frame size, interrupting rating in amperes rms symmetrical, ampere or current sensor rating, long-time adjustment range, short-time adjustment range, and instantaneous adjustment range for circuit breakers.
- i. Manufacturer and type, ampere-tap adjustment range, time-delay adjustment range, instantaneous attachment adjustment range, and current transformer ratio for overcurrent relays.
- j. Panelboards, switchboards, motor-control center ampacity, and interrupting rating in amperes rms symmetrical.

3.3 FAULT-CURRENT STUDY

- A. Calculate the maximum available short-circuit current in amperes rms symmetrical at circuit-breaker positions of the electrical power distribution system. The calculation shall be for a current immediately after initiation and for a three-phase bolted short circuit at each of the following:
 - 1. Switchgear and switchboard bus.
 - 2. Busway plugs at each floor.
 - 3. Motor-control center.
 - 4. Distribution panelboard.
 - 5. Branch circuit panelboard.
- B. Study electrical distribution system from normal and alternate power sources throughout electrical distribution system for Project. Include studies of system-switching configurations and alternate operations that could result in maximum fault conditions.
- C. Calculate momentary and interrupting duties on the basis of maximum available fault current.
- D. Calculations to verify interrupting ratings of overcurrent protective devices shall comply with IEEE 141, IEEE 241 and IEEE 242.
 - 1. Transformers:
 - a. ANSI C57.12.10.
 - b. ANSI C57.12.22.
 - c. ANSI C57.12.40.
 - d. IEEE C57.12.00.
 - e. IEEE C57.96.
 - 2. Medium-Voltage Circuit Breakers: IEEE C37.010.
 - 3. Low-Voltage Circuit Breakers: IEEE 1015 and IEEE C37.20.1.
 - 4. Low-Voltage Fuses: IEEE C37.46.

- E. Study Report:
 - 1. Show calculated X/R ratios and equipment interrupting rating (1/2-cycle) fault currents on electrical distribution system diagram.
 - 2. Show interrupting (5-cycle) and time-delayed currents (6 cycles and above) on medium- and high-voltage breakers as needed to set relays and assess the sensitivity of overcurrent relays.
- F. Equipment Evaluation Report:
 - 1. For 600-V overcurrent protective devices, ensure that interrupting ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.
 - 2. For devices and equipment rated for asymmetrical fault current, apply multiplication factors listed in the standards to 1/2-cycle symmetrical fault current.
 - 3. Verify adequacy of phase conductors at maximum three-phase bolted fault currents; verify adequacy of equipment grounding conductors and grounding electrode conductors at maximum ground-fault currents. Ensure that short-circuit withstand ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.

3.4 COORDINATION STUDY

- A. Perform coordination study using approved computer software program. Prepare a written report using results of fault-current study. Comply with IEEE 399.
 - 1. Calculate the maximum and minimum 1/2-cycle short-circuit currents.
 - 2. Calculate the maximum and minimum interrupting duty (5 cycles to 2 seconds) short-circuit currents.
 - 3. Calculate the maximum and minimum ground-fault currents.
- B. Comply with IEEE 141, IEEE 241, and IEEE 242 recommendations for fault currents and time intervals.
- C. Transformer Primary Overcurrent Protective Devices:
 - 1. Device shall not operate in response to the following:
 - a. Inrush current when first energized.
 - b. Self-cooled, full-load current or forced-air-cooled, full-load current, whichever is specified for that transformer.
 - c. Permissible transformer overloads according to IEEE C57.96 if required by unusual loading or emergency conditions.
 - 2. Device settings shall protect transformers according to IEEE C57.12.00, for fault currents.
- D. Motors served by voltages more than 600 V shall be protected according to IEEE 620.
- E. Conductor Protection: Protect cables against damage from fault currents according to ICEA P-32-382, ICEA P-45-482, and conductor melting curves in IEEE 242. Demonstrate that equipment withstands the maximum short-circuit current for a time equivalent to the tripping time of the primary relay protection or total clearing time of the fuse. To determine HORIZON I GROUND & FOURTH FLOORS UPFIT
 16055 5 BETA RESEARCH FACILITY CONSTRUCTION

temperatures that damage insulation, use curves from cable manufacturers or from listed standards indicating conductor size and short-circuit current.

- F. Coordination-Study Report: Prepare a written report indicating the following results of coordination study:
 - 1. Tabular Format of Settings Selected for Overcurrent Protective Devices:
 - a. Device tag.
 - b. Relay-current transformer ratios; and tap, time-dial, and instantaneouspickup values.
 - c. Circuit-breaker sensor rating; and long-time, short-time, and instantaneous settings.
 - d. Fuse-current rating and type.
 - e. Ground-fault relay-pickup and time-delay settings.
 - 2. Coordination Curves: Prepared to determine settings of overcurrent protective devices to achieve selective coordination. Graphically illustrate that adequate time separation exists between devices installed in series, including power utility company's upstream devices. Prepare separate sets of curves for the switching schemes and for emergency periods where the power source is local generation. Show the following information:
 - a. Device tag.
 - b. Voltage and current ratio for curves.
 - c. Three-phase and single-phase damage points for each transformer.
 - d. No damage, melting, and clearing curves for fuses.
 - e. Cable damage curves.
 - f. Transformer inrush points.
 - g. Maximum fault-current cutoff point.
- G. Completed data sheets for setting of overcurrent protective devices.

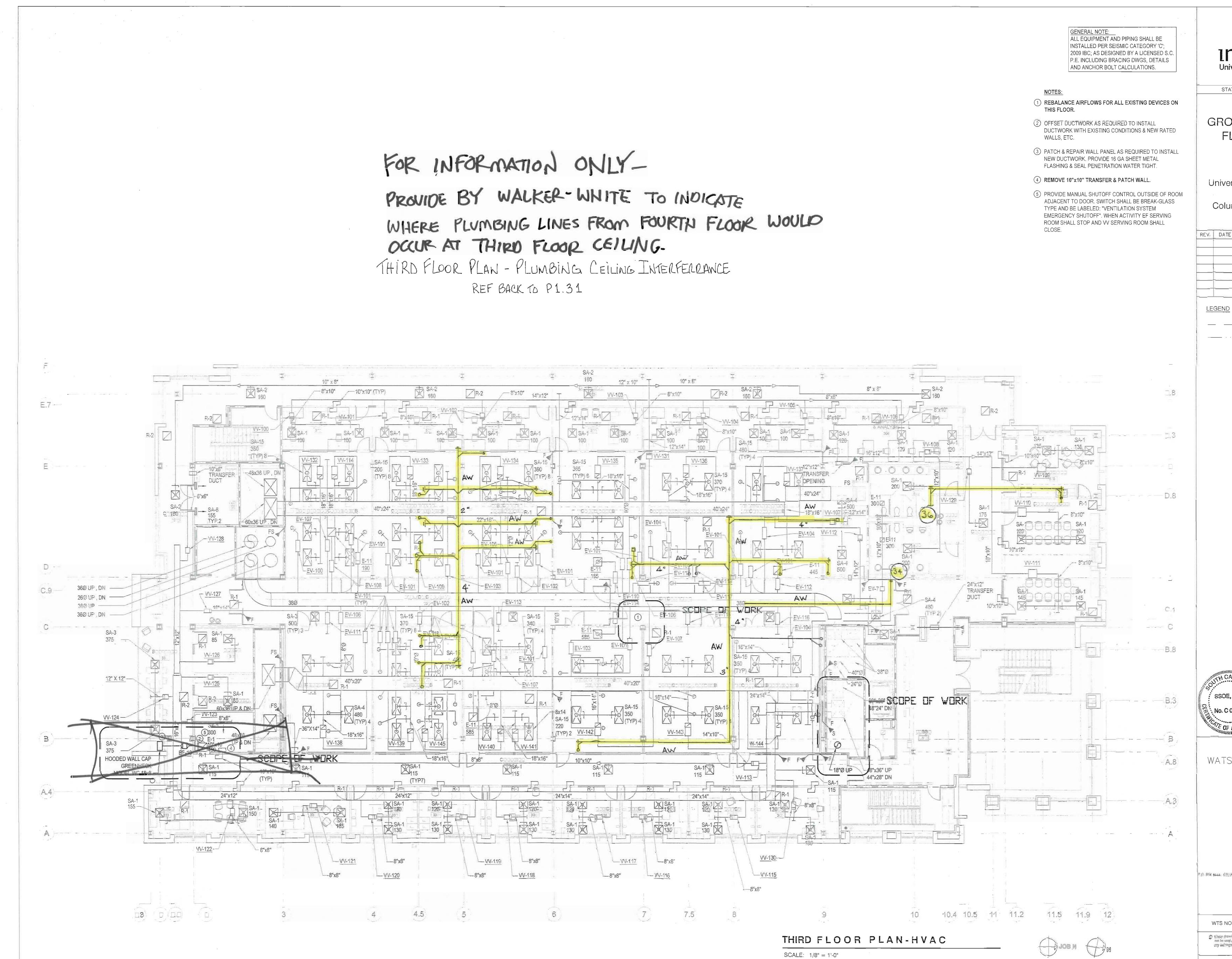
3.5 ARC FLASH HAZARD

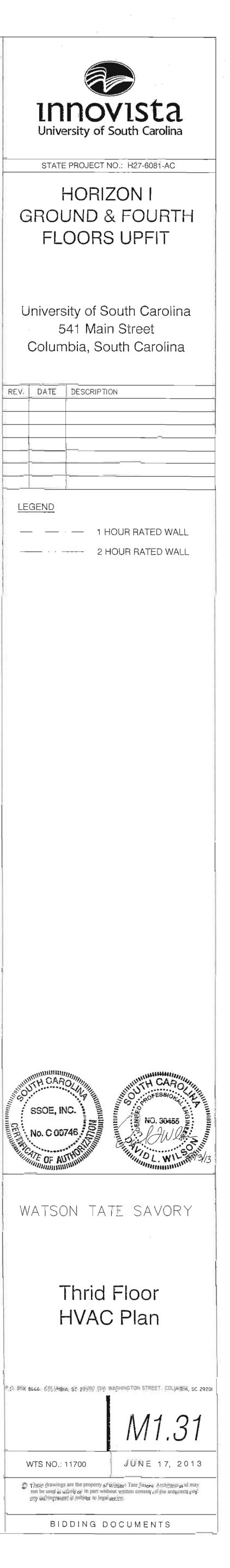
A. Determine levels of arc flash hazard in accordance with IEEE 1584 and provide hazard warning labeling for switchboards, panelboards, motor starters, MCC's and busway plug in units.

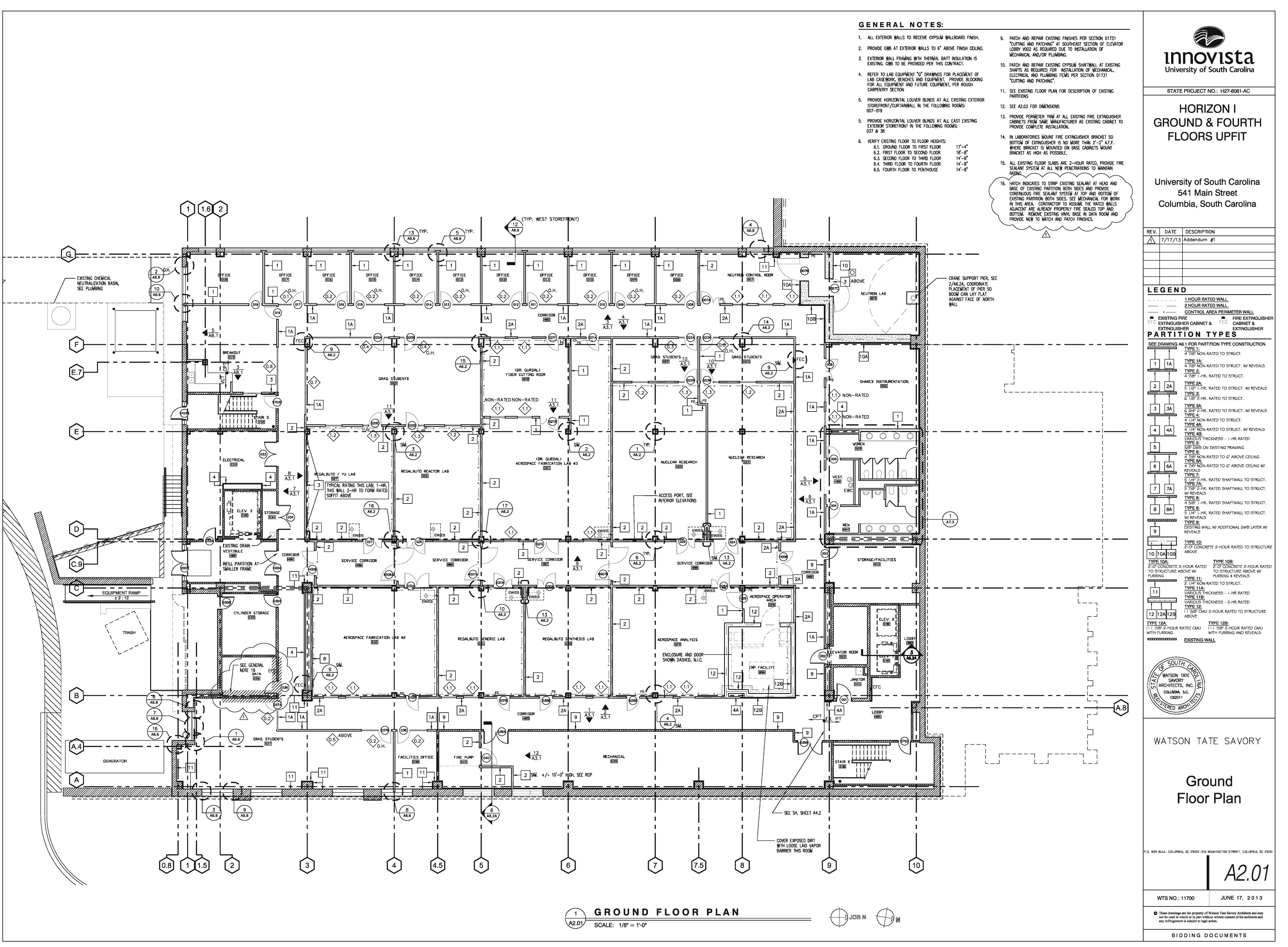
END OF SECTION 16055

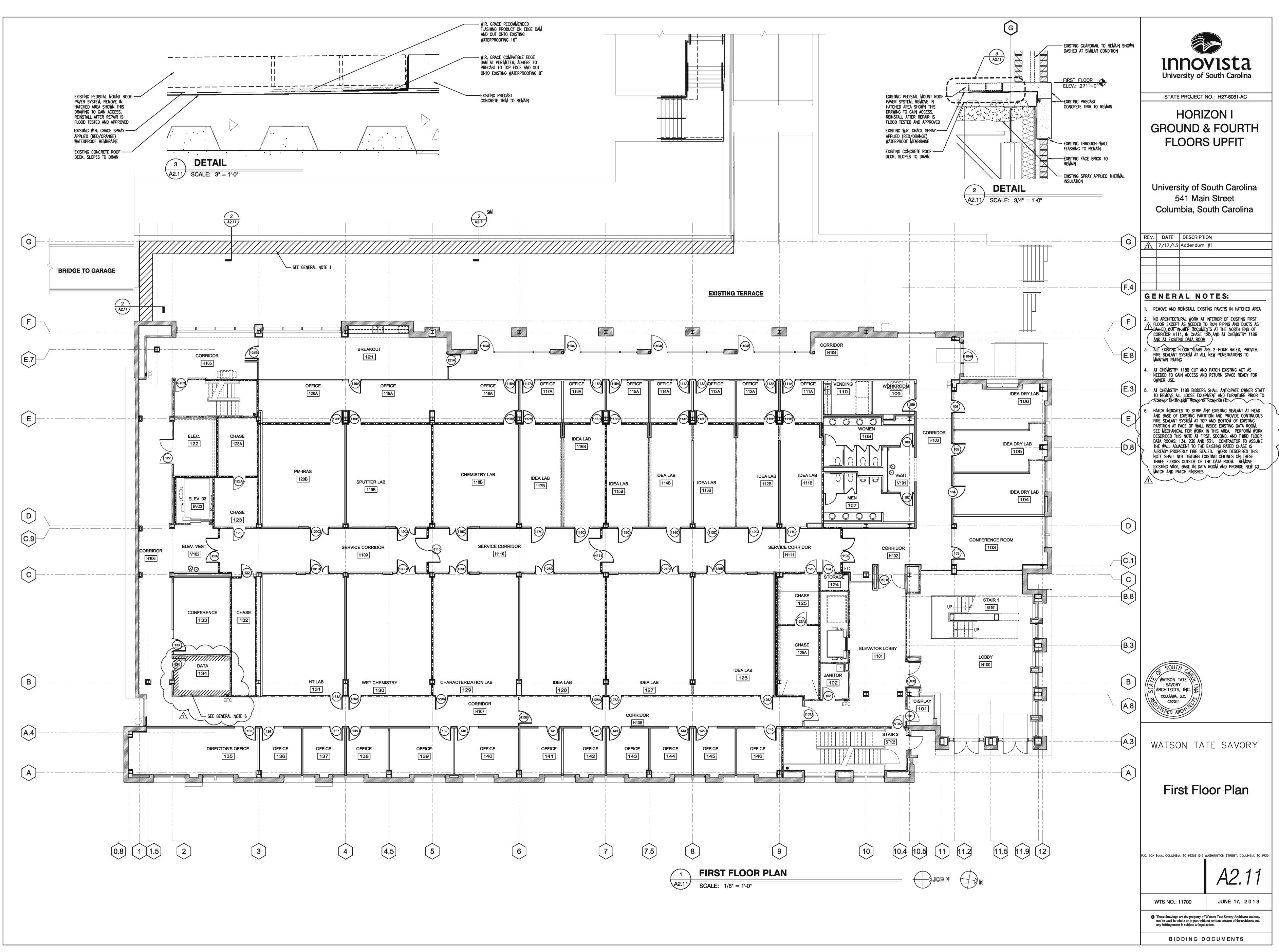
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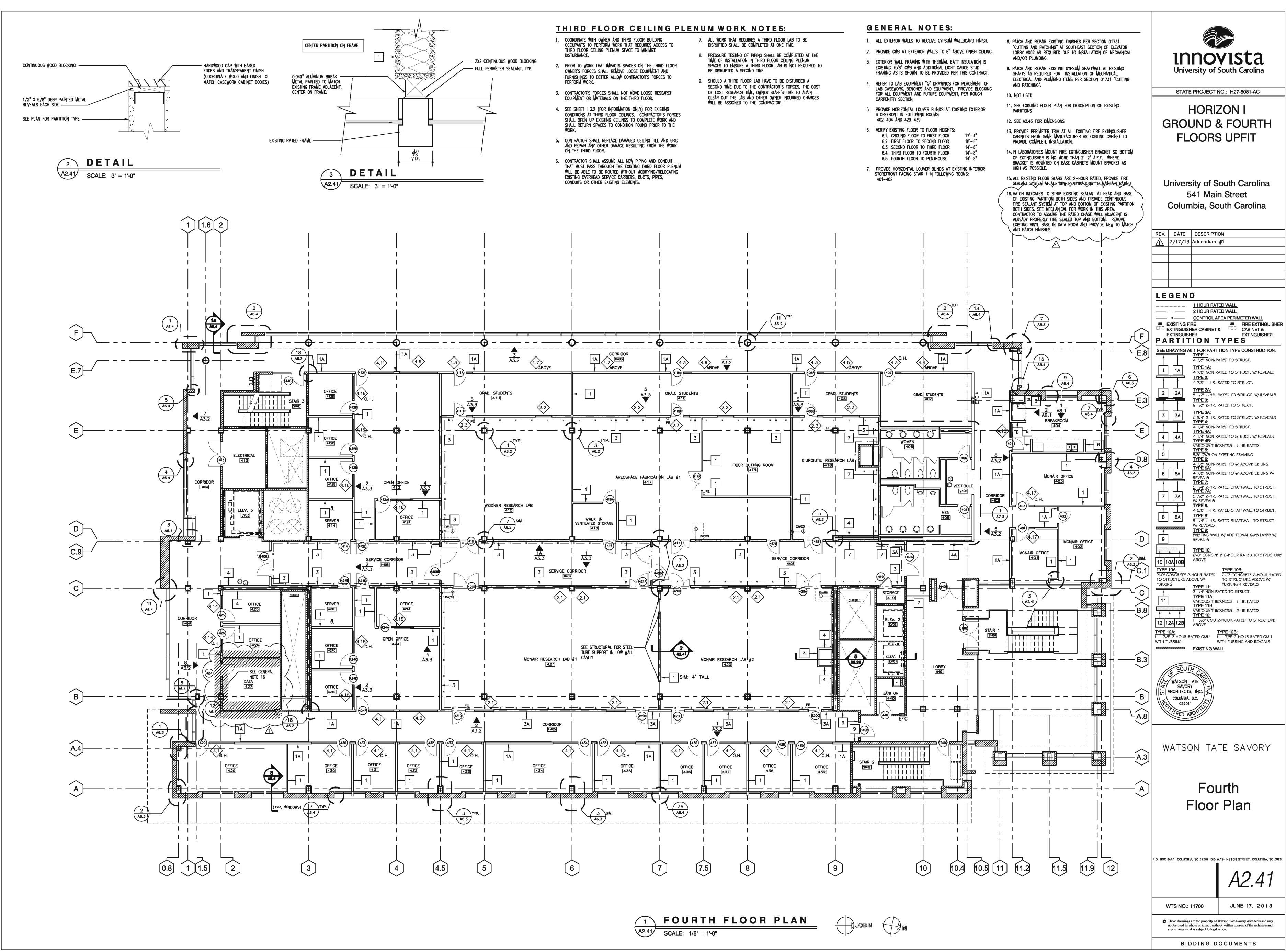
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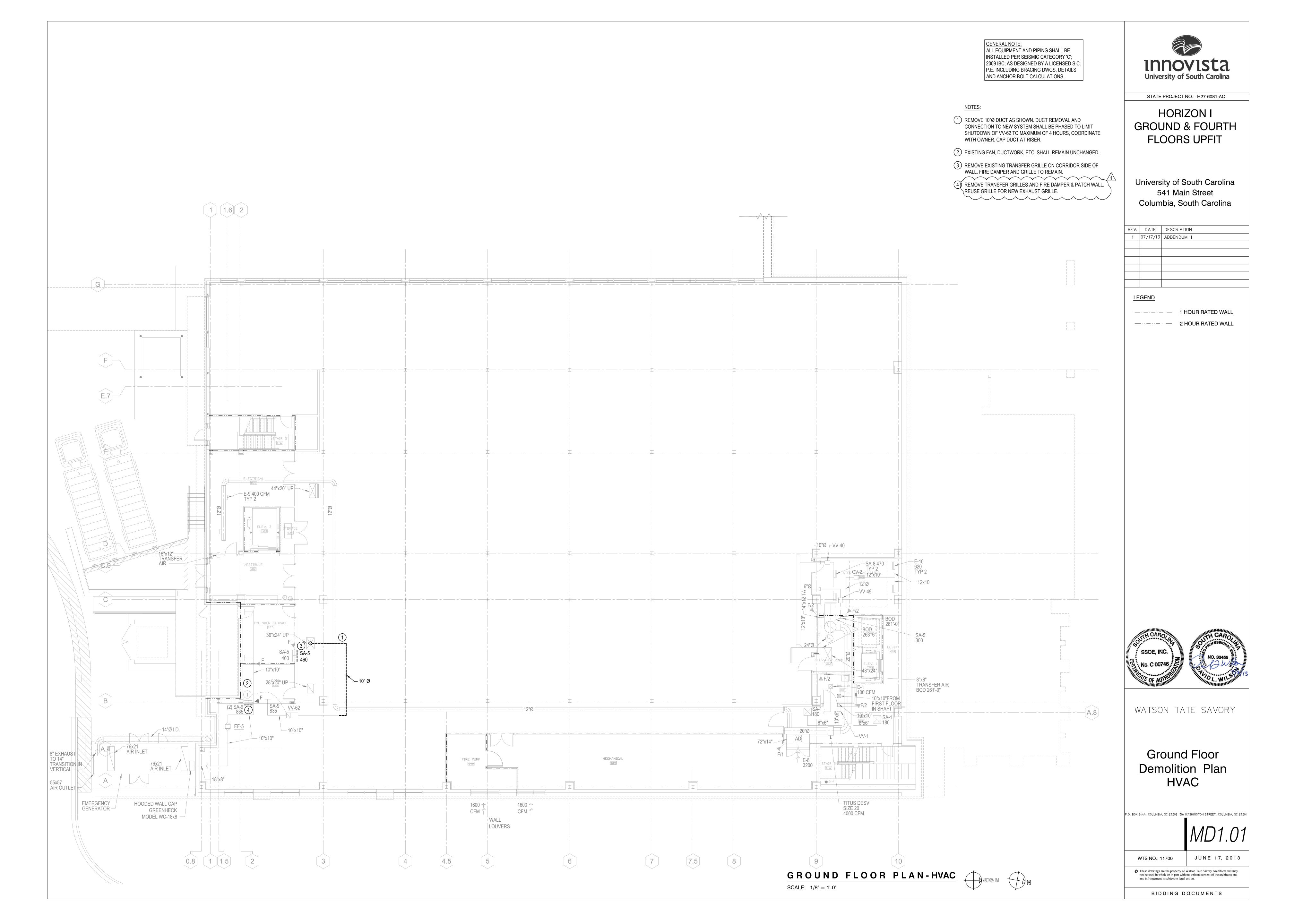


