McKISSICK FIRE ALARM REPLACEMENT

SC STATE PROJECT #H27-I851A

UNIVERSITY OF SOUTH CAROLINA

Columbia, South Carolina

DESIGN TEAM

OWNER

UNIVERSITY OF SOUTH CAROLINA
743 GREENE STREET
COLUMBIA, SC 29208

USC PROJECT MANAGER

PETE FISHER

PHONE: (803) 777-9346

ELECTRICAL ENGINEER

LAND ENGINEERING ASSOCIATES, LLC 262 SANDHURST ROAD, SUITE 101 COLUMBIA, SC 29210 (803) 528-1437 JOSEPH W. LAND, P.E.

Synovus Bank - NBSC South Carolina Library The Horseshoe Rutledge Chapel Davis College College St. College College St. College Rutledge Chapel

VICINITY MAP

INDEX OF DRAWINGS

DWG.#	SHEET TITLE
T-1	PROJECT TITLE SHEET

ELECTRICAL DRAWINGS

ELECTRICAL DRAWINGS				
E-1	GENERAL NOTES, LEGEND, DETAILS, AND SCHEDUL			
E-2	FIRE ALARM SINGLE-LINE DIAGRAM AND DETAILS			
E-3	BASEMENT FIRE ALARM RENOVATION PLAN			
E-4	GROUND FLOOR FIRE ALARM RENOVATION PLAN			
E-5	FIRST FLOOR FIRE ALARM RENOVATION PLANS			
E-6	SECOND FLOOR FIRE ALARM RENOVATION PLANS			
E-7	THIRD FLOOR FIRE ALARM RENOVATION PLAN			
E-8	FOURTH FLOOR FIRE ALARM RENOVATION PLANS			
E-9	BASEMENT FIRE ALARM DEMOLITION PLAN			
E-10	GROUND FLOOR FIRE ALARM DEMOLITION PLAN			
E-11	FIRST FLOOR FIRE ALARM DEMOLITION PLANS			
E-12	SECOND FLOOR FIRE ALARM DEMOLITION PLANS			
E-13	THIRD FLOOR FIRE ALARM DEMOLITION PLAN			
E-14	FOURTH FLOOR FIRE ALARM DEMOLITION PLANS			

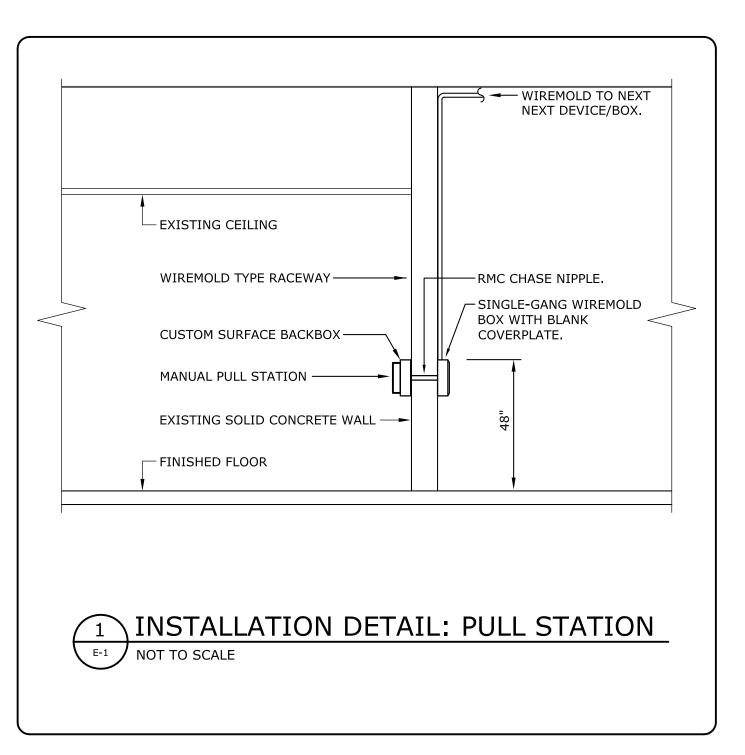
ite Project NO. nz/-1851A D

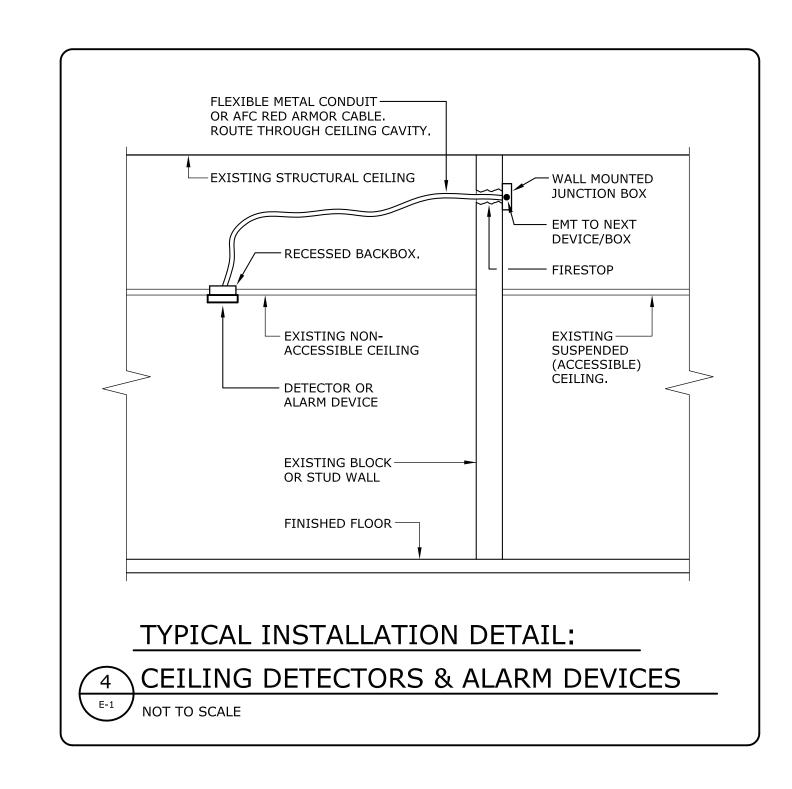
TITLE: MCKISSICK FIRE AL

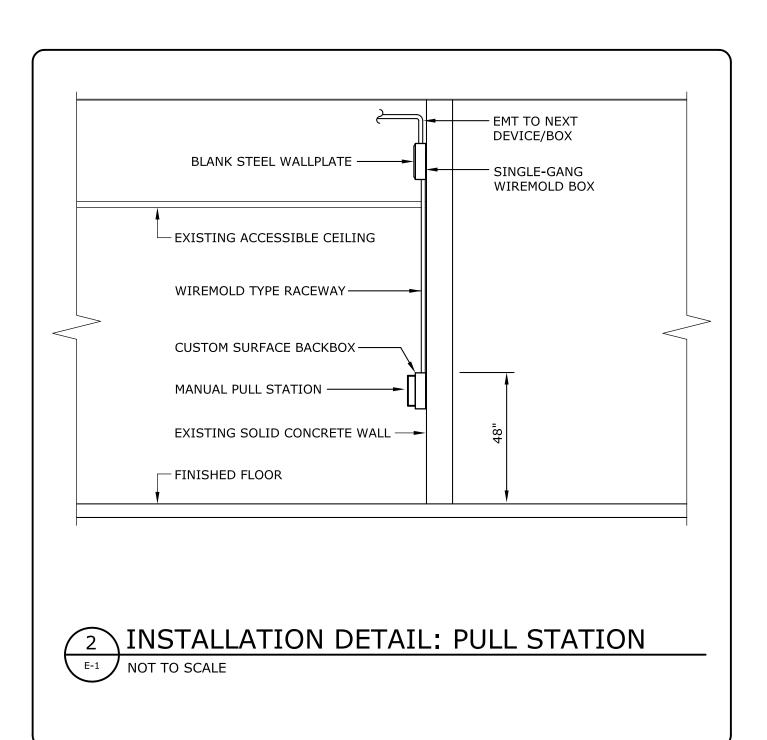
SHEET:

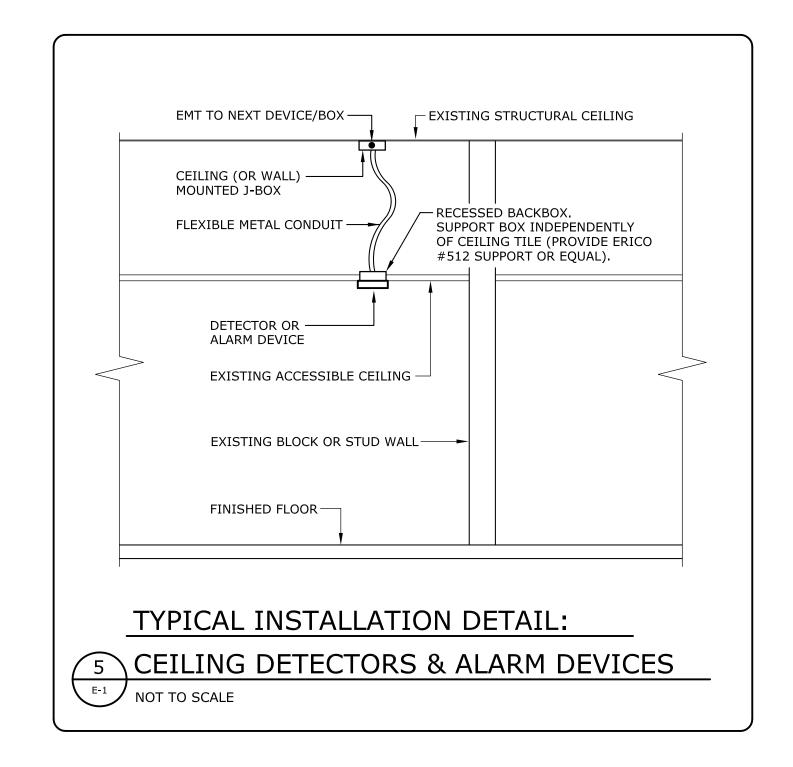
1 OF 15

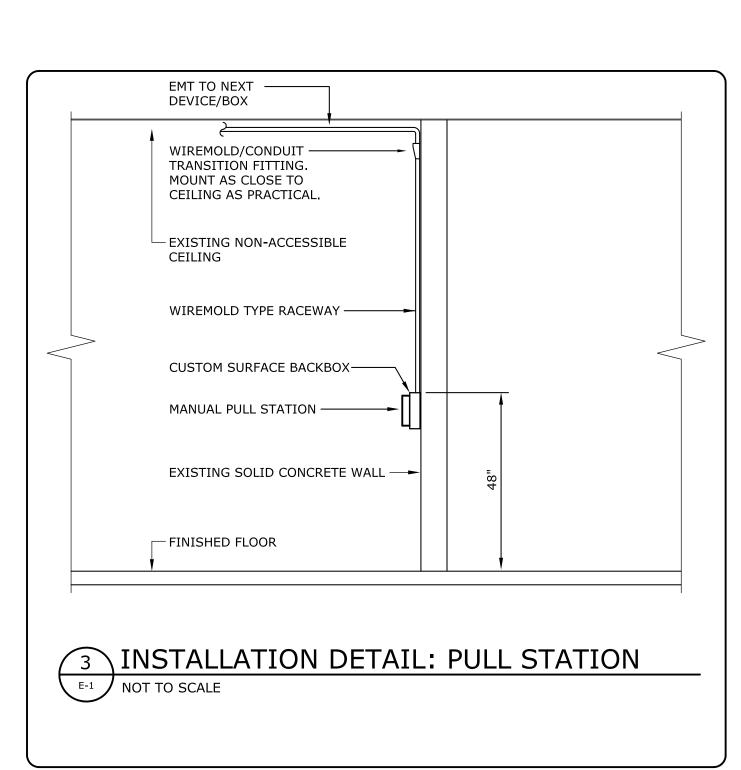
SHEET IN SET:

