

- 1610 FIRE ALARM SYSTEM
- A. GENERAL
1. THE FIRE ALARM SYSTEM SHALL INCLUDE EMPTY RACEWAY SYSTEMS WITH PULLWIRE, ETC., OR USE OF UL FIRE RATED CABLE TO MEET THE NATIONAL ELECTRICAL CODE, THE STATE CODES AND THE LOCAL BUILDING CODES AND NFPA 72 AND ADA REQUIREMENTS.
 2. SYSTEM SHALL BE ADDRESSABLE.
- B. FIRE ALARM SYSTEM
1. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUIT, WIRING, OUTLETS AND EQUIPMENT AS SHOWN ON THE DRAWINGS AND/OR HEREIN SPECIFIED. ALL SYSTEM COMPONENTS SPECIFIED HEREIN, AS WELL AS THEIR INSTALLATION, SHALL COMPLY WITH APPLICABLE STANDARD OF THE NATIONAL ELECTRICAL CODE, NATIONAL FIRE PROTECTION ASSOCIATION-72, N.C. STATE BUILDING CODE, LOCAL CODES, AND THE JURISDICTION HAVING AUTHORITY. ALL EQUIPMENT SHALL BE UNDERWRITERS' LABORATORIES LISTED FOR FIRE ALARM SYSTEM USE AND SHALL BE UL LISTED COMPATIBLE.
 2. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND SHALL BE INSTALLED AND CONNECTED UNDER THE DIRECTION AND SUPERVISION OF A MANUFACTURER'S REPRESENTATIVE UPON COMPLETION OF INSTALLATION. THE MANUFACTURER'S REPRESENTATIVE SHALL PERFORM ALL OPERATIONAL TESTS AND ADJUSTMENTS AND CERTIFY IN WRITING THAT THE SYSTEM IS PROPERLY INSTALLED AND FUNCTIONS AS SPECIFIED (SEE ALSO TESTING BELOW).
 3. ALL WIRING SHALL BE IN A COMPLETELY SEPARATE CONDUIT SYSTEM OR UL LISTED FIRE RATED CABLE AND COLOR CODED TO ALLOW EASE OF IDENTIFICATION OF THE DIFFERENT CIRCUITRY REQUIRED FOR THE SYSTEM.
 4. THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE SHALL PROVIDE SUPERVISION OF SYSTEM, AND SUBMIT A WRITTEN REPORT TO THE CONTRACTOR ATTESTING TO THE PROPER OPERATION OF THE COMPLETED SYSTEM.
 5. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING WARRANTY FOR THE FIRE ALARM SYSTEM: ALL EQUIPMENT SHALL BE WARRANTED BY THE MANUFACTURER FOR A PERIOD OF ONE YEAR FOLLOWING ACCEPTANCE. THE WARRANTY SHALL INCLUDE PARTS, LABOR, AND FIELD SERVICE.
- C. SYSTEM OPERATION
- A) THE OPERATION OF ANY SMOKE DETECTOR, DUCT DETECTOR, OR ANY OTHER SYSTEM ALARM INDICATOR, SHALL CAUSE ALL ALARM SIGNALS, BOTH AUDIBLE AND VISUAL TO EMERGE.
 - B) THE ZONE FROM WHICH THE ALARM ORIGINATED SHALL BE INDICATED AT THE CONTROL PANEL, BOTH AUDIBLY AND VISUALLY. THE APPROPRIATE INITIATION ZONE ALARM SHALL PULSE ON ALARM AND SHALL BE ILLUMINATED CONTINUOUSLY AFTER IT HAS BEEN ACKNOWLEDGED AT THE CONTROL PANEL.