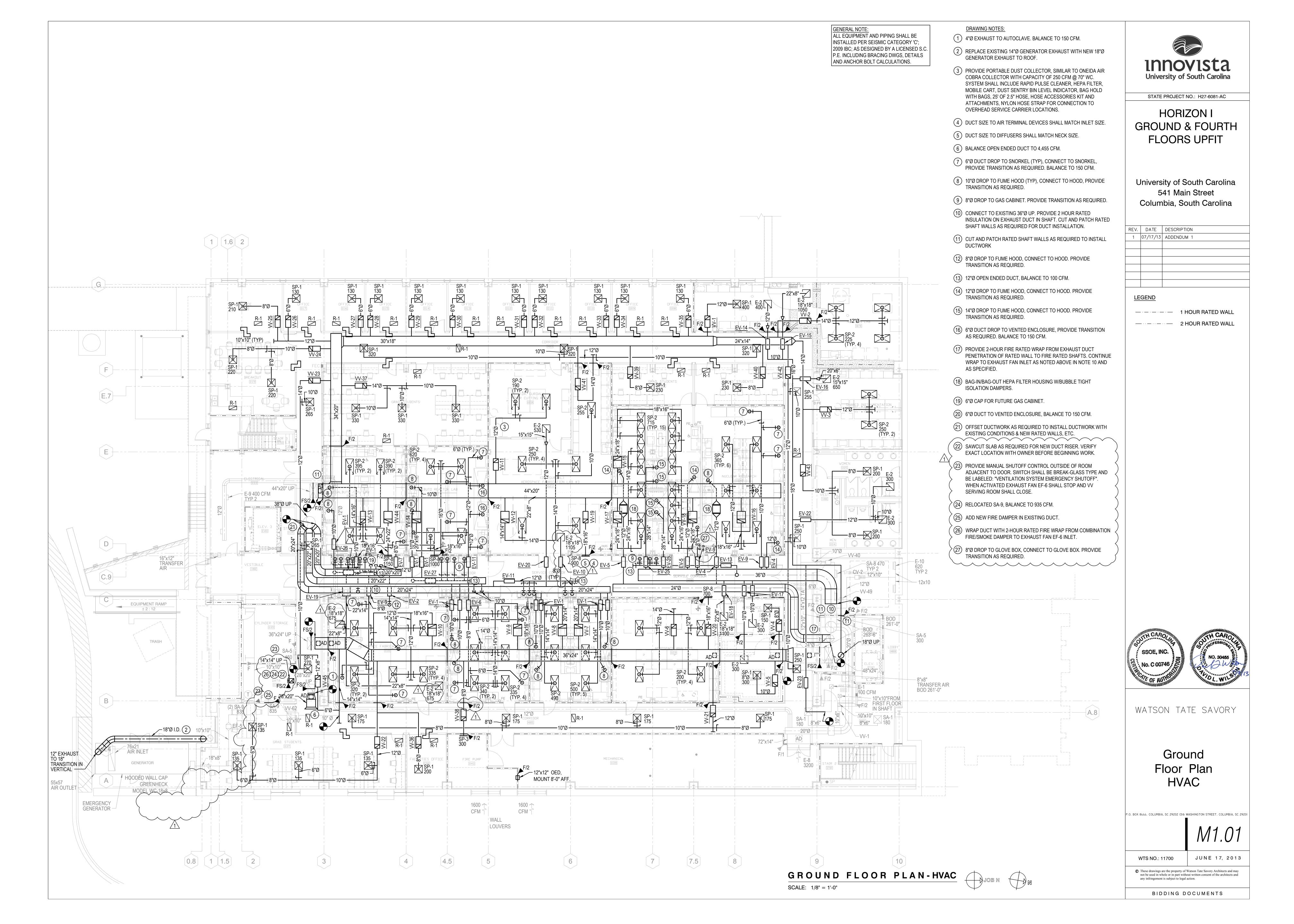


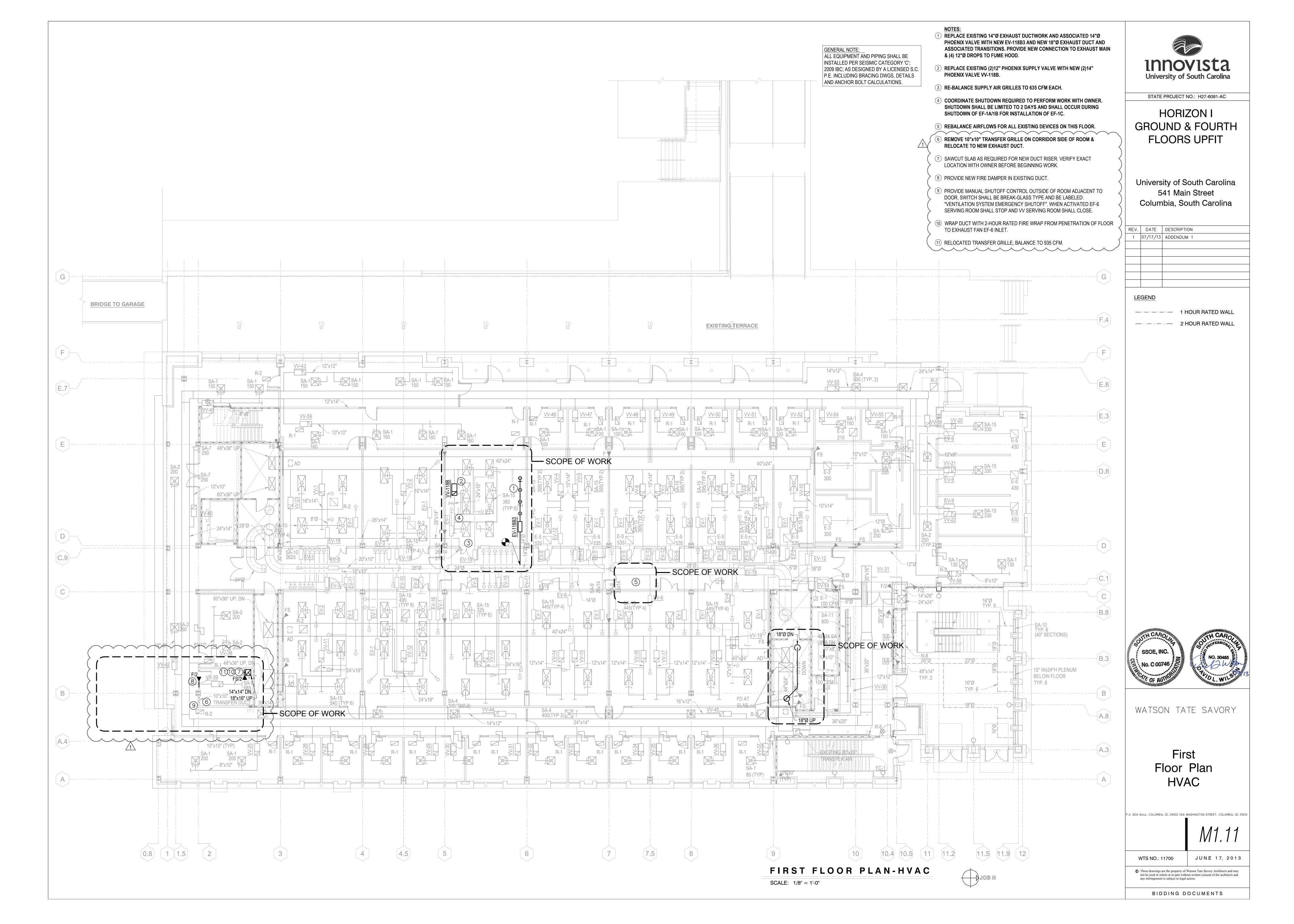


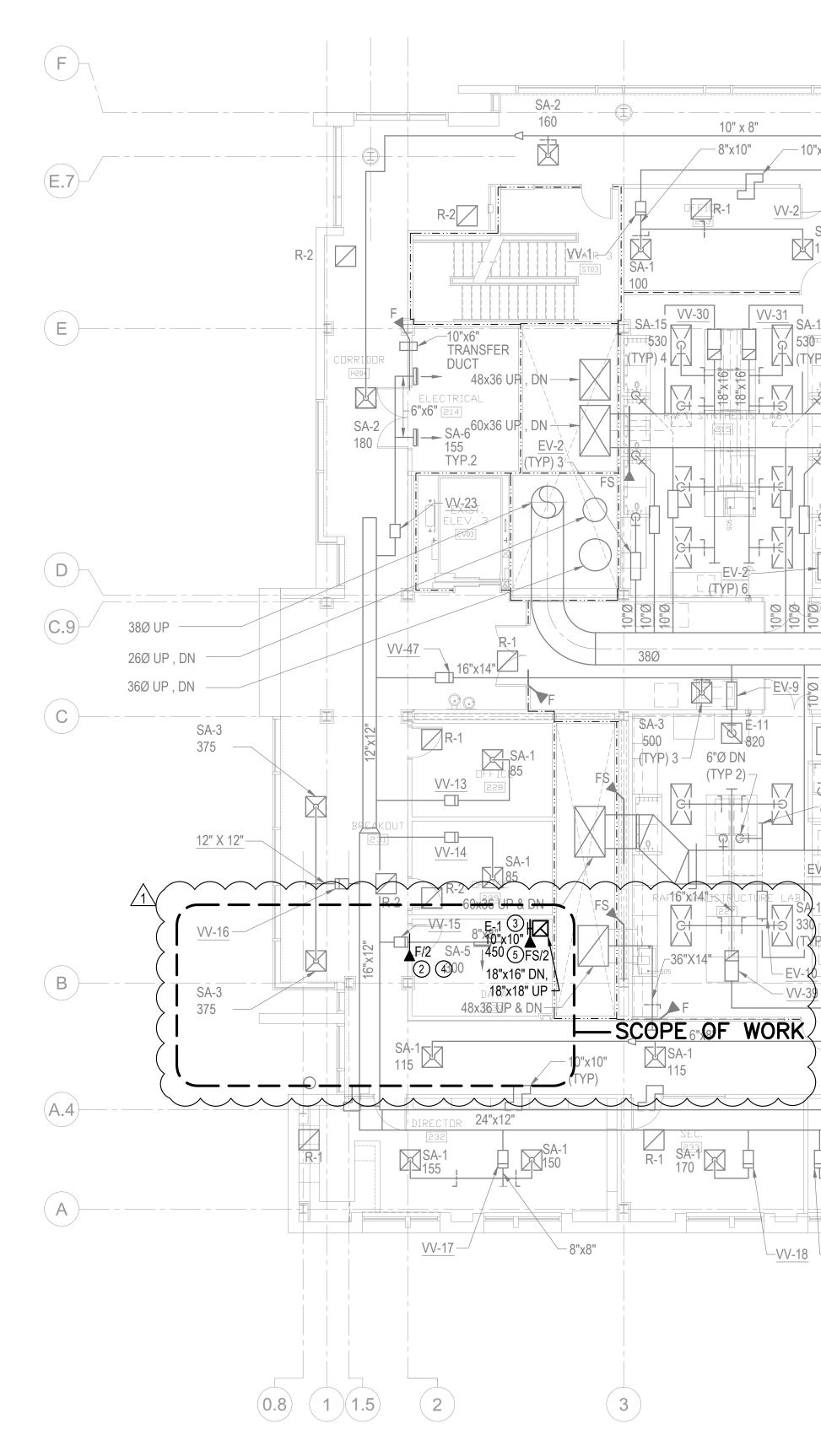












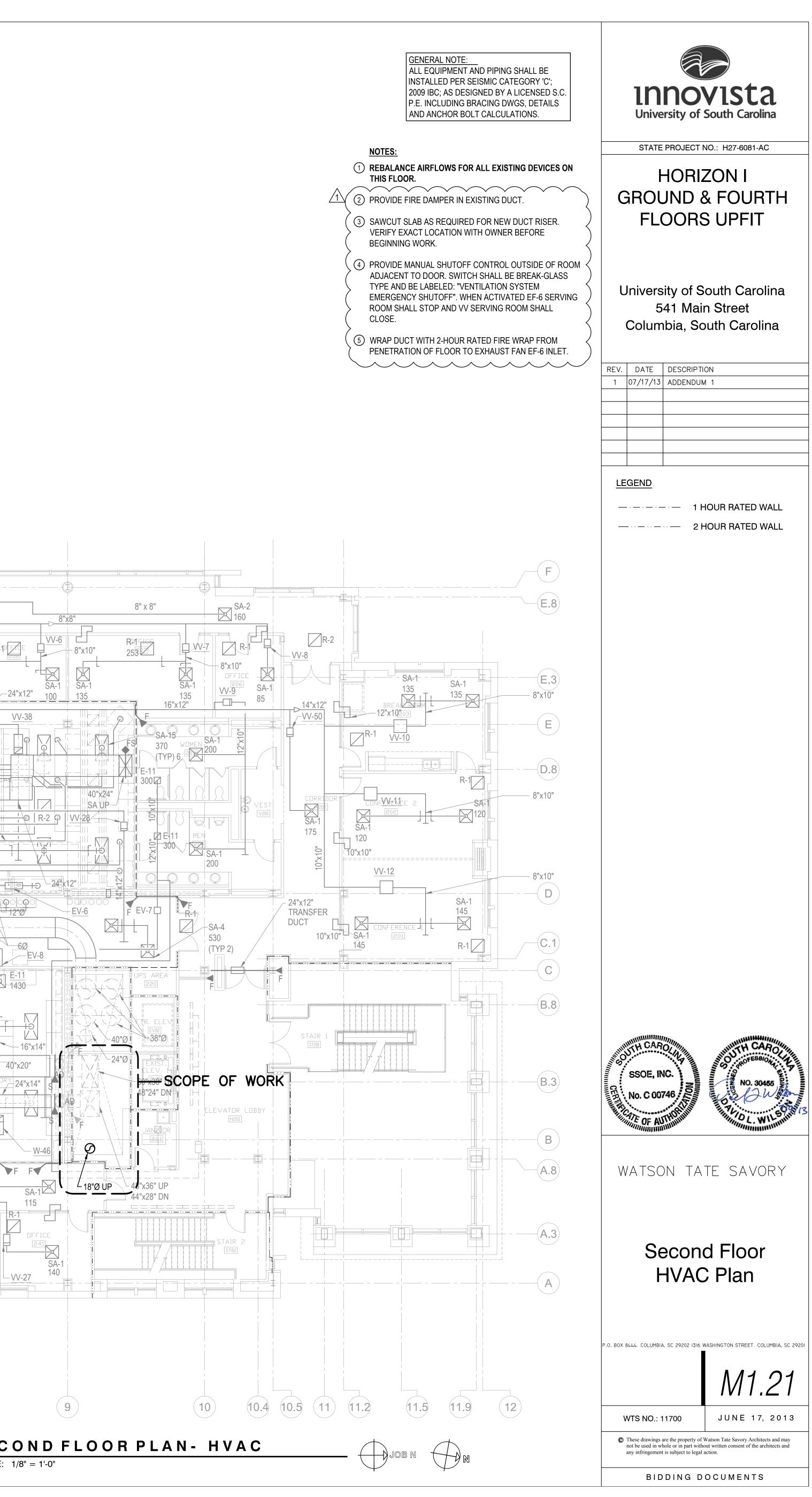
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10"x10" SA-1 115		SA-1			- <u>W-46</u> F▼ SA-12 ↓	F
-FICE CUPY/WURK RATE LA 100 1CE 236 237 237 238		24"x14"			115 FFICE [241]	
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8"x8" <u>VV-22</u> <u>VV-</u>	-24		<u>VV-2</u>	<u>6</u>		
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0		(7.5)	0	SECO	ND FLOC	
				SCALE: 1/8	B" = 1'-0"	

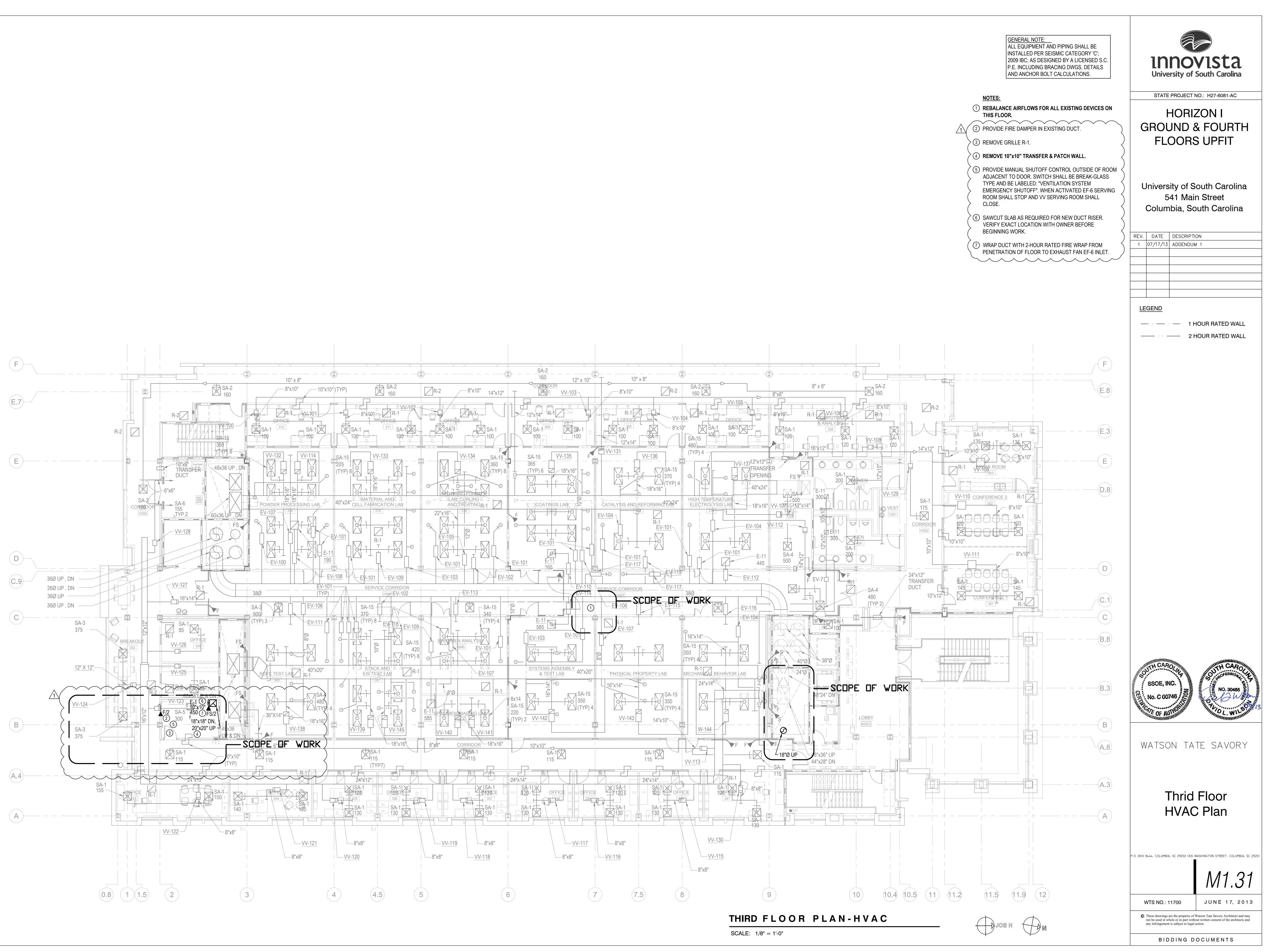
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	VP) 6		V-2 YP)4 0 0 0 0 0		SA-15 340 (TYP) 4 EV-1		2(IYP) 12 OED 11 EV-5 0	
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800 F 7		×20"						
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	YP7)		SA-1 115	10"x10" SA-1 115		SA-1 115	<u>VV-29</u>	
24"x12" SAPE A 135 R-1	R-1 100	SA-1 SA-1 105 100	236	237 R-1 R-1 R-1	A-1 SA-1 105	24"x14" 24"x14" 8"x10 SA-1 105		SA-1
<u>3</u> <u>VV-19</u>		<u>-VV-20</u>	8"x8"	<u>VV-22</u>	<u>VV-24</u>		<u>VV-26</u> <u>VV-25</u>	

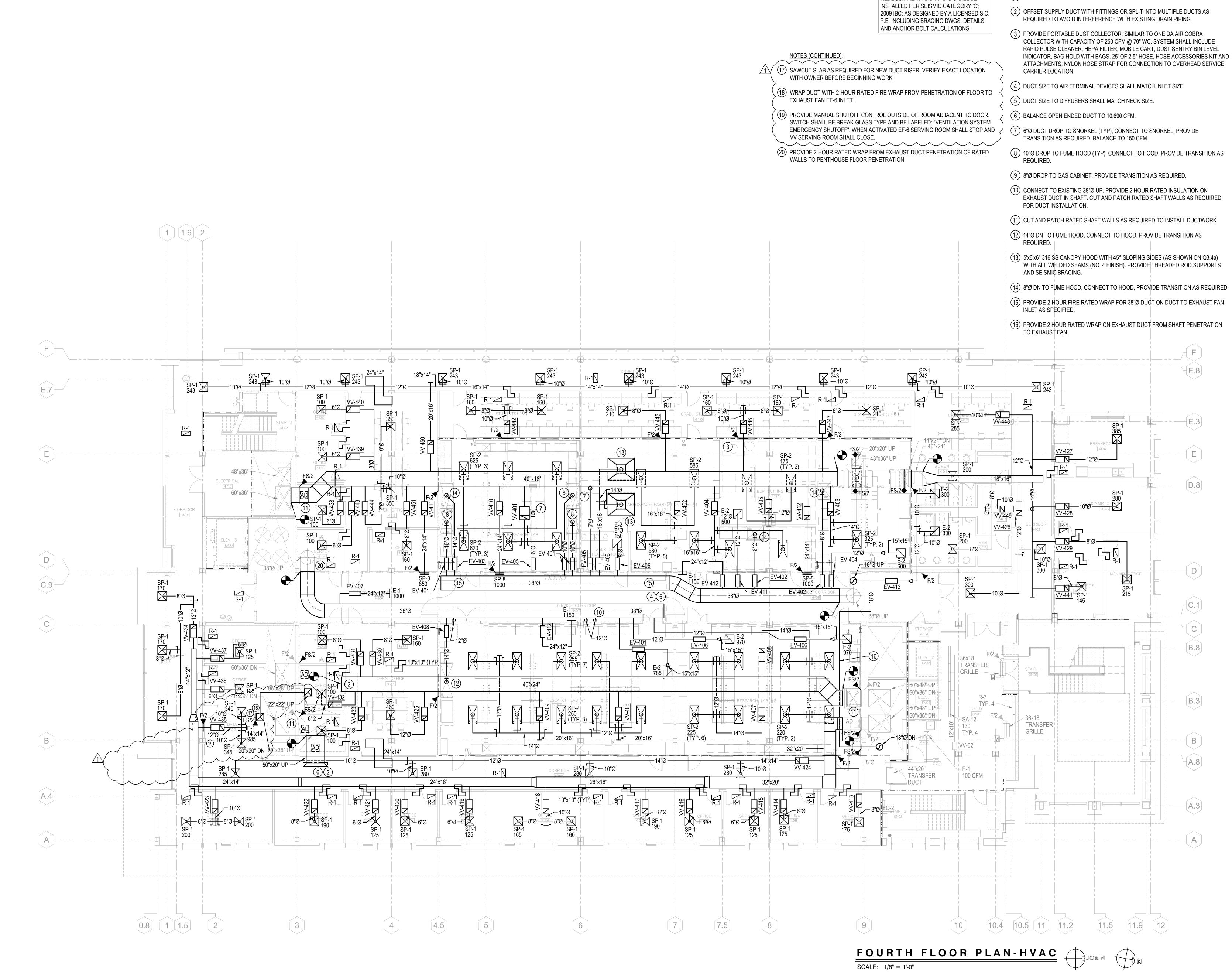
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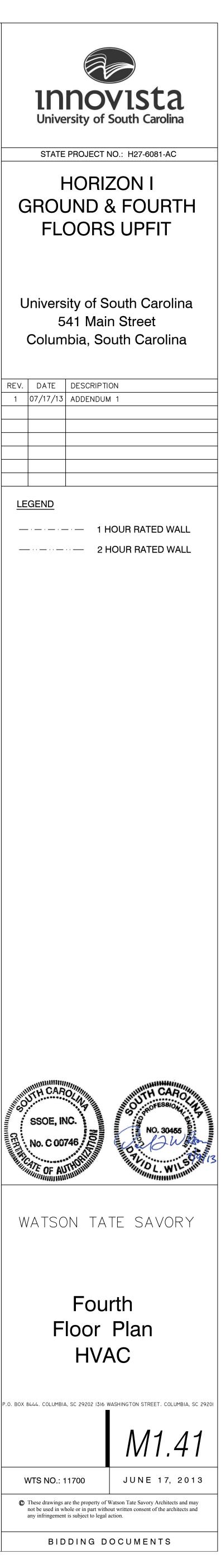


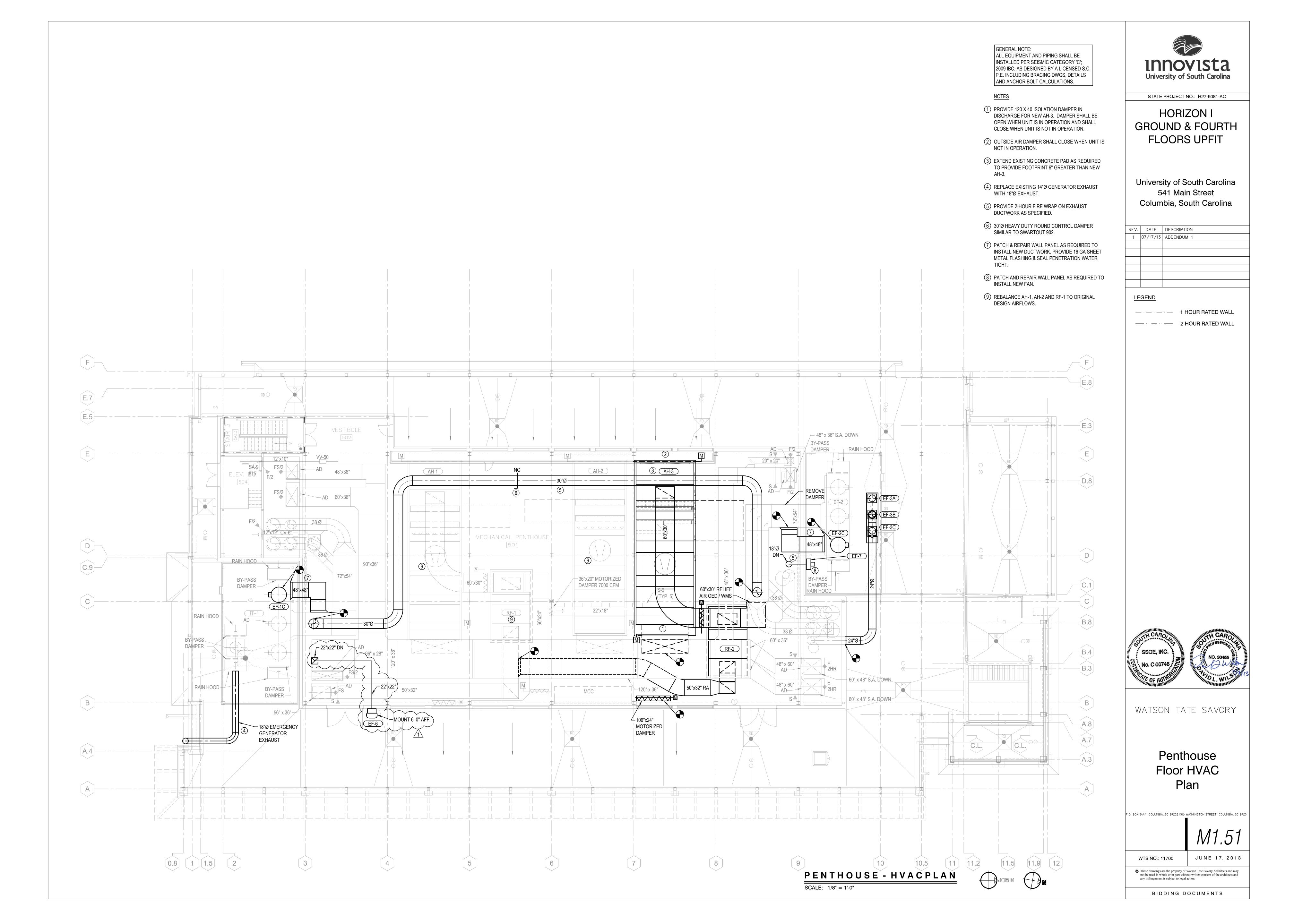




GENERAL NOTE: ALL EQUIPMENT AND PIPING SHALL BE

- NOTES: (1) SEE M5.01 FOR SEQUENCE OF OPERATION. INDICATOR, BAG HOLD WITH BAGS, 25' OF 2.5" HOSE, HOSE ACCESSORIES KIT AND



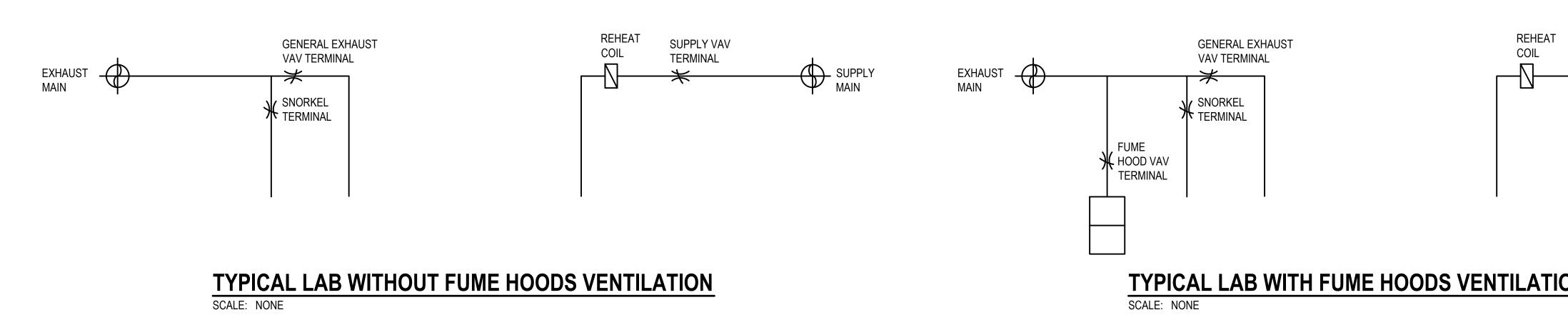


				LABOR	ATORIES	AIR BALAN	CE SCHEDU	JLE			
Room Name	Room Number	Fume Hood Design Flow	Fume Hood Min Flow	Snorkel Flow	Local Exhaust Design Flow	Local Exhaust Min Flow	General Exhaust Max Flow	General Exhaust Min Flow	Supply Maximum Flow	Supply Minimum Flow	Transfe Require
NEUTRON CONTROL ROOM	007	-	-	-	-	-	-400	-400	400	400	0
NEUTRON LAB	007B	-	-	-	-	-	-1050	-1050	900	900	150
SHARED INSTRUMENTATION	006	-	-	-	-	-	-650	-650	500	500	150
AEROSPACE OPERATOR AREA	028	-	-	-	-	-	-300	-300	150	150	150
EMP FACILITY	028A	-	-	-	-	-	-300	-300	300	300	-
AEROSPACE ANALYSIS	029	-	-	-	-	-	-1100	-550	800	250	300
		-785	-350								
REGALBUTO SYNTHESIS	030	-785	-350	_	_	_	_	-	2990	1250	150
LAB	000	-785	-350	-	_		_	-	2330		100
		-785	-350								
REGALBUTO GENERIC LAB	031	-785	-350	-600	- ^	_	_	- ^	2020	∧ 1150	150
		-785	-350								
AEROSPACE FABRICATION LAB #2	032	-485	-200	600	-600	-	-1350	-200	2000		150
FIBER CUTTING ROOM	021B	-	-	-	-	-	-530	-265	380	115	150
AEROSPACE FABRICATION LAB #3	021	-	-	-	-	-	-1105	-500	1255	650	150
	007	-785	-350		450	450			4570		4.5
REGALBUTO/YU LAB	027	-785	-350	-	-150	-150	-	-	1570	700	150
REGALBUTO REACTOR	026	-785	-350	-1050	_	_	-	_	2470	1600	150
LAB	020	-785	-350	-1000			-	-	2710		150
	024	-945	-945	-450	_	_	_	_	2190	2190	150
NUCLEAR RESEARCH		-945	-945								
		-1300	-1300								
NUCLEAR RESEARCH	025	-3920	-3920	-450	_	-	-	-	10740	10740	150
		-3920	-3920								
		-1300	-1300								
SERVICE CORRIDOR	H006	-	-	-	-1200	-1200	-100	-100	1150	1150	150
SERVICE CORRIDOR	H006A	-	-	-	-1050	-1050	-100	-100	1000	1000	150
SERVICE CORRIDOR	H007	-	-	-	-950	-950	-100	-100	900	900	150
SERVICE CORRIDOR	H008	-	-	-	-750	-750	-100	-100	700	700	150

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Room Name	Room Number	Fume Hood Design Flow	Fume Hood Min Flow	Snorkel Flow	Local Exhaust Design Flow	Local Exhaust Min Flow	General Exhaust Max Flow	General Exhaust Min Flow	Supply Maximum Flow	Supply Minimum Flow	Trans Requir
MCNAIR RESEARCH LAB #1	421	1900	1900	-	-	-	-785	-350	2535	2100	15
WALK-IN VENTILATED STORAGE	416	-	-	-	-	-	-150	-150	0	0	15
AEROSPACE FABRICATION LAB #1	417	-485	-200	-150	-3000	-3000	-	-	3485	3200	15
FIBER CUTTING ROOM	417A	-	-	-	-	-	-500	-250	350	100	15
GIURGIUTIU RESEARCH LAB	418	-485	-200	-	-	-	-600	-535	650	535	15
		-785	-350								
WEIDNER RESEARCH LAB	415	-785	-350	-150					3735	2430	15
	415	-785	-350	-150	-	-	-	-	5755	2430	
		-1380	-1380								
MCNAIR RESEARCH LAB	420	-	-	_	_	_	-1940	-970	1790	820	15
2	420	-	-	-	-	-	-1940	-970	1790	020	
SERVICE CORRIDOR	H406	-	-	-	-	-	-1000	-1000	850	850	15
SERVICE CORRIDOR	H407	-	-	-	-	-	-1150	-1150	1000	1000	15
SERVICE CORRIDOR	H408	-	-	-	-	-	-1150	-1150	1000	1000	15

	LABORATORIES AIR BALANCE SCHEDULE													
Room Name	Room Number	Fume Hood Design Flow		Snorkel Flow	Local Exhaust Design Flow	Local Exhaust Min Flow	General Exhaust Max Flow	General Exhaust Min Flow	Supply Maximum Flow	Supply Minimum Flow	Ne Requ			
		-785	-350											
CHEMISTRY LAB	118B	-3220	-3220	-200	0	0	0	0	3805	3370	-			



