

**DATE:** July 10, 2012

**RE:** Indefinite Delivery of Fire Alarm Contracting Services  
Williams-Brice Nursing Building FA Upgrades  
(H27-D162-JM)

**SUBMITTED BY:** University of South Carolina

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**ATTACHMENT:** Revised Specification Section 16750, page 13, paragraph 2.13. B.  
Added paragraph 2.7.D to Specification Section 16750, page, 11.  
Revised Drawing FA-10, Fire Alarm Riser Diagram

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The following items take precedence over referenced portions of the Contract Documents for the referenced project, Project Manual, dated May 2012, and Drawings, dated June 13, 2012, as well as Addendum Number 1 dated July 3, 2012, Addendum Number 2, dated July 6, 2012, and, in executing a contract, shall become a part thereof.

Where any item called for in the documents is supplemented hereby, the original requirements shall remain in effect. All supplemental conditions shall be considered as added thereto.

Where any original item is amended, voided, or superseded hereby, the provision of such items not so specifically amended, voided, or superseded shall remain in effect.

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**Contracting Notes:**

1. **BID OPENING DATE CHANGED:** The University of South Carolina has extended the Bid Opening date to **Monday, July 16, 2012, at 2PM**. As stipulated in Instructions To Bidders, Section V, no addendum will be issued later than 120-hours prior to time for receipt of bids, except an addendum withdrawing the request for bids or one which includes postponement of the date for receipt of bids. As such, no further RFIs will be accepted and no further Addendum responses will be provided.

**Questions & Responses**

1. **QUESTION:** Specifications 16750, Section 2.13, B, requires the SLC circuits to be "Twisted, shielded pair, not less than 14 AWG." Must the cable be "shielded" if the equipment manufacturer does not recommend it?

**RESPONSE:** Shielded or unshielded cable may be used at the discretion of the system installer, but shielded cable must be provided were recommended or required by the system equipment manufacturer. All wiring shall comply with the project specifications, including system equipment manufacturer minimum requirements and recommendations, NFPA 70, NFPA 72, and local codes.

2. **QUESTION:** Are you requiring Amber Strobes for any alerts outside of the fire alarm?

**RESPONSE:** No.

**QUESTION:** What are the wattage settings for each speaker?

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RESPONSE: Wattage for speakers shall be determined by the system installer and comply with project specifications, including manufacturer minimum recommendations and requirements, NFPA 70, NFPA 72, and local codes. Consideration shall be given to intelligibility.

3. QUESTION: Are you requiring a microphone for the FAA?

RESPONSE: Yes. Refer to sheet FA-10, Fire Alarm Riser Diagram.

4. QUESTION: What is the Electric Alarm Bell tied to?

RESPONSE: The purpose of the exterior electric alarm bell is for fire sprinkler system alarm and shall be connected to the fire alarm system. Paragraph 2.7.D, Electrically Operated Alarm Bell, has been added to the Specification 16750.

**Specifications:**

1. Section 16750, paragraph 2.13, B, DELETE “shielded pair, not less than 14AWG”, and REPLACE with “shielded or unshielded pair, not less than 16AWG.”
2. Section 16750, paragraph 2.7, ADD subparagraph “D. Electrically Operated Alarm Bell” as follows:

“D. Electrically Operated Alarm Bell:

  1. Manufacturers: Subject to compliance with requirements, provide products that are UL Listed or FM Approved for fire protection service.
  2. Standard: UL 464.
  3. Type: Vibrating, metal alarm bell.
  4. Size: 10-inch (250-mm)] diameter.
  5. Finish: Red-enamel factory finish, suitable for outdoor use.

Connect to fire alarm system such that alarm bell operates when any fire sprinkler system flow switch activates.”

END OF ADDENDUM NUMBER 3

- D. Secondary Power: Provide a minimum of two (2) 12VDC, 30-Amp-Hour batteries and 20-hours of standby power.
- E. Surge Protection: Provide a minimum of one (1) antenna surge protection.

## 2.12 GUARDS FOR PHYSICAL PROTECTION

- A. Description: Welded wire mesh of size and shape for the manual station, smoke detector, gong, or other device requiring protection.
  - 1. Factory fabricated and furnished by manufacturer of the device.
  - 2. Finish: Paint of color to match the protected device.