 - C) THE CONTRACTOR SHALL PROVIDE AN ADD ALTERNATE FOR A DIALER.
- D. SYSTEM REQUIREMENTS
- A) THE FIRE ALARM SYSTEM SHALL USE A 120 VOLT POWER SOURCE WITH BATTERY BACK-UP. CIRCUIT SHALL BE DEDICATED WITH LOCK-OUT BREAKER.
 - B) FIRE ALARM JUNCTION BOXES SHALL BE PAINTED RED.
 - C) USE COPPER STRANDED WIRE WITH THIN/THIN INSULATION. WIRE SIZE SHALL BE 14 GA. MINIMUM FOR ALARM CIRCUITS AND 18 GA. MINIMUM FOR OTHER APPLICATIONS.
 - D) SYSTEM VOLTAGE TO BE 24 VOLT.
 - E) FIRE ALARM ANNUNCIATOR LOCATION SHALL BE APPROVED BY THE LOCAL AUTHORITY.
 - F) NO CIRCUITS SHALL BE RUN IN CONDUIT WITH 120 VAC POWER SUPPLY.
- E. EQUIPMENT SHALL CONSIST OF THE FOLLOWING:
- A) SUB-PANEL CONTAINING BATTERY BACK-UP AND CAPABLE OF SENDING AND RECEIVING SIGNALS FROM THE MAIN CONTROL PANEL.
 - B) COMBINATION AUDIO/VISUAL SIGNAL, VISUAL ONLY, OR AUDIO ONLY.
 - C) AUDIO VISUAL AND AUDIO ONLY FIRE ALARM SIGNAL DEVICES SHALL BE FLUSH MOUNTED, PAINTED RED. ALL UNITS SHALL BE VANDAL RESISTANT. THE UNIT SHALL MOUNT ON A STANDARD FOUR INCH ELECTRICAL BOX. A MATCHING TRIM PLATE SHALL BE SUPPLIED. THE LENS SHALL BE LETTERED RED "FIRE". PAINT ALL JUNCTION BOXES RED.
 - D) SMOKE DETECTOR: PROVIDE SOLID STATE, INTELLIGENT PHOTO ELECTRIC TYPE DETECTORS WITH TWO WIRE OPERATION AND 3600 SMOKE ENTRY.
 - E) HEAT DETECTOR SHALL BE RATE OF TEMPERATURE RISE TYPE DETECTOR. HIGH TEMPERATURE UNITS SHALL BE USED IN AREA WITH GAS/OIL HEATER OR BOILERS.
 - F) DUCT DETECTOR: PHOTO ELECTRIC TYPE WITH REMOVE TEST STATE AND SIGNAL LIGHT WITH DUCT PROBE. VERIFY LOCATION OF THE STATION AND SIGNAL LIGHT, DUCT DETECTOR SHALL BE PROVIDED BY AND INSTALLED BY THE MECHANICAL CONTRACTOR AND CONNECTED BY THE ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL CONNECT ALL AIR HANDLING UNIT SHUTDOWN AS REQUIRED.
 - G) WIRING:
 - 1) CONDUIT - ALL EXPOSED WIRING SHALL BE RUN IN 3/4" EMT CONDUIT AS A MINIMUM. USE STEEL COMPRESSION FITTINGS, PAINT ALL JUNCTION BOXES RED.
 - 2) WIRING: ALL WIRE SHALL BE COPPER. MINIMUM SIGNAL WIRE SHALL BE 18 GA. MINIMUM ALARM WIRE SHALL BE 14 GA. WIRE SHALL BE THIN/THIN RUN IN CONDUIT.