BORATORIES AIR BALANCE SCHEDULE

^r Air nent		GENERAL NOTE: ALL EQUIPMENT, DUCTWORK, AND PIPI SHALL BE INSTALLED PER SEISMIC CATEGORY 'C'; 2009 IBC; CONTRACTOR I RESPONSIBLE FOR THE DESIGN BY A	
		LICENSED S.C. P.E. INCLUDING BRACING DWGS, DETAILS, AND ANCHOR BOLT CALCULATIONS.	
		SEQUENCE OF OPERATIONS: AHU-3: AHU-1, AHU-2 AND AHU-3 ARE MANIFOLDED TOGETHER AND SHALL OPERATE AS A	
		SINGLE AIR HANDLING UNIT.	
		PROVIDE AIR FLOW MEASURING STATION FOR AHU-3 OUTSIDE AIRFLOW AND SUPPLY AIRFLOW. DISCHARGE DAMPER ON AHU-3 SHALL OPEN WHEN UNIT IS OPERATING AND	. I
		SHALL CLOSE WHEN UNIT IS NOT OPERATING.	
		HOT WATER PREHEAT COIL PUMP (HWP-1) SHALL OPERATE WHEN OUTSIDE AIR TEMPERATURE IS BELOW 45°F (FA) AND HOT WATER PREHEAT COIL CONTROL	
	$\langle \rangle$	VALVE SHALL BE 100% OPEN WHEN AHU-3 SUPPLY FAN IS SIGNALED TO START. HOT WATER PREHEAT COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN COIL	REV.
		LEAVING AIR TEMPERATURE OF 52°F (FA).	1
		FREEZESTAT ON INLET OF CHILLED WATER COIL SHALL OPEN CHILLED WATER CONTROL VALVE, OPEN HEATING HOT WATER CONTROL VALVE, START HOT WATER COIL PUMP (HWP-1) AND CLOSE OUTSIDE AIR DAMPER WHEN	
		TEMPERATURE OF 38°F IS SENSED.	
	\geq	DISCHARGE AIR TEMPERATURE SETPOINT OF 55°F (FA).	
		SUPPLY FAN VFD FOR AHU-1, AHU-2 AND AHU-3 SHALL MODULATE IN UNISON TO MAINTAIN DUCT STATIC PRESSURE SETPOINT FOR BOTH OF THE (2) EXISTING DUCT STATIC PRESSURE SENSORS (CONTROL TO MAINTAIN STATIC PRESSURE	
		SETPOINT AT WORSE CASE OF TWO SENSORS). OUTSIDE AIR DAMPER FOR AHU-1 AND AHU-3 SHALL MODULATED TO MAINTAIN OUTSIDE AIRFLOW EQUAL TO TOTAL EXHAUST AIRFLOW (EF-1A/1B/1C + EF-2A/2B/2C AIRFLOW) LESS AHU-2 SUPPLY AIRFLOW PLUS 1000 CFM OFFSET (ADJ). OUTDOOR AIRFLOW FOR AHU-1 AND AHU-3 SHALL BE LIMITED TO MAXIMUM 90000 CFM (ADJ.) OF OUTDOOR AIR.	
	\langle	RETURN FANS RF-1 AND RF-3 SPEED SHALL MODULATE TO MAINTAIN RETURN	
	\geq	AIRFLOW EQUAL TO AHU-1 AND AHU-3 SUPPLY AIRFLOW LESS AHU-1 AND AHU-3	
	\geq	OUTSIDE AIRFLOW. AHU-1 AND AHU-3 RETURN AIR DAMPERS SHALL BE 100% OPEN AND RELIEF AIR DAMPERS SHALL BE 100% CLOSED. AHU-1 ECONOMIZER	
	\geq	MODE OF OPERATION SHALL BE DISABLED. AHU-1 AND AHU-3 PREHEAT COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN PREHEAT COIL LEAVING AIR	
	$\left\langle \right\rangle$	TEMPERATURE SETPOINT OF 52°F (ADJ.). PROVIDE LOW LIMIT STATIC PRESSURE SWITCH IN MIXED AIR SECTION OF AHU-3, SWITCH SHALL DE-ENERGIZE AHU-3	
	$\left\langle \right\rangle$	SUPPLY FAN IF STATIC PRESSURE SWITCH SENSES PRESSURE OF -4"WC (ADJ.).	
ir		SUPPLY DUCT HIGH LIMIT PRESSURE SWITCH SHALL OVERRIDE AHU-3 VFD FAN SPEED SIGNAL AND SHUTDOWN SUPPLY FAN IF PRESSURE OF 5" WC IS SENSED.	
nt		DUCT MOUNTED SMOKE DETECTOR IN DISCHARGE DUCT OF AHU-3 SHALL SHUT	
		OFF UNIT IF SMOKE IS DETECTED. DUCT MOUNTED RETURN AIR SMOKE DETECTORS SHALL CLOSE ASSOCIATED SMOKE DAMPER UPON DETECTION OF SMOKE.	
		PROVIDE DIFFERENTIAL STATIC PRESSURE INDICATION ACROSS PRE-FILTER AND FINAL FILTER BANKS.	
	$\left\langle \right\rangle$	SEQUENCE OF OPERATIONS: EF-1C AND 2C:	
		FAN EF-1C SHALL BE OPERATE IN UNISON WITH EXISTING FANS EF-1A AND 1B TO MAINTAIN EXHAUST PLENUM STATIC PRESSURE SETPOINT.	
		FAN EF-2C SHALL OPERATE IN UNISON WITH EXISTING FANS EF-2A AND 2B TO MAINTAIN EXHAUST PLENUM STATIC PRESSURE SETPOINT.	
		SEQUENCE OF OPERATIONS: EF-3A AND 3B:	
		FANS SHALL BE MOUNTED ON COMMON EXHAUST PLENUM. FANS SHALL BE	
	\langle	MODULATE TO MAINTAIN EXHAUST DUCT STATIC PRESSURE TRANSMITTER SETPOINT (SETPOINT TO BE DETERMINED DURING BALANCING). PROVIDE	
	\geq	DIFFERENTIAL STATIC PRESSURE INDICATION ACROSS FILTERS IN BAG-IN/BAG-OUT FILTER ASSEMBLY.	
	\geq	SEQUENCE OF OPERATIONS: EF-6:	
	\geq	FAN SHALL ME STARTED MANUALLY AND RUN CONTINUOUSLY. SMOKE	
ive ment	$\left\langle \right\rangle$	DETECTORS IN DATA CLOSET(S) (NEW AND EXISTING) SHALL CLOSE ASSOCIATED COMBINATION FIRE/SMOKE DAMPER UPON DETECTION OF SMOKE.	MILLING ST
	$\left\langle \right\rangle$	SEQUENCE OF OPERATIONS: CHILLED WATER PUMPS P-1 & P-2:	CERTA
0		MODIFY CONTROL SEQUENCE OF EXISTING PUMPS AS REQUIRED TO ALLOW P-1 & P-2 TO OPERATE IN LEAD-LAG MODE WITH BOTH PUMPS CAPABLE OF OPERATING	
	$\langle \rangle$	AT THE SAME TIME. LEAD PUMP SHALL OPERATE TO MAINTAIN SYSTEM	
		SPEED AND CANNOT MAINTAIN DIFFERENTIAL PRESSURE SETPOINT, LAG PUMP	
		DIFFERENTIAL PRESSURE SETPOINT. IF BOTH PUMPS ARE OPERATING AND OPERATING BELOW 30% SPEED, LAG PUMP SHALL BE STOPPED AND LEAD PUMP	
	(SHALL MODULATE SPEED TO MAINTAIN DIFFERENTIAL PRESSURE SETPOINT.	
		SEQUENCE OF OPERATION - LABORATORY CONTROLS	
SUPPLY VAV TERMINAL		CONTROLLER SHALL MODULATE GENERAL EXHAUST VALVE FROM MAXIMUM TO MINIMUM TO MAINTAIN SPACE SET POINT TEMPERATURE. SUPPLY VALVE SHALL TRACK EXHAUST AIR FLOW TO MAINTAIN CFM DIFFERENTIAL OFFSET. REHEAT COIL SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SET POINT.	
		FUME HOOD EXHAUST CONTROL THE HOOD CONTROLLER WILL MODULATE THE HOOD EXHAUST VALVE TO MAINTAIN THE HOOD FACE VELOCITY OF 100 FPM. ZONE PRESSURE SENSOR SHALL REDUCE FUME	
			•
		HOOD FACE VELOCITY TO 60 FPM WHEN USERS ARE NOT SENSED IN FRONT OF HOOD. CONTROL SIGNAL FOR ALL AIR TERMINAL DEVICES FOR NON-LABORATORY SPACES SHALL BE OVERRIDDEN TO MINIMUM POSITION UPON FAILURE OF AH-1 OR AH-2.	P.O. BO)
		CONTROL SIGNAL FOR ALL AIR TERMINAL DEVICES FOR NON-LABORATORY SPACES	P.O. BOX

ON	
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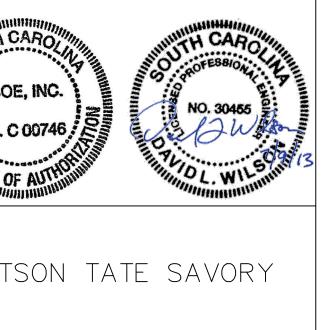


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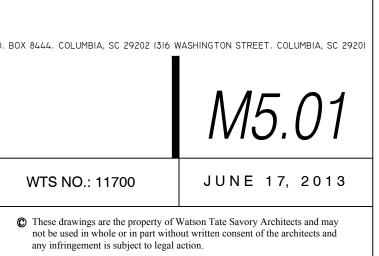
HORIZON I OUND & FOURTH FLOORS UPFIT

versity of South Carolina 541 Main Street lumbia, South Carolina

1.1	DESCRIPTION
/13	ADDENDUM 1



Mechanical irflow Diagrams



						F	AIR TEI	RMI	NAL D	EVIC	ES			
IARK	SERVICE	MANUFACTURER		MAX CFM	MIN. CFM	MAX PRESSURE DROP (EWT TEMP	HEATING COIL			REMARKS
			(IN)			WC)	SP	MBH	EAT TEMP	°F	°F	PRESSURE DROP (FT)	GPM	
VV-1 VV-2	SUPPLY	PHOENIX	8	400 900	400 900	0.6	1	13 29.3	55	180 180	160	20	1	REHEAT COIL TO MATCH BOX OUTLET SIZE REHEAT COIL TO MATCH BOX OUTLET SIZE
VV-3	SUPPLY	PHOENIX	8	500	500	0.6	1	16.3	55	180	160	20	1.5	
VV-4	SUPPLY	PHOENIX	8	150	150	0.6	1	3.3	55	180	160	20	0.5	REHEAT COIL TO MATCH BOX OUTLET SIZE
VV-5	SUPPLY	PHOENIX	8	300	300	0.6	1	6.5	55	180	160	20	0.5	REHEAT COIL TO MATCH BOX OUTLET SIZE
VV-6	SUPPLY	PHOENIX	10	800	250	0.6	1	17.4	55	180	160	20	1.5	REHEAT COIL TO MATCH BOX OUTLET SIZE
VV-7	SUPPLY	PHOENIX	14	1500	625	0.6	1	32.6	55	180	160	20	2.5	REHEAT COIL TO MATCH BOX OUTLET SIZE
VV-8	SUPPLY	PHOENIX	14	1490	625	0.6	1	32.6	55	180	160	20	2.5	
VV-9 VV-10	SUPPLY	PHOENIX	14	2020 2000	(1150)	0.6	1	43.8	55	180	160	20	3	REHEAT COIL TO MATCH BOX OUTLET SIZE REHEAT COIL TO MATCH BOX OUTLET SIZE
VV-10	SUPPLY	PHOENIX	8	380	1130	0.6	1	8.3	55	180	160	20	0.75	REHEAT COIL TO MATCH BOX OUTLET SIZE
VV-12	SUPPLY	PHOENIX	14	1255	650	0.6	1	27.2	55	180	160	20	2	REHEAT COIL TO MATCH BOX OUTLET SIZE
VV-13	SUPPLY	PHOENIX	14	1570	700	0.6	1	34.1	55	180	160	20	3	REHEAT COIL TO MATCH BOX OUTLET SIZE
VV-14	SUPPLY	PHOENIX	(2) 14	2470	1600	0.6	1	54	55	180	160	20	4	REHEAT COIL TO MATCH BOX OUTLET SIZE
VV-15	SUPPLY	PHOENIX	(2) 14	3580	3580	0.6	1	77.7	55	180	160	20	5	REHEAT COIL TO MATCH BOX OUTLET SIZE
VV-16	SUPPLY	PHOENIX	14	2190	2190	0.6	1	47.6	55	180	160	20	3.5	
/V-17 /V-18	SUPPLY	PHOENIX PHOENIX	(2) 14	3580 3580	3580 3580	0.6	1	77.7	55	180	160	20	5	REHEAT COIL TO MATCH BOX OUTLET SIZE REHEAT COIL TO MATCH BOX OUTLET SIZE
/V-10 /V-19	SUPPLY	PHOENIX	12	900	900	0.6	1	19.6	55	180	160	20	1.5	REHEAT COIL TO MATCH BOX OUTLET SIZE REHEAT COIL TO MATCH BOX OUTLET SIZE
V-20	SUPPLY	PHOENIX	10	700	700	0.6	1	15.1	55	180	160	20	1.5	
V-21	SUPPLY	NAILOR	10	700	400	0.6	1	13	55	180	160	20	1	
/V-22	SUPPLY	NAILOR	8	540	200	0.6	1	6.5	55	180	160	20	0.5	
V-23	SUPPLY	NAILOR	10	800	400	0.6	1	13	55	180	160	20	1	
V-24	SUPPLY	NAILOR	8	440	200	0.6	1	6.6	55	180	160	20	0.5	
/V-25	SUPPLY	NAILOR	5	210	100	0.6	1	3.3	55	180	160	20	0.5	
/V-26 /V-27	SUPPLY	NAILOR	5	130 130	100	0.6	1	3.3 3.3	55	180	160	20	0.5	
V-27 V-28	SUPPLY	NAILOR	5	130	100	0.6	1	3.3	55	180	160	20	0.5	
V-29	SUPPLY	NAILOR	5	130	100	0.6	1	3.3	55	180	160	20	0.5	
/-30	SUPPLY	NAILOR	5	130	100	0.6	1	3.3	55	180	160	20	0.5	
/-31	SUPPLY	NAILOR	5	130	100	0.6	1	3.3	55	180	160	20	0.5	
/-32	SUPPLY	NAILOR	5	130	100	0.6	1	3.3	55	180	160	20	0.5	
/-33	SUPPLY	NAILOR	5	130	100	0.6	1	3.3	55	180	160	20	0.5	
/-34	SUPPLY	NAILOR	5	130	100	0.6	1	3.3	55	180	160	20	0.5	
/-35		NAILOR	5	130 200	100	0.6	1	3.3	55	180	160	20	0.5	
V-36 V-37	SUPPLY SUPPLY	NAILOR	5	990	400	0.6	1	3.3 13	55	180 180	160	20	0.5	
V-38	SUPPLY	NAILOR	6	300	300	0.6	1	9.8	55	180	160	20	1	
V-39	SUPPLY	NAILOR	5	230	100	0.6	1	3.3	55	180	160	20	0.5	
V-40	SUPPLY	NAILOR	5	230	100	0.6	1	3.3	55	180	160	20	0.5	
V-41	SUPPLY	NAILOR	10	960	400	0.6	1	13	55	180	160	20	1	
/V-42	SUPPLY	NAILOR	10	755	400	0.6	1	13	55	180	160	20	1	
/V-43	SUPPLY	NAILOR	8	400	400	0.6	1	13	55	180	160	20	1	
/V-44	SUPPLY	PHOENIX	14	2150	2150	0.6	1	46.7	55	180	160	20	3.5	
/V-45 EV-1	SUPPLY	PHOENIX	<u> </u>	310 785	310 350	0.6	1	10	55	180	160		0.75	SEE DRAWINGS FOR QUANTITY AND LOCATIONS
EV-1	EXHAUST	PHOENIX	8	485	200	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS SEE DRAWINGS FOR QUANTITY AND LOCATIONS
EV-3	EXHAUST	PHOENIX	14	1900	1900	0.6								SEE DRAWINGS FOR QUANTITY AND LOCATIONS
EV-4	EXHAUST	PHOENIX	12	945	945	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS
EV-5	EXHAUST	PHOENIX	12	1300	1300	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS
EV-6	EXHAUST	PHOENIX	8	600	600	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS
EV-7	EXHAUST	PHOENIX	8	150	150	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS
EV-8	EXHAUST	PHOENIX	10	750	750	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS
EV-9 EV-10	EXHAUST	PHOENIX	8	450	450	0.6								SEE DRAWINGS FOR QUANTITY AND LOCATIONS
/-10 /-11	EXHAUST	PHOENIX	12	1105 1050	500 1050	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS SEE DRAWINGS FOR QUANTITY AND LOCATIONS
V-11	EXHAUST	PHOENIX	12	2200	2200	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS SEE DRAWINGS FOR QUANTITY AND LOCATIONS
V-13	EXHAUST	PHOENIX	10	850	850	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS
/-14	EXHAUST	PHOENIX 1	8	400	400	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS
/-15	EXHAUST	PHOENIX	12	1050	1050	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS
-16	EXHAUST	PHOENIX	8	650	650	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS
V-17	EXHAUST	PHOENIX	8	300	300	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS
V-18	EXHAUST	PHOENIX	12	1100		0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS
EV-19	EXHAUST	PHOENIX	14	520	200	0.6								SEE DRAWINGS FOR QUANTITY AND LOCATIONS
EV-20 EV-21	EXHAUST	PHOENIX	8	530 950	265 950	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS SEE DRAWINGS FOR QUANTITY AND LOCATIONS
EV-21 EV-22	EXHAUST	NAILOR	8	950 600	600	0.6	I 1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS SEE DRAWINGS FOR QUANTITY AND LOCATIONS
EV-22 EV-23	EXHAUST	NAILOR	4	100	100	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS SEE DRAWINGS FOR QUANTITY AND LOCATIONS
EV-24	EXHAUST	PHOENIX	14	1400	1400	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS
EV-25	EXHAUST	PHOENIX	(2) 14	3920	3920	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS
	EXHAUST	PHOENIX	14	1300	1300	0.6	1							SEE DRAWINGS FOR QUANTITY AND LOCATIONS
EV-26											1			

STATE PROJECT NO.: H27-6081-AC

HORIZON I **GROUND & FOURTH** FLOORS UPFIT

University of South Carolina 541 Main Street Columbia, South Carolina

REV.	DATE	
1	07/17/13	

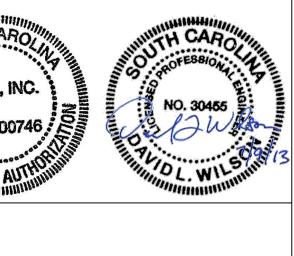


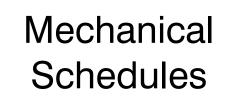
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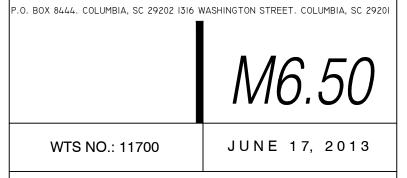
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Ξ	DESCRIPTION
/13	ADDENDUM 1







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											EATING COIL		
MARK	SERVICE	MANUFACTURER	INLET SIZE (IN)	MAX CFM	MIN. CFM	MAX PRESSURE DROP (IN WC)	MIN. INLET SP	MBH	EAT TEMP	EWT TEMP °F	LWT TEMP °F	PRESSURE DROP (FT)	GPM
VV-401	SUPPLY	PHOENIX	(2) 14	3735	2430	0.6	1	81	55	180	160	20	6 REHEA
VV-402	SUPPLY	PHOENIX	14	1745	1600	0.6	1	37.9	55	180	160	20	3 REHEA
VV-403	SUPPLY	PHOENIX	10	650	535	1 0.6	1	14.1	55	180	160	20	1 REHEA
VV-404	SUPPLY	PHOENIX	14	1740	1600	0.6	1	37.9	55	180	160	20	3 REHEA
VV-405	SUPPLY	PHOENIX	8	350	100	0.6	1	7.6	55	180	160	20	0.5 REHEA
VV-406	SUPPLY	PHOENIX	12	1270	1050	0.6	1	27.6	55	180	160	20	2 REHEA
VV-407	SUPPLY	PHOENIX	12	895	410	0.6	1	19.4	55	180	160	20	1.5 REHEA
VV-408	SUPPLY	PHOENIX	12	895	410	0.6	1	19.4	55	180	160	20	1.5 REHEA
VV-409	SUPPLY	PHOENIX	12	1265	1050	0.6	1	27.6	55	180	160	20	2 REHEA
VV-410	SUPPLY	PHOENIX	12	1000	1000	0.6	1	21.7	55	180	160	20	2 REHEA
VV-411	SUPPLY	PHOENIX Y	10	850	850	0.6	1	8.7	55	180	160	20	0.75 (REHEA
VV-412	SUPPLY	PHOENIX	12	1000	1000	0.6	1	21.7	55	180	160	20	2 REHEA
VV-413	SUPPLY	NAILOR	5	175	100	0.6	1	3.3	55	180	160	20	0.5
VV-414	SUPPLY	NAILOR	5	125	100	0.6	1	3.3	55	180	160	20	0.5
VV-415	SUPPLY	NAILOR	5	125	100	0.6	1	3.3	55	180	160	20	0.5
VV-416	SUPPLY	NAILOR	5	125	100	0.6	1	3.3	55	180	160	20	0.5
VV-417	SUPPLY	NAILOR	5	190	100	0.6	1	3.3	55	180	160	20	0.5
VV-418	SUPPLY	NAILOR	6	325	140	0.6	1	4.6	55	180	160	20	0.5
VV-419	SUPPLY	NAILOR	5	125	100	0.6	1	3.3	55	180	160	20	0.5
VV-420	SUPPLY	NAILOR	5	125	100	0.6	1	3.3	55	180	160	20	0.5
VV-421	SUPPLY	NAILOR	5	125 190	100	0.6	1	3.3	55	180 180	160 160	20	0.5
VV-422 VV-423	SUPPLY SUPPLY	NAILOR	5 8	400	200	0.6	1	6.5	55	180	160	20 20	0.5
VV-423	SUPPLY	NAILOR	12	1125	550	0.6	1	17.9	55	180	160	20	1.5
VV-424	SUPPLY	NAILOR	8	460	200	0.6	1	6.5	55	180	160	20	0.5
VV-425	SUPPLY	NAILOR	8	600	200	0.6	1	6.5	55	180	160	20	0.5
VV-427	SUPPLY	NAILOR	6	385	140	0.6	1	4.6	55	180	160	20	0.5
VV-428	SUPPLY	NAILOR	5	280	100	0.6	1	3.3	55	180	160	20	0.5
VV-429	SUPPLY	NAILOR	5	215	100	0.6	1	3.3	55	180	160	20	0.5
VV-430	SUPPLY	NAILOR	5	160	100	0.6	1	3.3	55	180	160	20	0.5
VV-431	SUPPLY	NAILOR	5	100	100	0.6	1	3.3	55	180	160	20	0.5
VV-432	SUPPLY	NAILOR	5	100	100	0.6	1	3.3	55	180	160	20	0.5
VV-433	SUPPLY	NAILOR	5	100	100	0.6	1	3.3	55	180	160	20	0.5
VV-434	SUPPLY	NAILOR	10	510	200	0.6	1	6.5	55	180	160	20	0.5
VV-435	SUPPLY	NAILOR	10	685	400	0.6	1	13	55	180	160	20	1
VV-436	SUPPLY	NAILOR	5	125	100	0.6	1	3.3	55	180	160	20	0.5
VV-437	SUPPLY	NAILOR	5	125	100	0.6	1	3.3	55	180	160	20	0.5
VV-438	SUPPLY	NAILOR	5	100	100	0.6	1	3.3	55	180	160	20	0.5
VV-439	SUPPLY	NAILOR	5	100	100	0.6	1	3.3	55	180	160	20	0.5
VV-440	SUPPLY	NAILOR	5	100	100	0.6	1	3.3	55	180	160	20	0.5
VV-441	SUPPLY	NAILOR	5	145	100	0.6	1	3.3	55	180	160	20	0.5
VV-442	SUPPLY	NAILOR	6	320	140	0.6	1	7.5	55	180	160	20	0.5
VV-443	SUPPLY	NAILOR	5	100	100	0.6	1	3.3	55	180	160	20	0.5
VV-444	SUPPLY	NAILOR	8	700	200	0.6	1	6.6	55	180	160	20	0.5
VV-445	SUPPLY	NAILOR	5	210	100	0.6	1	3.3	55	180	160	20	0.5
VV-446	SUPPLY	NAILOR	6	320	140	0.6	1	4.6	55	180	160	20	0.5
VV-447	SUPPLY	NAILOR	5	210	100	0.6	1	3.3	55	180	160	20	0.5
VV-448	SUPPLY	NAILOR	6	285	140	0.6	1	4.6	55	180	160	20	0.5
VV-449	SUPPLY	NAILOR	8	400	400	0.6	1	11.3	55	180	160	20	0.75
VV-450	SUPPLY	NAILOR	16	2430	1000	0.6	1	33	55	180	160	20	2.5
VV-451	SUPPLY	NAILOR	5	160	100	0.6	1	3.3	55	180	160	20	0.5
EV-401	EXHAUST	PHOENIX	10	785	350	0.6	1						SEE DI
EV-402	EXHAUST	PHOENIX	8	485	200	0.6	1						SEE DI
EV-403	EXHAUST	PHOENIX	12	1380	1380	0.6	1						SEE DI
EV-404	EXHAUST	PHOENIX	8	600	200	0.6	1						SEE DI
EV-405	EXHAUST	PHOENIX	8	150	150	0.6	1						SEE DI
EV-406	EXHAUST	PHOENIX	12	970	485	0.6	1						SEE DI
EV-407	EXHAUST	PHOENIX	12	1000	1000	0.6	1						SEE DI
EV-408	EXHAUST	PHOENIX	14	1900	1900	0.6	1						SEE DI
EV-409	EXHAUST	PHOENIX	2 (14)	3000	3000	0.6	1						SEE DI
EV-410	EXHAUST	PHOENIX	10	785	350	0.6	1						SEE DI
EV-411	EXHAUST	PHOENIX	8	500	250	0.6	1						SEE DI
EV-412	EXHAUST	PHOENIX	12	1150	1150	0.6	1						SEE DI
EV-413	EXHAUST	NAILOR	8	600	600	0.6			1				SEE DI

		SERVICE MANUFACTURER INLET SIZE (IN) MAX CFM MIN. CFM MAX PRESSURE DROP (IN MIN. INLET SP		HEATING COIL										
MARK	SERVICE				MBH	EAT TEMP	EWT TEMP °F	LWT TEMP °F	PRESSURE DROP (FT)	GPM				
VV-118B	SUPPLY	PHOENIX	(2) 14	3805	3370	0.6	1	82.6	55	180	160	20	5	REHEA
EV-118B3	EXHAUST	PHOENIX	(2) 14	3220	3220	0.6	1							SEE DR

AIR TERMINAL DEVICES

DEMARKO
REMARKS
HEAT COIL TO MATCH BOX OUTLET SIZE
HEAT COIL TO MATCH BOX OUTLET SIZE
HEAT COIL TO MATCH BOX OUTLET SIZE
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HEAT COIL TO MATCH BOX OUTLET SIZE
E DRAWINGS FOR QUANTITY AND LOCATIONS

STATE PROJECT NO.: H27-6081-AC

REV.	DATE	
1	07/17/13	



REMARKS

EHEAT COIL TO MATCH BOX OUTLET SIZE

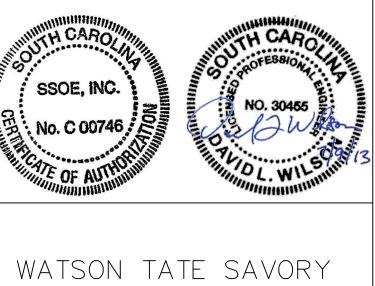
E DRAWINGS FOR QUANTITY AND LOCATIONS



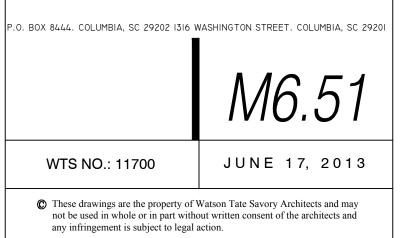
HORIZON I **GROUND & FOURTH** FLOORS UPFIT

University of South Carolina 541 Main Street Columbia, South Carolina

Ξ	DESCRIPTION
/13	ADDENDUM 1



Mechanical Schedules



SUPPLY FAN DATA COIL DATA				
		RETURN FAN	FILTER DATA	
MARK SERVICE MFR. MODEL CFM TOTAL CFM O.A. ESP. IN. TSP. IN. VFD ELECT. HP SERVICE COIL MAX FACE AP AIR IN. ENTERING AIR TEMP. LEAVING AIR TEMP. MBH TOTAL / MEDIUM G			D SERVICE TYPE % EFF FACE	INITIAL $\triangle P$ IN. DIRTY $\triangle P$ IN. REM.
CFM TOTAL CFM O.A. W.G. W.G. W.G. CFM CFM CFM CFM VEL. FPM W.G. DB °F WB °F DB °F WB °F SENSIBLE MEDIUM G	W.G.		ASHRAE VELOCITY	W.G. W.G.
AH-3 LABS MCQUAY CAH141GDAC 60000 60000 3 7 YES 460/3/60 10 COLING 60000 500 1 96 76 51.1 50.9 5013 WATER 9	984 42 25	20000 4 20 460/3/60 YES	S PRE CART 30 500	0.28 0.7
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	138 180		- FINAL RIGID 95 500	0.44 1.5

MARK	LOCATION	AREA SERVED	MFR.	MODEL	CAPACITY (CFM)	STATIC PRESSURE (IN WG)	RPM	ELECT. V/PH/HZ	MOTOR (HP)	DRIVE TYPE	REMARKS
EF-1C	ROOF	LAB VAV EXHAUST	STROBIC AIR	TS4L600C12	40000	4	1170	460/3/60	60	DIRECT	FAN TO MOUNT ON EXISTING EXHAUST PLENU
EF-2C	ROOF	LAB VAV EXHAUST	STROBIC AIR	TS4L600C12	40000	4	1170	460/3/60	60	DIRECT	FAN TO MOUNT ON EXISTING EXHAUST PLENU
EF-3A	ROOF	RADIOISOTOPE FUME HOOD	STROBIC AIR	BS00218	1500	4	1770	460/3/60	3	DIRECT	MOUNT EF-3A, 3B AND 3C ON COMMON PLENU
EF-3B	ROOF	RADIOISOTOPE FUME HOOD	STROBIC AIR	BS00218	1500	4	1770	460/3/60	3	DIRECT	MOUNT EF-3A, 3B AND 3C ON COMMON PLENU
EF-3C	ROOF	RADIOISOTOPE FUME HOOD	STROBIC AIR	BS00218	1500	4	1770	460/3/60	3	DIRECT	MOUNT EF-3A, 3B AND 3C ON COMMON PLENU
EF-6	PENTHOUSE	DATA CLOSETS	GREENHECK	CWB180	3855	1.25	1360	460/3/60	2	BELT	
EF-7	PENTHOUSE	TOILET EXHAUST	GREENHECK	CWB200	3400	2.5	1535	460/3/60	3	BELT	

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	PUMP SCHEDULE														
	MARK TYPE			MODEL	FLOW GPM	INLET SIZE	OUTLET	FEET OF LIQUID	LIQUID TO BE HANDLED		ELECTRICAL	MIN MOTOR			
MARK		SYSTEM SERVED	MANUFACTURER				SIZE	TOTAL HEAD	TYPE	SP. GRAV	TEMP F		HP	RPM	NOTES
HWP-1	INLINE	HOT WATER COIL PUMP AHU-3	B&G	SERIES 80 - 3X3X7B	138	3"	3"	40	WATER	1	180	460/3/60	3	1750	
P-15	INLINE	PCWS	B&G	SERIES 90 - 1A	15	1	1	90	WATER	1	65	460/3/60	2	3450	

AIR HANDLING UNITS	5

MARK	SERVICE	TYPE	FACE SIZE	NECK SIZE	MAX CFM	REMARKS
E-1	EXHAUST	LOUVER	SEE PLANS	SEE PLANS	SEE PLANS	BASED ON NAILOR 6145H
E-2	EXHAUST	LOUVER	24X24	SEE PLANS	SEE PLANS	BASED ON NAILOR 6145H
E-3	EXHAUST	BAR	8X8	8X8	300	NOT USED
R-1	RETURN	LOUVER	24X12	22X12	1680	BASED ON NAILOR 4302
R-2	RETURN	LINEAR	48X4	SEE PLANS	SEE PLANS	NOT USED
SP-1	SUPPLY	LOUVER	24X24	SEE PLANS	SEE PLANS	BASED ON NAILOR UNI
SP-2	SUPPLY	RADIAL	48X12	12	750	BASED ON NAILOR 92FRP-2
SP-3	SUPPLY	BAR	8X4	8X4	300	BASED ON NAILOR 49-280
SP-4	SUPPLY	LINEAR	48X4	6	150	NOT USED
SP-6	SUPPLY	ROUND	10	6	200	NOT USED
SP-8	SUPPLY	LINEAR BAR	36x6	36X6	720	1/2" SPACING, 0 DEGREE DEFLECTION, BASED ON NAILOR 49-280