## 2.13 WIRE AND CABLE

- A. Wire and cable for fire alarm systems shall be UL listed and labeled as complying with NFPA 70, Article 760. Refer to Divisions 16010, 16071, 16110 and 16120 for additional information and requirements.
- B. Signaling Line Circuits: Twisted, shielded or unshielded pair, not less than No. 16 AWG.

## PART 3 - EXECUTION

### 3.1 EQUIPMENT INSTALLATION

- A. Existing system and equipment shall not be removed from service or demolished until the new system and equipment has been inspected, tested and accepted.
- B. Smoke or Heat Detector Spacing:
  - 1. Smooth ceiling spacing shall not exceed **30 feet (9 m)** and/or the rating of the detector.
  - 2. Spacing of heat detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas, shall be determined according to Appendix A in NFPA 72.
  - 3. Spacing of heat detectors shall be determined based on guidelines and recommendations in NFPA 72.
- C. HVAC: Locate detectors not closer than **3 feet (1 m)** from air-supply diffuser or return-air opening.
- D. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of the duct.
- E. Heat Detectors in Elevator Machine Rooms: Coordinate temperature rating and location with smoke detector rating and location.
- F. Remote Status and Alarm Indicators: Install below ceiling or on the wall near each smoke detector that is not readily visible from normal viewing position.

## 2.6 HEAT DETECTORS

- A. General: UL 521 listed.
- B. Heat Detector, Combination Type: Actuated by either a fixed temperature of 135 deg F (57 deg C).
  - 1. Mounting: Adapter plate for outlet box mounting. Plug-in base, interchangeable with smoke-detector bases.
  - 2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to the FACU.

## 2.7 NOTIFICATION APPLIANCES

- A. Description: Equipped for mounting as indicated and with screw terminals for system connections.
  - 1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly.
- B. Visible Alarm Devices: Xenon strobe lights listed under UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE is engraved in minimum 1-inch- (25-mm-) high letters on the lens.
  - 1. Rated Light Output: 15 – 110 candela.
  - 2. Strobe Leads: Factory connected to screw terminals.
- C. Voice/Tone Speakers:
  - 1. UL 1480 listed.
  - 2. High-Range Units: Rated 2 to 15 W.
  - 3. Low-Range Units: Rated 1 to 2 W.
  - 4. Mounting: Flush, semirecessed, or surface mounted; bidirectional as indicated.
  - 5. Matching Transformers: Tap range matched to the acoustical environment of the speaker location.
- D. Electrically Operated Alarm Bell:
  - 1. Manufacturers: Subject to compliance with requirements, provide products that are UL Listed or FM Approved for fire protection service.
  - 2. Standard: UL 464.
  - 3. Type: Vibrating, metal alarm bell.
  - 4. Size: 10-inch (250-mm)] diameter.
  - 5. Finish: Red-enamel factory finish, suitable for outdoor use.

Connect to fire alarm system such that alarm bell operates when any fire sprinkler system flow switch activates.

## 2.8 REMOTE ANNUNCIATOR

- A. Description: Duplicate annunciator functions of the FACU for alarm, supervisory, and trouble indications. Also duplicate manual switching functions of the FACU, including acknowledging, silencing, resetting, and testing.

**FIRE ALARM LEGEND:**

- F MANUAL FIRE ALARM BOX (DOUBLE ACTION)
- R RELAY MODULE
- H HEAT DETECTOR DEVICE (THERMAL DETECTOR)
- S SMOKE DETECTOR DEVICE - PHOTOELECTRIC
- D<sub>R</sub> DUCT DETECTOR DEVICE - PHOTOELECTRIC
- F<sub>CD</sub> SPEAKER/STROBE APPLIANCE
- V<sub>CD</sub> STROBE APPLIANCE (WALL MOUNTED)
- <sub>CD</sub> STROBE APPLIANCE (CEILING MOUNTED)
- FACU FIRE ALARM/MASS NOTIFICATION CONTROL UNIT
- RTU REMOTE TRANSMITTER UNIT
- FAA FIRE ALARM ANNUCIATOR UNIT (PANEL)
- TVSS TRANSIENT VOLTAGE SURGE SUPPRESSOR
- TS TAMPER SWITCH - FIRE SPRINKLER SYSTEM
- FS WATER FLOW SWITCH - FIRE SPRINKLER SYSTEM
- EOL END OF LINE RESISTOR
- MM MONITOR MODULE
- ⌋ ELECTRIC ALARM BELL WITH BACK BOX
- ⌋ MAGNETIC DOOR HOLDER