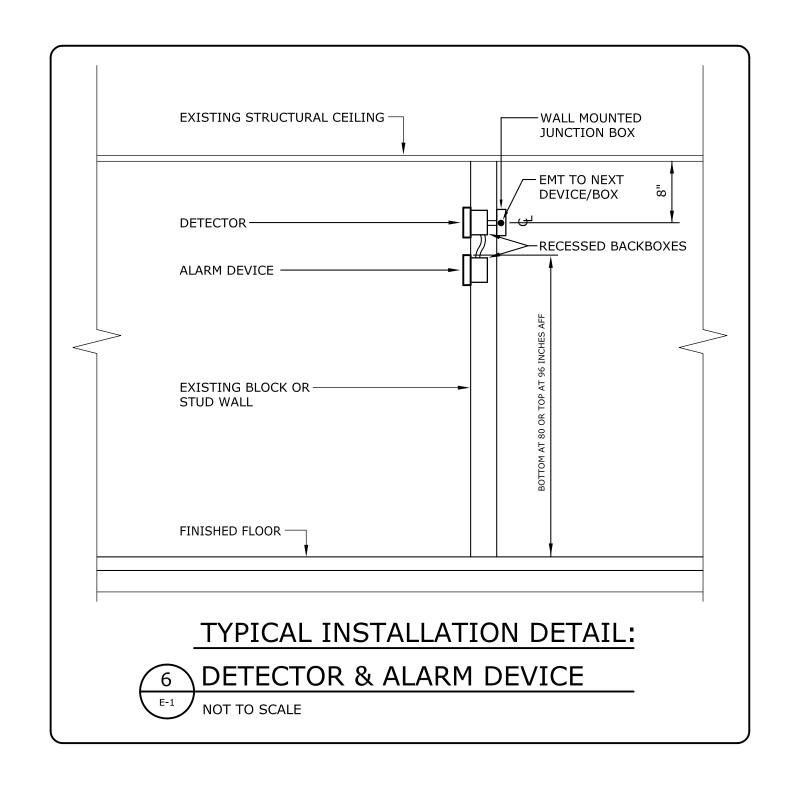












GENERAL CONSTRUCTION NOTES

- PROVIDE ALL WORK IN ACCORDANCE WITH THE FOLLOWING CODES AND STANDARDS:
 - INTERNATIONAL EXISTING BUILDING CODE 2015 EDITION
 - INTERNATIONAL FIRE CODE 2015 EDITION NFPA 70 - NATIONAL ELECTRICAL CODE 2014 EDITION
 - NFPA 72 NATIONAL FIRE ALARM CODE 2013 EDITION ANSI A117.1 - ACCESSIBLE AND USABLE LATEST EDITION

BUILDINGS AND FACILITIES

- PROVIDE RACEWAY AND WIRING TO ALL EQUIPMENT, DEVICES AND APPLIANCES INDICATED ON THE CONTRACT DRAWINGS. THE DRAWINGS INDICATE PARTIAL RACEWAY AND WIRING REOUIREMENTS TO HELP CLARIFY DESIGN INTENT. WHERE RACEWAY AND/OR WIRING IS NOT INDICATED FOR EQUIPMENT, DEVICES OR APPLIANCES THE ARRANGEMENT, GROUPING, AND ROUTING SHALL BE PROVIDED IN ACCORDANCE WITH THE 2014 EDITION OF THE NATIONAL ELECTRICAL CODE AND THE 2013 EDITION OF THE
- NATIONAL FIRE ALARM CODE. . ALL CONDUIT PENETRATIONS THROUGH WALLS AND CEILINGS SHALL BE 2-HOUR

FIRESTOPPED IN ACCORDANCE WITH THE FIRESTOP DETAILS SHOWN ON DRAWING E-2.

- 4. RACEWAYS SHALL BE EMT, RED IN COLOR, AND WITH COMPRESSION TYPE FITTINGS UNLESS NOTED OR DETAILED OTHERWISE. SIZE RACEWAYS FOR MAXIMUM OF 40% FILL PER THE NATIONAL ELECTRICAL CODE. CONCEAL RACEWAYS IN WALLS AND ABOVE DROP CEILINGS WHERE APPLICABLE. RACEWAYS MAY BE MOUNTED EXPOSED ON WALLS AND CEILINGS WHERE WALLS AND/OR CEILINGS ARE NOT ACCESSIBLE FOR CONCEALMENT.
- . CUT-IN BACKBOXES OF DETECTION DEVICES AND NOTIFICATION APPLIANCES INTO EXISTING WALLS, CEILINGS, AND MOLDINGS IN ORDER TO ACHIEVE A SEMI-FLUSH INSTALLATION. PROVIDE THE DEVICE MANUFACTURER'S CUSTOM SURFACE BACKBOX FOR NOTIFICATION DEVICES (AUDIBLE-ONLY, VISIBLE-ONLY AND COMBINATION SPEAKER/STROBES), FOR DETECTORS, AND FOR PULL STATIONS WHERE THEY CANNOT BE SEMI-FLUSH MOUNTED IN WALLS OR CEILINGS (WHERE CONCRETE IS ENCOUNTERED). PROVIDE WIREMOLD #700 RACEWAY AND #700 ENTRANCE END FITTINGS TO ADAPT THE BACKBOX'S RACEWAY NOCK-OUTS TO THE #700 SURFACE RACEWAY WHERE WIREMOLD IS INDICATED TO BE PROVIDED ON PLAN OR SHOWN IN INSTALLATION DETAILS ON THIS
- . PROVIDE FIRE ALARM SYSTEM CABLES/WIRING AS RECOMMENDED BY THE FIRE ALARM SYSTEM MANUFACTURER. CABLES/WIRES SHALL BE SIZED TO ACCOMMODATE VOLTAGE
- . SPLICING: CONNECT CONDUCTORS ASSOCIATED WITH THE FIRE ALARM SYSTEM THAT ARE TERMINATED, SPLICED, OR INTERRUPTED TO TERMINAL BLOCKS. MARK EACH TERMINAL IN ACCORDANCE WITH THE WIRING DIAGRAMS OF THE SYSTEM. MAKE ALL CONNECTIONS WITH APPROVED CRIMP-ON TERMINAL SPADE LUGS, PRESSURE-TYPE TERMINAL BLOCKS, OR PLUG CONNECTORS. SOLDER AND/OR WIRE NUTS SHALL NOT BE USED. PROVIDE GREENLITE CABLE ACCESSORY CORPORATION GTB-SERIES, BREAKOFF TYPE TERMINAL BLOCKS OR PRIOR APPROVED EQUAL (PHONE: 626-575-6263).
- . INSTALL SMOKE AND HEAT DETECTORS IN ACCORDANCE WITH THEIR U.L. LISTED SPACINGS AND IN ACCORDANCE WITH NFPA 72.
- 9. COORDINATE AND PERFORM TESTING OF FIRE ALARM AND FIRE REPORTING SYSTEMS WITH USC'S SUPERVISING MONITORING STATION AS REQUIRED BY THE UNIVERSITY.
- 10. COORDINATE ALL REQUIRED OUTAGES TO EXISTING ELECTRICAL SERVICES AND THE EXISTING FIRE ALARM SYSTEM WITH DENNIS GALLAGHER OF USC MAINTENANCE (PHONE NUMBER 917-0340) AND TODD GRIFFIN OF USC HEALTH & SAFETY (PHONE NUMBER
- 11. INSTALL ELECTRICAL SYSTEMS WITHOUT INTERFERING WITH EXISTING DUCTS, PIPES, FIXTURES, STRUCTURAL MEMBERS, OR OTHER EXISTING BUILDING COMPONENTS. RACEWAY, EQUIPMENT, DEVICE AND APPLIANCE LOCATIONS INDICATED ON PLAN ARE APPROXIMATE. THE CONTRACTOR SHALL LOCATE EQUIPMENT, DEVICES AND APPLIANCES SO AS NOT TO CONFLICT WITH EXISTING CEILING AND WALL MOUNTED EQUIPMENT, FIXTURES, AND DEVICES. MAINTAIN U.L. LISTED SPACINGS FOR FIRE ALARM SYSTEM DETECTION DEVICES AND NOTIFICATION APPLIANCES WHEN DETERMINING THEIR EXACT MOUNTING LOCATION. RACEWAY ROUTINGS SHOWN ON PLANS ARE TO BE USED TO DEVELOP SHOP DRAWINGS FOR FIRE ALARM SYSTEM CABLING REQUIREMENTS. RECORD DRAWINGS SHALL INDICATE ACTUAL RACEWAY ROUTINGS, INCLUDING RISER CONDUIT
- 12. CUTTING, DRILLING, AND PATCHING: PROVIDE CHASES, SLOTS, AND OPENINGS IN EXISTING BUILDING COMPONENTS TO ALLOW FOR ELECTRICAL INSTALLATIONS. PERFORM CUTTING, DRILLING, FITTING, AND PATCHING REQUIRED TO:
- A) INSTALL EQUIPMENT, DETECTION DEVICES, NOTIFICATION APPLIANCES, MATERIALS, AND RACEWAYS IN EXISTING STRUCTURES.
- B) REMOVE AND REPLACE DEFECTIVE WORK THAT DOES NOT CONFORM TO REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- C) UPON WRITTEN INSTRUCTIONS FROM THE ARCHITECT/ENGINEER, UNCOVER AND RESTORE WORK TO PROVIDE FOR ARCHITECT/ENGINEER OBSERVATION OF CONCEALED WORK.
- PROTECT EXISTING STRUCTURES, FURNISHINGS, FINISHES, MECHANICAL SYSTEMS, AND ELECTRICAL SYSTEMS WHILE PERFORMING CUTTING, DRILLING, FITTING, AND PATCHING.

PATCH AND PAINT EXISTING SURFACES AND BUILDING COMPONENTS DAMAGED BY CUTTING AND DRILLING USING NEW MATERIALS THAT MATCH EXISTING MATERIALS. PATCHING AND PAINTING SHALL BE PERFORMED BY EXPERIENCED INSTALLERS. COORDINATE WITH THE OWNER TO VERIFY THE MANUFACTURER, TYPE, AND COLOR OF PAINT TO BE USED. APPLY TWO COATS OF PAINT TO EACH AREA THAT REQUIRES PATCHING/PAINTING.

PATCH AND PAINT EXISTING SURFACES AND BUILDING COMPONENTS EXPOSED BY THE REMOVAL OF EXISTING EQUIPMENT, DEVICES, AND RACEWAYS USING NEW MATERIALS THAT MATCH EXISTING MATERIALS (NOTE THAT WHERE SURFACE MOUNTED RACEWAYS ARE REMOVED THAT THE EXISTING SURFACES BEHIND THE RACEWAYS SHALL BE PAINTED/REPAINTED. PATCHING AND PAINTING SHALL BE PERFORMED BY EXPERIENCED INSTALLERS. COORDINATE WITH THE OWNER TO VERIFY THE MANUFACTURER, TYPE, AND COLOR OF PAINT TO BE USED. APPLY TWO COATS OF PAINT TO EACH AREA THAT

GENERAL DEMOLITION NOTES

- 1. THE NEW FIRE ALARM SYSTEM SHALL BE FULLY INSTALLED AND TESTED PRIOR TO DEMOLITION OF THE EXISTING FIRE ALARM SYSTEM.
- 2. REMOVE ALL EXISTING FIRE ALARM SYSTEM EQUIPMENT, DEVICES, AND ALL ASSOCIATED RACEWAYS AND WIRING - CONTRACTOR SHALL TURN OVER EXISTING FIRE ALARM SYSTEM PANELS, DETECTION DEVICES, AND NOTIFICATION DEVICES TO THE USC FIRE MARSHAL (TODD GRIFFIN). INTENT OF THIS CONTRACT IS FOR THE CONTRACTOR TO DEMOLISH ALL EXISTING FIRE ALARM SYSTEM COMPONENTS AND ALL ASSOCIATED RACEWAYS AND WIRING SYSTEMS IN AND ON THE BUILDING, UNLESS SPECIFICALLY NOTED OTHERWISE.
- 3. THE CONTRACTOR SHALL VISIT THE SITE/BUILDING TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO BID AND SHALL INCLUDE ALL WORK REQUIRED FOR COMPLETE DEMOLITION IN HIS BID.
- 4. ALL HOLES AND SURFACES EXPOSED BY THE REMOVAL OF EXISTING EQUIPMENT, DEVICES, APPLIANCES, AND RACEWAYS SHALL BE PATCHED AND PAINTED TO MATCH SURROUNDING FINISHES. SEE GENERAL CONSTRUCTION NOTE 12 ON THIS
- 5. SEE DEMOLITION LEGEND ON DRAWING E-9.