 $\label{eq:linear}$

HORIZON I **GROUND & FOURTH** FLOORS UPFIT

REV.	DATE
1	07/17/13

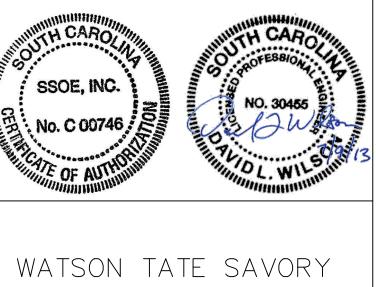




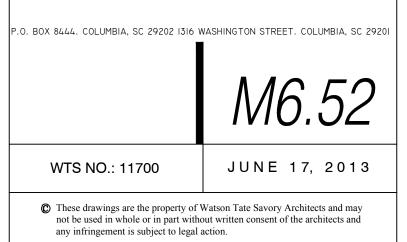
STATE PROJECT NO.: H27-6081-AC

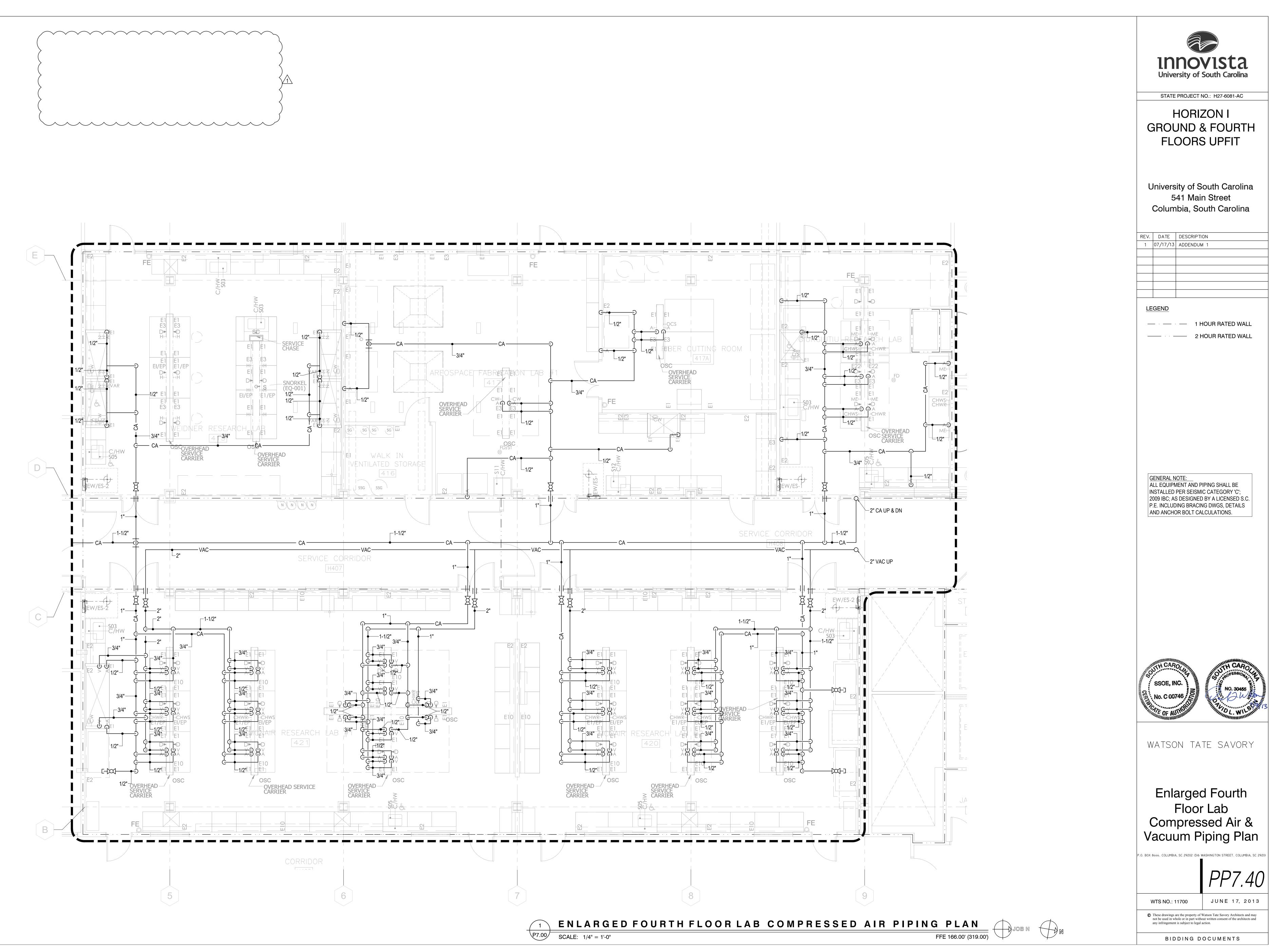
University of South Carolina 541 Main Street Columbia, South Carolina

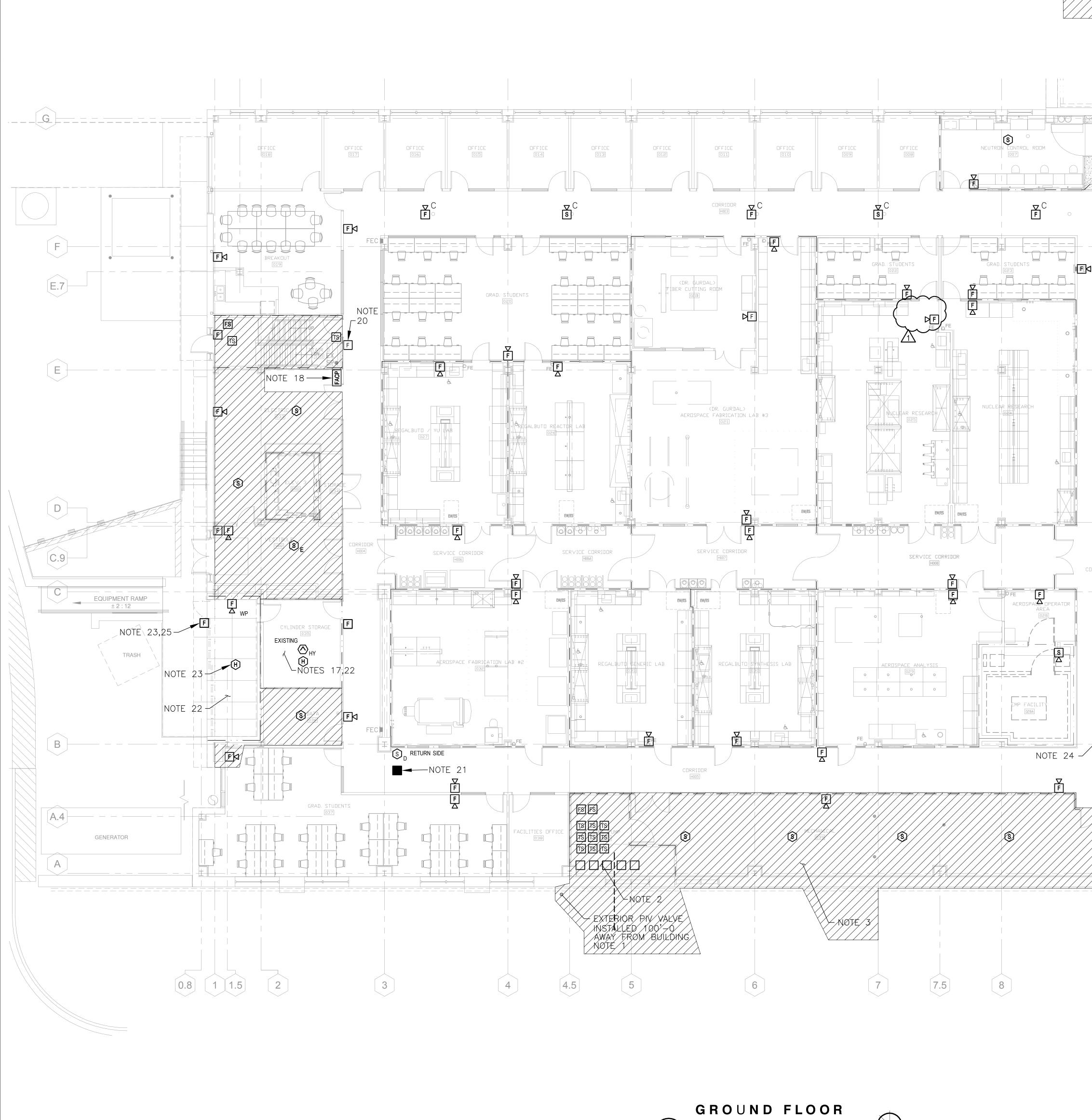
Ξ	DESCRIPTION
/13	ADDENDUM 1



Mechanical Schedules



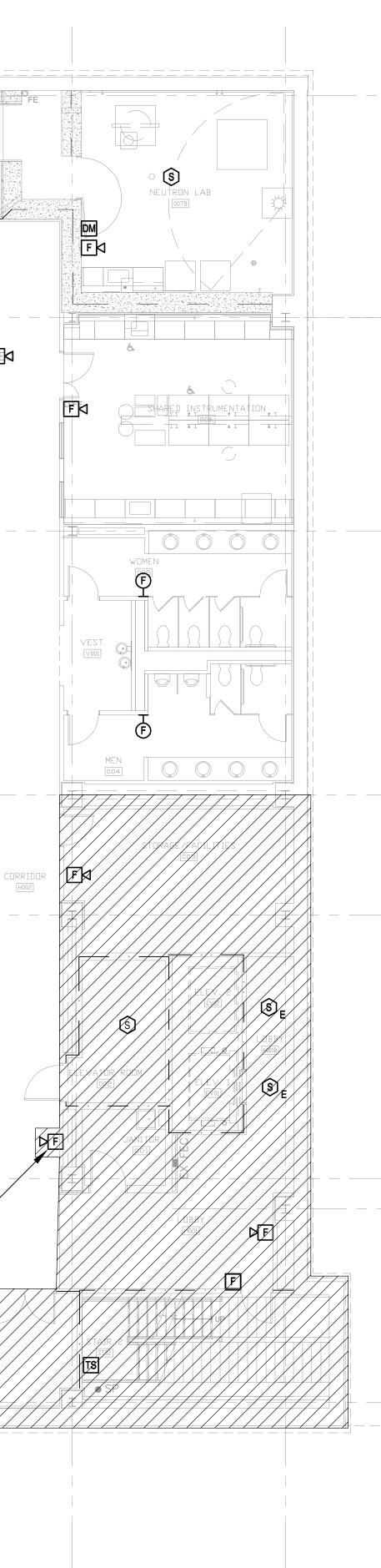








INDICATES EXISTING EQUIPMENT/DEVICES



10

NOTES:

/FIRE ALARM SYSTEM PIV DEVICE; A. PROVIDE UNDERGROUND RACEWAY AND WIRING (WIRE/SHALL/BE/RATED/FOR/UNDERGROUND/USE, FOR FIRE PROTECTION VALVE PW AS SHOWN.) B. PROVIDE MINIMIN 1. C. (RES) UNDERGROUND FROM/PKV/TO/INSIDE/BUILDING Č, VALVE /ÉMØ /—/ CONTRACTOR /ŠHALL /STUB-/YP/

/CONDUT/ABOVE/CRADE, PROVIDE/PULLBOX/(WP) AND/CONDUIT/CONNECTION/TO/PW, Ø,/W\$TALL /2#1/4/FRØM /PW/TØ/FIRE /ALARM /PAWÉL TÉRMINATÉ WIRE AT PIV. /PRØVIDE/MNE/TAMPER/AND/TWO/FLØW/SWITCH/

/MÓNITØRHNG/ÞÓHNTS/ØN/FIRE/ALÁRIN/SYSTEM. 3. PROVIDE FOUR/INPUTS FOR FIRE PUMP MONITORING ÓN FIRE ALARM SYSTEM. 4/INSTALL /A/MACURCØ/HP/1/2/HYDROGEN/FLAME/

/DETECTOR/IN/CYLINDER/MANAGEMENT/ROØW/048/AND/ YE/ INTO/ FIRE/ ALARM/ PANEL 3. ÉACH/FIRÉ/ALARM/INITIATING DEVICÉ/SHALL/BE/A/

/SMGLE/ADDRESSABLE/POMIT, SEE PLANS FOR ZÖCATIONS/AND/QUANTITY.

6. DUCT SMOKE DETECTORS SHALL BE WIRED TO SHUT ØFF POWER TO LOCAL SUPPLY AND EXHAUST IR HANDLING EQUIPMENT. MOUNT SO THAT THE DEVICE IS ACCESSABLE. VERIFY PLACEMENT WITH MECHANICAL TRADES AND OWNER. BOTH ENDS OF THE DUCT ØETECTØR SHALL BE SECURED, AND THE SUPPLY END CAPPED. INSTALL REMOTE KEYED TEST SWITCH, VERIPY LOCATION WITH OWNER PRIOR TO INSTALLATION. INCOMING/120VAC/POWER/SHALL/BE/EQUIPPED/WITH ADDITIONAL/SURGE/SUPPRESSION/SEPARATE/FROM/THE/

FIRE ALARM PANEL SAME LINE OF SIGHT, OR IN THE SAME ROOM, THE STRØBE/SHALL/FLASH/IN/SYNCHRONIZATION,/THE STROBE SHALL BE PLACED 80" AFF FROM THE BOTTOM OF THE LENS. STROBES SHALL HAVE A MINIMUM OUTPUT OF 75 CANDELA DESIGN CANDELA OUTPUT BASED ON ROOM REQUIREMENTS, CANDELA OUTPUT WILL VARY WITH LOCATION. LARGE AREAS WILL

REQUIRE/1/10/CANDELA/MINIMUM 9. /HØRN/ STRØBÉS /SHALL /BE/MØUNTED/ AT/ STRØBE/ HEIGHT,

10, ELEVATOR RECALL IS REQUIRED AND ALL EQUIPMENT AND INTERCONNECTIONS SHALL BE PROVIDED BY THE CONTRACTOR. THE SYSTEM MUST COMPLY WITH ANSI/ASME. THE ELEVATOR RECALL SYSTEM SHALL BE TIED INTO THE FIRE ALARM SYSTEM ON A PER FLOOR/PER/ELEVATOR/SHAFT/BASIS/FOR/FIRE/ALARM/ NOTIFICATION/A/DUAL/SHUNT/TRIP/BREAKER/SHALL/BE/ PROVIDED. COORDINATE WITH THE ELEVATOR PROVIDER FOR RECALL OPERATION AND ILLUMINATING REQUIRED LIGHTS A SMOKE AND HEAT DETECTOR SHALL BE MOUNTED AT THE TOP OF EACH SHAFT AND SHALL PERFORM DUAL FLOOR RECALL OPERATION AS REQUIRED. COORDINATE WITH VENDOR TO INSURE THAT OPERATION OF SHUNF TRIP BREAKER FORCES ELEVATOR TO PRIMARY OR SECONDARY EGRESS FLOOR.

LÓCATE SMOKE DETECTÓRS AND HEAT DETECTORS SÓ INSTALLATION.

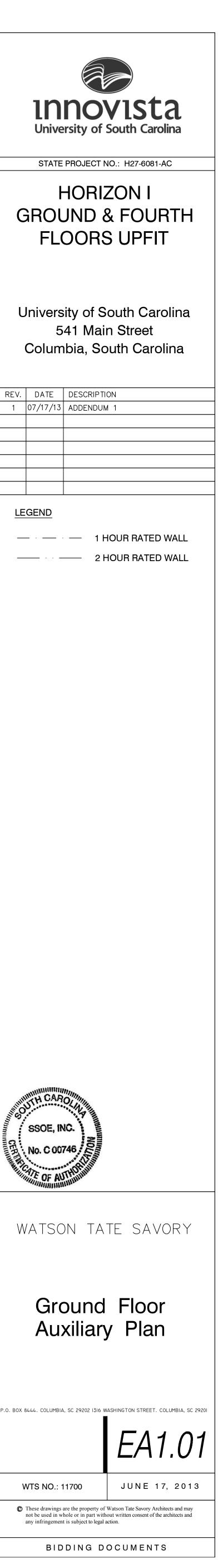
2. GENERATOR/CONTROL PANEL MØNTOR /PØINTS/(TEN/ TOTALY AND FIRE PUMP/MONITOR POINTS (MINIMUM OF SIXY ŚHALL INCLUDE 'GENERATOR TROUBLE' GÉMERATÓR /SELECTÓR /SWIJCH / ØF/F'/ 'GEMÉRATÓR ! /RUMMING','/GENERATOR/ALARM','/PUMP/RUMMING', PUKIP/TROUBLE' AND 'PUMP IN MANUAL POSITION' 13. COORDINATE WITH KITCHEN EQUIPMENT SUPPLIER TO INSURE THAT ALL FIRE DEVICES INCLUDING FLAME HOODS ARE MONITORED.

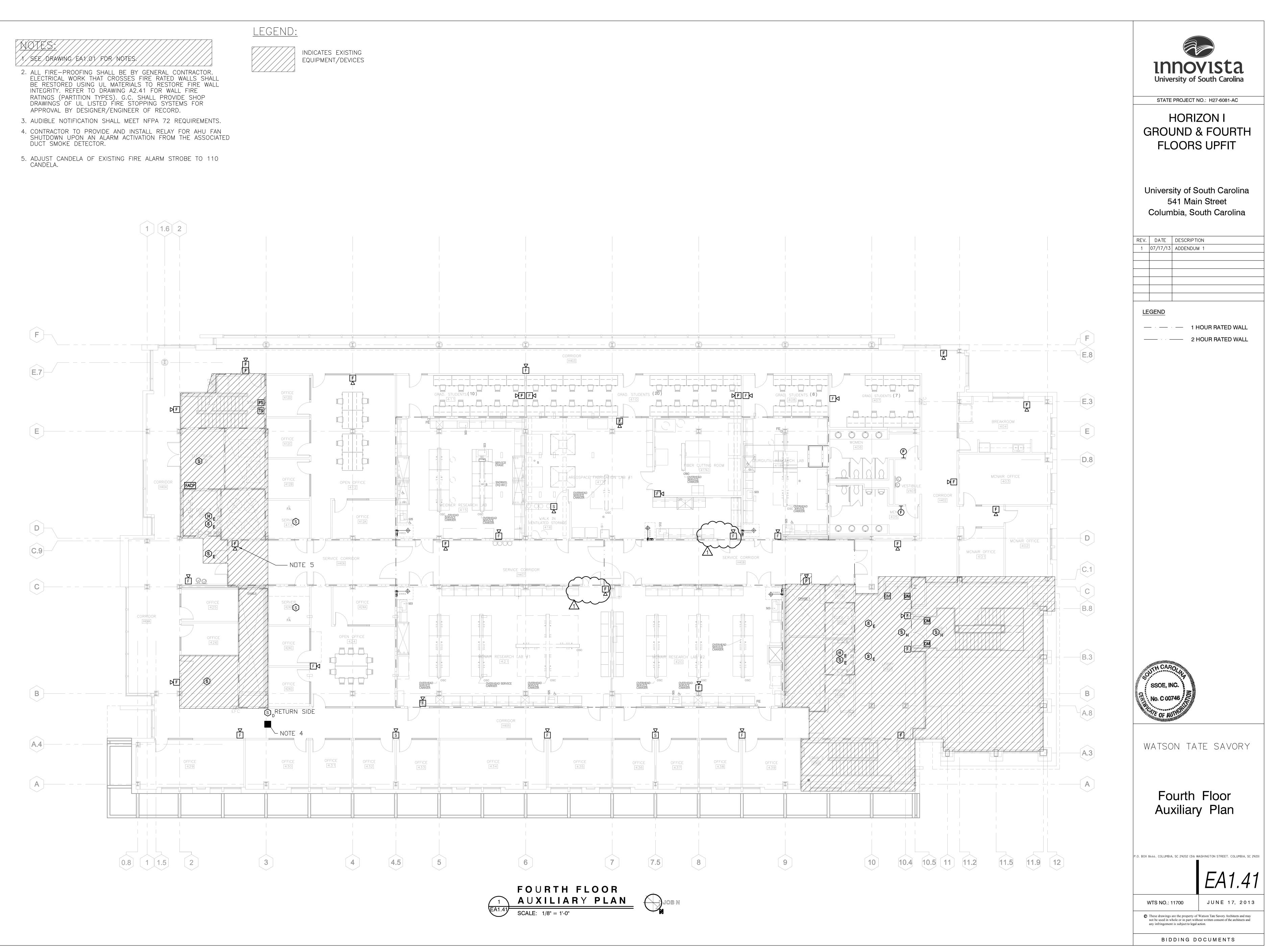
PANEL AND SECURITY BIS HEADEND TO PROVIDE FOR OFF-SITE MONITORING AND HARD-WRED DOOR RELEASE/IN/THE/EVENT/OF/A/FIRE/ALARM,

15. PROVIDE FOR 20% EXPANSION ON ALL ADDRESSABLE LOOPS AND AUDIBLE CIRCUITS.

4, PRØVIDE/HARDWARE/INTERFACE/BETWEEN/FIRE/ALARM

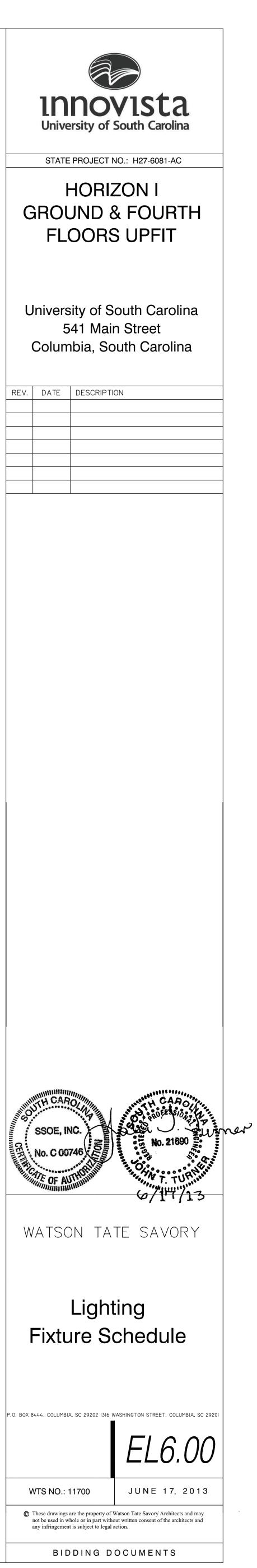
- 16. ALL FIRE-PROOFING SHALL BE BY GENERAL CONTRACTOR. ELECTRICAL WORK THAT CROSSES FIRE RATED WALLS SHALL BE RESTORED USING UL MATERIALS TO RESTORE FIRE WALL INTEGRITY. REFER TO DRAWING A2.01 FOR WALL FIRE RATINGS (PARTITION TYPES). G.C. SHALL PROVIDE SHOP DRAWINGS OF UL LISTED FIRE STOPPING SYSTEMS FOR APPROVAL BY DESIGNER/ENGINEER OF RECORD.
- 17. EITHER TEST OR REINSTALL EXISTING MACURCO HP-12 HYDROGEN FLAME DETECTOR IN THE CYLINDER STORAGE ROOM, NUMBER 035. THIS DEVICES IS THE BE MONITORED BY THE BUILDING FIRE ALARM SYSTEM. IT NEEDS TO BE TESTED PER THE NFPA 72 REQUIREMENTS FOR THIS CONTRACT.
- 18. RELOCATE THE EXISTING FIRE ALARM PANEL TO THE NORTH WALL OF THE ELECTRICAL ROOM (033) JUST WEST OF THE DOUBLE DOOR.
- 19. AUDIBLE NOTIFICATION SHALL MEET NFPA 72 REQUIREMENTS.
- 20. RELOCATE THE EXISITNG MANUAL PULL STATION TO THE NEW STAIR DOOR LOCATION ON THE EAST SIDE OF THE DOOR.
- 21. CONTRACTOR TO PROVIDE AND INSTALL RELAY FOR AHU FAN SHUTDOWN UPON AN ALARM ACTIVATION FROM THE ASSOCIATED DUCT SMOKE DETECTOR.
- 22. THIS AREA IS CLASSIFIED AS HAZARDOUS (H2) SO ALL CABLE, CONDUIT, AND DEVICES SHALL BE RATED FOR CLASSIFICATION CLASS 1 DIVISION 2 AS REQUIRED BY THE NATIONAL ELECTRICAL CODE SECTION 500.
- 23. USE A NON-ADDRESSABLE DEVICE WITH A MONITOR MODULE CONNECTED TO IT AND INSTALL THE MONITOR MODULE IN A NON-HAZARDOUS AREA.
- 24. CONTRACTOR TO REMOVE DEVICE DURING CONSTRUCTION P.O. BOX 8444. COLUMBIA, SC 29202 1316 WASHINGTON STREET. COLUMBIA, SC 29201 FOR ADDITIONAL WORK TO THE WALL. COORDINATE WITH THE GENERAL CONTRACTOR FOR THE REINSTALLATION OF THIS DEVICE.
- 25. PROVIDE DEVICE AND CONDUIT SUPPORTS AS REQUIRED FOR INSTALLATION ON CHAIN LINK FENCE.





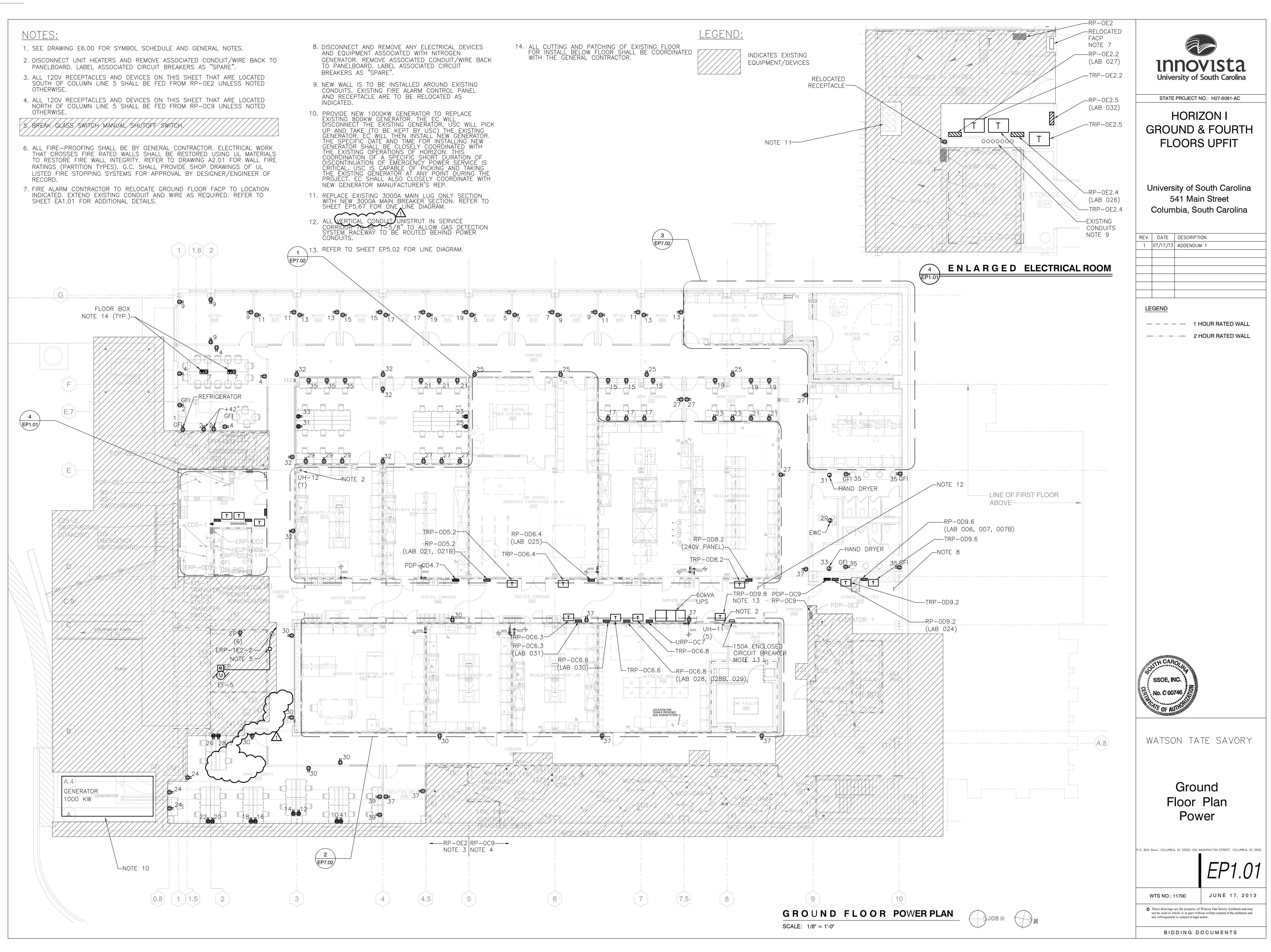


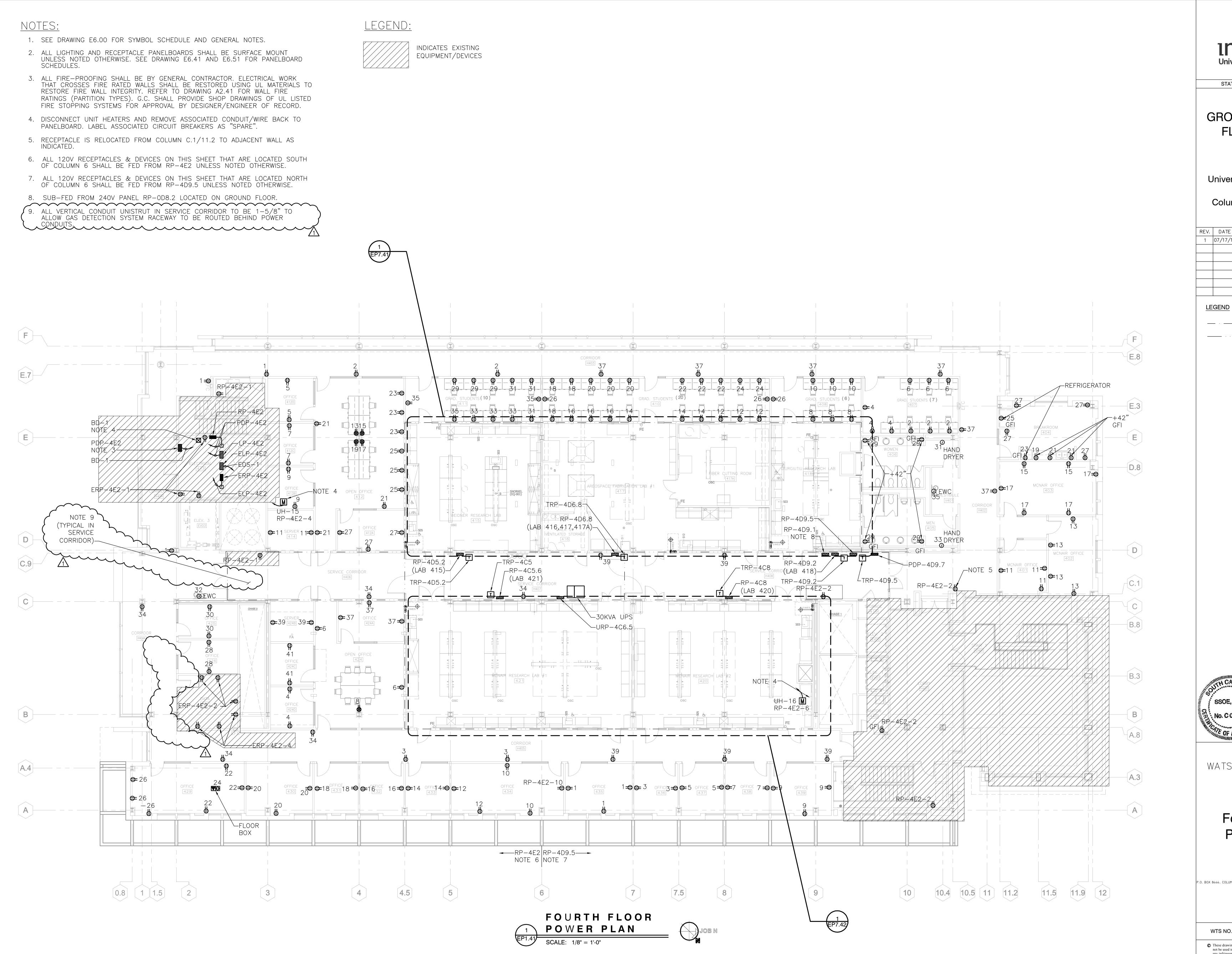
YPE	LAMPS	DESCRIPTION	VOLTS	MFR. & CAT. NO.	COMMENTS
A1	(2) F54T5HO	PENDANT, INDIRECT, FLUORESCENT MOUNTED 12" BELOW CEILING, PARALLEL BLADE LOUVER WITH ACRYLIC DIFFUSER, DUAL CIRCUIT, <10%THD FUSED PROGRAMMED START BALLAST WITH HIGH POWER FACTOR, TITANIUM SILVER FINISH, RUN LENGTH TO MATCH APPLICATION	277V	FOCALPOINT TWELVE SERIES OR APPROVED EQUAL	
A2	(2) F54T5HO	SAME AS TYPE 'A1' EXCEPT WITH 0-10V ELECTRONIC DIMMING BALLAST	277V	FOCALPOINT TWELVE SERIES OR APPROVED EQUAL	
B1	(3) F25T8 (25W)	RECESSED 2' X 4' PARABOLIC TROFFER WITH LOW IRIDESCENT ANDODIZED DIFFUSE ALUMINUM LOUVER WITH NON-DIRECTIONAL OPTICS, 18 CELL LOUVER, TWO (2) <10%THD FUSED PROGRAMMED START BALLASTS WITH HIGH POWER FACTOR	277V	LITHONIA 2PM3 SERIES OR APPROVED EQUAL	
B2	(4) F25T8 (25W)	SAME AS TYPE 'B2' EXCEPT WITH FOUR (4) LAMPS AND 24 CELL LOUVER	277V	LITHONIA 2PM3 SERIES OR APPROVED EQUAL	
D	(1) 32W TRT	6" ROUND APERATURE FLUORESCENT DOWNLIGHT WITH LOW-IRIDESCENT SPECULAR ALZAK REFLECTOR, FUSED ELECTRONIC BALLAST, HORIZONTAL LAMP	277V	LITHONIA LF6N OR APPROVED EQUAL	
E	(1) 26W TRT	4" ROUND APERATURE FLUORESCENT DOWNLIGHT WITH LOW-IRIDESCENT SPECULAR ALZAK REFLECTOR, FUSED ELECTRONIC BALLAST	277V	GOTHAM AFV SERIES, OCEAN STATE FLV SERIES, OR APPROVED EQUAL	
F	(1) F54T5HO	FLUORESCENT WALL WASHER, NARROW APERATURE, POWDER COATED WITH SPECULAR REFLECTOR, ASYMMETRIC FIXTURE, <10%THD FUSED ELECTRONIC BALLAST	277V	FOCALPOINT AVENUE A SERIES, PMC S33R SERIES, OR APPROVED EQUAL	
G1	(2) F32T8	4' GENERAL PURPOSE FLUORESCENT CHANNEL, WALL MOUNTED WITH WIRE GUARD, <10%THD FUSED ELECTRONIC BALLAST	277V	LITHONIA C SERIES OR APPROVED EQUAL	
Н	(1) BIAX 18W	1' FLUORESCENT WALL SCONCE WITH LINEAR OPAL ACRYLIC DIFFUSER IN TITANIUM SILVER FINISH	277V	FOCALPOINT METRO SERIES, BETA CALCO 61 SERIES, OR APPROVED EQUAL	
J	(1) F32T8	4' FLUORSECENT WALL WASHER FIXTURE, <10%THD FUSED ELECTRONIC BALLAST	277V	FOCALPOINT FOCUS 4 SERIES, COLUMBIA CS4 SERIES, OR APPROVED QUAL	
X	LED	LED EXIT FIXTURE WITH DIE-CAST ALUMINUM CONSTRUCTION, UNIVERSAL MOUNTING, NICAD BATTERY 90 MINUTE EMERGENCY OPERATION, BRUSHED ALUMINUM W/ BLACK HOUSING, LISTED FOR 100' VIEWING DISTANCE	277V	PHILLIPS CX SERIES OR APPROVED EQUAL	