 - 3) ALL DATA COMMUNICATION CABLES EXTENDING FROM ONE BUILDING TO ANOTHER SHALL BE PROTECTED WITH LIGHTING SURGE PROTECTORS.
 - 4) UL APPROVED FIRE ALARM CABLE SHALL BE ALLOWED IN CONCEALED AREAS.
- F. AMERICAN DISABILITY ACT
- A) INSTALLATION SHALL COMPLY WITH ALL ADA REQUIREMENTS. WHENEVER POSSIBLE ALL STROBE HORNS AND STROBES SHALL BE SET AT 84" AFF.
- G. TESTS
- A) UPON COMPLETION OF THE INSTALLATION, THE CONTRACTOR AND THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE TOGETHER SHALL TEST EVERY ALARM INITIATING DEVICE FOR PROPER RESPONSE AND ZONE INDICATION. EVERY ALARM SIGNALING APPLIANCE FOR EFFECTIVENESS, AND ALL AUXILIARY FUNCTIONS SUCH AS CONTROL OF HVAC SYSTEMS, AND EXHAUST FANS. THE OWNER AND THE ARCHITECT WILL BE GIVEN AT LEAST 7 DAYS PRIOR NOTICE AND BE GIVEN THE OPPORTUNITY TO WITNESS THESE TESTS.
 - B) AN ITEMIZED TEST REPORT SHALL THEN BE SUBMITTED TO THE ARCHITECT AND THE OWNER, DETAILING AND CERTIFYING ALL RESULTS, INCLUDING THE MEASURE SENSITIVITY OF EACH SMOKE DETECTOR. THE DATA FOR EACH SMOKE DETECTOR SHALL INCLUDE THE MANUFACTURER'S SERIAL NUMBER (IF ANY) PLUS SPECIFIC DEVICE NUMBER.
- H. SYSTEM DOCUMENTATION, TRAINING AND MAINTENANCE
- A) THE CONTRACTOR SHALL PROVIDE THE ARCHITECT WITH THREE COPIES OF THE FOLLOWING, TO BE FORWARDED TO THE OWNER.
 - 1) AS-BUILT WIRING AND CONDUIT LAYOUT DIAGRAMS, COLOR CODE AND/OR LABEL NUMBERS, AND SHOWING CONNECTIONS IN THE SYSTEM.
 - 2) SCHEMATIC WIRING DIAGRAMS OF ALL CONTROL PANELS, MODULES, ANNUNCIATORS, COMMUNICATIONS PANELS, ETC..
 - 3) TECHNICAL LITERATURE ON ALL MAJOR PARTS OF THE SYSTEM, INCLUDING DETECTOR HEADS, MANUAL STATIONS, SIGNALING DEVICES, ALARM PANELS, AND POWER SUPPLIES.
 - B) THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE SHALL INSTRUCT THE OWNER'S DESIGNATED EMPLOYEES IN PROPER OPERATION OF THE SYSTEM AND IN ALL REQUIRED PERIODIC MAINTENANCE. THIS INSTRUCTION SHALL INCLUDE TWO COPIES OF A WRITTEN, BOUND SUMMARY FOR FUTURE REFERENCE.
 - C) BASIC OPERATING INSTRUCTIONS SHALL BE FRAMED AND MOUNTED AT THE FAC PANEL.
 - D) SYSTEMS SHALL FULLY COMPLY WITH ALL REQUIREMENTS OF "REQUIREMENTS FOR FIRE DETECTION AND ALARM SYSTEMS", LATEST EDITION, AS PUBLISHED BY THE NORTH CAROLINA DEPARTMENT OF REVENUE.