REQUIRES PATCHING AND/OR PAINTING.

ELECTRICAL LEGEND

- SURFACE MOUNTED ELECTRICAL PANELBOARD (EXISTING). SURFACE MOUNTED CONTROL PANEL, TYPE AS NOTED ON PLAN. FLUSH MOUNTED CONTROL PANEL, TYPE AS NOTED ON PLAN.
 - RJ-31X COMMUNICATIONS PHONE JACK. MOUNT IN FIRE ALARM
- FIRE ALARM SYSTEM ADDRESSABLE MONITOR INTERFACE MODULE WITH CLASS "B" TYPE MONITOR WIRING IN ACCORDANCE WITH NFPA 72.
 - MOUNT MODULE IN A STEEL NEMA-1 ENCLOSURE. FIRE ALARM SYSTEM ADDRESSABLE RELAY INTERFACE CONTROL

MODULE. MOUNT MODULE IN A STEEL NEMA-1 ENCLOSURE.

- ADDRESSABLE FIRE ALARM MANUAL PULL STATION. INSTALL STATION F IN ACCORDANCE WITH DETAILS 1, 2, OR 3 ON THIS DRAWING, AS APPLICABLE TO BUILDING CONDITIONS. SEE GENERAL CONSTRUCTION
- NOTE 5 ON THIS DRAWING, PROVIDE STATION MANUFACTURER'S CUSTOM SURFACE BACKBOX WHERE CONCRETE IS ENCOUNTERED. ADDRESSABLE FIRE ALARM MANUAL PULL STATION - SAME AS

WEATHERPROOF TYPE.

MOUNTING IS REQUIRED.

CONCRETE IS ENCOUNTERED.

ENCOUNTERED.

ADDRESSABLE PHOTO-ELECTRIC SMOKE DETECTOR, CEILING MOUNTED. INSTALL STATION IN ACCORDANCE WITH DETAILS 4 OR 5 ON THIS DRAWING, AS APPLICABLE TO BUILDING CONDITIONS. SEE GENERAL CONSTRUCTION NOTE 5 ON THIS DRAWING. PROVIDE DETECTOR MANUFACTURER'S CUSTOM SURFACE BACKBOX WHERE SURFACE

DESCRIBED ABOVE EXCEPT STATION AND BACKBOX SHALL BE

- ADDRESSABLE PHOTO-ELECTRIC SMOKE DETECTOR, WALL MOUNTED. INSTALL STATION IN ACCORDANCE WITH DETAIL 6 ON THIS DRAWING. SEE GENERAL CONSTRUCTION NOTE 5 ON THIS DRAWING. PROVIDE DETECTOR MANUFACTURER'S CUSTOM SURFACE BACKBOX WHERE
- ADDRESSABLE 135 DEGREE HEAT DETECTOR, FIXED TEMPERATURE ONLY. INSTALL DETECTOR IN ACCORDANCE WITH DETAILS 4 OR 5 ON THIS DRAWING, AS APPLICABLE TO BUILDING CONDITIONS. SEE GENERAL CONSTRUCTION NOTE 5 ON THIS DRAWING. PROVIDE DETECTOR MANUFACTURER'S CUSTOM SURFACE BACKBOX WHERE CONCRETE IS
- CONVENTIONAL 135 DEGREE HEAT DETECTOR, FIXED TEMPERATURE ONLY. INSTALL STATION IN ACCORDANCE WITH DETAILS 4 OR 5 ON THIS DRAWING, AS APPLICABLE TO BUILDING CONDITIONS. SEE GENERAL CONSTRUCTION NOTE 5 ON THIS DRAWING. PROVIDE DETECTOR MANUFACTURER'S CUSTOM SURFACE BACKBOX WHERE CONCRETE IS ENCOUNTERED.
- CONVENTIONAL 200 DEGREE HEAT DETECTOR, FIXED TEMPERATURE ONLY. INSTALL STATION IN ACCORDANCE WITH DETAILS 4 OR 5 ON THIS DRAWING, AS APPLICABLE TO BUILDING CONDITIONS. SEE GENERAL CONSTRUCTION NOTE 5 ON THIS DRAWING. PROVIDE DETECTOR MANUFACTURER'S CUSTOM SURFACE BACKBOX WHERE
- CONCRETE IS ENCOUNTERED ADDRESSABLE PHOTO-ELECTRIC DUCT-TYPE SMOKE DETECTOR WITH SAMPLING TUBE. DETECTOR SHALL BE PROPERLY RATED FOR AIR FLOW IN DUCT SYSTEM. MOUNT TO DUCTWORK AND PROVIDE CUSTOM CONTROL WIRING TO SHUTDOWN AIR HANDLING UNIT FAN AND ASSOCIATED DUCT HEATERS (WHERE APPLICABLE). MODIFY EXISTING DUCT INSULATION AS REQUIRED TO INSTALL DETECTOR.
 - CONTROL PANEL WHEN DETECTOR IS ACTIVATED. ADDRESSABLE PHOTO-ELECTRIC DUCT-TYPE SMOKE DETECTOR, SAME AS DESCRIBED ABOVE EXCEPT DETECTOR SHALL HAVE A WEATHER-

A SUPERVISORY ALARM SHALL BE INDICATED AT THE FIRE ALARM

- PROOF ENCLOSURE. REMOTE TEST AND INDICATING STATION FOR DUCT-TYPE SMOKE DETECTORS. WALL MOUNT STATION AT 60 INCHES ABOVE FINISHED
- AUDIBLE (SPEAKER) NOTIFICATION APPLIANCE, CEILING MOUNTED. INSTALL APPLIANCE IN ACCORDANCE WITH DETAILS 4 OR 5 ON THIS DRAWING, AS APPLICABLE TO BUILDING CONDITIONS. SEE GENERAL CONSTRUCTION NOTE 5 ON THIS DRAWING. PROVIDE APPLIANCE MANUFACTURER'S CUSTOM SURFACE BACKBOX WHERE CONCRETE IS
- AUDIBLE (SPEAKER) NOTIFICATION APPLIANCE, WALL MOUNTED. INSTALL APPLIANCE IN ACCORDANCE WITH DETAIL 6 ON THIS DRAWING. SEE GENERAL CONSTRUCTION NOTE 5 ON THIS DRAWING. PROVIDE APPLIANCE MANUFACTURER'S CUSTOM SURFACE BACKBOX WHERE CONCRETE IS ENCOUNTERED.

ENCOUNTERED.

- VISIBLE (STROBE) NOTIFICATION APPLIANCE, CEILING MOUNTED. INSTALL APPLIANCE IN ACCORDANCE WITH DETAILS 4 OR 5 ON THIS DRAWING, AS APPLICABLE TO BUILDING CONDITIONS. SEE GENERAL CONSTRUCTION NOTE 5 ON THIS DRAWING. PROVIDE APPLIANCE MANUFACTURER'S CUSTOM SURFACE BACKBOX WHERE CONCRETE IS
- NOTED ON PLAN. VISIBLE (STROBE) NOTIFICATION APPLIANCE, WALL MOUNTED. INSTALL APPLIANCE IN ACCORDANCE WITH DETAIL 6 ON THIS DRAWING. SEE GENERAL CONSTRUCTION NOTE 5 ON THIS DRAWING. PROVIDE APPLIANCE MANUFACTURER'S CUSTOM SURFACE BACKBOX WHERE CONCRETE IS ENCOUNTERED. PROVIDE APPLIANCE WITH STROBE

CANDELA RATING NOTED ON PLAN.

COMBINATION AUDIBLE/VISIBLE (SPEAKER & STROBE) NOTIFICATION APPLIANCE, CEILING MOUNTED. INSTALL APPLIANCE IN ACCORDANCE WITH DETAILS 4 OR 5 ON THIS DRAWING, AS APPLICABLE TO BUILDING CONDITIONS. SEE GENERAL CONSTRUCTION NOTE 5 ON THIS DRAWING. PROVIDE APPLIANCE MANUFACTURER'S CUSTOM SURFACE BACKBOX WHERE CONCRETE IS ENCOUNTERED. PROVIDE APPLIANCE WITH