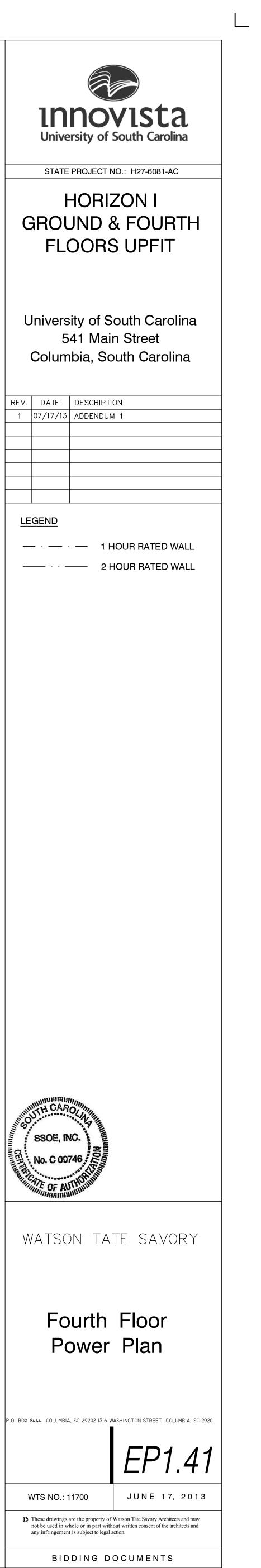


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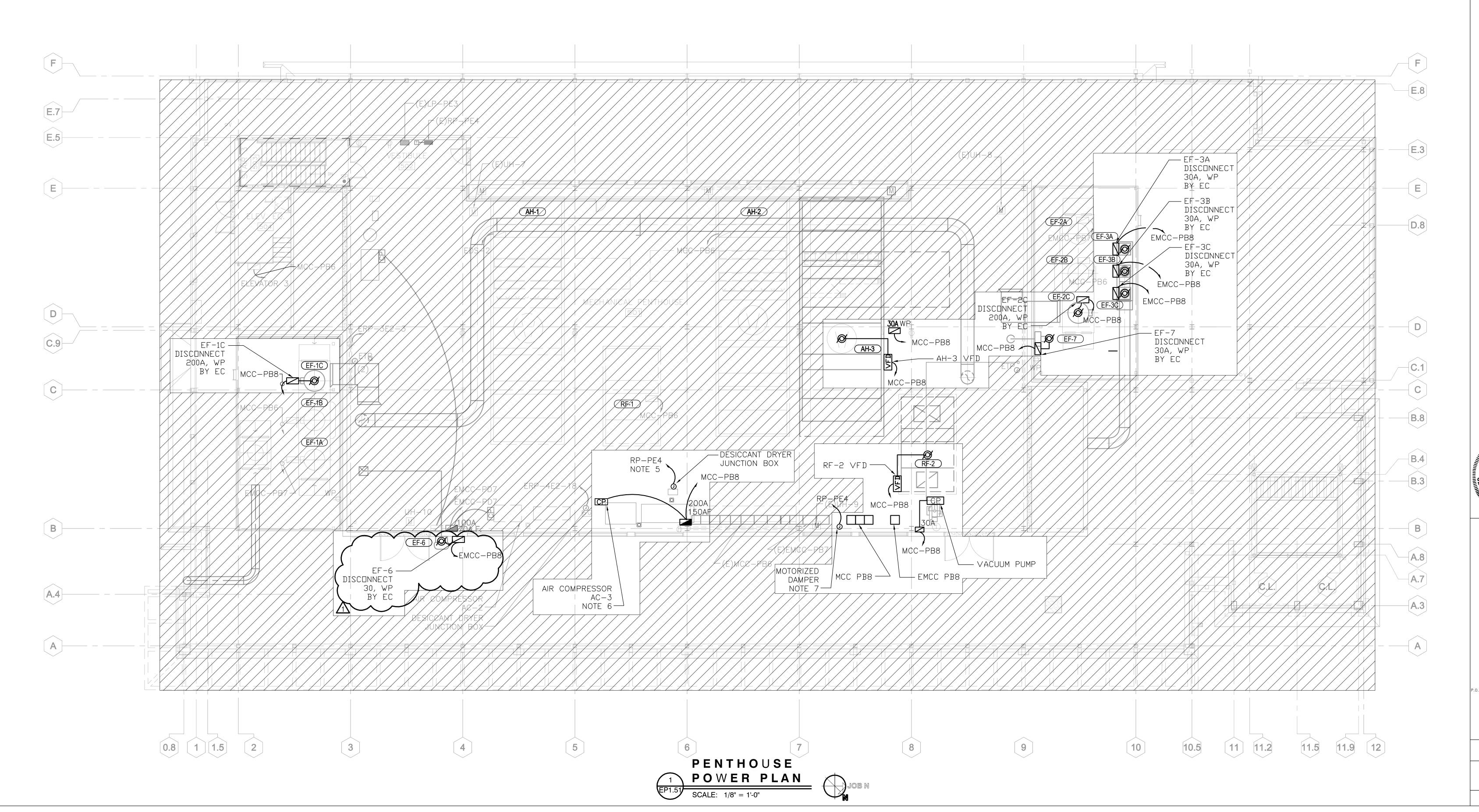






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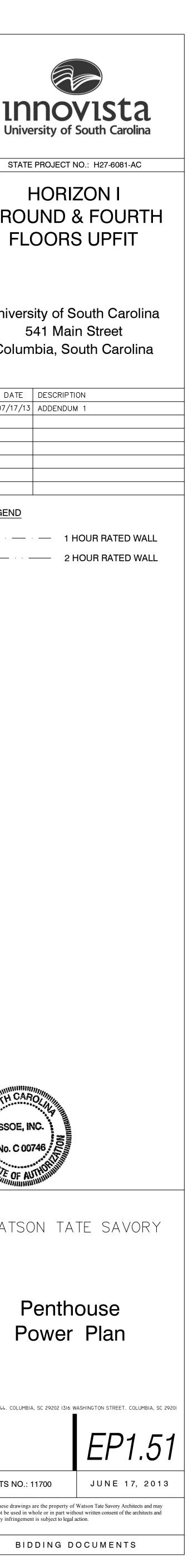
- 1. REFER TO DRAWING E6.00 FOR SYMBOL SCHEDULE AND GENERAL NOTES.
- 2. HATCH AREAS INDICATE EXISTING DEVICES
- 3. REFER TO DRAWING EP5.65 FOR MCC ONE LINE DIAGRAMS.
- 4. ELECTRICAL WORK THAT CROSSES FIRE RATED WALLS SHALL BE RESTORED USING UL MATERIALS TO RESTORE FIRE WALL INTEGRITY. REFER TO DRAWING A2.51 FOR WALL FIRE RATINGS (LEGEND). PROVIDE SHOP DRAWINGS OF UL LISTED FIRE STOPPING SYSTEMS FOR APPROVAL BY DESIGNER/ENGINEER OF RECORD.
- 5. UTILIZE EXISTING SPARE 20A, 1-POLE CIRCUIT BREAKER IN PANEL RP-PE4 FOR DESICCANT DRYER CIRCUIT.
- 6. AIR COMPRESSOR CONTROL PANEL SHALL BE PROVIDED BY AIR COMPRESSOR PROVIDER. PROVIDE FUSED DISCONNECT WITH CLASS RK5 FUSES. COORDINATE FINAL SHORT CIRCUIT PROTECTION AND CABLE REQUIREMENTS WITH EQUIPMENT PROVIDER PRIOR TO INSTALLATION.
- 7. PROVIDE 120V, 20A CIRCUIT TO EXISTING PANEL RP-PE4. UTILIZE NEXT AVAILABLE OR SPARE BREAKER.

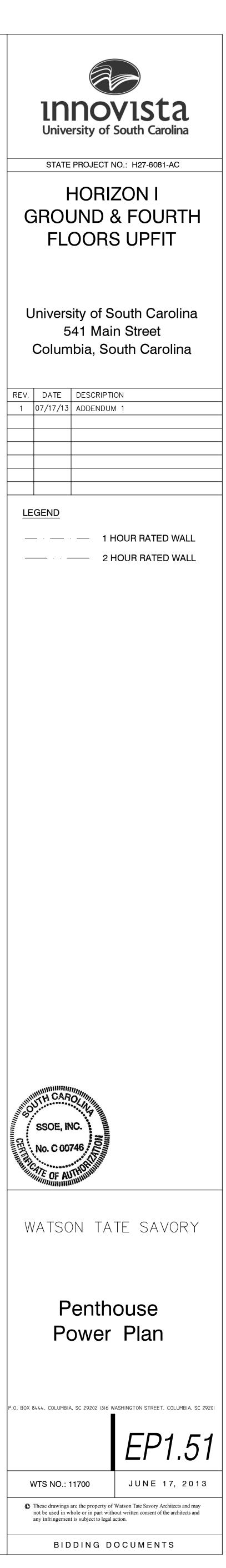


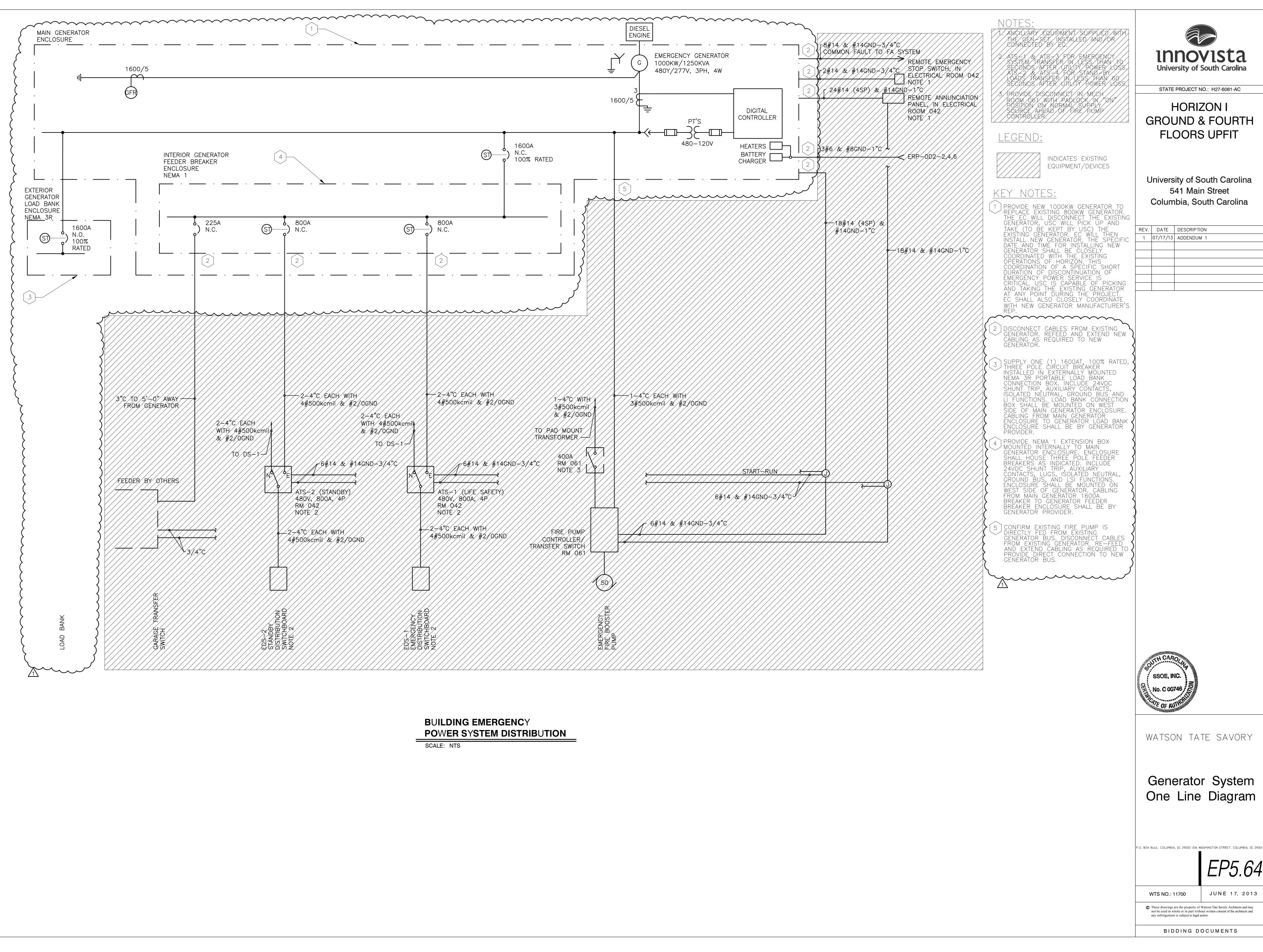
<u>LEGEND:</u>



INDICATES EXISTING EQUIPMENT/DEVICES

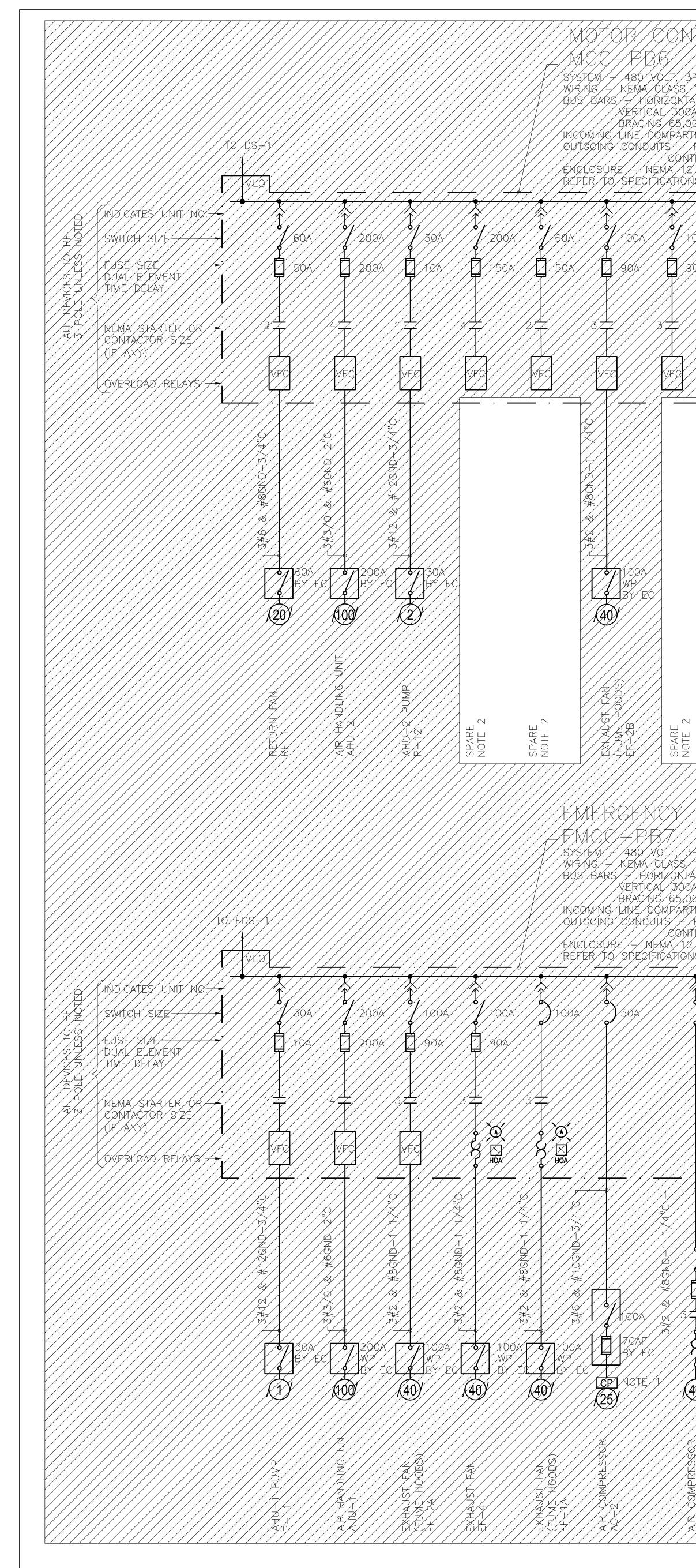


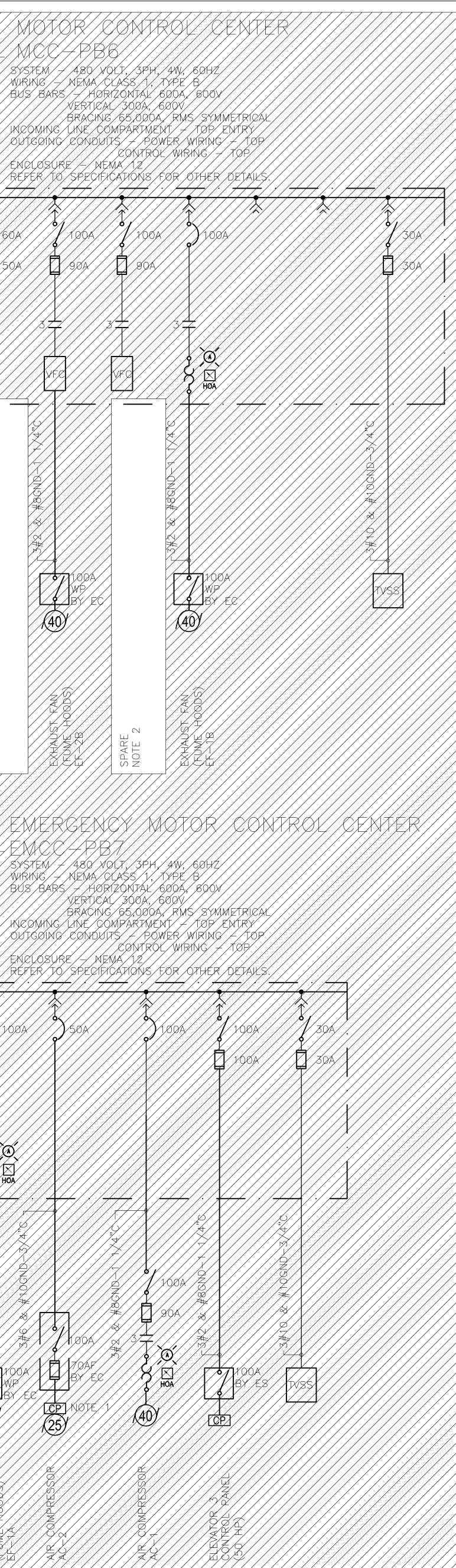


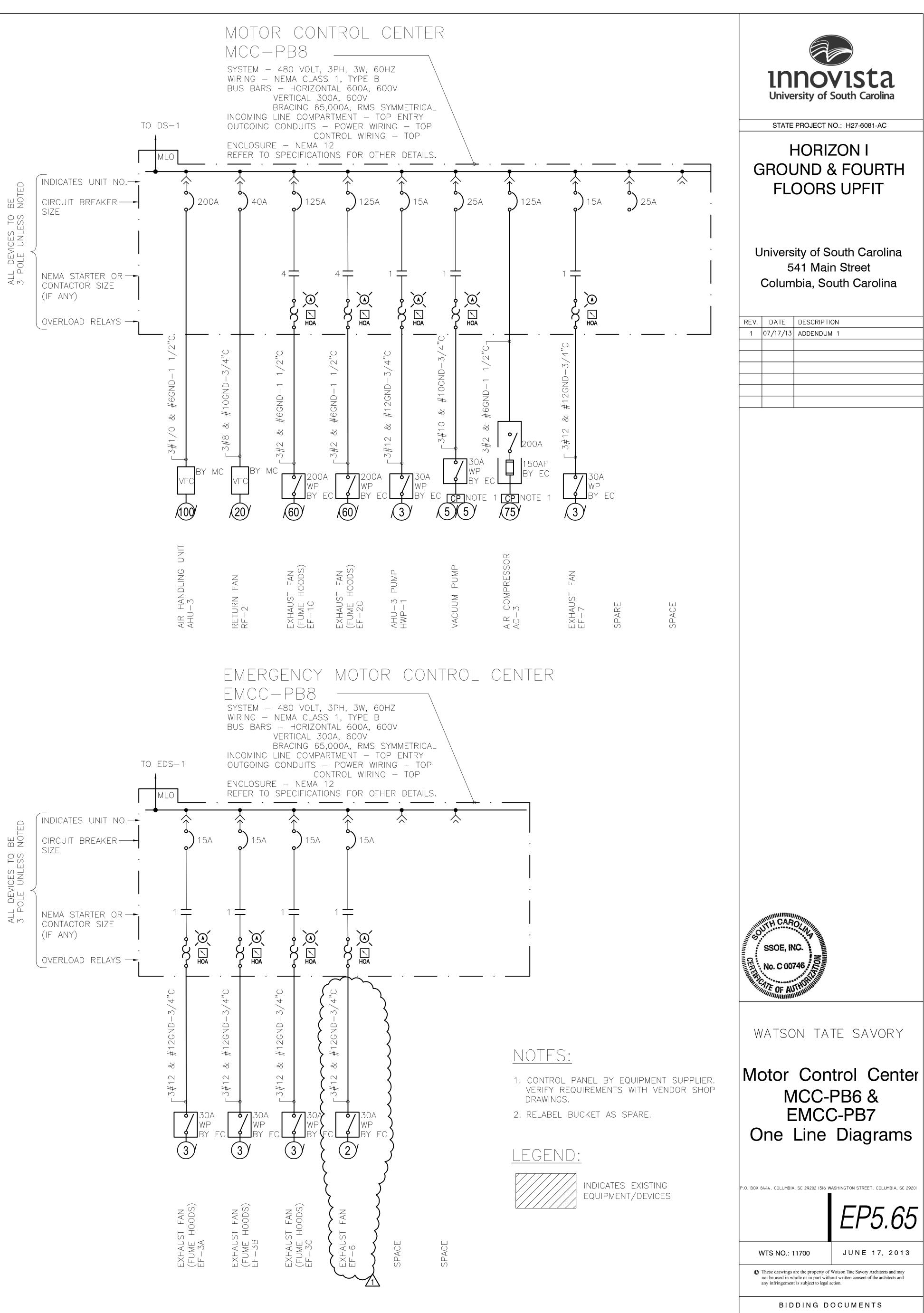


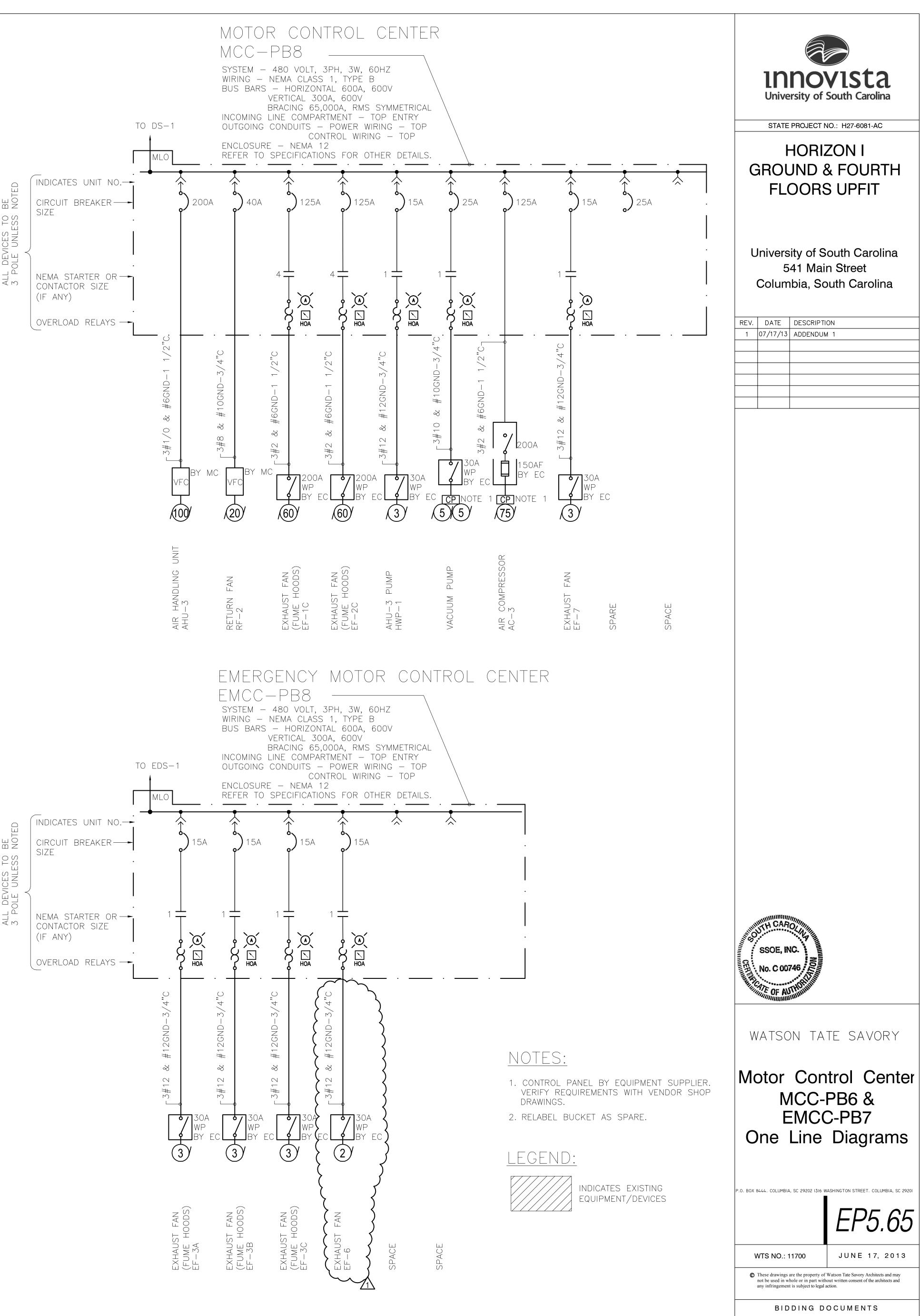
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13	ADDENDUM 1	