FIRE ALARM NOTIFICATION

THE FIRE ALARM SYSTEM IS REQUIRED TO TRANSMIT AN ALARM AUTOMATICALLY TO THE FIRE DEPARTMENT (OR AGENCY) THAT IS LEGALLY COMMITTED TO SERVE THE AREA IN WHICH THE FACILITY IS LOCATED BY THE MOST DIRECT AND RELIABLE METHOD APPROVED BY THE LOCAL ORDINANCE. PROVIDE DUAL LINE DIALER FOR THIS SERVICE.

THE SIGNAL MUST GENERATE A SIGNAL IN THE FACILITY THAT CAN BE TRANSMITTED AUTOMATICALLY OVER THE CORRECT GRADE OF TELEPHONE CIRCUITS AND BE RECOGNIZED BY EQUIPMENT LOCATED IN THE CENTRAL STATION.

THE CONTRACTOR SHALL PROVIDE THE NECESSARY DEDICATED CIRCUIT (LEASED, INSTALLED OR OTHERWISE) FROM THE TELEPHONE COMPANY WHICH CAN CARRY THE NECESSARY SIGNAL FROM THE FACILITY TO THE MONITORING CENTER.

THE CONTRACTOR SHALL PAY ALL CONNECTION FEES ASSOCIATED WITH THE CONNECTION TO THE MONITORING AGENCY.

IF THE PROPER EQUIPMENT DOES NOT EXIST AT THE LOCAL FIRE DEPARTMENT TO RECEIVE THE SIGNAL THEN THE CONTRACTOR SHALL PROVIDE THE PROPER EQUIPMENT.