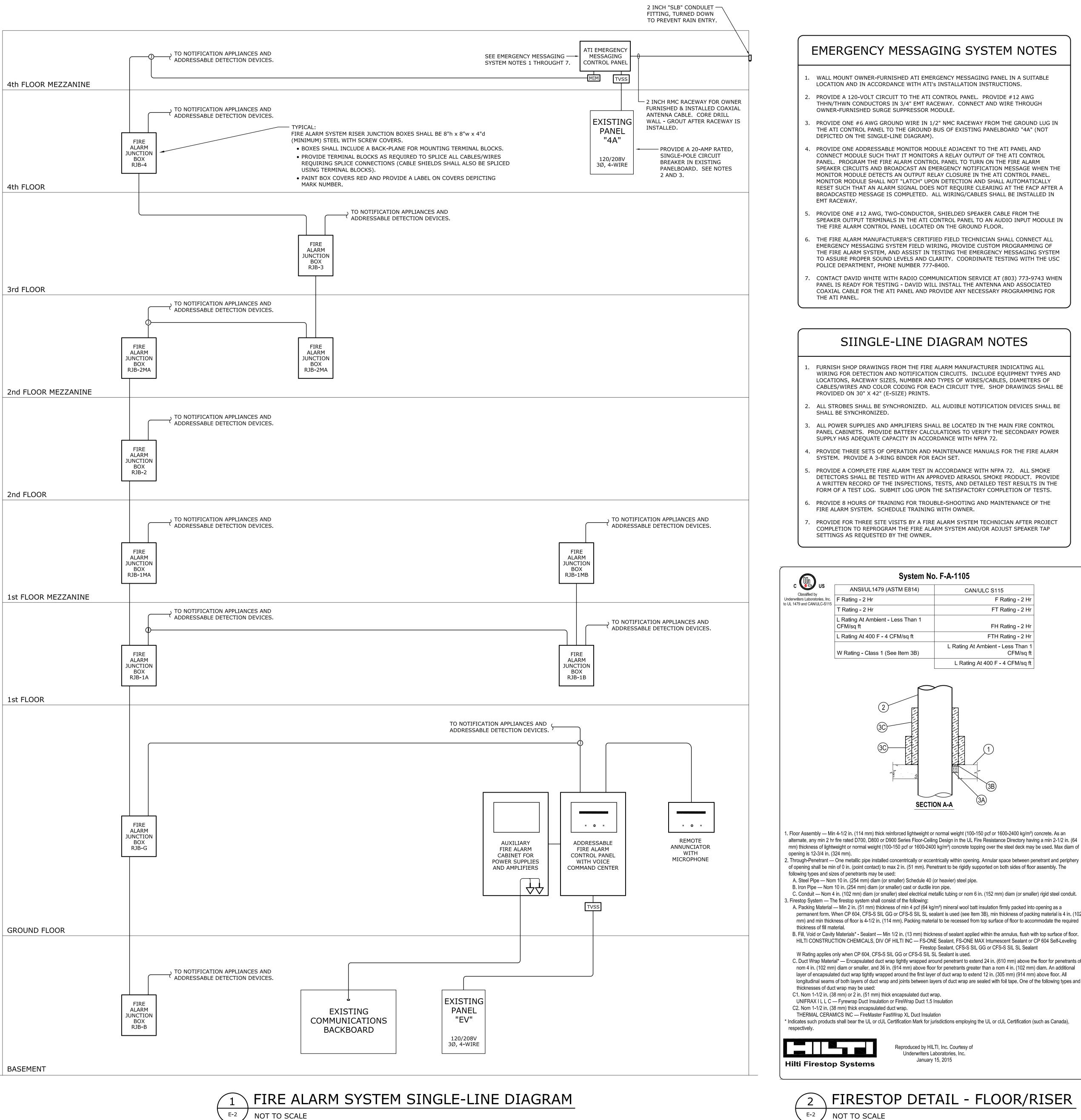
ENCOUNTERED. PROVIDE APPLIANCE WITH STROBE CANDELA RATING

- STROBE CANDELA RATING NOTED ON PLAN. COMBINATION AUDIBLE/VISIBLE (SPEAKER & STROBE) NOTIFICATION APPLIANCE, SAME AS DESCRIBED ABOVE EXCEPT DEVICE SHALL BE WALL MOUNT TYPE. INSTALL APPLIANCE IN ACCORDANCE WITH DETAIL 6 ON THIS DRAWING. SEE GENERAL CONSTRUCTION NOTE 5 ON THIS
- DRAWING. PROVIDE APPLIANCE MANUFACTURER'S CUSTOM SURFACE BACKBOX WHERE CONCRETE IS ENCOUNTERED. PROVIDE APPLIANCE WITH STROBE CANDELA RATING NOTED ON PLAN.
- COMBINATION AUDIBLE/VISIBLE (SPEAKER & STROBE) NOTIFICATION APPLIANCE, SAME AS WALL-MOUNT TYPE DESCRIBED ABOVE EXCEPT DEVICE SHALL BE WEATHERPROOF. PROVIDE A CUSTOM, GASKETED CAST-METAL BACKBOX TO SURFACE MOUNT APPLIANCE ON WALL.
- STEEL JUNCTION BOX WITH COVER, SIZED IN ACCORDANCE WITH THE ① NATIONAL ELECTRICAL CODE. MOUNT ABOVE ACCESSIBLE CEILINGS WHERE APPLICABLE. FLUSH MOUNT IN NON-ACCESSIBLE CEILINGS WHERE APPLICABLE.
- STEEL WIREMOLD BOX WITH BLANK COVER, SURFACE MOUNTED ON ① wm
- STEEL JUNCTION BOX WITH COVER, SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, WALL MOUNTED STEEL WIREMOLD BOX WITH BLANK COVER, SURFACE MOUNTED ON
 - EMT RACEWAY WITH COMPRESSION TYPE FITTINGS, RED IN COLOR. INSTALL RACEWAYS CONCEALED IN WALLS AND ABOVE CEILINGS, AS APPLICABLE. INSTALL HORIZONTAL RACEWAYS TIGHT TO STRUCTURAL CEILINGS. RACEWAYS MAY BE INSTALLED EXPOSED ON WALLS AND CEILINGS IN EQUIPMENT ROOMS AND IN ROOMS WHERE CEILINGS ARE NOT ACCESSIBLE.
- WIREMOLD SURFACE METAL RACEWAY. PROVIDE ALL TRANSITION ----WM-----FITTINGS REQUIRED FOR HORIZONTAL AND VERTICAL TRANSITIONS AND AS REQUIRED TO PROPERLY INTERFACE WITH FIRE ALARM DEVICE BACKBOXES.

2 OF 15 SHEET IN SET:

2 OF 15

EP

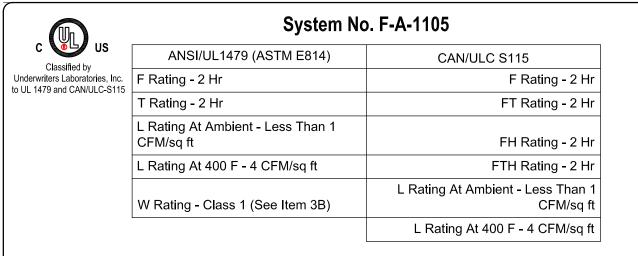


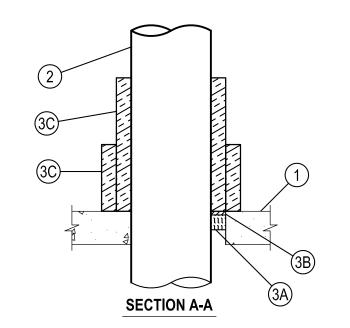
EMERGENCY MESSAGING SYSTEM NOTES

- WALL MOUNT OWNER-FURNISHED ATI EMERGENCY MESSAGING PANEL IN A SUITABLE LOCATION AND IN ACCORDANCE WITH ATI'S INSTALLATION INSTRUCTIONS.
- PROVIDE A 120-VOLT CIRCUIT TO THE ATI CONTROL PANEL. PROVIDE #12 AWG THHN/THWN CONDUCTORS IN 3/4" EMT RACEWAY. CONNECT AND WIRE THROUGH OWNER-FURNISHED SURGE SUPPRESSOR MODULE.
- . PROVIDE ONE #6 AWG GROUND WIRE IN 1/2" NMC RACEWAY FROM THE GROUND LUG IN THE ATI CONTROL PANEL TO THE GROUND BUS OF EXISTING PANELBOARD "4A" (NOT DEPICTED ON THE SINGLE-LINE DIAGRAM).
- PROVIDE ONE ADDRESSABLE MONITOR MODULE ADJACENT TO THE ATI PANEL AND CONNECT MODULE SUCH THAT IT MONITORS A RELAY OUTPUT OF THE ATI CONTROL PANEL. PROGRAM THE FIRE ALARM CONTROL PANEL TO TURN ON THE FIRE ALARM SPEAKER CIRCUITS AND BROADCAST AN EMERGENCY NOTIFICATION MESSAGE WHEN THE MONITOR MODULE DETECTS AN OUTPUT RELAY CLOSURE IN THE ATI CONTROL PANEL. MONITOR MODULE SHALL NOT "LATCH" UPON DETECTION AND SHALL AUTOMATICALLY RESET SUCH THAT AN ALARM SIGNAL DOES NOT REQUIRE CLEARING AT THE FACP AFTER A BROADCASTED MESSAGE IS COMPLETED. ALL WIRING/CABLES SHALL BE INSTALLED IN EMT RACEWAY.
- PROVIDE ONE #12 AWG, TWO-CONDUCTOR, SHIELDED SPEAKER CABLE FROM THE SPEAKER OUTPUT TERMINALS IN THE ATI CONTROL PANEL TO AN AUDIO INPUT MODULE IN THE FIRE ALARM CONTROL PANEL LOCATED ON THE GROUND FLOOR.
- 6. THE FIRE ALARM MANUFACTURER'S CERTIFIED FIELD TECHNICIAN SHALL CONNECT ALL EMERGENCY MESSAGING SYSTEM FIELD WIRING, PROVIDE CUSTOM PROGRAMMING OF THE FIRE ALARM SYSTEM, AND ASSIST IN TESTING THE EMERGENCY MESSAGING SYSTEM TO ASSURE PROPER SOUND LEVELS AND CLARITY. COORDINATE TESTING WITH THE USC POLICE DEPARTMENT, PHONE NUMBER 777-8400.
- CONTACT DAVID WHITE WITH RADIO COMMUNICATION SERVICE AT (803) 773-9743 WHEN PANEL IS READY FOR TESTING - DAVID WILL INSTALL THE ANTENNA AND ASSOCIATED COAXIAL CABLE FOR THE ATI PANEL AND PROVIDE ANY NECESSARY PROGRAMMING FOR THE ATI PANEL.

SIINGLE-LINE DIAGRAM NOTES

- FURNISH SHOP DRAWINGS FROM THE FIRE ALARM MANUFACTURER INDICATING ALL WIRING FOR DETECTION AND NOTIFICATION CIRCUITS. INCLUDE EQUIPMENT TYPES AND LOCATIONS, RACEWAY SIZES, NUMBER AND TYPES OF WIRES/CABLES, DIAMETERS OF CABLES/WIRES AND COLOR CODING FOR EACH CIRCUIT TYPE. SHOP DRAWINGS SHALL BE PROVIDED ON 30" X 42" (E-SIZE) PRINTS.
- 2. ALL STROBES SHALL BE SYNCHRONIZED. ALL AUDIBLE NOTIFICATION DEVICES SHALL BE SHALL BE SYNCHRONIZED.
- 3. ALL POWER SUPPLIES AND AMPLIFIERS SHALL BE LOCATED IN THE MAIN FIRE CONTROL PANEL CABINETS. PROVIDE BATTERY CALCULATIONS TO VERIFY THE SECONDARY POWER SUPPLY HAS ADEQUATE CAPACITY IN ACCORDANCE WITH NFPA 72.
- 4. PROVIDE THREE SETS OF OPERATION AND MAINTENANCE MANUALS FOR THE FIRE ALARM SYSTEM. PROVIDE A 3-RING BINDER FOR EACH SET.
- PROVIDE A COMPLETE FIRE ALARM TEST IN ACCORDANCE WITH NFPA 72. ALL SMOKE DETECTORS SHALL BE TESTED WITH AN APPROVED AERASOL SMOKE PRODUCT. PROVIDE A WRITTEN RECORD OF THE INSPECTIONS, TESTS, AND DETAILED TEST RESULTS IN THE FORM OF A TEST LOG. SUBMIT LOG UPON THE SATISFACTORY COMPLETION OF TESTS.
- PROVIDE 8 HOURS OF TRAINING FOR TROUBLE-SHOOTING AND MAINTENANCE OF THE FIRE ALARM SYSTEM. SCHEDULE TRAINING WITH OWNER.
- PROVIDE FOR THREE SITE VISITS BY A FIRE ALARM SYSTEM TECHNICIAN AFTER PROJECT COMPLETION TO REPROGRAM THE FIRE ALARM SYSTEM AND/OR ADJUST SPEAKER TAP SETTINGS AS REQUESTED BY THE OWNER.





- . Floor Assembly Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. As an alternate, any min 2 hr fire rated D700, D800 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory having a min 2-1/2 in. (64 mm) thickness of lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete topping over the steel deck may be used. Max diam of
- . Through-Penetrant One metallic pipe installed concentrically or eccentrically within opening. Annular space between penetrant and periphery of opening shall be min of 0 in. (point contact) to max 2 in. (51 mm). Penetrant to be rigidly supported on both sides of floor assembly. The following types and sizes of penetrants may be used:
- A. Steel Pipe Nom 10 in. (254 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe. B. Iron Pipe — Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron pipe.
- C. Conduit Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or nom 6 in. (152 mm) diam (or smaller) rigid steel conduit. 5. Firestop System — The firestop system shall consist of the following: A. Packing Material — Min 2 in. (51 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a
- permanent form. When CP 604, CFS-S SIL GG or CFS-S SIL SL sealant is used (see Item 3B), min thickness of packing material is 4 in. (102 mm) and min thickness of floor is 4-1/2 in. (114 mm). Packing material to be recessed from top surface of floor to accommodate the required thickness of fill material. B. Fill, Void or Cavity Materials* - Sealant — Min 1/2 in. (13 mm) thickness of sealant applied within the annulus, flush with top surface of floor.
- Firestop Sealant, CFS-S SIL GG or CFS-S SIL SL Sealant W Rating applies only when CP 604, CFS-S SIL GG or CFS-S SIL SL Sealant is used. C. Duct Wrap Material* — Encapsulated duct wrap tightly wrapped around penetrant to extend 24 in. (610 mm) above the floor for penetrants of nom 4 in. (102 mm) diam or smaller, and 36 in. (914 mm) above floor for penetrants greater than a nom 4 in. (102 mm) diam. An additional layer of encapsulated duct wrap tightly wrapped around the first layer of duct wrap to extend 12 in. (305 mm) (914 mm) above floor. All
- longitudinal seams of both layers of duct wrap and joints between layers of duct wrap are sealed with foil tape. One of the following types and thicknesses of duct wrap may be used: C1. Nom 1-1/2 in. (38 mm) or 2 in. (51 mm) thick encapsulated duct wrap. UNIFRAX I L L C — Fyrewrap Duct Insulation or FireWrap Duct 1.5 Insulation
- C2. Nom 1-1/2 in. (38 mm) thick encapsulated duct wrap. THERMAL CERAMICS INC — FireMaster FastWrap XL Duct Insulation Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada),

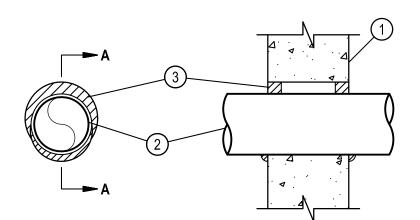


Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 15, 2015





	System No. W-J-1226				
c. 15	ANSI/UL1479 (ASTM E814)	CAN/ULC S115			
15	F Ratings — 1, 2, 3 and 4 Hr (See Item 3)	F Ratings — 1, 2, 3 and 4 Hr (See Item 3)			
	T Rating — 0 Hr	FT Rating — 0 Hr			
	L Rating At Ambient — Less Than 1 CFM/Sq Ft	FH Ratings — 1, 2, 3 and 4 Hr (See Item 3)			
	L Rating At 400 F — 4 CFM/Sq Ft	FTH Rating — 0 Hr			
		L Rating At Ambient — Less Than 1 CFM/Sq Ft			
		L Rating At 400 F — 4 CFM/Sq Ft			