**SUBSCRIPTS:**

- B BATTERY OPERATED SMOKE ALARM
- EL ELEVATOR CONTROL FUNCTION
- WP WEATHER PROOF
- R RETURN
- CD CANDELA RATING OF APPLIANCE

**BUILDING SYMBOLS:**

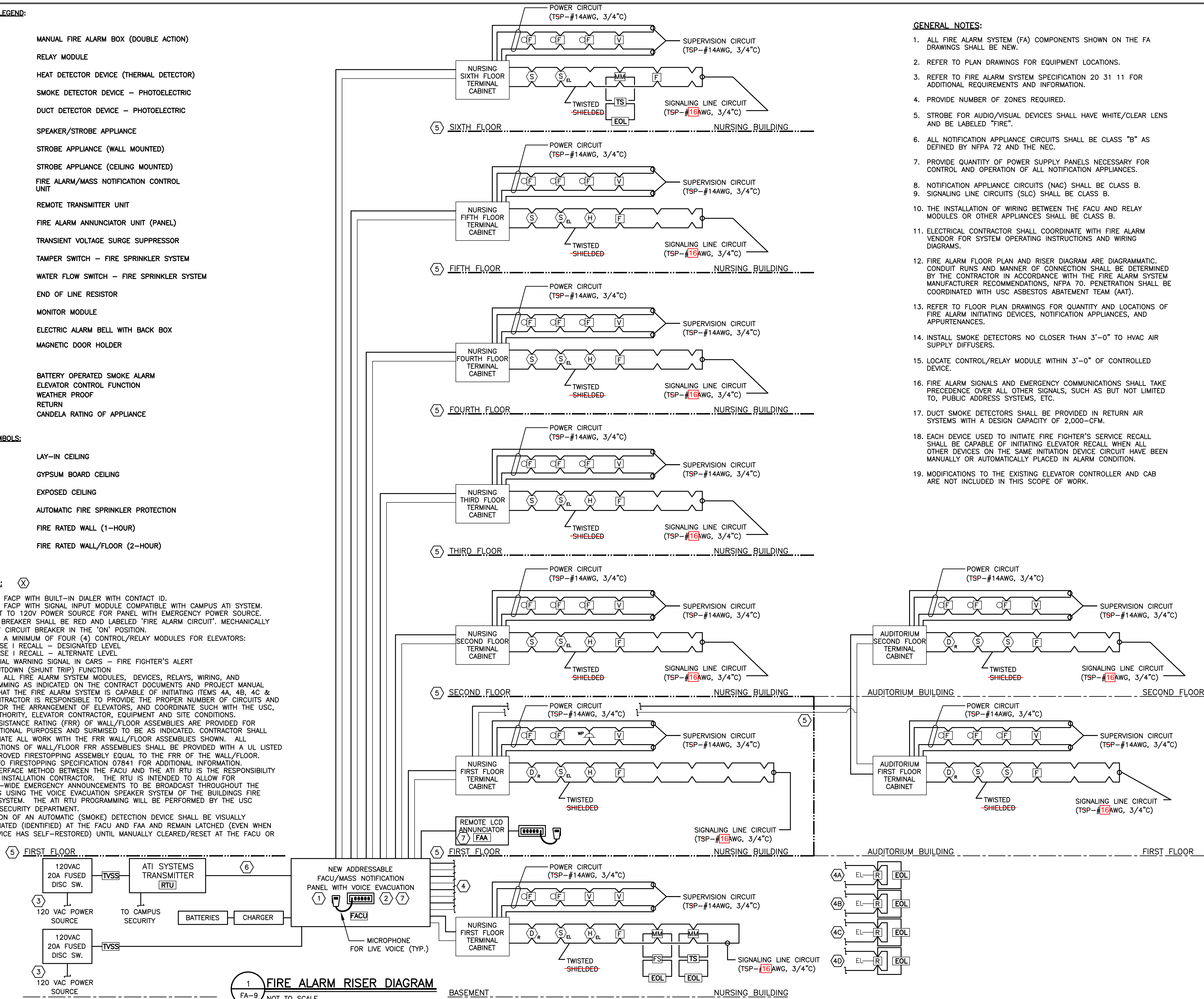
- LIC LAY-IN CEILING
- GYP GYPSUM BOARD CEILING
- EXP EXPOSED CEILING
- AS AUTOMATIC FIRE SPRINKLER PROTECTION
- FIRE RATED WALL (1-HOUR)
- FIRE RATED WALL/FLOOR (2-HOUR)