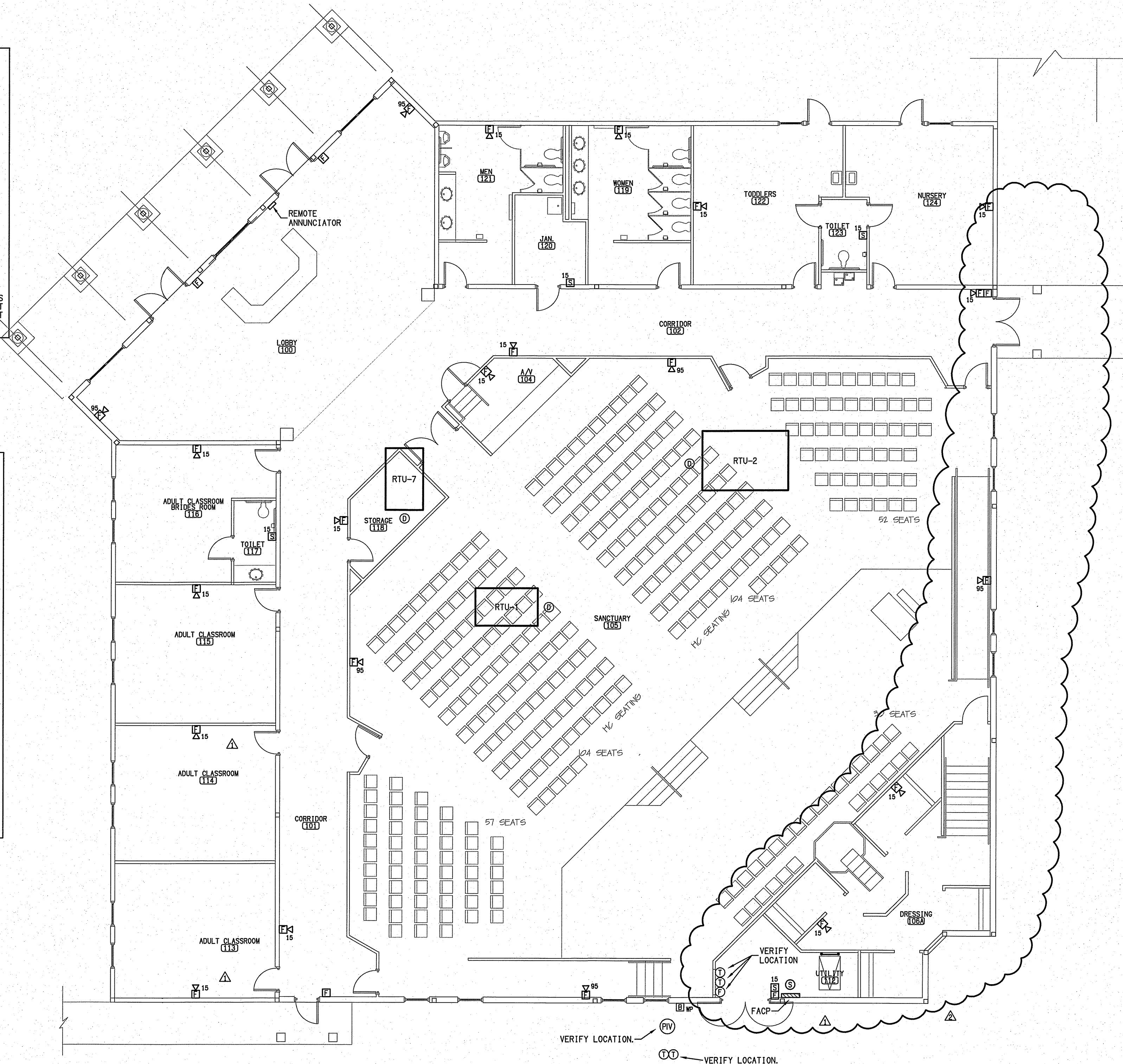
IF THE LOCAL ORDINANCE DOES NOT ALLOW AUTOMATIC ALARM EQUIPMENT TO BE PLACED IN THE FIRE DEPARTMENT, THE CONTRACTOR MUST OBTAIN THE SERVICES OF AN APPROVED MONITORING AGENCY WHO CAN RECEIVE THE SIGNAL, INTERPRET IT AS A FIRE ALARM SIGNAL AND THEN TELEPHONE THE LOCAL FIRE DEPARTMENT TO REPORT THE ALARM.