SECTION A-A

- 1. Wall Assembly Min 6 in. (152 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 5-3/4 in. (146 mm). See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
- 2. Through Penetrant One metallic pipe, conduit or tube to be installed either concentrically or eccentrically within the firestop system. The annular space between the pipe, conduit or tube and periphery of opening shall be min 0 in. (point contact) to max 7/8 in. (22 mm). Pipe, conduit or tube to be rigidly supported on both sides of wall assembly. A. Steel Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. Iron Pipe Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe. C. Conduit — Nom 4 in. (102 mm) diam (or smaller) rigid steel conduit.
- D. Conduit Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic conduit. E. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing. F. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
- 3. Fill, Void or Cavity Material Sealant* Fill material applied within annulus, flush with both surfaces of wall. Type and thickness of sealant is dependent on F and FH Ratings as indicated in Table below. An additional 1/2 in. (13 mm) diameter bead of sealant applied at penetrant/gypsum board interface at point contact location on both surfaces of wall. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE or CP 606 Sealant

F, FH Ratings hr	Sealant Type	Sealant Thickness, In. (mm)
1, 2	FS-ONE or CP 606	5/8 (16)
3	FS-ONE or CP 606	1 (25)
4	FS-ONE	1 (25)

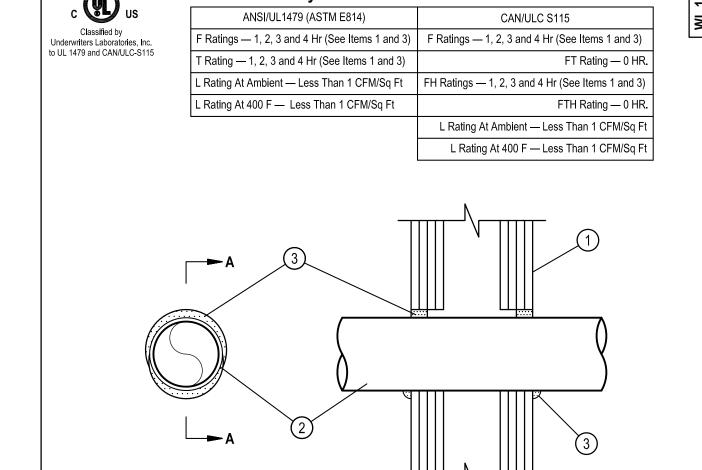
*Bearing the UL Classification Mark



eproduced by HILTI. Inc. Courtesy of Underwriters Laboratories, Inc. November 26, 2012

FIRESTOP DETAIL - CONCRETE NOT TO SCALE

System No. W-L-1252



- . Wall Assembly The 1, 2, 3 or 4 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
- A. Studs Wall framing shall consist of steel channel studs. Steel studs to be min 3-1/2 in. (89 mm) wide spaced max 24 in. (610 mm) OC. B. Gypsum Board* — Min 5/8 in. (16 mm) thick with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall or Partition Design in the UL Fire Resistance Directory. Max diam of

SECTION A-A

- The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed. Through Penetrant — One metallic pipe, conduit or tube to be installed either concentrically or eccentrically within the firestop system. The annular space between the pipe, conduit or tube and periphery of opening shall be min 0 in. (point contact) to max 7/8 in. (22 mm). Pipe, conduit or tube to be rigidly supported on both sides of wall assembly.
- A. Steel Pipe Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe. B. Iron Pipe — Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe. C. Conduit — Nom 4 in. (102 mm) diam (or smaller) rigid steel conduit.
- D. Conduit Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic conduit. E. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing. F. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
- 3. Fill, Void or Cavity Material Sealant* Fill material applied within annulus , flush with both surfaces of wall. Type and thickness of sealant is dependent on F and FH Ratings as indicated in Table below. An additional 1/2 in. (13 mm) diameter bead of sealant applied at penetrant/gypsum board interface at point contact location on both surfaces of wall. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE or CP 606 Sealant

F, FH Ratings hr	Sealant Type	Sealant Thickness, In. (mm)
1, 2	FS-ONE or CP 606	5/8 (16)
3	FS-ONE or CP 606	1 (25)
4	FS-ONE	1 (25)

*Bearing the UL Classification Mark

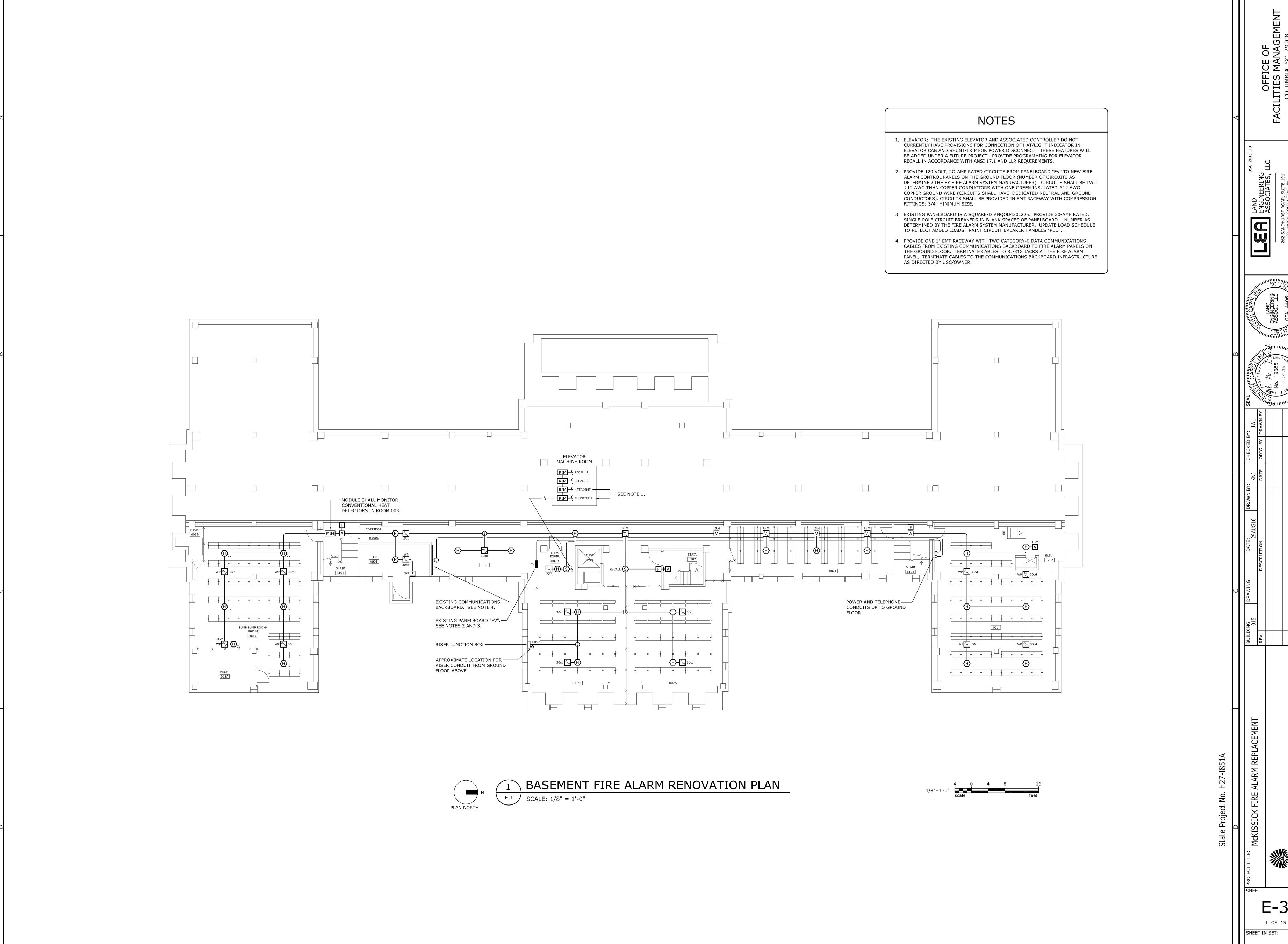


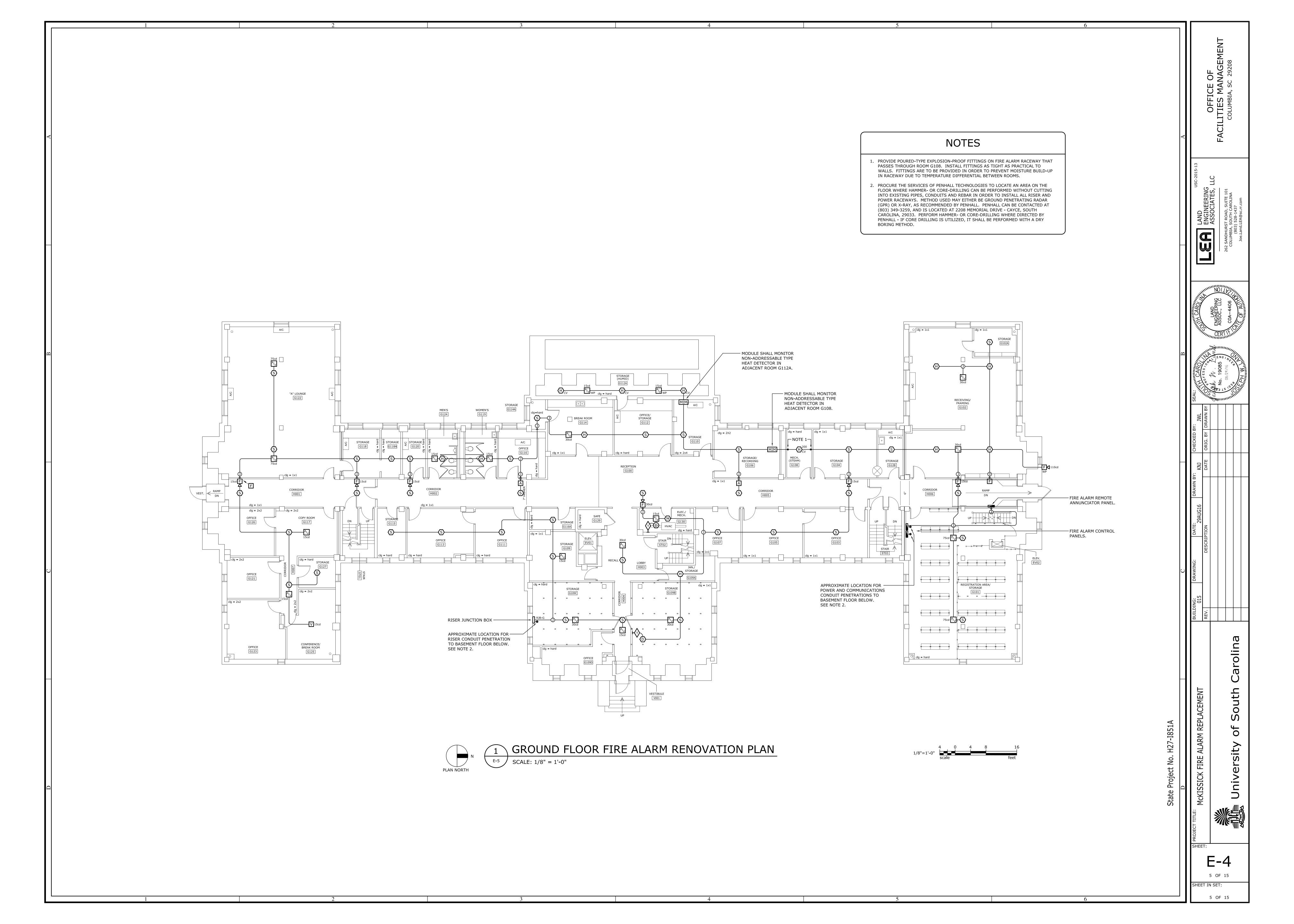
Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. November 26, 2012