**KEY NOTES:**

1. PROVIDE FACU WITH BUILT-IN DIALER WITH CONTACT ID.
2. PROVIDE FACU WITH SIGNAL INPUT MODULE COMPATIBLE WITH CAMPUS ATI SYSTEM.
3. CONNECT TO 120V POWER SOURCE FOR PANEL WITH EMERGENCY POWER SOURCE. CIRCUIT BREAKER SHALL BE RED AND LABELED 'FIRE ALARM CIRCUIT'. MECHANICALLY PROTECT CIRCUIT BREAKER IN THE 'ON' POSITION.
4. PROVIDE A MINIMUM OF FOUR (4) CONTROL/RELAY MODULES FOR ELEVATORS:
  - 4A. PHASE I RECALL - DESIGNATED LEVEL
  - 4B. PHASE I RECALL - ALTERNATE LEVEL
  - 4C. VISUAL WARNING SIGNAL IN CARS - FIRE FIGHTER'S ALERT
- 4D. SHUTDOWN (SHUNT TRIP) FUNCTION
5. PROVIDE ALL FIRE ALARM SYSTEM MODULES, DEVICES, RELAYS, WIRING, AND PROGRAMMING AS INDICATED ON THE CONTRACT DOCUMENTS AND PROJECT MANUAL SUCH THAT THE FIRE ALARM SYSTEM IS CAPABLE OF INITIATING ITEMS 4A, 4B, 4C & 4D. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE PROPER NUMBER OF CIRCUITS AND LOGIC FOR THE ARRANGEMENT OF ELEVATORS, AND COORDINATE SUCH WITH THE USC, FIRE AUTHORITY, ELEVATOR CONTRACTOR, EQUIPMENT AND SITE CONDITIONS.
6. FIRE RESISTANCE RATING (FRR) OF WALL/FLOOR ASSEMBLIES ARE PROVIDED FOR INFORMATIONAL PURPOSES AND SURMISED TO BE AS INDICATED. CONTRACTOR SHALL COORDINATE ALL WORK WITH THE FRR WALL/FLOOR ASSEMBLIES SHOWN. ALL PENETRATIONS OF WALL/FLOOR FRR ASSEMBLIES SHALL BE PROVIDED WITH A UL LISTED OR APPROVED FIRESTOPPING ASSEMBLY EQUAL TO THE FRR OF THE WALL/FLOOR. REFER TO FIRESTOPPING SPECIFICATION 07841 FOR ADDITIONAL INFORMATION.
7. THE INTERFACE METHOD BETWEEN THE FACU AND THE ATI RTU IS THE RESPONSIBILITY OF THE INSTALLATION CONTRACTOR. THE RTU IS INTENDED TO ALLOW FOR CAMPUS-WIDE EMERGENCY ANNOUNCEMENTS TO BE BROADCAST THROUGHOUT THE BUILDING USING THE VOICE EVACUATION SPEAKER SYSTEM OF THE BUILDINGS FIRE ALARM SYSTEM. THE ATI RTU PROGRAMMING WILL BE PERFORMED BY THE USC POLICE/SECURITY DEPARTMENT.
8. ACTIVATION OF AN AUTOMATIC (SMOKE) DETECTION DEVICE SHALL BE VISUALLY ANNUNCIATED (IDENTIFIED) AT THE FACU AND FAA AND REMAIN LATCHED (EVEN WHEN THE DEVICE HAS SELF-RESTORED) UNTIL MANUALLY CLEARED/RESET AT THE FACU OR FAA.