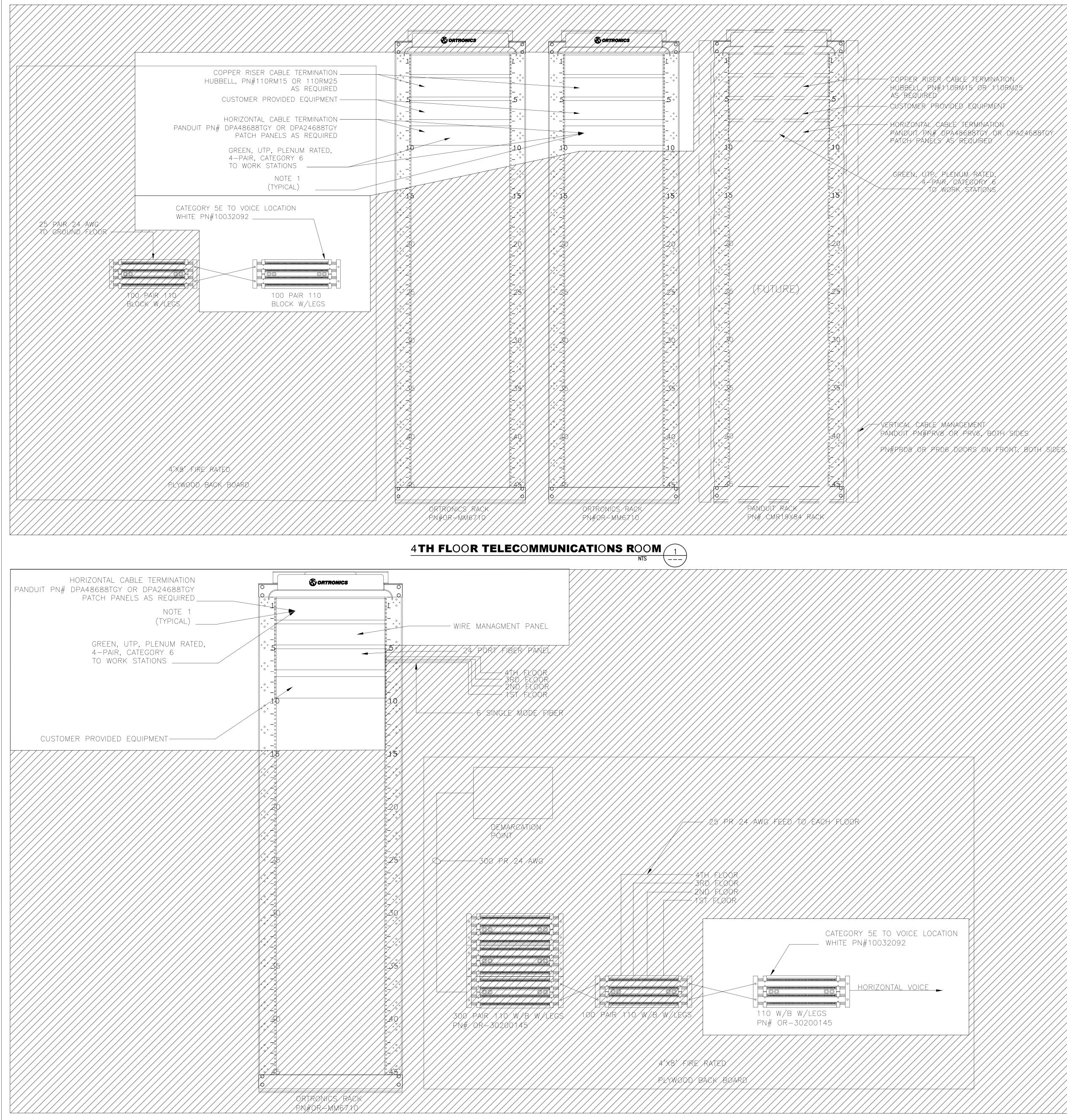
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IMBIA, SC 29202 1316 WASHINGTON STREET. COLUMBIA, S

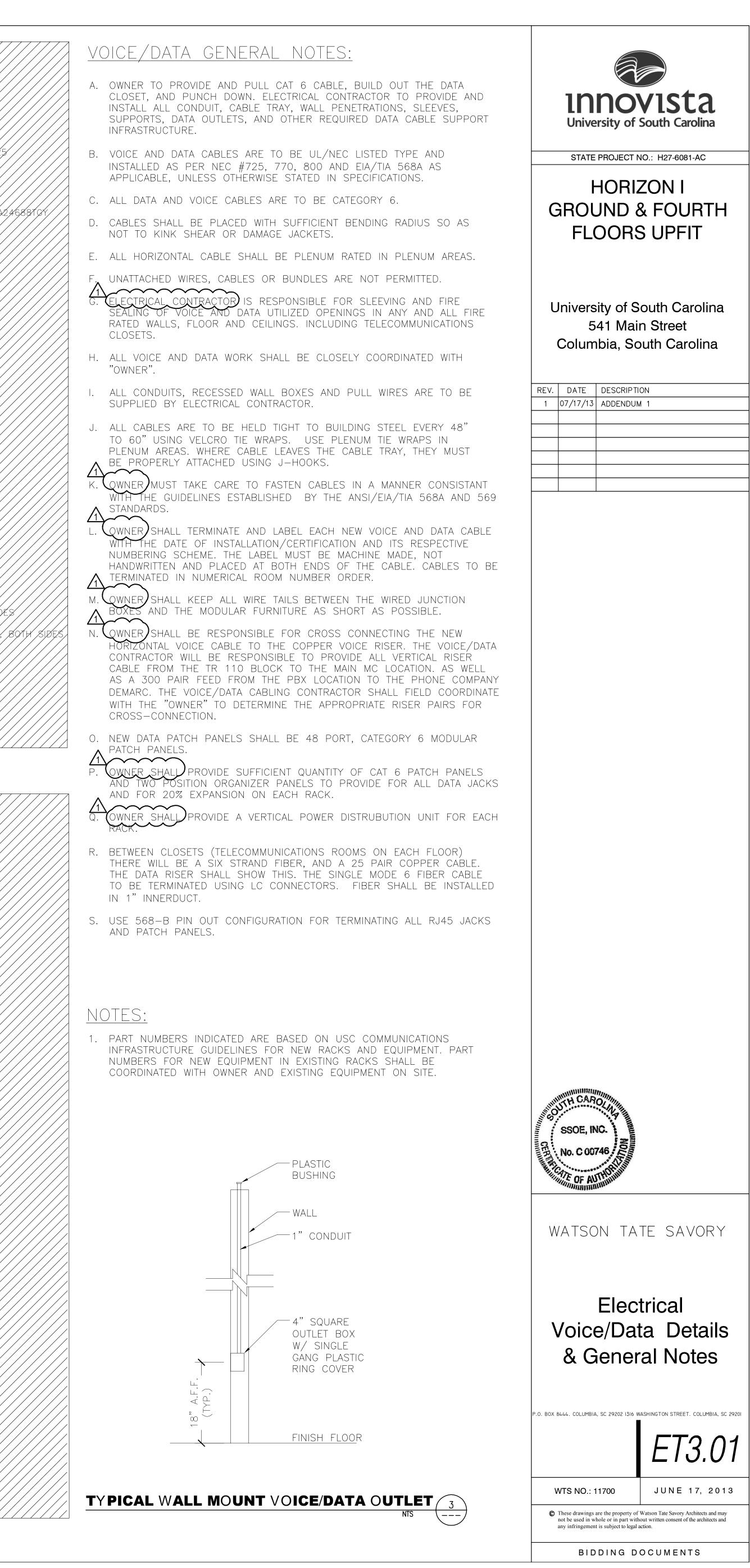












	PANELBOARD DESIGNATION <u>LP-1E2///</u>	LOCATION	COLUMA	<u> </u>		PANELBOARD DESIGNATION <u>ELP-1E</u>	2 LOCATION COLUM	V/E-2///(EMERGENCY)/	$\frac{1}{1}$	PANELBOARD DESIGNATION ERP-1E2/1	ØCATIC)LUMIV E-2
					$\overline{\mathbf{A}}$	<u>4804/2774///3/PH//4</u>	1_ WIRE SOLID NEUTRAL	/ FLUSH / _/ SURFACE / X/		/208x//201//////////////////////////////////	/ / /	NEUTR	
		(IN <u>BRÉAKER</u>	<u> </u>	TOP X BOTTOM	-///	<u>200</u> AMPERE BUS <u>200</u> AMPE	RE/MAIN/ <u>BREAKER/</u> //	K		<u>200</u> AMPERE BUS <u>150</u> AMPERE MAIN	Í BRE	AKÉR	TOP X BOTTOM
	<u>B5,000</u> AMPERE/INI.CAP. SPECIAL	<u> </u>	X KVA	E DESCRIPTION				DESCRIPTION		<u>/10,000</u> /AMPERE/N/.CAP./SPECIAL/		$\overline{//}$	WA / DESCRIPTION / 1
No. No. <td>0.4 1 ELEC /RM /28//DATA /135 / 0/3 /</td> <td></td> <td>0.8</td> <td>LØBBY 103/ JANTOR 106</td> <td>2</td> <td></td> <td>-/ /\/`;/ 7 /`;//\/ ////</td> <td></td> <td></td> <td>/ X / / / / / / / / / / / / / / / / / /</td> <td></td> <td></td> <td>TANK CALL AND A CALL A</td>	0.4 1 ELEC /RM /28//DATA /135 / 0/3 /		0.8	LØBBY 103/ JANTOR 106	2		-/ /\/`;/ 7 /`;//\/ / ///			/ X / / / / / / / / / / / / / / / / / /			TANK CALL AND A CALL A
1.1.L 1.4 1.6 1.9 <th1.9< th=""> <th1.9< td="" th<=""><td></td><td></td><td>88</td><td>STAIR & LICHTING</td><td></td><td>JERP-1E2</td><td></td><td>SPARE 4</td><td></td><td>z FIRE ALARM SYSTEW</td><td></td><td>A</td><td><u>Z'/ /CPLINUER/MGI/ Ø40///</u> SPARF</td></th1.9<></th1.9<>			88	STAIR & LICHTING		JERP-1E2		SPARE 4		z FIRE ALARM SYSTEW		A	<u>Z'/ /CPLINUER/MGI/ Ø40///</u> SPARF
						× XIA XFMR	XXXXXX			Y PRINTER QUILET RM. 842 V.		5	
						ZI FIRST FLOOR FAST		GROWNE FLOOR FAST		9 GROUND FLOOR RM. 042 VVZ			
	1 SPACE			1 DMX-2/STAIRWAY LIGHTING		LEGRESS UGHTING		ÉGRESS LIGHTING		RM. 101	//A		SPARE
	///////////////////////////////////////		1/2.2/	1,17B///////////////////////////////////	10	9 EGRESS LIGHTING		EGRESS LIGHTING		9 FIRST FLOOR RM. 125			ŚPÁRÉ////////////////////////////////////
Bit Street Street Street Street Street Street Street Street S	1 CORPIDOR H105/H10/ CONFERENCE RM. 133		1.9	113B, 112B, 113B, 114B,	12	PLEGRESS LIGHTING		EGRESS LIGHTING		1, FFIRE ALARM CP 11 SECOND FLOOR RM. 207 (9.2)		\mathcal{T}	SPARE
Bit Street Street Street Street Street Street Street Street S	3 CORRIDOR H103/H104	╈ĂŔ	1.9	LABS 131, 130, 129	14	SECOND FLOOR JEGRESS LIGHTING		SPARE////////////////////////////////////		/ X / / / / / / / / / / / / / X /_/ X		Ŧ A	SPARE
000000000000000000000000000000000000	5 MEN/WOMEN RESTROOM	\mathcal{A}	1.9	LABS 128, 127, 126	16	15 FIRST FLOOR UPFIT		SPARE 16		15 SPARE		+	SPARE
Model 10:3 Model 10:3 <td>7 SERVICE COBRIDOR H110 0.6</td> <td>\mathcal{A}</td> <td>1.0</td> <td>LABS 106, 105, 104</td> <td></td> <td></td> <td></td> <td>SPACE 18</td> <td>7 / / I</td> <td>\overline{X}</td> <td></td> <td>A</td> <td>SPARF</td>	7 SERVICE COBRIDOR H110 0.6	\mathcal{A}	1.0	LABS 106, 105, 104				SPACE 18	7 / / I	\overline{X}		A	SPARF
Monormal Monormal <td< td=""><td>A A A A A A A A A A A A A A A A A A A</td><td></td><td></td><td>SPAPE ///////////////////////////////////</td><td>20</td><td>GROUND FLOOR UPFIT</td><td></td><td>SPARE 20</td><td></td><td></td><td></td><td></td><td></td></td<>	A A A A A A A A A A A A A A A A A A A			SPAPE ///////////////////////////////////	20	GROUND FLOOR UPFIT		SPARE 20					
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2 54. 4 4 4 5	-2 WORKROOM	♥₩₩		SPARE	26	25 SPACE////////////////////////////////////		ISPACE 26		25 SPACE / / -			SPACE////////////////////////////////////
No. No. <td>17 SPARE</td> <td>$\langle \langle \langle \rangle \rangle$</td> <td></td> <td>SPARE</td> <td>28</td> <td>27 SPACE</td> <td></td> <td>SPACE///28</td> <td></td> <td>27 SPACE</td> <td></td> <td>-/-</td> <td>SPACE////////////////////////////////////</td>	17 SPARE	$\langle \langle \langle \rangle \rangle$		SPARE	28	27 SPACE		SPACE///28		27 SPACE		-/-	SPACE////////////////////////////////////
No. No. <td>19 SPARE</td> <td>\mathcal{A}</td> <td></td> <td>SPARE</td> <td>30</td> <td>29 SPACE</td> <td>¥//_\</td> <td>SPACE////////////////////////////////////</td> <td></td> <td>29 SPACE</td> <td></td> <td>+/</td> <td>SPACE</td>	19 SPARE	\mathcal{A}		SPARE	30	29 SPACE	¥// _\	SPACE////////////////////////////////////		29 SPACE		+/	SPACE
Normal Alternative Alternative <t< td=""><td>31 SPACE</td><td></td><td></td><td>SPACE////////////////////////////////////</td><td>32</td><td>31 SPACE</td><td></td><td>SPACE////////////////////////////////////</td><td></td><td>31 SPACE</td><td></td><td>\neq / \downarrow</td><td>SPACE</td></t<>	31 SPACE			SPACE////////////////////////////////////	32	31 SPACE		SPACE////////////////////////////////////		31 SPACE		\neq / \downarrow	SPACE
Normal Alternative Alternative <t< td=""><td>J3 SPACE</td><td></td><td></td><td>SPACE////////////////////////////////////</td><td>34</td><td>33 SPACE</td><td></td><td>SPACE////////////////////////////////////</td><td></td><td>331 SPACE</td><td></td><td>$\frac{1}{4}$</td><td>SPACE</td></t<>	J3 SPACE			SPACE////////////////////////////////////	34	33 SPACE		SPACE////////////////////////////////////		331 SPACE		$\frac{1}{4}$	SPACE
Normal Alternative Alternative <t< td=""><td></td><td></td><td></td><td>SPADE</td><td>36</td><td>35 SPACE</td><td></td><td>SPAPE 36</td><td></td><td>75 SPN0E</td><td></td><td></td><td></td></t<>				SPADE	36	35 SPACE		SPAPE 36		75 SPN0E			
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All Status All Sta	*9 SPACE////////////////////////////////////			SURGE SUPPRESSION	40	39 SPACE////////////////////////////////////		1 SURGE SUPPRESSION / 140		39 SPACE			SURCE SUPPRESSION
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for (2016) (1925) (102)	<u>/</u>		G	RAND TOTAL AMPÉRES <u>35.1</u>	$\square / $	grand total kva <u>38.6</u>	G	RAND TOTAL AMPERES <u>46.5</u>		GRAND TOTAL KVA (<u>1.9</u>	\sim		
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Integer Apple 1/200 <	PANELBOARD DESIGNATION <u>RP-1.E2</u>	LOCATION	COLUMA	<u> </u>			<u>.4 LOCATION COLUM</u>	_C_9,4	$\overline{\mathbf{V}}$		OCATIO	M <u>-</u>)_UMM_C+2.5_(LAB_120B)
1 1	<u>2081/1207///3/</u> PH./ <u>#</u> /WIF	E SOLID WEUT	COLUMIX RAL	E-2 FLUSHSURFACE		<u>2084/1207///3</u> /PH./ <u>4</u>	I WIRE SOLID NEUTRAL	1.C-9.4 FLUSHSURFACE X		<u>/2087/1207</u> /// <u>3</u> /PH/ <u>4</u> /WIRE	OCATIC SOLID	NEUTR	JLUMN/C-2.5/(LAB/120B) XL FLUSH SURFACE
September 15: Construction September 15: September	<u>2081/1207///3/</u> PH./ <u>#</u> /WIF	E SOLID WEUT	COLUMIA RAL	E-2 FLUSHSURFACE TOP_XBOTTOM		<u>2084/1207///3</u> /PH./ <u>4</u>	I WIRE SOLID NEUTRAL	V.C9.4 FLUSHSURFACE X TOP XBOTTOM		<u>/2087/1207</u> /// <u>3</u> /PH/ <u>4</u> /WIRE	OCATIC SOLID BRE	NEUTR	DLUMIN C-2.5 (LAB 120B) AL FLUSH SURFACE TOP X BOTTOM
Second Second Second S	<u>2081/1207///3/</u> PH./ <u>#</u> /WIF	E SOLID WEUT	COLUMIX RAL 	ELUSH SURFACE		<u>2084/1207///3</u> /PH./ <u>4</u>	I WIRE SOLID NEUTRAL	I.C9.4 FLUSHSURFACE X TOP XBOTTOM DESCRIPTION		<u>2087/1207</u> 3/PH <u>225</u> AMPERE BUS <u>150</u> AMPERE MAIN <u>10,000</u> AMPERE INT.CAP, SPECIAL	OCATIC SOLID BRE	NEUTR	NUMM C-2.5 (LAB 120B) X FLUSH SURFACE TOP X BOTTOM KVA DESCRIPTION
No. 2020/02-02-02 P. 19 0.8 Organization 0.9 South Loss South Loss Addition	<u>2081/1207///3/</u> PH./ <u>#</u> /WIF	E SOLID WEUT	COLUMIX RAL	E-2 FLUSH SURFACE TOP X BOTTOM DESCRIPTION SHELL SPACE/STAIR 2 JAN 106 RECPT.		<u>2084/1207///3</u> /PH./ <u>4</u>	I WIRE SOLID NEUTRAL	I C-9.4 FLUSHSURFACE X IOP X BOTTOM DESCRIPTION RECEPTACLES CORRIDORS H103/H104 2		<u>2087/1207</u> 3/PH <u>225</u> AMPERE BUS <u>150</u> AMPERE MAIN <u>10,000</u> AMPERE INT.CAP, SPECIAL	OCATIC SOLID BRE B C	NEUTR	JLUMN/C-2.5/LAB/120B) X. FLUSH SURFACE TOP X BOTTOM KVA DESCRIPTION 7.2
1/1 1	2084/1201/3/PH. 4/WH 200/AMPERE/BUS/150/AMPERE/MA 10,000/AMPERE/INT.CAP. SPECIAL MILLING STAIR 3/SHELL/SPACE/1.0/	RE SOLID WEUT	RAV (KVA) (0.8) (0.8)	FLUSH SURFACE TOP X BOTTOM DESCRIPTION SHELL SPACE/ STAIR 2 JAN 106 RECPT. RECEPTACLES CORRIDOR H106		2084/1200 100 AMPERE BUS 100 AMPE 10,000 AMPERE INT CAP. SPEC CKP No. DESCRIPTION KVA 1 RECEPTACLES 0.8 0FEICE 117A/116A 2 RECEPTACLES	E WIRE SOLID NEUTRAL RE MAIN <u>BREAKER</u> CIAL A B C KVA	V.C9.4 FLUSH SURFACE X TOP X BOTTOM DESCRIPTION RECEPTACLES CORRIDORS H103/H104 RECEPTACLES-CORRIDORS H103/87 H108 4		2087/120V 3 PH 4 WIRE 225 AMPERE BUS 150 AMPERE MAIN 10,000 AMPERE INT.CAP, SPECIAL CK DESCRIPTION KVA A 1 SOUTH/EAST WIREMOLD 1.0	OCATIC SOLID BRE BRE	NEUTR	UMM C-2.5 (LAB 120B) X FLUSH SURFACE TOP X BOTTOM KVA DESCRIPTION 7.2 AR JON KASER
1 1	2084/1207 3 PH. A WH 200 AMPERE BUS 150 AMPERE MA 10,000 AMPERE INT.CAP. SPECIAL MULTICAP. SPECIAL STAIR 3/ SHELL SPACE/ 1.0 3 SPARE 5 RECEPTACLES-CORR, H105 08	RE SOLID WEUT	RAV (KVA) (0.8) (0.8)	FLUSH SURFACE TOP X BOTTOM DESCRIPTION SHELL SPACE/ STAIR 2 JAN 106 RECPT. RECEPTACLES CORRIDOR H106		2084/1202/3/PH. 100/AMPERE_BUS/100/AMPE 10,000/AMPERE_INT_CAP.SPE 065CRIPTION/KVA 1 RECEPTACLES 07ELCE_117A/116A 3 RECEPTACLES 0.8 0FELCE_115A/114A	E WIRE SOLID NEUTRAL RE MAIN BREAKER CIAL A B C KVA 0.8 1.0 1.0	TELECTRIC WATER COOLER X g/		Z08Y/120V 3 PH 4 WIRE 225 AMPERE BUS 150 AMPERE MAIN 10,000 AMPERE INT.CAP SPECIAL 2000 AMPERE INT.CAP SPECIAL 10,000 AMPERE INT.CAP SPECIAL 10,000 AMPERE INT.CAP SPECIAL 1 SOUTH/EAST WIREMOLD 1.0 3 SOUTH/EAST WIREMOLD 0.8	B C	NEUTR	DLUMN_C-2.5 (LAB_120B) X. FLUSH SURFACE TOP X BOTTOM KVA DESCRIPTION 7.2 AR ION LASER 7.2
11 11 12 10 <td< td=""><td>2081/120 3 PH. A 200 AMPERE BUS 150 AMPERE MA 10,000 AMPERE INT.CAP. SPECIAL 10,000 STAIR I.000 3 SPARE SPARE 5 RECEPTACLES-CORR. H105 O.8 6 SPECIAL SPECIAL</td><td>RE SOLID WEUT</td><td>RAV KVA 0.8 0.8</td><td>FLUSH SURFACE TOP X BOTTOM DESCRIPTION SHELL SPACE/ STAIR 2 JAN 106 RECPT RECEPTACLES CORRIDOR H106 RECEPTACLES CORRIDOR H107 ELECTRIC WATER COOLER</td><td></td><td>2081/120V 3 PH. 100 AMPERE BUS 100 AMPERE 101 CAP. 10,000 AMPERE 101 CAP. SPER 10,000 AMPERE 101 CAP. SPER</td><td>L WIRE SOLID NEUTRAL RE MAIN <u>BREAKER</u> CIAL A B C KVA 0.8 1.0 1.0 1.0</td><td>IELECIRIC WATER COOLER -VESTIBULE V101 RECEPTS, PROJ. SCREEN / 8</td><td></td><td>2081/120V 3 PH 4 WIRE 225 AMPERE BUS 150 AMPERE MAIN 10,000 AMPERE INT.CAP SPECIAL CKT DESCRIPTION KVA A 1 SOUTH/EAST WIREMOLD 1.0 </td><td>B C</td><td>NEUTR</td><td>X FLUSH SURFACE TOP X BOTTOM TVA DESCRIPTION T.2 7.2 AR TON LASER T.2</td></td<>	2081/120 3 PH. A 200 AMPERE BUS 150 AMPERE MA 10,000 AMPERE INT.CAP. SPECIAL 10,000 STAIR I.000 3 SPARE SPARE 5 RECEPTACLES-CORR. H105 O.8 6 SPECIAL SPECIAL	RE SOLID WEUT	RAV KVA 0.8 0.8	FLUSH SURFACE TOP X BOTTOM DESCRIPTION SHELL SPACE/ STAIR 2 JAN 106 RECPT RECEPTACLES CORRIDOR H106 RECEPTACLES CORRIDOR H107 ELECTRIC WATER COOLER		2081/120V 3 PH. 100 AMPERE BUS 100 AMPERE 101 CAP. 10,000 AMPERE 101 CAP. SPER	L WIRE SOLID NEUTRAL RE MAIN <u>BREAKER</u> CIAL A B C KVA 0.8 1.0 1.0 1.0	IELECIRIC WATER COOLER -VESTIBULE V101 RECEPTS, PROJ. SCREEN / 8		2081/120V 3 PH 4 WIRE 225 AMPERE BUS 150 AMPERE MAIN 10,000 AMPERE INT.CAP SPECIAL CKT DESCRIPTION KVA A 1 SOUTH/EAST WIREMOLD 1.0	B C	NEUTR	X FLUSH SURFACE TOP X BOTTOM TVA DESCRIPTION T.2 7.2 AR TON LASER T.2
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110:110:130:130 136 110:00:000 100:000	2081/120 3 PH. A WF 200 AMPERE BUS 150 AMPERE MA 10,000 AMPERE INT.CAP. SPECIAL 201 DESCRIPTION KVA 1 STAIR 3 SPARE 3 SPARE 1.0 1.0 3 SPARE 0.8 1.0 4 RECEPTACLES-CORR 1105 0.8 5 RECEPTACLES 0.6 1.0 7 RECEPTACLES 0.6 1.0 9 RECEPTACLES 0.8 1.0 9 RECEPTACLES 0.8 1.0 9 RECEPTACLES 0.8 1.0 1 RECEPTACLES 0.8 1 <		RAV 9.8 9.8 0.8 1.9 0.8	FLUSH SURFACE TOP X BOTTOM OESCRIPTION SHELL SPACE/ STAIR 2 JAN 106 RECPT RECEPTACLES CORRIDOR H106 RECEPTACLES CORRIDOR H107 ELECTRIC WATER COOLER VESTIBULE V102 RECEPTS / PROJ. SCREEN CONFERENCE ROOM 133 FLOOR BOX / PROJECTOR CONFERENCE ROOM 133 SPARE	8	2081/120V 3 PH. 4 100 AMPERE BUS 100 AMPERE INT CAP. SPER 10,000 AMPERE INT CAP. SPER SPER 10,000 AMPERE INT CAP. SPER 11,000 DESCRIPTION KVA 3 RECEPTACLES 0.8 0FFICE 113A/114A 0.8 0.8 7 RECEPTACLES 0.8 0FFICE 113A/112A 0.8 0.8 7 RECEPTACLES 0.8 9 RECEPTACLES 0.8 10/WORKRM. 109 0.8 VEND. 110/WORKRM. 109 0.8 VENDING MACHINE RM.110 1.2 13 </td <td>E WIRE SOLID NEUTRAL RE MAIN BREAKER CIAL A B C KVA 0.8 1.0 1.0 0.8 1.0 1.5 1.5</td> <td>LELECTRIC WATER COOLER -VESTIBULE V101 RECEPTS / PROJ. SCREEN CONFERENCE ROOM 103 PROJECTOR CONFERENCE ROOM 103 WINDOW SHADES WINDOW SHADES WINDOW SHADES 14 LAB 126</td> <td></td> <td>2081/120V 3 PH 4 WIRE 225 AMPERE BUS 150 AMPERE MAIN 10,000 AMPERE INT.CAP SPECIAL CKT DESCRIPTION KVA A 1 SOUTH/EAST WIREMOLD 1.0 </td> <td>BC</td> <td>NEUTRI AKER 80A 28A 20A</td> <td>X. FLUSH SURFACE TOP X BOTTOM 7.2 7.2 AR JON LASER 7.2 1.6 208V, 1PH, 20A 1.6 RECEPTACLE</td>	E WIRE SOLID NEUTRAL RE MAIN BREAKER CIAL A B C KVA 0.8 1.0 1.0 0.8 1.0 1.5 1.5	LELECTRIC WATER COOLER -VESTIBULE V101 RECEPTS / PROJ. SCREEN CONFERENCE ROOM 103 PROJECTOR CONFERENCE ROOM 103 WINDOW SHADES WINDOW SHADES WINDOW SHADES 14 LAB 126		2081/120V 3 PH 4 WIRE 225 AMPERE BUS 150 AMPERE MAIN 10,000 AMPERE INT.CAP SPECIAL CKT DESCRIPTION KVA A 1 SOUTH/EAST WIREMOLD 1.0	BC	NEUTRI AKER 80A 28A 20A	X. FLUSH SURFACE TOP X BOTTOM 7.2 7.2 AR JON LASER 7.2 1.6 208V, 1PH, 20A 1.6 RECEPTACLE
19 PECEPTALES 1.9 1.9 PECEPTALES 2.9 1.9 PECEPTALES 2.9 PECEPTALES <t< td=""><td>2081/120 3 PH. A WH 200 AMPERE BUS 150 AMPERE MA 10,000 AMPERE INT.CAP. SPECIAL 201 DESCRIPTION KVA 1 STAIR 3 SPARE 3 SPARE 1.0 1.0 3 SPARE 0.8 1.0 4 RECEPTACLES-CORR. H105 0.8 1.0 5 RECEPTACLES-CORR. H105 0.8 1.0 7 RECEPTACLES 0.6 1.0 9 RECEPTACLES 0.6 1.0 9 RECEPTACLES 0.8 1.0 9 RECEPTACLES 0.8 1.0 11 RECEPTACLES 0.8 1.0 12 RECEPTACLES 0.8 1.0 14 RECEPTACLES 0.8 1.0 15 RECEPTACLES 0.8 1.0 16 RECEPTACLES 0.8 1.0 17 RECEPTACLES 0.8 1.0 18 0.8 0.8 1.0 19 0EFICE 1.8 0.8 10 0.8 0.8 1.0 15 RECEPTACLES 0.8 1.0 <tr< td=""><td></td><td>RAL (KVA (0.8) (0.8) (0.8) (0.8) (0.8) (0.8) (0.8) (0.8) (0.8) (0.8) (0.8)</td><td>FLUSH SURFACE TOP X BOTTOM OESCRIPTION SHELL SPACE/ STAIR 2 JAN 106 RECPT. RECEPTACLES CORRIDOR H106 RECEPTACLES CORRIDOR H106 RECEPTS / PROJ. 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SCREEN CONFERENCE ROOM 103 PROJECTOR CONFERENCE ROOM 103 WINDOW SHADES LAB 126 WINDOW SHADES LAB 127 16</td><td></td><td>2081/120V 3 PH 4 WIRE 225 AMPERE BUS 150 AMPERE MAIN 10,000 AMPERE INT, CAP SPECIAL 2081 DESCRIPTION KVA A 1 SOUTH/EAST WIREMOLD 1.0 A 3 SOUTH/EAST WIREMOLD 0.8 A 7 SOUTH/EAST WIREMOLD 0.8 A 9 NORTH WIREMOLD 0.6 A 13 NORTH WIREMOLD 0.6 A</td><td>BC</td><td>NEUTRI AKER 80A 28A 20A</td><td>X. FLUSH SURFACE TOP X BOTTOM T.2 T.2 AR TON LASER T.2 1.6 208V, 1PH, 20A T.6 208V, 1PH, 20A</td></tr<></td></t<>	2081/120 3 PH. A WH 200 AMPERE BUS 150 AMPERE MA 10,000 AMPERE INT.CAP. SPECIAL 201 DESCRIPTION KVA 1 STAIR 3 SPARE 3 SPARE 1.0 1.0 3 SPARE 0.8 1.0 4 RECEPTACLES-CORR. H105 0.8 1.0 5 RECEPTACLES-CORR. H105 0.8 1.0 7 RECEPTACLES 0.6 1.0 9 RECEPTACLES 0.6 1.0 9 RECEPTACLES 0.8 1.0 9 RECEPTACLES 0.8 1.0 11 RECEPTACLES 0.8 1.0 12 RECEPTACLES 0.8 1.0 14 RECEPTACLES 0.8 1.0 15 RECEPTACLES 0.8 1.0 16 RECEPTACLES 0.8 1.0 17 RECEPTACLES 0.8 1.0 18 0.8 0.8 1.0 19 0EFICE 1.8 0.8 10 0.8 0.8 1.0 15 RECEPTACLES 0.8 1.0 <tr< td=""><td></td><td>RAL (KVA (0.8) (0.8) (0.8) (0.8) (0.8) (0.8) (0.8) (0.8) (0.8) (0.8) (0.8)</td><td>FLUSH SURFACE TOP X BOTTOM OESCRIPTION SHELL SPACE/ STAIR 2 JAN 106 RECPT. RECEPTACLES CORRIDOR H106 RECEPTACLES CORRIDOR H106 RECEPTS / PROJ. SCREEN CONFERENCE ROOM 133 FLOOR BOX/PROJECTOR CONFERENCE ROOM 133 FLOOR BOX/PROJECTOR CONFERENCE ROOM 133 SPARE</td><td>8 10 12 14 16</td><td>2081/120V 3 PH. 4 100 AMPERE BUS 100 AMPERE INT CAP. SPER 10,000 AMPERE INT CAP. SPER SPER 10,000 AMPERE INT CAP. 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SprAce	2087/120/ 3 PH. A WH 200 AMPERE BUS 150 AMPERE MUT CAP. SPECIAL 10.000 AMPERE NUT CAP. SPECIAL NA 10.000 AMPERE NUT CAP. SPECIAL 10.000 AMPERE NUT CAP. SPECIAL 11.0 DESCRIPTION KVA 12.000 AMPERE NUT CAP. SPECIAL 13.000 AMPERE NUT CAP. SPECIAL 3 SPARE 1.0 3 SPARE 1.0 3 SPARE 0.8 4 RECEPTACLES 0.8 9 RECEPTACLES 0.8 9 RECEPTACLES 0.8 11 RECEPTACLES 0.8 12 RECEPTACLES 0.8 13 RECEPTACLES 0.8 14 RECEPTACLES 0.8 15 RECEPTACLES 0.8 16 RECEPTACLES 0.8 17 RECEPTACLES 0.8 18 RECEPTACLES 0.8 19 RECEPTACLES <td< td=""><td></td><td>RA 0.8 0.8 0.8 0.8 0.8 0.8 1.0 1.0 1.0 1.2 0.6 1.5 1.5 1.5 1.5 1.5 1.5</td><td>FLUSH</td><td>8 10 12 14 16 18 20 22 22 24 24</td><td>208Y/120V 3 PH. 4 100 AMPERE BUS 100 AMPE 100 AMPERE INT CAP. SPEA 100 ARECEPTACLES 0.8 0FFICE 115A/114A 0.8 11 VENDING MACHINE RM. 109 0.8 11 VENDING MACHINE RM. 110 1.2 12 RECEPTACLES 0.6 13 VENDING MACHINE RM. 110 1.2 14 VENDING MACHINE RM. 110 1.2 15 COPIER-WORK ROOM 109 1.2 17 RECEPTACLES 0.6 18 RECEPTACLES 0.6 19 RECEPTACLES 0.6 19 RECEPTACLES 0.6 10 RESTROOM 107 1.0 <!--</td--><td>E MAIN BREAKER CIAL CIAL A B C KVA A B C KVA A</td><td>LELECTRIC WATER COOLER -VESTIBULE V101 RECEPTS / PROJ. SCREEN CONFERENCE ROOM 103 PROJECTOR CONFERENCE ROOM 103 WINDOW SHADES LAB 126 WINDOW SHADES LAB 127 WINDOW SHADES LAB 128 18</td><td></td><td>2087/120V 3 PH 4 WIRE 225 AMPERE BUS 150 AMPERE MAIN 10.000 AMPERE INT.CAP SPECIAL 5% DESCRIPTION KVA A 1 SOUTH/EAST WIREMOLD 1.9 A 3 SOUTH/EAST WIREMOLD 0.8 A 5 SOUTH/EAST WIREMOLD 0.8 A 7 SOUTH/EAST WIREMOLD 0.8 A 7 SOUTH/EAST WIREMOLD 0.6 A 11 NORTH WIREMOLD 0.6 A 13 NORTH WIREMOLD 0.6 A 14 CENTER BENCH WIREMOLD 0.8 A 21 CENTER BENCH WIREMOLD 0.8 A 23 CENTER BENCH WIREMOLD 0.6 25 SPARE A 27 SPARE A</td><td></td><td>NEUTR AKER 80A 20A 20A 20A 20A 20A 20A 20A</td><td>X FLUSH SURFACE TOP X BOTTOM KVA DESCRIPTION 7.2 AR ION LASER 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2</td></td></td<>		RA 0.8 0.8 0.8 0.8 0.8 0.8 1.0 1.0 1.0 1.2 0.6 1.5 1.5 1.5 1.5 1.5 1.5	FLUSH	8 10 12 14 16 18 20 22 22 24 24	208Y/120V 3 PH. 4 100 AMPERE BUS 100 AMPE 100 AMPERE INT CAP. SPEA 100 ARECEPTACLES 0.8 0FFICE 115A/114A 0.8 11 VENDING MACHINE RM. 109 0.8 11 VENDING MACHINE RM. 110 1.2 12 RECEPTACLES 0.6 13 VENDING MACHINE RM. 110 1.2 14 VENDING MACHINE RM. 110 1.2 15 COPIER-WORK ROOM 109 1.2 17 RECEPTACLES 0.6 18 RECEPTACLES 0.6 19 RECEPTACLES 0.6 19 RECEPTACLES 0.6 10 RESTROOM 107 1.0 </td <td>E MAIN BREAKER CIAL CIAL A B C KVA A B C KVA A</td> <td>LELECTRIC WATER COOLER -VESTIBULE V101 RECEPTS / PROJ. SCREEN CONFERENCE ROOM 103 PROJECTOR CONFERENCE ROOM 103 WINDOW SHADES LAB 126 WINDOW SHADES LAB 127 WINDOW SHADES LAB 128 18</td> <td></td> <td>2087/120V 3 PH 4 WIRE 225 AMPERE BUS 150 AMPERE MAIN 10.000 AMPERE INT.CAP SPECIAL 5% DESCRIPTION KVA A 1 SOUTH/EAST WIREMOLD 1.9 A 3 SOUTH/EAST WIREMOLD 0.8 A 5 SOUTH/EAST WIREMOLD 0.8 A 7 SOUTH/EAST WIREMOLD 0.8 A 7 SOUTH/EAST WIREMOLD 0.6 A 11 NORTH WIREMOLD 0.6 A 13 NORTH WIREMOLD 0.6 A 14 CENTER BENCH WIREMOLD 0.8 A 21 CENTER BENCH WIREMOLD 0.8 A 23 CENTER BENCH WIREMOLD 0.6 25 SPARE A 27 SPARE A</td> <td></td> <td>NEUTR AKER 80A 20A 20A 20A 20A 20A 20A 20A</td> <td>X FLUSH SURFACE TOP X BOTTOM KVA DESCRIPTION 7.2 AR ION LASER 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2</td>	E MAIN BREAKER CIAL CIAL A B C KVA A	LELECTRIC WATER COOLER -VESTIBULE V101 RECEPTS / PROJ. SCREEN CONFERENCE ROOM 103 PROJECTOR CONFERENCE ROOM 103 WINDOW SHADES LAB 126 WINDOW SHADES LAB 127 WINDOW SHADES LAB 128 18		2087/120V 3 PH 4 WIRE 225 AMPERE BUS 150 AMPERE MAIN 10.000 AMPERE INT.CAP SPECIAL 5% DESCRIPTION KVA A 1 SOUTH/EAST WIREMOLD 1.9 A 3 SOUTH/EAST WIREMOLD 0.8 A 5 SOUTH/EAST WIREMOLD 0.8 A 7 SOUTH/EAST WIREMOLD 0.8 A 7 SOUTH/EAST WIREMOLD 0.6 A 11 NORTH WIREMOLD 0.6 A 13 NORTH WIREMOLD 0.6 A 14 CENTER BENCH WIREMOLD 0.8 A 21 CENTER BENCH WIREMOLD 0.8 A 23 CENTER BENCH WIREMOLD 0.6 25 SPARE A 27 SPARE A		NEUTR AKER 80A 20A 20A 20A 20A 20A 20A 20A	X FLUSH SURFACE TOP X BOTTOM KVA DESCRIPTION 7.2 AR ION LASER 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2
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	2084/120 3 PH. 4 WH 200 AMPERE BUS 150 AMPERE MUS 150 AMPERE MUS 10 000 AMPERE MUS 150 AMPERE MUS 150 3 $DESCRIPTION$ KVA KVA 1 3 $SPARE$ 0 6 7 3 $SPARE$ 0.8 7 8 7 3 $SPARE$ 0.6 7 8 7 4 $RECEPTACLES$ 0.6 7 8 7 7 $RECEPTACLES$ 0.8 7 7 8 7 9 $RECEPTACLES$ 0.8 7 7 8 7 9 $RECEPTACLES$ 0.8 7 7 8 7 11 $RECEPTACLES$ 0.8 7 7 8 7 12 $RECEPTACLES$ 0.8 7 7 8 7 13 $RECEPTACLES$ 0.8 7 7 7 7 14 $RECEPTACLES$ 0.8		RA 0.8 0.8 0.8 0.8 0.8 0.8 1.2 0.6 1.2 0.6 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	FLUSH SURPACE TOP X BOTTOM DESCRIPTION SHELL SPACE STAIR 2 JAN 106 BECPT RECEPTACLES CORRIDOR H106 RECEPTACLES CORRIDOR H106 RECEPTS WATER COOLER -VESTIBULE V102 RECEPTS PROJECTOR CONFERENCE ROOM 133 FLOOR BOX PROJECTOR CONFERENCE ROOM 133 FLOOR BOX PROJECTOR CONFERENCE ROOM 133 SPARE COPIER-CORRIDOR H105 ELR. BOX BREAKOUT 121 REFRIGERATOR BREAKOUT 121 WINDOW SHADES LAB 130 WINDOW SHADES LAB 130 WINDOW SHADES LAB 120 SPARE SPACE SPACE	8 10 12 14 16 18 20 22 24 26 28 30 34 38 38	208Y/120V 3 PH. 4 100 AMPERE BUS 100 AMPER 10,000 AMPERE INT.CAP. SPER 00 AMPERE INT.CAP. SPER 01 RECEPTACLES 0.8 0FEICE 117A/116A 0.8 0FEICE 117A/116A 0.8 0FEICE 117A/116A 0.8 0FEICE 113A/114A 0.8 0FEICE 113A/114A 0.8 0FEICE 113A/112A 0.8 0FEICE 113A/112A 0.8 0FEICE 114 0.8 11 VENDING MACHINE RM.110 1.2 13 VENDING MACHINE RM.110 1.2 14 VENDING MACHINE RM.110 1.2 15 COPIER-WORKROOM 109 12 VENDING MACHINE RM.110 1.2 13 VENDING MACHINE RM.110 1.2 14 VENDING MACHINE RM.110 1.2 15 COPIER-WORKROOM 109 16 COPIER-WORKROOM 0.6 17 RECEPTACLES 0.6 18 RECEPTACLES 0.6 19 RECEPTACLES 0.6 21 HAND DRYER-RESTRM.107		ELECTRIC WATER COOLER -VESTIBULE V101 RECEPTS, PROJ. SCREEN CONFERENCE ROOM 103 PROJECTOR CONFERENCE ROOM 103 WINDOW SHADES LAB 126 WINDOW SHADES LAB 127 WINDOW SHADES LAB 128 SPARE SPA		2087/120V 3 PH 4 MIRE 225 AMPERE BUS 150 AMPERE MAIN 10.000 AMPERE INT.CAP SPECIAL SR DESCRIPTION KVA R 1 SOUTH/EAST WIREMOLD 1.0 3 SOUTH/EAST WIREMOLD 0.8 5 SOUTH/EAST WIREMOLD 0.8 7 SOUTH/EAST WIREMOLD 0.8 7 SOUTH/EAST WIREMOLD 0.6 7 SOUTH/EAST WIREMOLD 0.6 7 SOUTH/EAST WIREMOLD 0.6 7 SOUTH/EAST WIREMOLD 0.6 7 NORTH WIREMOLD 0.6 13 NORTH WIREMOLD 0.6 14 NORTH WIREMOLD 0.6 15 FUME HO00 1.0 17 CENTER BENCH WIREMOLD 0.8 21 CENTER BENCH WIREMOLD 0.8 21 CENTER BENCH WIREMOLD 0.4 22 SPARE 3 3 3 23 CENTER BENCH WIREMOLD 0.6		NEUTR AKER 80A 20A 20A 20A 20A 20A 20A 20A 20A 20A 2	AL FLUSH SURFACE TOP & BOTTOM HVA DESCRIPTION 7.2 7.2 AR JON LASER 7.2 1.6 208V, 1PH, 20A 7.6 208V, 1PH, 20A
	2084/120 3 PH. 4 WH 200 AMPERE BUS 150 AMPERE MUS 150 AMPERE MUS 10 000 AMPERE MUS 150 AMPERE MUS 150 3 $DESCRIPTION$ KVA KVA 1 3 $SPARE$ 0 6 7 3 $SPARE$ 0.8 7 8 7 3 $SPARE$ 0.6 7 8 7 4 $RECEPTACLES$ 0.6 7 8 7 7 $RECEPTACLES$ 0.8 7 7 8 7 9 $RECEPTACLES$ 0.8 7 7 8 7 9 $RECEPTACLES$ 0.8 7 7 8 7 11 $RECEPTACLES$ 0.8 7 7 8 7 12 $RECEPTACLES$ 0.8 7 7 8 7 13 $RECEPTACLES$ 0.8 7 7 7 7 14 $RECEPTACLES$ 0.8		RA 0.8 0.8 0.8 0.8 0.8 0.8 1.2 0.6 1.2 0.6 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	FLUSH SURPACE TOP X BOTTOM DESCRIPTION SHELL SPACE STAIR 2 JAN 106 BECPT RECEPTACLES CORRIDOR H106 RECEPTACLES CORRIDOR H106 RECEPTS WATER COOLER -VESTIBULE V102 RECEPTS PROJECTOR CONFERENCE ROOM 133 FLOOR BOX PROJECTOR CONFERENCE ROOM 133 FLOOR BOX PROJECTOR CONFERENCE ROOM 133 SPARE COPIER-CORRIDOR H105 ELR. BOX BREAKOUT 121 REFRIGERATOR BREAKOUT 121 WINDOW SHADES LAB 130 WINDOW SHADES LAB 130 WINDOW SHADES LAB 120 SPARE SPACE SPACE	8 10 12 14 16 18 20 22 24 26 28 30 34 38 38	208Y/120V 3 PH. 4 100 AMPERE BUS 100 AMPER 10,000 AMPERE INT.CAP. SPER 00 AMPERE INT.CAP. SPER 01 RECEPTACLES 0.8 0FEICE 117A/116A 0.8 0FEICE 117A/116A 0.8 0FEICE 117A/116A 0.8 0FEICE 113A/114A 0.8 0FEICE 113A/114A 0.8 0FEICE 113A/112A 0.8 0FEICE 113A/112A 0.8 0FEICE 114 0.8 11 VENDING MACHINE RM.110 1.2 13 VENDING MACHINE RM.110 1.2 14 VENDING MACHINE RM.110 1.2 15 COPIER-WORKROOM 109 12 VENDING MACHINE RM.110 1.2 13 VENDING MACHINE RM.110 1.2 14 VENDING MACHINE RM.110 1.2 15 COPIER-WORKROOM 109 16 COPIER-WORKROOM 0.6 17 RECEPTACLES 0.6 18 RECEPTACLES 0.6 19 RECEPTACLES 0.6 21 HAND DRYER-RESTRM.107		ELECTRIC WATER COOLER -VESTIBULE V101 RECEPTS, PROJ. SCREEN CONFERENCE ROOM 103 PROJECTOR CONFERENCE ROOM 103 WINDOW SHADES LAB 126 WINDOW SHADES LAB 127 WINDOW SHADES LAB 128 SPARE SPA		2087/120V 3 PH 4 WIRE 225 AMPERE BUS 150 AMPERE MAIN 10.000 AMPERE INT.CAP SPECIAL SR DESCRIPTION KVA R 1 SOUTH/EAST WIREMOLD 1.0 3 SOUTH/EAST WIREMOLD 0.8 5 SOUTH/EAST WIREMOLD 0.8 7 SOUTH/EAST WIREMOLD 0.8 7 SOUTH/EAST WIREMOLD 0.6 7 SOUTH/EAST WIREMOLD 0.6 7 SOUTH/EAST WIREMOLD 0.6 7 SOUTH/EAST WIREMOLD 0.6 7 NORTH WIREMOLD 0.6 13 NORTH WIREMOLD 0.6 14 NORTH WIREMOLD 0.6 15 FUME HO00 1.0 17 CENTER BENCH WIREMOLD 0.8 21 CENTER BENCH WIREMOLD 0.8 21 CENTER BENCH WIREMOLD 0.4 22 SPARE 3 3 3 23 CENTER BENCH WIREMOLD 0.6		NEUTR AKER 80A 20A 20A 20A 20A 20A 20A 20A 20A 20A 2	AL FLUSH SURFACE TOP X BOTTOM HVA DESCRIPTION 7.2 7.2 AR JON LASER 7.2 1.6 208V, 1PH, 20A 7.6 208V, 1PH, 20A
	208Y/120V 3 PH 4 WH 200 AMPERE 150 AMPERE MA $10,000$ AMPERE 150 AMPERE MA $10,000$ AMPERE NT.CAP SPECIAL 360 DESCRIPTION KVA KVA 1 STAIR $3/$ SHELL SPARE 7 3 SPARE 0.8 0.8 7 3 SPARE 0.6 0.8 7 3 RECEPTACLES 0.6 7 8 1 RECEPTACLES 0.8 7 7 0 <td></td> <td>RA 0.8 0.8 0.8 0.8 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0</td> <td>FLUSH SURFACE TOP X BOTTOM DESCRIPTION SHELL SPACE/ STAIR 2 JAN 106 BECPT RECEPTACLES CORRIDOR H106 RECEPTACLES CORRIDOR H107 ELECTRIC WATER COOLER VESTIBULE V102 RECEPTS, PROJ. SCREEN CONFERENCE ROOM 133 FLOOR BOX/PROJECTOR CONFERENCE ROOM 133 SPARE COPIER-CORRIDOR H105 ELR. BOX BREAKOUT 121 REFRICERATOR BREAKOUT 121 WINDOW SHADES LAB 130 WINDOW SHADES LAB 130 WINDOW SHADES LAB 130 WINDOW SHADES LAB 130 SPACE SPACE SPACE SPACE SPACE</td> <td>8 10 12 14 16 18 20 21 20 22 24 26 28 30 32 34 36 38 40 42</td> <td>208Y/120V 3 PH. 4 100 AMPERE_BUS 100 AMPE 100 AMPERE_BUS 100 AMPE 10000 AMPERE_BUS 100 AMPE 10000 AMPERE_BUS 100 AMPE 10000 AMPERE_BUS 100 AMPE 10000 AMPERE_BUS 0.00 AMPE 10000 AMPERE_BUS 0.00 AMPE 10000 AMPERE_BUS 0.00 AMPE 10000 AMPERE_BUS 0.00 0.00 10000 AMPERE_BUS 0.00 0.00 100000 AMPERE_BUS 0.00 0.00 100000 AMPERE_BUS 0.00 0.00 100000 AME 0.00 0.00 0.00 11000 MACHINE_RM.100 1.20 0.00 0.00 1100 MACHINE_RM.100 1.20 0.00 0.00 1100 MACHINE_RM.100 1.20 0.00 0.00 1100</td> <td>WIRE SOLID MEUTRAL RE-MAIN BREAKER CIAL A B C MUA 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8</td> <td>LELECTRIC WATER COOLER VESTIBULE V101 RECEPTS, /PROJ. SCREEN CONFERENCE ROOM 103 PROJECTOR CONFERENCE ROOM 103 WINDOW SHADES CONFERENCE ROOM 103 WINDOW SHADES LAB 126 WINDOW SHADES LAB 127 SPARE SPA</td> <td></td> <td>2087/120/ 3 PH 4 WRE 225 AMPERE BUS 150 AMPERE MAIN 10.000 AMPERE INT.CAP SPECIAL SR DESCRIPTION KVA A 1 SOUTH/EAST WIREMOLD 1.0 3 SOUTH/EAST WIREMOLD 0.8 7 SOUTH/EAST WIREMOLD 0.8 7 SOUTH/EAST WIREMOLD 0.6 7 SOUTH/EAST WIREMOLD 0.6 7 SOUTH/EAST WIREMOLD 0.6 7 SOUTH/EAST WIREMOLD 0.6 11 NORTH WIREMOLD 0.6 13 NORTH WIREMOLD 0.6 14 NORTH WIREMOLD 0.6 15 FUME HORD 0.6 16 FUME BENCH WIREMOLD 0.8 21 CENTER BENCH WIREMOLD 0.8 21 CENTER BENCH WIREMOLD 0.6 22 SPARE </td> <td></td> <td>NEUR AKER 20A 20A 20A 20A 20A 20A 20A 20A 20A 20A</td> <td>AL FLUSH SURFACE TOP X BOTTOM RVA DESCRIPTION 7.2 AR TON LASER 7.2 AR TON LASER 1.6 208V, 1PH, 20A 7.6 RECEPTACLE 1.6 208V, 1PH, 20A 7.6 SURGE SUPPRESSION SURGE SUPPRESSION SURGE SUPPRESSION 80RGE SUPPRESSION</td>		RA 0.8 0.8 0.8 0.8 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	FLUSH SURFACE TOP X BOTTOM DESCRIPTION SHELL SPACE/ STAIR 2 JAN 106 BECPT RECEPTACLES CORRIDOR H106 RECEPTACLES CORRIDOR H107 ELECTRIC WATER COOLER VESTIBULE V102 RECEPTS, PROJ. SCREEN CONFERENCE ROOM 133 FLOOR BOX/PROJECTOR CONFERENCE ROOM 133 SPARE COPIER-CORRIDOR H105 ELR. BOX BREAKOUT 121 REFRICERATOR BREAKOUT 121 WINDOW SHADES LAB 130 WINDOW SHADES LAB 130 WINDOW SHADES LAB 130 WINDOW SHADES LAB 130 SPACE SPACE SPACE SPACE SPACE	8 10 12 14 16 18 20 21 20 22 24 26 28 30 32 34 36 38 40 42	208Y/120V 3 PH. 4 100 AMPERE_BUS 100 AMPE 100 AMPERE_BUS 100 AMPE 10000 AMPERE_BUS 100 AMPE 10000 AMPERE_BUS 100 AMPE 10000 AMPERE_BUS 100 AMPE 10000 AMPERE_BUS 0.00 AMPE 10000 AMPERE_BUS 0.00 AMPE 10000 AMPERE_BUS 0.00 AMPE 10000 AMPERE_BUS 0.00 0.00 10000 AMPERE_BUS 0.00 0.00 100000 AMPERE_BUS 0.00 0.00 100000 AMPERE_BUS 0.00 0.00 100000 AME 0.00 0.00 0.00 11000 MACHINE_RM.100 1.20 0.00 0.00 1100 MACHINE_RM.100 1.20 0.00 0.00 1100 MACHINE_RM.100 1.20 0.00 0.00 1100	WIRE SOLID MEUTRAL RE-MAIN BREAKER CIAL A B C MUA 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8	LELECTRIC WATER COOLER VESTIBULE V101 RECEPTS, /PROJ. SCREEN CONFERENCE ROOM 103 PROJECTOR CONFERENCE ROOM 103 WINDOW SHADES CONFERENCE ROOM 103 WINDOW SHADES LAB 126 WINDOW SHADES LAB 127 SPARE SPA		2087/120/ 3 PH 4 WRE 225 AMPERE BUS 150 AMPERE MAIN 10.000 AMPERE INT.CAP SPECIAL SR DESCRIPTION KVA A 1 SOUTH/EAST WIREMOLD 1.0 3 SOUTH/EAST WIREMOLD 0.8 7 SOUTH/EAST WIREMOLD 0.8 7 SOUTH/EAST WIREMOLD 0.6 7 SOUTH/EAST WIREMOLD 0.6 7 SOUTH/EAST WIREMOLD 0.6 7 SOUTH/EAST WIREMOLD 0.6 11 NORTH WIREMOLD 0.6 13 NORTH WIREMOLD 0.6 14 NORTH WIREMOLD 0.6 15 FUME HORD 0.6 16 FUME BENCH WIREMOLD 0.8 21 CENTER BENCH WIREMOLD 0.8 21 CENTER BENCH WIREMOLD 0.6 22 SPARE		NEUR AKER 20A 20A 20A 20A 20A 20A 20A 20A 20A 20A	AL FLUSH SURFACE TOP X BOTTOM RVA DESCRIPTION 7.2 AR TON LASER 7.2 AR TON LASER 1.6 208V, 1PH, 20A 7.6 RECEPTACLE 1.6 208V, 1PH, 20A 7.6 SURGE SUPPRESSION SURGE SUPPRESSION SURGE SUPPRESSION 80RGE SUPPRESSION