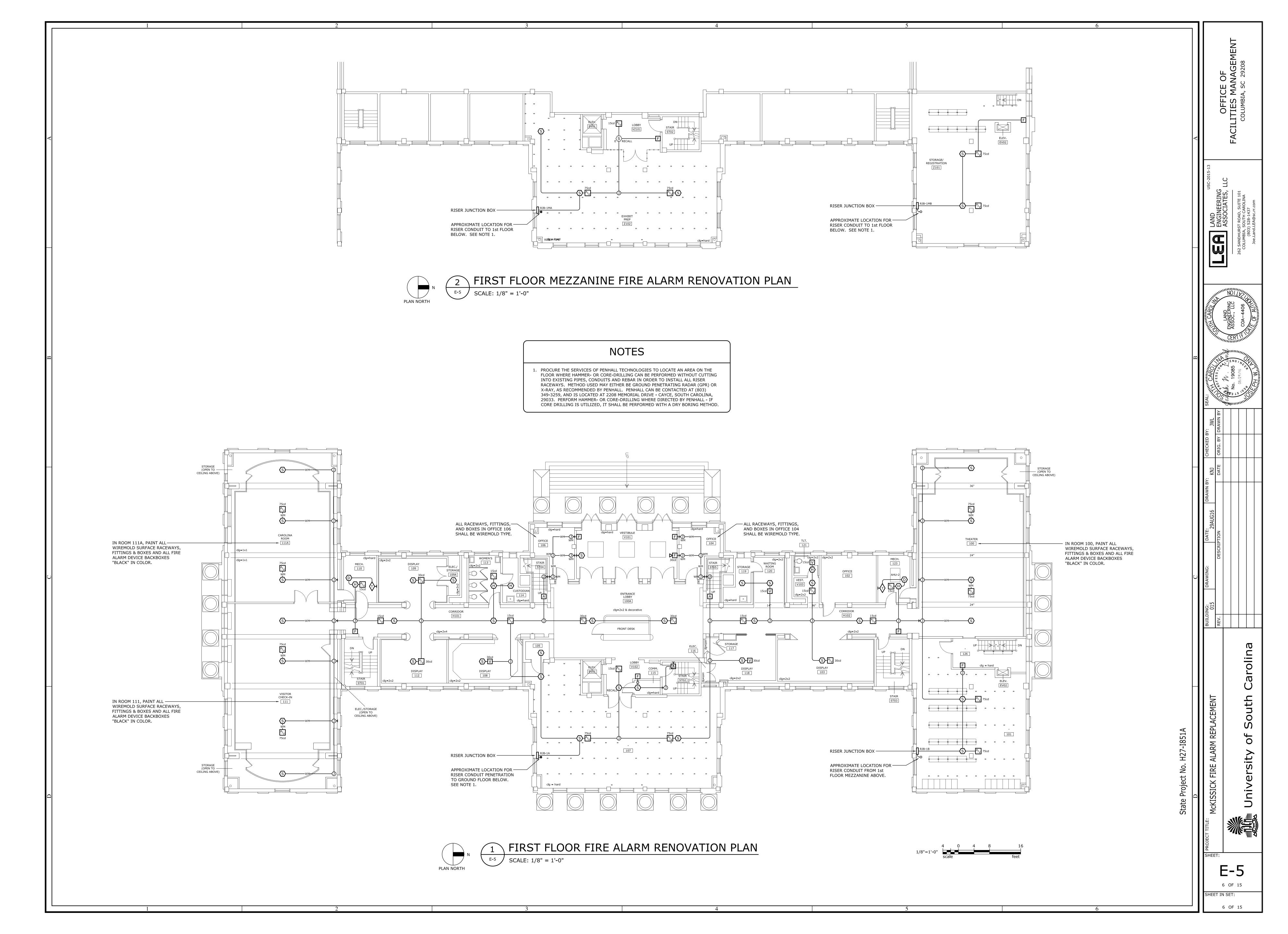
FIRESTOP DETAIL - STUD WALLS NOT TO SCALE E-2

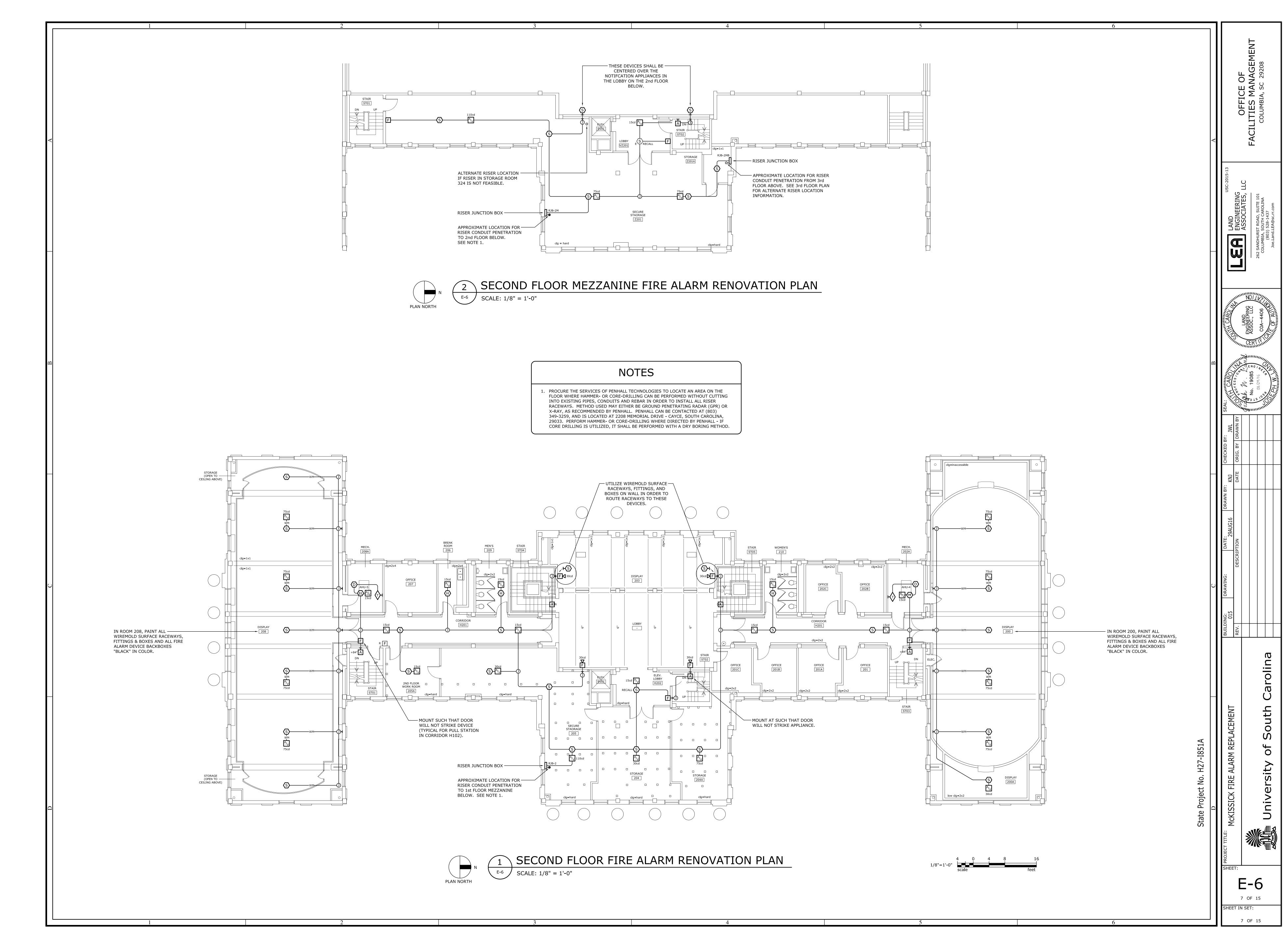
3 OF 15

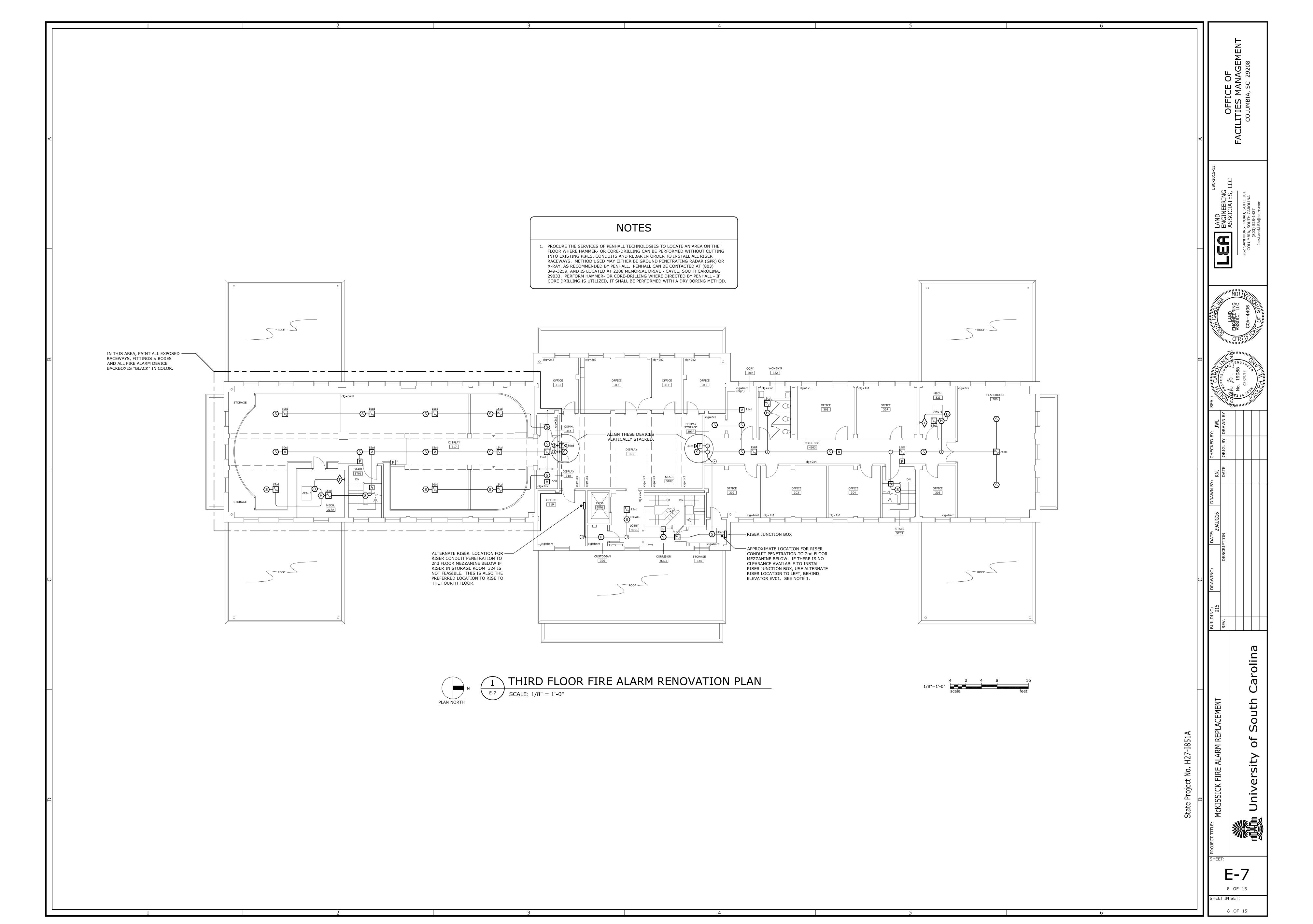
SHEET IN SET: 3 OF 15

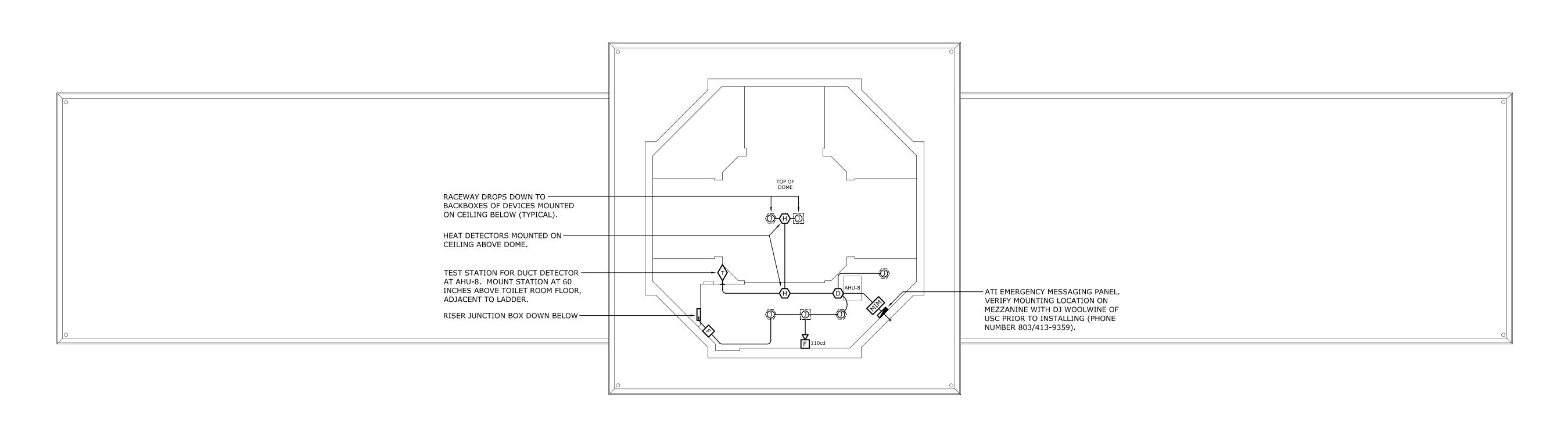










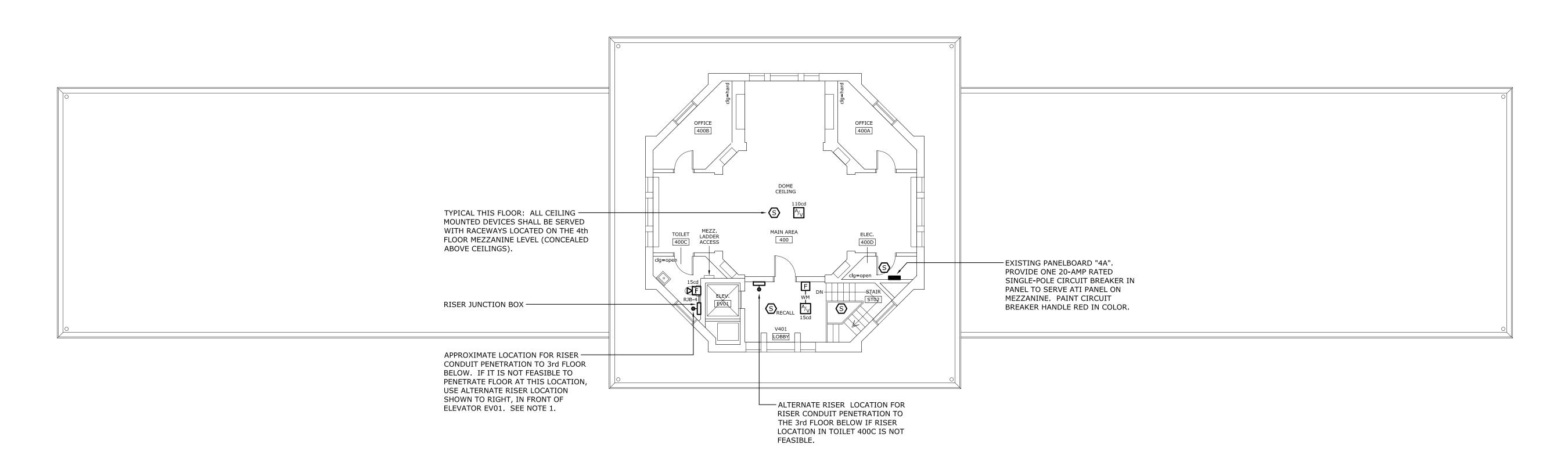




FOURTH FLOOR MEZZANINE FIRE ALARM RENOVATION PLAN SCALE: 1/8" = 1'-0"

NOTES

1. PROCURE THE SERVICES OF PENHALL TECHNOLOGIES TO LOCATE AN AREA ON THE FLOOR WHERE HAMMER- OR CORE-DRILLING CAN BE PERFORMED WITHOUT CUTTING INTO EXISTING PIPES, CONDUITS AND REBAR IN ORDER TO INSTALL ALL RISER RACEWAYS. METHOD USED MAY EITHER BE GROUND PENETRATING RADAR (GPR) OR X-RAY, AS RECOMMENDED BY PENHALL. PENHALL CAN BE CONTACTED AT (803) 349-3259, AND IS LOCATED AT 2208 MEMORIAL DRIVE - CAYCE, SOUTH CAROLINA, 29033. PERFORM HAMMER- OR CORE-DRILLING WHERE DIRECTED BY PENHALL - IF CORE DRILLING IS UTILIZED, IT SHALL BE PERFORMED WITH A DRY BORING METHOD.