**GENERAL NOTES:**

1. ALL FIRE ALARM SYSTEM (FA) COMPONENTS SHOWN ON THE FA DRAWINGS SHALL BE NEW.
2. REFER TO PLAN DRAWINGS FOR EQUIPMENT LOCATIONS.
3. REFER TO FIRE ALARM SYSTEM SPECIFICATION 20 31 11 FOR ADDITIONAL REQUIREMENTS AND INFORMATION.
4. PROVIDE NUMBER OF ZONES REQUIRED.
5. STROBE FOR AUDIO/VISUAL DEVICES SHALL HAVE WHITE/CLEAR LENS AND BE LABELED "FIRE".
6. ALL NOTIFICATION APPLIANCE CIRCUITS SHALL BE CLASS "B" AS DEFINED BY NFPA 72 AND THE NEC.
7. PROVIDE QUANTITY OF POWER SUPPLY PANELS NECESSARY FOR CONTROL AND OPERATION OF ALL NOTIFICATION APPLIANCES.
8. NOTIFICATION APPLIANCE CIRCUITS (NAC) SHALL BE CLASS B.
9. SIGNALING LINE CIRCUITS (SLC) SHALL BE CLASS B.
10. THE INSTALLATION OF WIRING BETWEEN THE FACU AND RELAY MODULES OR OTHER APPLIANCES SHALL BE CLASS B.
11. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH FIRE ALARM VENDOR FOR SYSTEM OPERATING INSTRUCTIONS AND WIRING DIAGRAMS.
12. FIRE ALARM FLOOR PLAN AND RISER DIAGRAM ARE DIAGRAMMATIC. CONDUIT RUNS AND MANNER OF CONNECTION SHALL BE DETERMINED BY THE CONTRACTOR IN ACCORDANCE WITH THE FIRE ALARM SYSTEM MANUFACTURER RECOMMENDATIONS, NFPA 70. PENETRATION SHALL BE COORDINATED WITH USC ASBESTOS ABATEMENT TEAM (AAT).
13. REFER TO FLOOR PLAN DRAWINGS FOR QUANTITY AND LOCATIONS OF FIRE ALARM INITIATING DEVICES, NOTIFICATION APPLIANCES, AND APPURTENANCES.
14. INSTALL SMOKE DETECTORS NO CLOSER THAN 3'-0" TO HVAC AIR SUPPLY DIFFUSERS.
15. LOCATE CONTROL/RELAY MODULE WITHIN 3'-0" OF CONTROLLED DEVICE.
16. FIRE ALARM SIGNALS AND EMERGENCY COMMUNICATIONS SHALL TAKE PRECEDENCE OVER ALL OTHER SIGNALS, SUCH AS BUT NOT LIMITED TO, PUBLIC ADDRESS SYSTEMS, ETC.
17. DUCT SMOKE DETECTORS SHALL BE PROVIDED IN RETURN AIR SYSTEMS WITH A DESIGN CAPACITY OF 2,000-CFM.
18. EACH DEVICE USED TO INITIATE FIRE FIGHTER'S SERVICE RECALL SHALL BE CAPABLE OF INITIATING ELEVATOR RECALL WHEN ALL OTHER DEVICES ON THE SAME INITIATION DEVICE CIRCUIT HAVE BEEN MANUALLY OR AUTOMATICALLY PLACED IN ALARM CONDITION.
19. MODIFICATIONS TO THE EXISTING ELEVATOR CONTROLLER AND CAB ARE NOT INCLUDED IN THIS SCOPE OF WORK.



**1 FIRE ALARM RISER DIAGRAM**  
FA-9 NOT TO SCALE

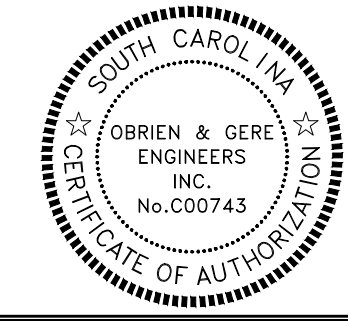
OBRIEN & GERE

PROFESSIONAL ENGINEER  
MARK A. LADD  
No. 20943  
6-13-12

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PROJECT TITLE: USC WILLIAMS-BRICE BUILDING FIRE ALARM RISER DIAGRAM

SHEET: FA-10 OF SHEET IN SET: 21 OF 21



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