DIGITAL COMMUNICATOR

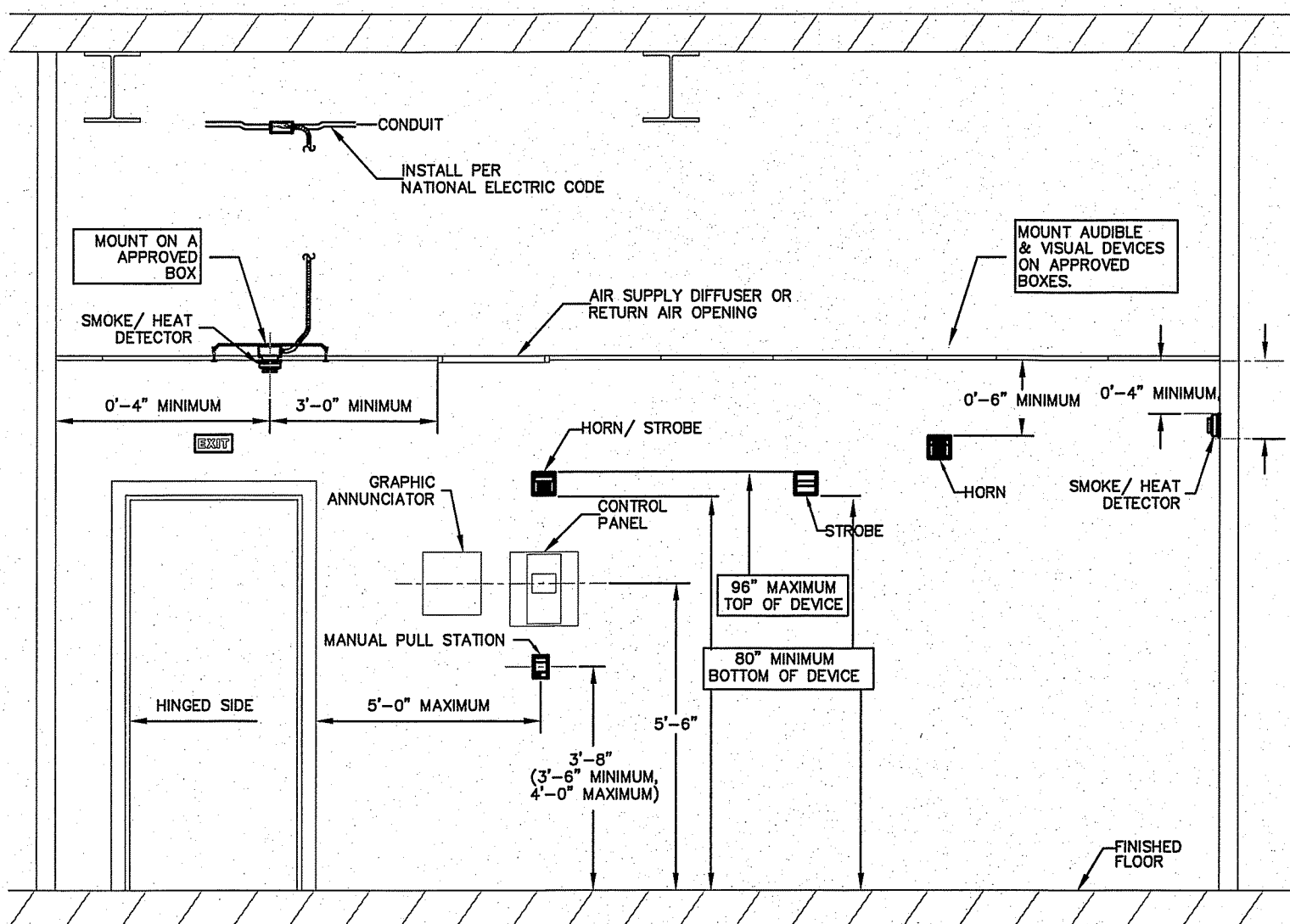
- A) THE COMMUNICATOR SHALL TRANSMIT SIGNALS TO A CENTRAL STATION AND SHALL BE UL LISTED FOR FIRE REPORTING TO A CENTRAL STATION. THE COMMUNICATOR SHALL CONFORM TO THE REQUIREMENTS OF NFPA 72.
- B) THE DIGITAL COMMUNICATOR SHALL PROVIDE POWER AND NECESSARY COMPONENTS FOR FOUR SUPERVISED DETECTION CIRCUITS. ONE SHALL BE CLASS A AND THREE SHALL BE CLASS B.
- C) THE CONTROL/COMMUNICATOR SHALL HAVE THE CAPABILITY TO SUPERVISE TWO TELEPHONE LINES, SEIZE THE PHONE LINE AND SEND THE ALARM SIGNAL ON ONE OR BOTH LINES WITHOUT THE ADDITION OF ANY MORE EQUIPMENT. IT SHALL SOUND A LOCAL TROUBLE SIGNAL IF THE TELEPHONE SERVICE IS INTERRUPTED FOR LONGER THAN 45 SECONDS AND IT SHALL TRANSMIT A SIGNAL INDICATING THE LOSS OF PHONE LINE SERVICE TO THE CENTRAL STATION OVER THE REMAINING PHONE LINE. A SIGNAL SHALL ALSO BE TRANSMITTED INDICATING THE RESTORATION OF PHONE SERVICE. THE CONTROL/COMMUNICATOR SHALL BE ABLE TO REPORT THE LOSS OF EITHER PHONE LINE WITHOUT REGARD TO WHICH PHONE LINE FAILED FIRST. IF BOTH LINES FAIL, A LOCAL SIGNAL SHALL SOUND.
- D) THE CONTROL/COMMUNICATOR SHALL HAVE THE ABILITY TO SEND A TEST SIGNAL TO THE CENTRAL STATION EVERY 24-HOURS. THE TEST SIGNAL SHALL BE ABLE TO BE TRANSMITTED AT A SPECIFIC TIME OF DAY OR NIGHT BY SETTING A PROGRAM WITHIN THE PANEL.
- E) THE COMMUNICATOR SHALL BE ABLE TO TRANSMIT ALL SIGNALS IN THE STANDARD SIA FORMAT (SECURITY INDUSTRY ASSOCIATION).
- F) THE ALARM SIGNALS TRANSMITTED TO THE CENTRAL STATION SHALL INDICATE WHICH OF THE ZONES IS IN ALARM AND WHICH ZONES ARE IN TROUBLE. RESTORATION FROM ALARM OR TROUBLE SHALL ALSO BE TRANSMITTED BY ZONE.