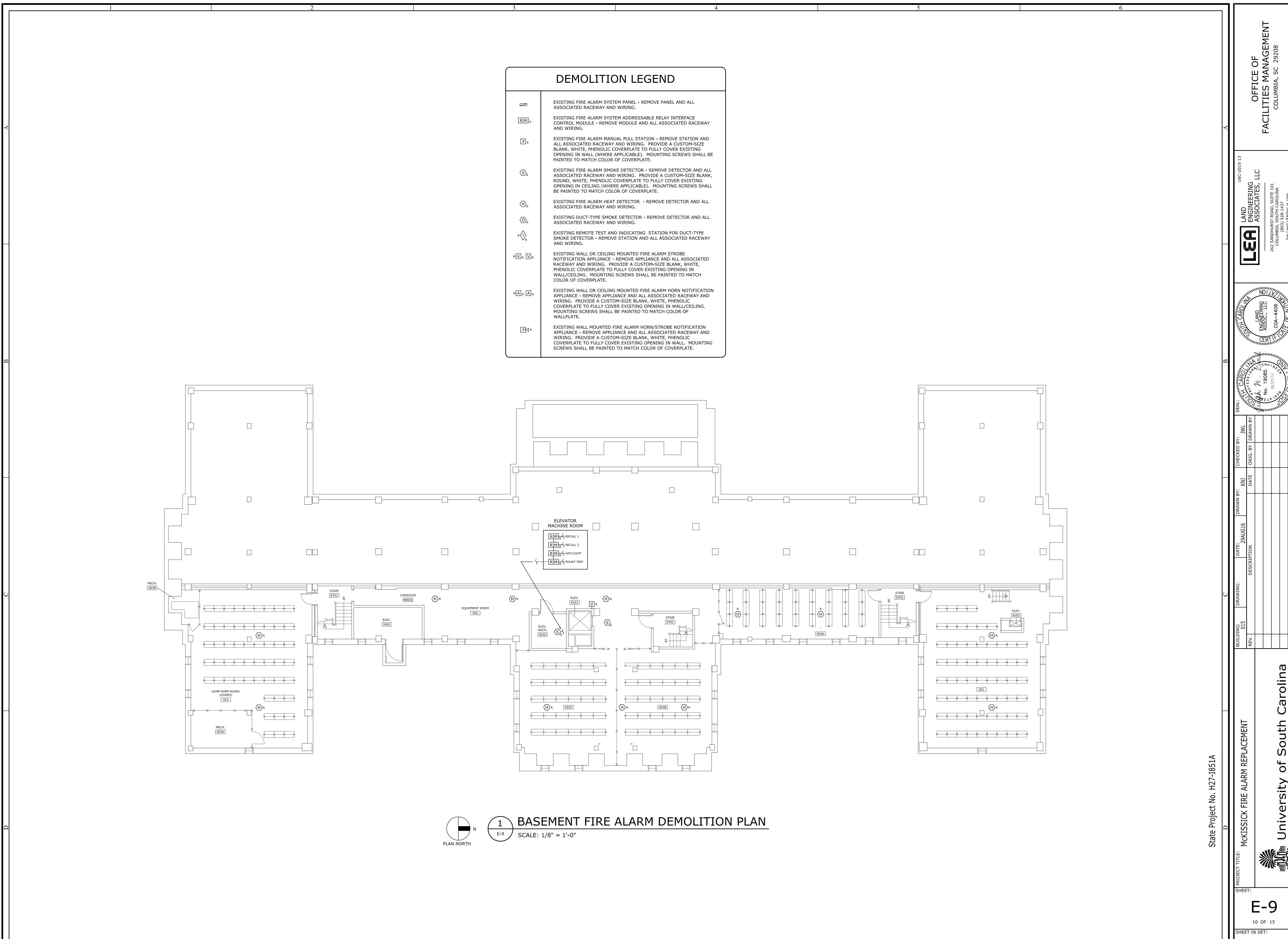


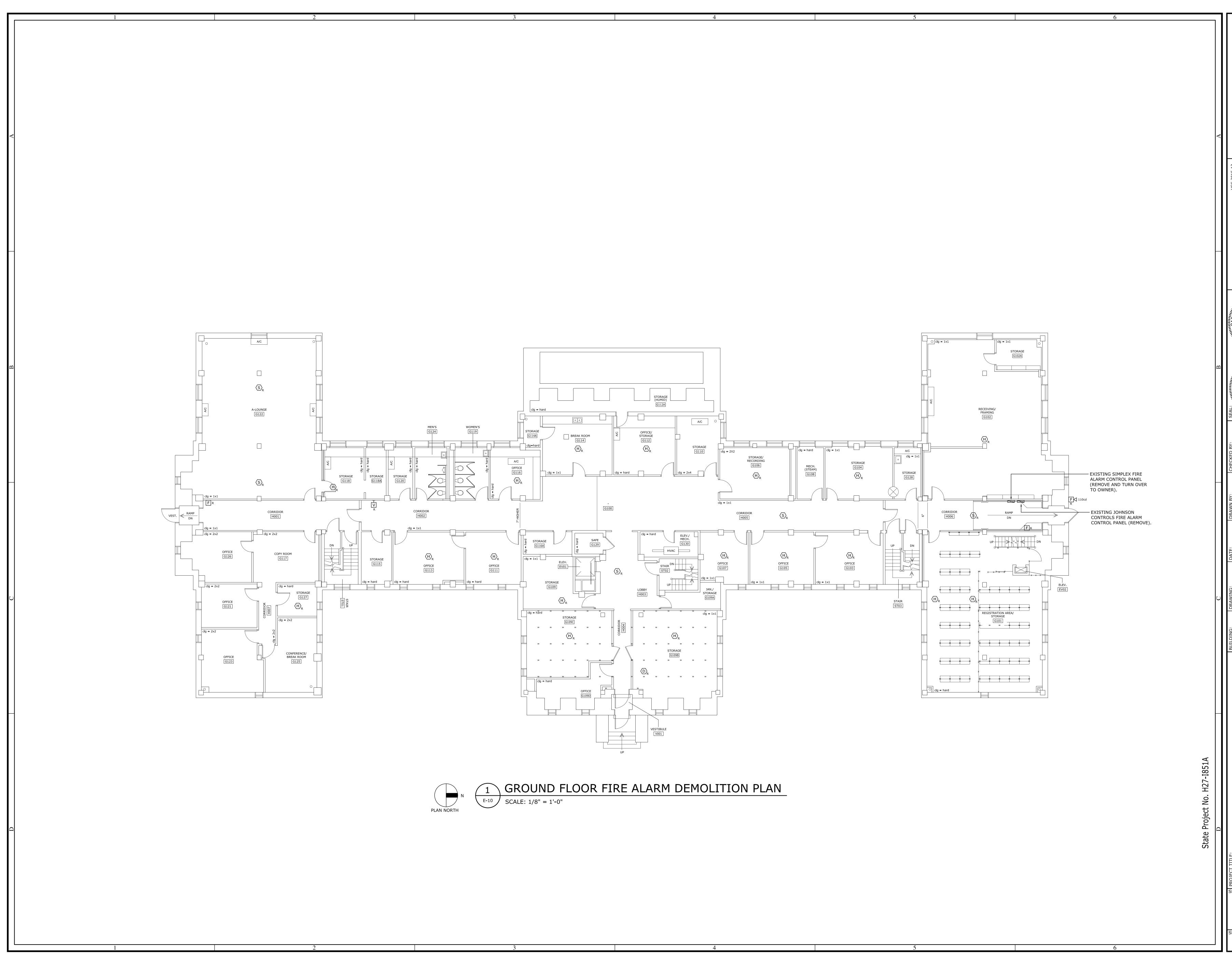


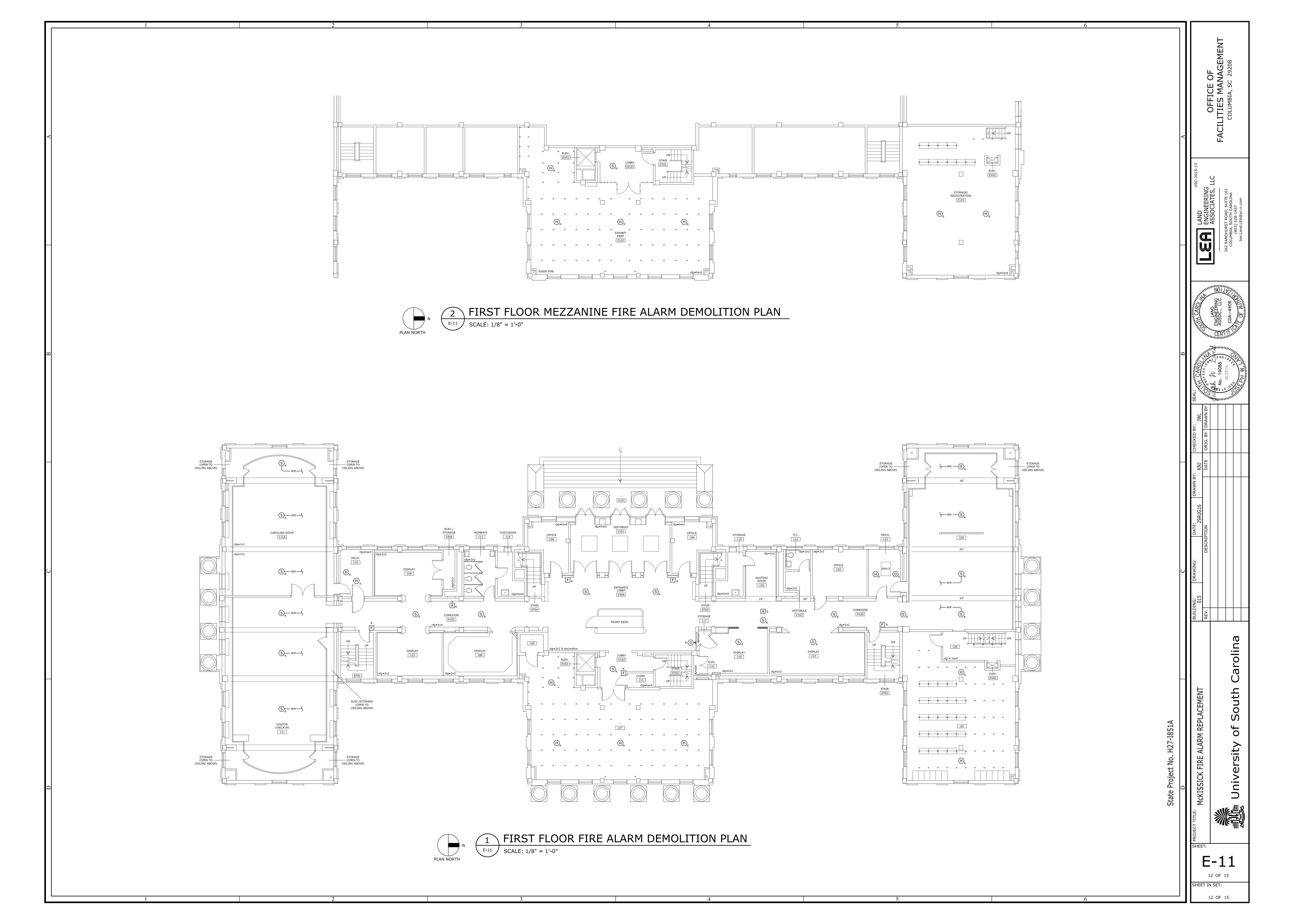


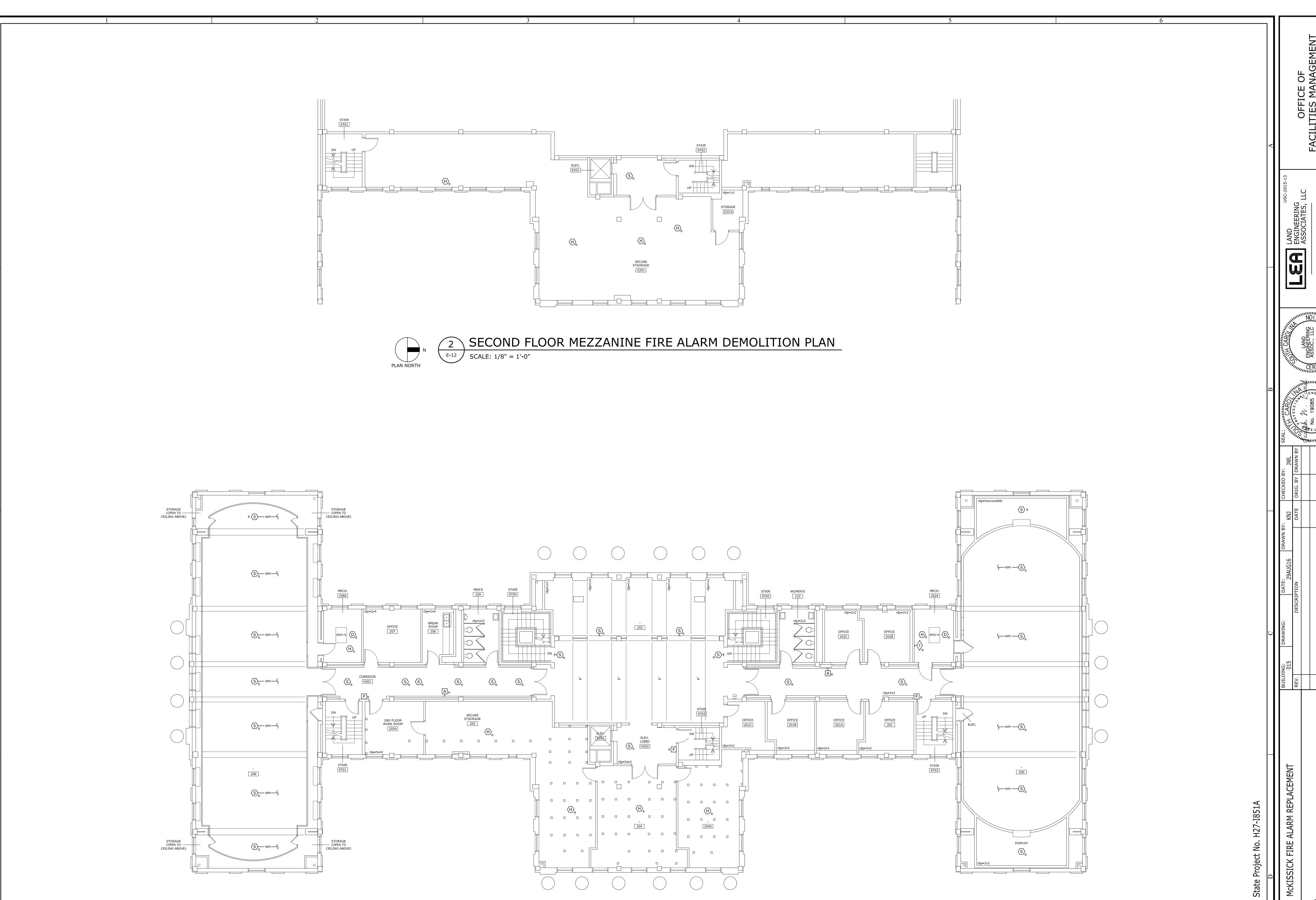


SHEET IN SET: 9 OF 15