NOTES:

1. ALL NEW EGRESS LIGHTING CIRCUITS ON THIS SHEET SHALL BE 2#10, #10 GND - 3/4"C.

2. ALL NEW EXHAUST FAN CIRCUITS ON THIS SHEET SHALL BE 2#12, #12 GND - 3/4 "C.

			/ / /		\leftarrow				
/P/	NELBOARD DESIGNATION <u>E</u>	RP-10	<u>8.2//</u>	100	XATI)N/ <u>L</u>	<u>OLUMN</u>	<u> </u>	ÝY/
<u>/2</u>	1 <u>84/120V</u> /// <u>3</u> /PH.	<u>/ / </u>	_/WIRE	્ર	<u>JLIÞ</u>	NEUTF	RAL	/FŁŲSH//SURFACE/_	X
	00/AMPERE/BUS//60/	AMPE	RE MAIN	\bigvee	BŔĔ	AKER /		/top/x//bottow/	
74	,000 AMPERE INT.CAP.	/SPEC	XAL			///	_///	///////////////////////////////////////	_//
ekt No.	DESCRIPTION	KXA/	$\sqrt{/}$		\overline{X}		KVA	DESCRIPTION	CKT
	EMERGENCY RECEPTACLES	0.6			\mathbb{Z}		66/	EMERGENCY RÉCÉPTACLES	$\overline{\sqrt{2}}$
4	WIRÉMOLD - LAB 120B						///	WIREMOLD - LAB 131	14
3	ÉMÉRGENCY RECEPTACLES WIREMOLD - LAB 119B	/0,6/	77	\square		47	0.6/	EMERGÉNCY RÉCÉPTACLÉS WREMOLD - LAB / 30//	4
5	ÉMÉRGENCY RÉCÉPTACLES WIREMOLD - LAB 118B	0.6					0.6	EMERGENCY RÉCEPTACLÉS WIREMOLD - LAB 129	6
$\overline{\mathcal{V}}$	ÉMERGENCY RECEPTACLES WIREMOLD - XAB X17B	0.4					0.6	EMERGENCY RECEPTACLES WIREMOLD - LAB 128	8
	EMERGENCY RECEPTACLES				$\langle /$			EMERGENCY RECEPTACLES	$\left\{ \right\}$
X	WIREMØLD / LAB / 16B	0.4	<i>É//</i>	\square	\checkmark	7/7	0.6	WIRÉMÓŁD – LAB 127	[10
11	EMERGENCY RÉCÉPTACLÉS	0.4	\angle / \angle	\square		$\not \rightarrow$	0.6	EMERGENCY RECEPTACLES	42
Â	WIREMOLD /-/LAB/115B/ EMERGENCY RÉCEPTACLES							WIRÉMOLD - LAB 126 ÆMERGENCY RECEPTACLES	$\left \right\rangle$
13	WIREMOLD - LAB 114B	0.4	+/+	\checkmark		f/f	/0,A	WIREMOLD - LAB 106	14
15	EMERGENCY RECEPTACLES WIREMOLD - LAB 1738	8.4	\langle / \rangle		\swarrow	L A	/0,4/	ÉMÉRGENCY RECEPTACLES WIREMOLD - LAB 105	16
$\overline{\Lambda}$	EMERGENCY RECEPTACLES WIREMOLD - LAB 112B	Ø,A					0,4/	ÉMÉRGENCY RÉCÉPTACLES WIREMOLD / LAB /104	18
	EMERGENCY RECEPTACLES WIREMOLD - LAB 117B	NA/		\square				SPARE	20
21	FIRST FLOOR DATA 1/34 RECEPTACLES	0.6	$\not \rightarrow$	4	\swarrow			SPARE	22
23	FIRST FLOOR DATA 134 RECEPTACLES	0.6	+	/				SPARE	24
25	SPARE		-/-	\square				SPARE////////////////////////////////////	26
27	SPACE////////////////////////////////////		A					SPACE	28
29	SPACE			/	\square	+/+		SPACE	30
31	\$PACE////////////////////////////////////			\square	$\not\vdash$	+/+		SPACE	32
33	SPACE					\square		SPACE	34
35	SPACE					701		SPACE	36
37	SPACE		///	$\left(\right)$		30A		SURGE SUPPRESSION	38
38	SPACE				$\left \right $	-		SURGE SUPPRESSION	40
41	SPACE							SURGE SUPPRESSION	42
	SUB TOTAL KVA	5.8		\square			4,8	SUB TOTAL KVA	
/	GRAND TOTAL KVA 10.6	///	<u>, ///</u>	17,	$\overline{/}$	+//	∕∕G₽	RAND TOTAL AMPERES <u>29,4</u>	77
	 	+++	· / / /	<u> </u>	-	+++	+++	<u> </u>	+

I	<u>387/1200/</u> 00 AMPERE BUS <u>100</u> 2,000 AMPERE INT.CAP.	AMPE SPE(· / ,	JUD BRE	NEUTF AKER	7	FLUSH/SURFACE/ TOP_ <u>X</u> BOTTOM/	\neq
<u>/ </u> CKT No.	<u>, 000</u> ANN EIVE NVV.CAL	//////////////////////////////////////		<u> </u>	-	-/20A/	/KXA/	DESCRIPTION	
1	SOUTH/EAST WIREMOLD	1.0	\langle / \rangle		\square			СПАЛЕ	
3	SOUTH/EAST WIREMOLD	0,8	$\langle / /$		\not			SPARE	
5	SOUTH/EAST WIREMOLD	/0,8	$\langle / / / / / / / / / / / / / / / / / / /$			20A/	1.6	208V, 1PH, 20A RECEPTACLE	6
1	SOUTH/EAST WIREMOLD	/0,8/	\langle / \rangle		$\left \right $	 20A	1.6/	RECEPTACLE	8
9	NORTH WIREMOLD	0.6			$\left(\right)$		1.6	208V, 1PH, 20A RECEPTACLE	10
11	NORTH WIREMOLD	0.6	+	\square			1.6	RECEPTACLE	12
13	NORTH WIREMOLD	0.6				20Å	1.6	2081,194,204	1
15	FUME HOOD	1.0			\square		1,6	208V,1PH, 20A RÉCÉPTACLE	11
17	CENTER BENCH WIREMOLD	0.4		$\left \right\rangle$	\square	20A	1,6	208V,1PH, 20A	11
19	CENTER BENCH WIREMOLD	0.6					/1.6/	208V,1PH, 20A RECEPTACLE	2
21	CENTER BENCH WIREMOLD	0,8			$\langle \rangle$	60A	/5/8/		2
23	CENTER BENCH WREMOLD	/0,8/					/5.8/	208V, 3PH, 60A RECEPTACLE	Z
25	SPARE		$ \rightarrow $		\square		5.8		2
27	SPARE		+		4			SPARE	/28
29	SPARE					- - 		SPARE	31
31	SPACE		-/-					SPACE	3
33	'SPACE					+ +		SPACE	34
35	SPACE				\square			SPACE	3
31)	SPACE////////////////////////////////////		-/-			/30A/ / R/		SURGE SUPPRESSION	3
39	SPACE		$\left \right $		\square	1 A A		SURGE SUPPRESSION	4
41	SPACE		//-					SURCE/SUPPRESSION	4
	SUB/TOTAL KVA	8.8					30,2	SUB TOTAL KVA	

NOTES: . ALL BRANCH CIRCUIT BREAKERS ARE 204, 19 UNLESS ØTHERMISE NØJED.

2. TRIANGLE AROUND CIRCUIT NUMBER INDICATES CIRCUIT BREAKER WITH GROUND FAULT INTERRUPTER. 3. CIRCLE AROUND CIRCUIT NUMBER INDICATES HANDLE LOCK DEVICE. 4. ROOM NUMBER ON THIS DRAWING SHOULD MATCH COMPANION PLAN DRAWINGS. THE ROOM NUMBERS ARE NOT FINAL USC ROOM NUMBERS. SUBMITTAL OF PANEL SCHEDULES SHALL REFLECT ROOM NUMBER PER ARCHITECTURAL DRAWINGS AND CLOSE OUT DRAWINGS SHALL BE MARKED WITH FINAL ROOM NUMBERS.



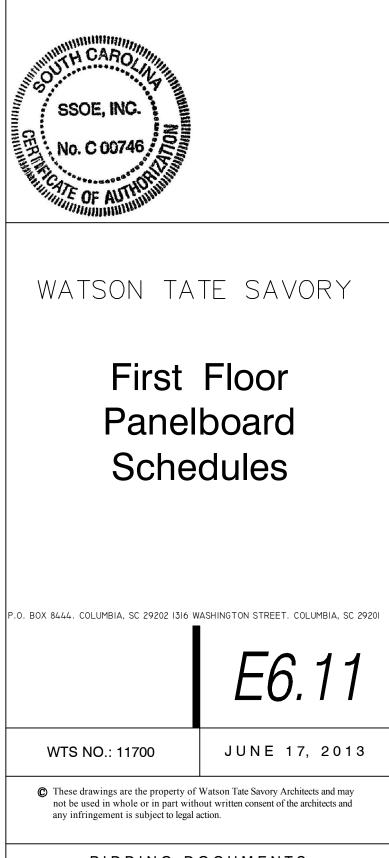
	-	
REV.	DATE	DESCRIPTION
1	07/17/13	ADDENDUM 1





INDICATES EXISTING EQUIPMENT/DEVICES





STATE PROJECT NO.: H27-6081-AC

HORIZON I **GROUND & FOURTH FLOORS UPFIT**

University of South Carolina 541 Main Street Columbia, South Carolina

MOUNTIN	9////	/ 4804/2777/-3PH Surface					V FLR.			///	
MAIN RATING		////2007/MB/ /65KAIC/						5 P ////////////////////////////////////			
REF. ØW	G, NO										
Circuit No. & Phase	Amp Rating &	Poles	LOAD DESCRIPTI	9N		/кул				Wire	Size AWG
1a 	20-1 20-1				0.6	0.7		ELEC RM 430/DA 444/HANDICAP V TEMP AREA LIGHT	ESTIBULÉ		
/5c/ /7d	20-1 20-1	Цвнтя цвнтя 			Ø.8/		0.8	LOBBY 402/JANNT STAIR 1 LIGHTING	\leftarrow		
96 11c 139	20-1 20-1 20-1	SPARE SPARE SPARE					///				
15b 17c	20-1	SPARE SPARE									
19a 21b 23c	20-1 /20-1 /29-1	SPARE SPARE SPARE									
25d 276	20-1 20-1 20-1	SPARE SPARE SPARE									
29c 31a 33b		SPACE SPACE									
/35e /37a /39b		SPACE SPACE SPACE									
41c/ 2a	20-1				3.1		///	WEST OFFICES		2#10,#	10G-3/4"C
4b 6c	20-1 20-1	LIGHTS LIGHTS				3.3	2.8	WEST OFFICES/NO CONF & BREAK WEST LABS	ORTH RM.		10G-3/4"C 10G-3/4"C
8a	20-1	LIGHTS			 2.3	7 -		WEST LABS/RESTROOMS E CORRIDOR	S/SERVIC	-	10G-3/4"C 10G-3/4"C
10b 12c 14a	20-1 20-1 20-1	LIGHTS LIGHTS LIGHTS			 3.1	3.5	2.3	EAST OFFICES EAST LABS EAST OFFICES		2#10,#	10G-3/4°C 10G-3/4°C 10G-3/4°C
16b	20-1	LIGHTS				2.6		CORRIDORS/SERV CORRIDORS			10G-3/4"C
20a 22b	/20-1 /20-1 /20-1	SPARE SPARE									
260 260 286	20-1 20-1 20-1	SPARE SPARE SPARE									
30c/ 32g/	/ /20/1/	SPARE SPACE					//7				
			//////	/////		4				V / /	+++A
	 	SPACE SPACE TVS8									
/34b /36c		SPACE	25.9 31.2			10	6				
34b 36c 38a 40b 2EMAND KVA		SPACE WS8 26 CONNECTED kVA= CONNECTED Amps= CONNECTED Amps= ELECTRIC	31.2 CAL PA								PANEL
34b 36c 38a 40b 242c DEMAND KVA		SPACE VISS 26 CONNECTED kVA= CONNECTED Amps= VISS CONNECTED Amps=		BLDG SCATION							PANEL TYPE MOUNTIN
34b 36c 38a 40b 200 200 200 200 200 200 200 200 200 2		SPACE 1958 26 CONNECTED KVA= CONNECTED Amps= CONNECTED Amps= EXECTR16 ERP-4E2 2087/120V-3PH-4W	31.2 CAL PAL	BLDG SCATION TOP or BOTIOM							TYPE
34b 36c 38a 40b #2c DEMAND KVA DEMAND KVA DEMAND KVA DEMAND KVA MALM		SPACE WS8 26 CONNECTED KVA= CONNECTED Amps= CONNECTED Amps= EXECTRIC ERP-4E2 208Y / 120V-3PH-4W Surface 150A MB	31.2 CAL PAL	BLDG SCATION TOP or							TYPE MOUNTIN MAIN
34b 36c 38a 40b #2c DEMAND KVA DEMAND KVA DEMAND KVA DEMAND KVA MALM	A=	SPACE WSS 26 CONNECTED KVA= CONNECTED Amps= CONNECTED Amps= CONNECTE	31.2 CAL PAL	BLDG SCATION TOP or BOTIOM					4		TYPE MOUNTIN MAIN RATING
34/2 350 380 406 420 DEMAND KVA DEMAND KVA ALX ALX ALX ALX ALX ALX ALX ALX ALX AL	A=	SPACE WSS 26 CONNECTED KVA= CONNECTED Amps= CONNECTED Amps= CONNECTE		BLDG DCATION TOP OT BOTTOM NOTES	TOP			Wirfe Size AWG	4		TYPE MOUNTIN MAIN RATING REF. DWO Circuit No. & Phase 1a 3b
34b 36c 38a 40b 42c DEMAND KVA DEMAND KVA A2c ACC ACC ACC ACC ACC ACC ACC AC	A=	SPACE 1958 26 CONNECTED KVA= CONNECTED Amps= CONNECTED Amps= ELECTRUE ERP-4E2 208Y/120V-3PH-4W Surface 150A/MB 10KAIC 150A/MB 10KAIC LOAD DES RECEPTACLES		BLDG DCATION TOP OT BOTTOM NOTES				2#12,#12G-3/2 2#12,#12G-3/2 2#12,#12G-3/2 2#12,#12G-3/2	4"e 4"c		TYPE MOUNTIN MAIN RATING REF. DW Circuit No. & Phase
34b 360 380 406 420 DEMAND KVA DEMAND KVA DEMAND KVA ALC ALC ALC ALC ALC ALC ALC ALC ALC AL	A=	SPACE WSS 26 CONNECTED KVA= CONNECTED Amps= CONNECTED Amps= CONNECTE		BLDG DCATION TOP OT BOTTOM NOTES				2#12.#12G-3/2 2#12/#12G-3/2	4"e 4"c		TYPE MOUNTIN MAIN RATING REF. DWO Circuit No. & Phase 1a 3b 5c 7a 9b 11c 13a
34b 36c 38a 40b 42c DEMAND KVA DEMAND KVA DEMAND KVA ALL ALL ALL ALL ALL ALL ALL A	A= A= A= A= A= A= A= A= A= A=	SPACE IVS8 26 CONNECTED KVA= CONNECTED Amps= 26 CONNECTED Amps= 20 EXECTRIC ERP-4E2 208Y / 120V-3PH-4W SURFace 150A MB 10KAJC 150A MB 10KAJC KECEPTACLES SPARE SPARE SPARE SPARE SPARE SPARE		BLDG DCATION TOP OT BOTTOM NOTES				2#12,#12G-3/4 2#12,#12G-3/4 2#12,#12G-3/4 2#12,#12G-3/4 2#12,#12B-3/4	4°C 4°C 4°C		TYPE MOUNTIN MAIN RATING REF. DW Circuit No. & Phase 1a 3b 5c 7a 9b 11c
34b 36c 38a 40b 42c DEMAND KVA DEMAND KVA DEMAND KVA ALX PANEL TYPE AOUNTING CITCUIT NO: 82 Phase 1a 15c 13a 15b	A=	SPACE WSS 26 CONNECTED KVA= CONNECTED Amps= CONNECTED Amps= CONNECTED Amps= ELECTRIC ERP-4E2 208Y / 120V-3PH-4W Surface 150A MB 10KAIC 150A MB 10KAIC LOAD DES RECEPTACLES SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE SPARE		BLDG DCATION TOP OT BOTTOM NOTES				2#12,#x26-3/4 2#12,#x26-3/4 2#12,#x26-3/4 2#12,#x26-3/4 2#x2,#128-3/4	4°C 4°C 4°C		TYPE MOUNTIN MAIN RATING REF. DWO Circuit No. & Phase 1a 3b 5c 7a 9b 11c 13a 15b 11c 13a 15b 17c 2a 4b 6c
34b 36c 380 40b 42c DEMAND KVA DEMAND KVA DEMAND KVA A2c A0 A12c A0 A12c	A= A= A= A= A= A= A= A= A= A=	SPACE PVS8 26 CONNECTED KVA= CONNECTED Amps= CONNECTED Amps= CONNECT		BLDG DCATION TOP OT BOTTOM NOTES				2#12,#x26-3/4 2#12,#x26-3/4 2#12,#x26-3/4 2#12,#x26-3/4 2#x2,#128-3/4	4°C 4°C 4°C		TYPE MOUNTIN MAIN RATING REF. DWO Circuit No. & Phase 1a 3b 5c 7a 9b 11c 13a 15b 11c 13a 15b 11c 2a 4b 6c 8a 10b 12c
34b 36c 38a 40b 42c DEMAND KVA DEMAND KVA A2c DEMAND KVA A2c AVEL TYPE MOUNTIM ANEL TYPE MOUNTIM REF. DWC Circuit No. 8c Phose 7a 3b 5c 7a 13a 15b 19a 23c 25a 27b	A= A= A= A= A= A= A= A= A= A=	SPACE PVSS 26 CONNECTED KVA= CONNECTED Amps= CONNECTED Amps= CONNECT		BLDG DCATION TOP OT BOTTOM NOTES				2#12,#x26-3/4 2#12,#x26-3/4 2#12,#x26-3/4 2#12,#x26-3/4 2#x2,#128-3/4	4°C 4°C 4°C		TYPE MOUNTIN MAIN RATING REF. DWO Circuit No. & Phase 1a 3b 5c 7a 9b 11c 13a 15b 11c 13a 15b 11c 2a 4b 6c 8a 10b
34b 36c 38a 40b 42c DEMAND KVA DEMAND KVA PANEL TYPE MOUNTINE MAUN RAIN REF. DWO Circuit No. 8c Phose 10 10 10 10 10 10 10 10 10 10	A= A= A= A= A= A= A= A= A= A=	SPACE PVS8 26 CONNECTED KVA= CONNECTED Amps= 26 CONNECTED Amps= 20 20 20 20 20 20 20 20 20 20		BLDG DCATION TOP OT BOTTOM NOTES				2#12,#x26-3/4 2#12,#x26-3/4 2#12,#x26-3/4 2#12,#x26-3/4 2#x2,#128-3/4	4°C 4°C 4°C		TYPE MOUNTIN MAIN RATING REF. DWO Circuit No. & Phase 1a 3b 5c 7a 9b 11c 13a 15b 11c 13a 15b 11c 13a 15b 17c 2a 4b 6c 8a 10b 12c 14a 16b
34b 36c 38a 40b 42c DEMAND KVA DEMAND KVA ALC ANEL TYPE MOLINTIN ANEL TYPE TY	A= A= A= A= A= A= A= A= A= Amp Rating & Poles Amp Rating & P	SPACE SPACE						2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 7#12.#12G-3/4			TYPE MOUNTIN MAIN RATING Circuit No. & Phase 1a 3b 5c 7a 9b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 14a 16b
34b 36c 38a 40b 42c DEMAND ANEL CHINTIN ANEL TYPE MOLINTIN MALKI 240 250 76 3b 5c 7a 9b 13a 15b 17c 13a 15b 13a 15b 13a 15b 13a 15b 13a 3b 5c 3b 3b 5c 39b 41c 2a 4b	A= A= A= A= A= A= A= Amp Rating & Poles Amp Rating Amp Rating & Poles Amp Rating Amp	SPACE PVSS PVSS 26 CONNECTED kVA= CONNECTED Amps= CONNECTED Amps= CO						2#12,#12G-3/2 2#12,#12G-3/2 2#12,#12G-3/2 7#12,#12G-3/2 7#12,#12G-3/2 2#12,#12G-3/2 2#12,#12G-3/2 2#12,#12G-3/2			TYPE MOUNTIN MAIN RATING Circuit No. & Phase 1a 3b 5c 7a 9b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 14a 16b
34b 36c 38a 40b 42c DEMAND KVA DEMAND KVA ALX PANEL TYPE MOUNTIN ANEL TYPE MOUNTIN REF. DWO Clincuit No. &c Phase 7a 3b 3b 5c 7a 3b 10 23c 25a 27b 29c 216 25a 27b 29c 25a 27b 29c 31a 35c 37g 39b 41c 26 4b 4b	A= A= A= A= A A A A A C C C C C C C C C C C C C	SPACE PVSS PVSS 26 CONNECTED kVA= CONNECTED Amps= CONNECTED Amps= CO						2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4			TYPE MOUNTIN MAIN RATING Circuit No. & Phase 1a 3b 5c 7a 9b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 14a 16b
34b 380 380 40b 42c DEMAND KVA DEMAND KVA ALX PAINEL TYPE MOUNTIN RATING CIrcuit No. & PAINEL TYPE MOUNTIN RATING CIrcuit No. & Phase 10 15 5e 70 9b 15 5e 70 9b 15 5e 70 70 8b 15 70 70 70 70 70 70 70 70 70 70 70 70 70	Amp Rating & Poles G NO Amp Rating & Poles G 20-1	SPACE PVS8 PVS8 26 CONNECTED KVA= CONNECTED Amps= 26 CONNECTED Am						2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4			TYPE MOUNTIN MAIN RATING Circuit No. & Phase 1a 3b 5c 7a 9b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 14a 16b
34b 36c 380 40b 42c DEMAND Alve	A= A= A= A= A= A= A= A= Amp Rating & Poles Amp Rating & Poles	SPACE VVS8 VVS8 26 CONNECTED KVA= CONNECTED Amps= CONNECTED Amps= C						2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4			TYPE MOUNTIN MAIN RATING Circuit No. & Phase 1a 3b 5c 7a 9b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 14a 16b
34b 35c 380 40b 42c DEMAND A2c DEMAND A2c A2c A2c A2c A2c <td>Amp Rating & Poles G NO Amp Rating & Poles G 20-1</td> <td>SPACE PVS8 PVS8 26 CONNECTED KVA= CONNECTED Amps= CONNECTED Amps= C</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4</td> <td></td> <td></td> <td>TYPE MOUNTIN MAIN RATING Circuit No. & Phase 1a 3b 5c 7a 9b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 14a 16b</td>	Amp Rating & Poles G NO Amp Rating & Poles G 20-1	SPACE PVS8 PVS8 26 CONNECTED KVA= CONNECTED Amps= CONNECTED Amps= C						2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4 2#12.#12G-3/4			TYPE MOUNTIN MAIN RATING Circuit No. & Phase 1a 3b 5c 7a 9b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 13a 15b 11c 14a 16b

///////ELECTRICAL	/ PANEL/	SCH	EDULE///				///ELECTRICAL	PANEL SCHE	DU	£//////		
ELP-4E2	BLDG		DATE		PANEL RP-4E2 BLDG DATE							
///480Y/2717V-3PH-4W// Surtace/			/ ELEC /RM. /430/		MOUNT	<u> </u>	Ø8Y//120V-3PH-4W Syrface					
200A MB	ТОР ог Воттом		TOP		MAIN		150A MB	TOP or BOTTOM				
65/KAIC/_/////					RATING		///10KAIC////////////////////////////////////					
8	///NOTES				REF. Ø	wG/NO//		WOTES ///				
					Çircuit		<u> </u>			+ + + + + + + + + + + + + + + + + + +	$\langle / / / / / / / / / / / / / / / / / / /$	
Rating & LOAD DESCRIPTION		////	KA COCATION	Wire Size AWG	No. & Phase	Amp Rating & Poles	LOAD DESCRIPTION	A A A A A A A A A A A A A A A A A A A			Wire Size AW	
70-3 / ERP-#E2/VIA XFMR / / /		1.1	4TH FLR. ELEC	,/RM.	10	20-1	RECEPTACLES (5)	1,0		CORRIDOR #403,H404	2#12,#128-3/	
7////////////////////////////////////	//////	/	0,8 -///	///////////////////////////////////////	36	20-1	RECEPTACLES	0.8	1	SHELL SPACE	2#12,#12G-3/	
20-1 SPARE	·//////		1.0 -	·/////////////////////////////////////	<u>5c</u>	20-1	RECEPTACLES (2)		0.4	OFFICE 412D	2#12,#12G-3/4	
20-1		<u> </u>		<u> </u>	70	20-1	RECEPTACLES (2)	0.4		OFFICE 412C	2#12,#12G-3/-	
20-1 LIGHTS			1,0 STR 3 & PENT	HOUS	9Ь	20-1	RECEPTACLES (2)	0.4		OFFICE 412B	2#12,#12G-3/	
29-1 Цюңтб		1.0	STR 2 & 3 EQ		11c	20-1	RECEPTACLES (2)		0.4	SERVER 414	2#12,#12G-3/	
20-1 LIGHTS			1.0 STR 3 & 2 EC		13a	20-1	QUAD RECEPTACLES (1)	0.4		OPEN OFFICE 412	2#12,#12G-3/	
20-1 цвнтs			THIRD FLR UPF		15b	20-1	QUAD RECEPTACLES (1)	0.4		OPEN OFFICE 412	2#12,#12G-3/	
20-1 EMERGENCY LIGHTS		1.5	4TH FLR UPFIT EGRESS – SOU		17c	20-1	QUAD RECEPTACLES (1) QUAD RECEPTACLES (1)		0.4	OPEN OFFICE 412 OPEN OFFICE 412	2#12,#12G-3/	
		1.5	4TH FLR. UPFI	r l	19a 21b	20-1	RECEPTACLES (3)	0.4		OPEN OFFICE 412	2#12,#12G-3/	
20-1 EMERGENCY LIGHTS 20-1 SPARE			1.8 EGRESS - NOF	2#10,#10G-3/4"C	210 23c	20-1	RECEPTACLES (3)	0.0		OPEN OFFICE 412	2#12,#12G-3/	
20-1 SPARE						20-1	RECEPTACLES (3)				2#12,#12G-3/-	
29-1 SPARE					25a 27b	20-1	RECEPTACLES (3)	0.6		OPEN OFFICE 412 OFFICE 412A	2#12,#12G-3/	
10-1 SPARE					27b 29c	30-1	RECEPTACLES (3)	0.0	-	GRAD STUDENTS 411	2#10,#10G-3/	
-//SPACE					31a	30-1	RECEPTACLES (3)	0.6	0.0	GRAD STUDENTS 411	2#10,#10G-3/	
-//SPACE////////					33b	30-1	RECEPTACLES (3)	0.6		GRAD STUDENTS 411	2#10,#10G-3/	
					350	/30-1//	RECEPTACLES (3)		0.6	GRAD STUDENTS 411/	2#10,#10G-3/	
/-//\$PACE////////////////////////////////////		\langle / \rangle			/ <u>/</u> 37ø	20-1	RECEPTACLES (3)	/0,6		ØFFICE/42/4A	2#12,#128-3/	
/		/			396	20-1//	RECEPTACLES (2)	0.4	4,	SERVER 424B	/2#12,#12G-3/	
79-3 SPARE					41c/	/ /20/1/	RECEPTACLES (2)		0,4		2#12,#12G-3/A	
					20	20-1	RECEPTACLES	1.2		SHELL SPACE/STAIR 2/JAN 435	2#12,#12G-3/	
					4b	20-1	RECEPTACLES (2)	0.4		OFFICE 424D	2#12,#12G-3/4	
/20-1 SPARE ////////////////////////////////////					6c	20-1	RECEPTACLES (2)		0.4	OFFICE 424	2#12,#12G-3/4	
20-1//ughts////////////////////////////////////		/	0,2 ELEC ROOM		80	20-1	RECEPTACLE	0.2		OFFICE 424	 2#12,#12G-3/-	
20 ² —1// µбнтs////////////////////////////////////	·//////		1.0 SHELL SPACE		10b	20-1	RECEPTACLES (3)	0.6		OFFICE 434	2#12,#12G-3/	
20-1 (LIGHTS) 20-1 (LIGHTS)		/1,8	1.0 STAIR #1	<u> </u>	12c	20-1	RECEPTACLES (2)		0.4	OFFICE 434	2#12,#12G-3/-	
20-1 SPARE					440	20-1	RECEPTACLES (2)	0.4		OFFICE 433	2#12,#12G-3/	
20-1 SPARE					16b	20-1	RECEPTACLES (2)	0.4	<u> </u>	OFFICE 432	2#12,#12G-3/	
20-1 SPARE					//186/	/ 20-1 / /	RECEPTACLES (2)		⁄0.4⁄	OFFICE 431	/2#12,#12G- <i>3</i> /	
20-1 SPARE ////////////////////////////////////				<u> </u>	20a	20-1	RECEPTACLES (3)	0.6	_	OFFICE 430	2#12,#12G-3/	
20-1 SPARE		<u> </u>			22b	20-1	RECEPTACLES (3)		+	OFFICE 429	2#12,#12G-3/	
29-1 SPARÉ 20-1 SPARE					24c/	20-1	FLOOR BOX		0,4	OFFICE 429	2#12,#12G-3/	
- SPACE				<u> </u>	260	20-1 20-1	RECEPTACLES (3)	0.6		OFFICE 429	2#12,#12G-3/ 2#12 #12G-3/	
- SPACE					/ 286 / 30c /	20-1	RÉCEPTACLES (2) RECEPTACLES (2)		/0.4	ØFFICE 426	2#12,#12&-3/ 2#12,#12&-3/	
- SPACE					320	///20/1//		<u> </u>		CORRIDOR H404A	2#12,#12G-3/	
30-3 158		\square				20-1	X / / / / / / / / / / / / / /			CØRR. 14,044,14,05,1406	X/////	
/ -///////////////////////////////////		\mid	<u> </u>		34b/	/ 20-1	RECEPTACLES (4)	<u>/////////////////////////////////////</u>		/H404A,H405,H406	2#12,#12G-3/	
				<u> </u>	36c	30-3	SPARE ////////////////////////////////////	/////	+		$\langle / / / / / / / / / / / / / / / / / / /$	
14 CONNECTED KVA=//13.9 CONNECTED Amps=//16.7	/////TOTAL	L/Y//	<u> </u>	·/////////////////////////////////////	40b	X//////	X <i> </i>	///////////////////////////////////////		¥///////	X/////	

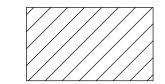
		ELECT	RICAL	PANEL S	CHE	DUL	E		
URP-4C6.5				BLDG	DATE		DATE		
208Y/120V-3PH-4W				LOCATION					
		Surface							
		35A MB		TOP or BOTTOM	ТОР				
10KAIC									
		TUNAIC		NOTES					
				INUIES	18 CIRCUIT PANEL				
							T	VSS	
						KV/A			
Rating & Poles		LOAD DESCRIPTION						LOCATION	Wire Size AWG
20-1					a	b		<u> </u>	
		OHSC RECEPTACLES (2)			0.4			LAB 415	2#12,#12G-3/4"
20-1 OHSC RECEPTACLES (2) 20.1 OUSC RECEPTACLES (2)					0.4		LAB 415	2#12,#12G-3/4"	
20-1 OHSC RECEPTACLES (2)						0.4	LAB 421	2#12,#12G-3/4"	
	20-1 OHSC RECEPTACLES (2)			0.4			LAB 421	2#12,#12G-3/4" 2#12,#12G-3/4"	
20-1 OHSC RECEPTACLES (2)					0.4		LAB 420		
	20-1 OHSC RECEPTACLES (2)					0.4	LAB 420	2#12,#12G-3/4"(2#12,#12G-3/4"(
20-1 20-1		OHSC RECEPTACLES (2)			0.4			LAB 420	2#12,#120-3/4 0
20-1		SPARE							
20-1		SPARE SPARE							<u> </u>
20-1 SPARE 20-1 SPARE									
20-1 SPARE									
		SPARE							
20-1		SPARE							
20–1 SPARE		SPARE							
30-3		TVSS							
-		-							
-		-	1						
	2.8	CONNECTED kVA=	2.8	TOTAL	1	1	1		
Amps =	7.8	CONNECTED Amps=	7.8						

PANEL	ELECTRICA		BLDG		DATE				
TYPE	208Y/120V-3PH-4W		LOCATION						
			LUCATION						
	<u>ن</u>	Surface	TOP or BOTTOM						
	IAIN 150A MB						ТОР		
RATING		10KAIC							
			NOTES						
REF. DWO	G. NO								
							1		
Circuit No. & Phase	Amp Rating & Poles	LOAD DESCRIPTION			кva b	с	LOCATION	Wire Size AWG	
1a	20-1	RECEPTACLES (3)					OFFICE 435	2#12,#12G-3/4'	
3b	20-1	RECEPTACLES (2)			0.4		OFFICE 436	2#12,#12G-3/4"	
5c	20-1	RECEPTACLES (2)				0.4	OFFICE437	2#12,#12G-3/4"	
7a	20-1	RECEPTACLES (2)					OFFICE438	2#12,#12G-3/4'	
9b	20-1	RECEPTACLES (3)		0.4	0.6		OFFICE439	2#12,#12G-3/4'	
11c	20-1	RECEPTACLES (3)				0.6	OFFICE 401	2#12,#12G-3/4"	
13a	20-1	RECEPTACLES (4)		0.8			OFFICE 402	2#12,#12G-3/4'	
15u	20-1	RECEPTACLES (2)		0.0	0.4		OFFICE 403	2#12,#12G-3/4'	
17c	20-1	RECEPTACLES (4)			0.4	0.8	OFFICE 403	2#12,#12G-3/4	
	20-1	RECEPTACLES (1)				0.8		2#12,#12G-3/4	
19a	20-1	RECEPTACLES (2)		0.2			BREAKROOM 404	2#12,#12G-3/4	
21b					0.4		BREAKROOM 404	2#12,#12G-3/4'	
23c	20-1	REFRERIGERATOR				1.8	BREAKROOM 404		
25a	20-1	REFRERIGERATOR		1.8			BREAKROOM 404	2#12,#12G-3/4	
27b	20-1	RECEPTACLES (4)			0.8		BREAKROOM 404	2#12,#12G-3/4	
29c	20-1	RECEPTACLES (4)				0.8	MEN 405, WOMEN 406	2#12,#12G-3/4	
31a	30-1	HAND DRYER		2.0			WOMEN 406	2#10,#10G-3/4	
33b	30-1	HAND DRYER			2.0		MEN 405	2#10,#10G-3/4'	
35c	20-1	EWC				0.7	VESTIBULE V401	2#12,#12G-3/4'	
37a	20-1	RECEPTACLES (6)		1.2			CORRIDOR H402,H403	2#12,#12G-3/4	
39b	20-1	RECEPTACLES (5)			1.0		CORRIDOR H405, H406	2#12,#12G-3/4	
41c	20-1	SPARE							
20	30-1	RECEPTACLES (3)		0.6			GRAD STUDENT 407	2#10,#10G-3/4	
4b	30-1	RECEPTACLES (2)			0.4		GRAD STUDENT 407	2#10,#10G-3/4	
6c	30-1	RECEPTACLES (3)				0.6	GRAD STUDENT 407	2#10,#10G-3/4	
8a	30-1	RECEPTACLES (3)		0.6			GRAD STUDENT 408	2#10,#10G-3/4	
10b	30-1	RECEPTACLES (3)			0.6		GRAD STUDENT 408	2#10,#10G-3/4	
12c	30-1	RECEPTACLES (3)				0.6	GRAD STUDENT 410	2#10,#10G-3/4	
14a	30-1	RECEPTACLES (3)		0.6			GRAD STUDENT 410	2#10,#10G-3/4	
16b	30-1	RECEPTACLES (3)			0.6		GRAD STUDENT 410	2#10,#10G-3/4	
18c	30-1	RECEPTACLES (3)				0.6	GRAD STUDENT 410	2#10,#10G-3/4	
20a	30-1	RECEPTACLES (3)		0.6			GRAD STUDENT 410	2#10,#10G-3/4	
22b	30-1	RECEPTACLES (3)			0.6		GRAD STUDENT 410	2#10,#10G-3/4	
 24c	30-1	RECEPTACLES (2)				0.4	GRAD STUDENT 410	2#10,#10G-3/4	
26a	30-1	RECEPTACLES (3)					GRAD STUDENT 408,410	2#10,#10G-3/4	
28b	20-1	SPARE							
30c	20-1	SPARE							
32a	20-1	SPARE							
34b	20-1	SPARE							
36c	20-1	SPARE							
36c 38a	30-3	TVSS							
40b	_	_							
400 42c	_								
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NOTES:

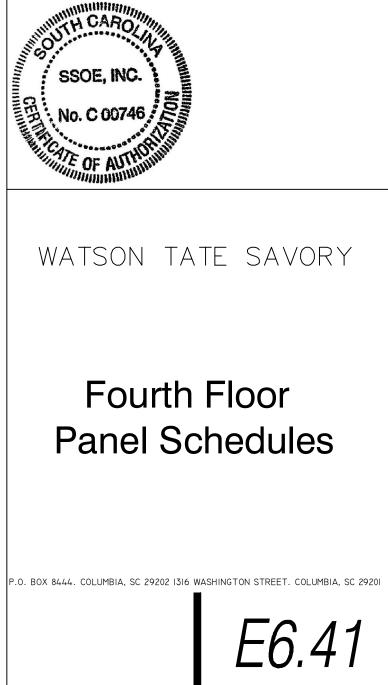
- ALL BRANCH CIRCUIT BREAKERS ARE 20A, 1P UNLESS OTHERWISE NOTED.
- 2. TRIANGLE AROUND CIRCUIT NUMBER INDICATES CIRCUIT BREAKER WITH GROUND FAULT INTERRUPTER.
- 3. CIRCLE AROUND CIRCUIT NUMBER INDICATES HANDLE LOCK DEVICE.
- 4. ROOM NUMBER ON THIS DRAWING SHOULD MATCH COMPANION PLAN DRAWINGS. THE ROOM NUMBERS ARE NOT FINAL USC ROOM NUMBERS. SUBMITTAL OF PANEL SCHEDULES SHALL REFLECT ROOM NUMBER PER A SERIES DRAWINGS AND CLOSE OUT DRAWINGS SHALL BE MARKED WITH FINAL ROOM NUMBERS.

<u>LEGEND:</u>



INDICATES EXISTING EQUIPMENT/DEVICES

REV.	DATE
1	07/17/1
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