- B) ALL WIRING FOR THE DIGITAL COMMUNICATOR SHALL BE IN 3/4" CONDUIT.

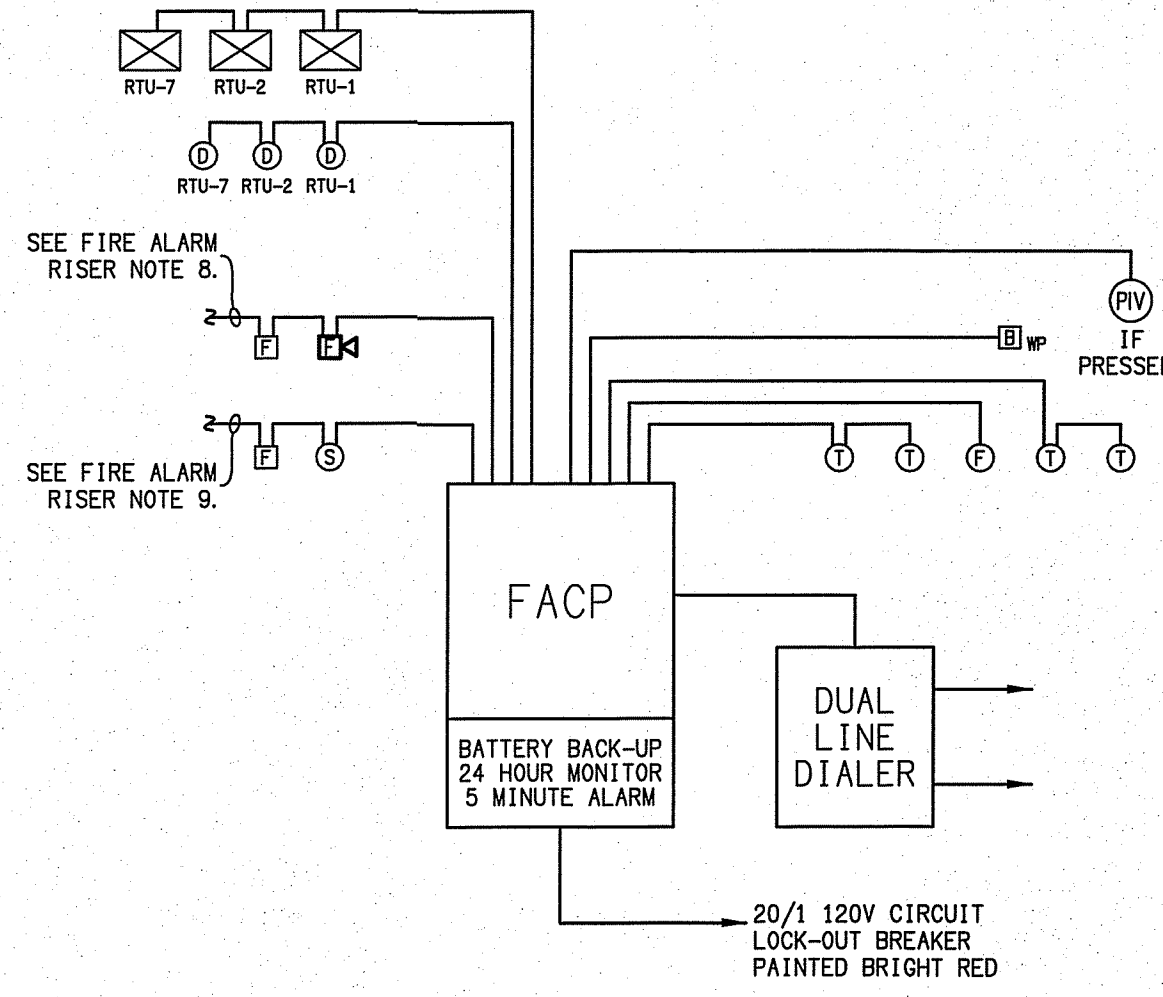
- FIRE ALARM RISER NOTES:**
1. WIRE SHALL BE COPPER.
 2. ALL WIRE SHALL BE CAPPED AND RUN IN CONDUIT (EXCEPTION, SEE NOTE 4)
 3. MINIMUM CONDUIT SIZE SHALL BE 3/4" EMT WITH JUNCTION BOXES PAINTED RED.
 4. UL APPROVED FIRE ALARM CABLE MARKED FPL PER NEC 760-28 SHALL BE ALLOWED IN CONCEALED IN NON-PLENUM AREAS ONLY WHEN NOT EXPOSED TO MECHANICAL DAMAGE.
 5. ALL ALARM CIRCUITS SHALL BE 14 AWG MIN. SIGNAL CIRCUITS CAN BE 18 AWG MIN. ALL OTHER WIRE SHALL BE SIZED PER MFG INSTRUCTIONS.
 6. ALL ALARM CIRCUITS SHALL BE 24V MIN.
 7. FIRE ALARM SYSTEM SHALL BE ADDRESSABLE.
 8. CONNECT ALL STROBES AND STROBE/HORNS. MAXIMUM OF TEN DEVICES PER CIRCUIT. PROVIDE ADDITIONAL CIRCUITS AS REQUIRED.
 9. CONNECT ALL SMOKE DETECTORS AND PULL STATIONS. PROVIDE ADDITIONAL CIRCUITS AS REQUIRED.
 10. SET STROBES TO FLASH AT THE SAME SEQUENCE AS THE EXISTING STROBES.



A FIRE ALARM PLAN
SCALE: 1/8" = 1'-0"



C TYPICAL MOUNTING HEIGHT DETAIL
SCALE: NTS



B FIRE ALARM RISER
SCALE: NTS

- FIRE ALARM NOTES:**
1. SHOP DRAWINGS MUST BE SUBMITTED BY THE FIRE ALARM CONTRACTOR COMPLYING WITH THE FIRE ALARM PLAN REVIEW REQUIREMENTS POLICY BEFORE PERMITTING. THESE DRAWINGS DO NOT CONSTITUTE APPROVAL AND MAY CHANGE AFTER A FULL REVIEW. A SEPARATE PERMIT MUST BE OBTAINED PRIOR TO INSTALLATION.
 2. ALL HORNS SHALL HAVE ADJUSTABLE AUDIO.
 3. ALL STROBES SHALL BE ADJUSTABLE UP TO 110 CANDELA.
 4. FOR ALARM CIRCUITS, SIZE WIRE TO KEEP VOLTAGE DROP WITHIN MANUFACTURERS ALLOWANCE.
 5. ALARM WIRE SHALL BE 14GA MIN.
 6. SIGNAL WIRE SHALL BE 18GA MIN.
 7. ALARM SUPERVISORY AND TROUBLE SIGNALS SHALL BE DISTINCTLY DIFFERENT AND SHALL BE AUTOMATICALLY TRANSMITTED TO THE SUPERVISING STATION. IF REQUIRED BY LOCAL AUTHORITY AN AUDIBLE SIGNAL AT A CONSTANTLY ATTENDED LOCATION SHALL ALSO BE PROVIDED.
 8. ALL DEVICES SHALL COMPLY WITH NC STATE BUILDING CODE: FIRE PREVENTION CODE INCLUDING BUT NOT LIMITED TO SECTION 903.4 NAD 903.5
 9. CONTRACTOR SHALL VERIFY THAT AT ANY POINT IN BUILDING THERE IS A 60DBA SOUND LEVEL WHEN THE AUDIBLE DEVICES ARE IN ALARM STATE. CONTRACTOR SHALL ADD ADDITIONAL DEVICES AS REQUIRED IF THIS LEVEL IS NOT MET. THIS INCLUDES ALL AREAS OF THE BUILDING.

FIRE ALARM LEGEND	
SYMBOL	DESCRIPTION
⊙	SMOKE DETECTOR, SEE DETAIL C/FA1 FOR MOUNTING
⊠ ^{XX}	STROBE/HORN, XX CANDELA, SEE DETAIL C/FA1 FOR MOUNTING
⊠ ^{XX}	STROBE ONLY, XX CANDELA, SEE DETAIL C/FA1 FOR MOUNTING
⊠	PULL STATION, SEE DETAIL C/FA1 FOR MOUNTING
⊙	DUCT DETECTOR PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR, CONNECTED BY FIRE ALARM CONTRACTOR
⊠	HVAC SHUTDOWN RELAY
⊙	TAMPER SWITCH BY OTHERS, CONNECTED BY FIRE ALARM CONTRACTOR
⊙	FLOW SWITCH BY OTHERS, CONNECTED BY FIRE ALARM CONTRACTOR
⊠	WEATHER PROOF BELL
⊙	POST INDICATOR VALVE BY OTHERS, CONNECTED BY FIRE ALARM CONTRACTOR
FACP	FIRE ALARM CONTROL PANEL FOR SPRINKLER MONITORING ALARM SYSTEM
WP	WEATHER PROOF

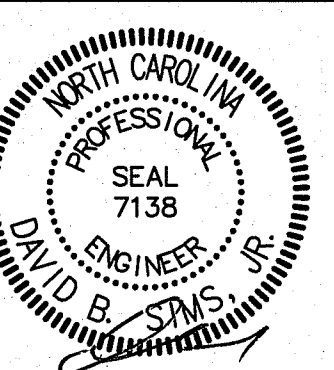
symbol	date	description	by
△	10/30/15	GENERAL REVISIONS	DBS
△	6/30/15	GENERAL REVISIONS	DBS
symbol		description	by

REVISIONS

**KELLUM BAPTIST CHURCH
NEW SANCTUARY**
JACKSONVILLE, NC

**DAVID SIMS & ASSOCIATES
Consulting Engineers, P.C.**
Arboretum Centre
108 Giles Avenue - Suite 100 - Wilmington, N.C. 28403 Phone: (910) 791-8016
NC License: C-1150

des by:
dwn by:
proj number: 14153
date: 12/1/14



SHEET NO. 11-2-16

FA1