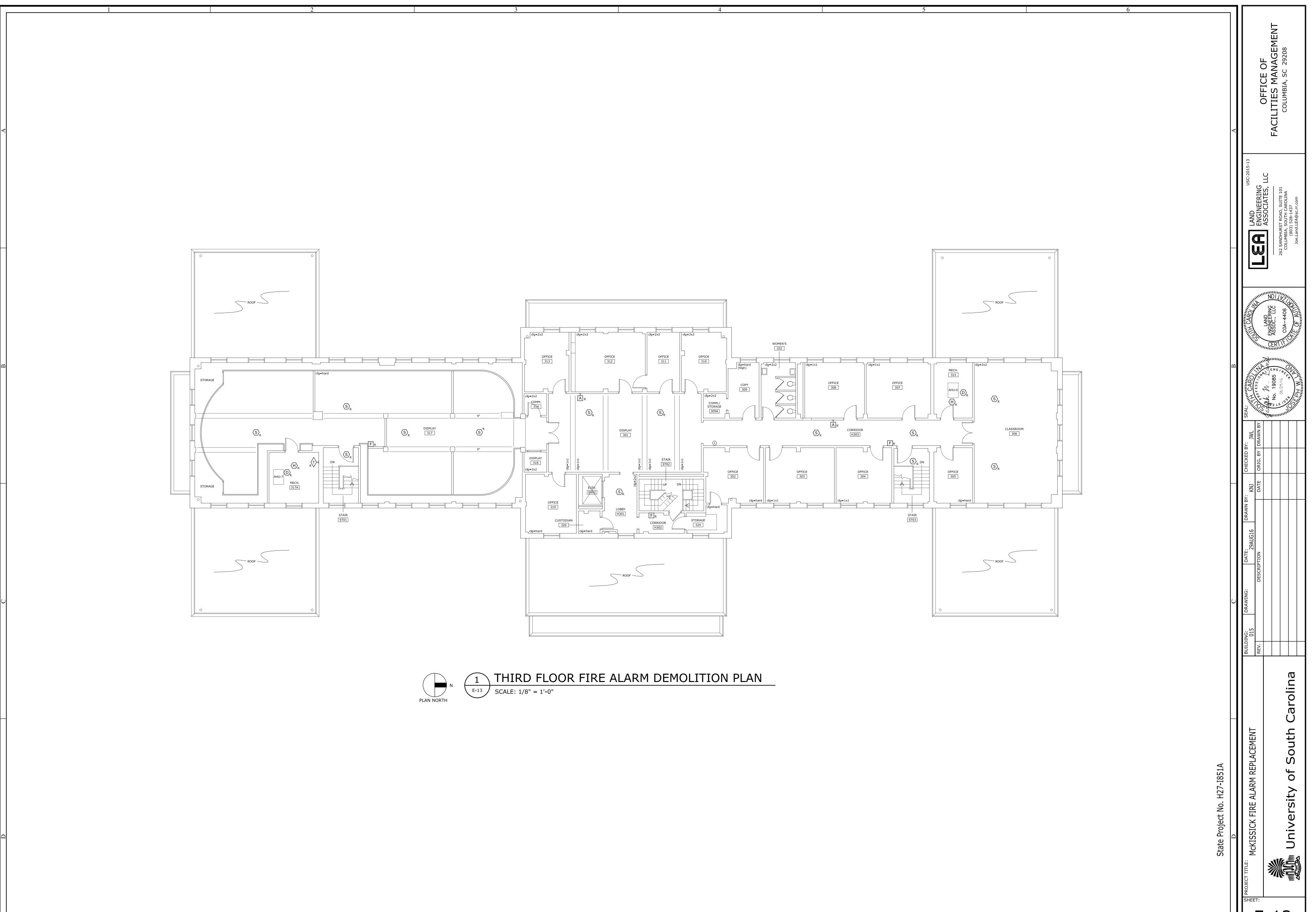




SECOND FLOOR FIRE ALARM DEMOLITION PLAN

1 SECOND FL E-12 SCALE: 1/8" = 1'-0"

SHEET IN SET:



SHEET:

E-13

14 OF 15

SHEET IN SET:

