

Order Plans @

FIRE ALARM SPECIFICATIONS

DESCRIPTION

- A. THIS SECTION OF THE SPECIFICATION INCLUDES THE FURNISHING, INSTALLATION, AND CONNECTION OF THE MICROPROCESSOR CONTROLLED, INTELLIGENT REPORTING FIRE ALARM EQUIPMENT REQUIRED TO FORM A COMPLETE COORDINATED SYSTEM READY FOR OPERATION. IT SHALL INCLUDE, BUT NOT BE LIMITED TO, ALARM INITIATING DEVICES, ALARM NOTIFICATION APPLIANCES, CONTROL PANEL, AUXILIARY CONTROL DEVICES, ANNUNCIATORS, AND WIRING AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.
- B. THE FIRE ALARM SYSTEM SHALL COMPLY WITH REQUIREMENTS OF NFPA STANDARD NO. 72 FOR PROTECTED PREMISES SIGNALING SYSTEMS EXCEPT AS MODIFIED AND SUPPLEMENTED BY THIS SPECIFICATION. THE SYSTEM FIELD WIRING SHALL BE SUPERVISED EITHER ELECTRICALLY OR BY SOFTWARE-DIRECTED POLLING OF FIELD DEVICES.
- C. THE FIRE ALARM SYSTEM SHALL BE MANUFACTURED BY AN ISO 9001 CERTIFIED COMPANY AND MEET THE REQUIREMENTS OF BS EN9001: ANS/ASQC 9901.
- D. THE FACP AND PERIPHERAL DEVICES SHALL BE MANUFACTURED 100% BY A SINGLE MANUFACTURER (OR DIVISION THEREOF).
- E. THE INSTALLING COMPANY SHALL EMPLOY NIGET (MINIMUM LEVEL II FIRE ALARM TECHNOLOGY) TECHNICIANS ON SITE TO GUIDE THE FINAL CHECK-OUT AND TO ENSURE THE SYSTEM'S INTEGRITY.
- F. THE FIRE ALARM CONTRACTOR MUST BE CERTIFIED IN ACCORDANCE WITH THE TENNESSEE ALARM CONTRACTORS LICENSING ACT OF 1991. TAC TITLE 82 AND CHAPTER 32. CALL (615)741-9771 FOR ADDITIONAL INFORMATION.

SCOPE

- A. A NEW INTELLIGENT REPORTING, MICROPROCESSOR CONTROLLED ADDRESSABLE FIRE DETECTION AND ALARM SYSTEM SHALL BE INSTALLED IN ACCORDANCE TO THE PROJECT SPECIFICATIONS AND DRAWINGS.
- B. BASIC PERFORMANCE:
 - 1. ALARM, TROUBLE AND SUPERVISORY SIGNALS FROM ALL INTELLIGENT REPORTING DEVICES SHALL BE ENCODED ON AN NFPA STYLE 6 (CLASS A) SIGNALING LINE CIRCUIT (SLC).
 - 2. INITIATION DEVICE CIRCUITS (IDC) SHALL BE WIRED CLASS A (NFPA STYLE D).
 - 3. NOTIFICATION APPLIANCE CIRCUITS (NAC) SHALL BE WIRED CLASS A (NFPA STYLE Z).
 - 4. DIGITIZED ELECTRONIC SIGNALS SHALL EMPLOY CHECK DIGITS OR MULTIPLE POLLING.
 - 5. ALARM SIGNALS ARRIVING AT THE MAIN FACP SHALL NOT BE LOST FOLLOWING A POWER FAILURE (OR OUTAGE) UNTIL THE ALARM SIGNAL IS PROCESSED AND RECORDED.
- C. BASIC SYSTEM FUNCTIONAL OPERATION:
 - 1. WHEN A FIRE ALARM CONDITION IS DETECTED AND REPORTED BY ONE OF THE SYSTEM INITIATING DEVICES, THE FOLLOWING FUNCTIONS SHALL IMMEDIATELY OCCUR:
 - A. THE SYSTEM ALARM LED SHALL FLASH.
 - B. A LOCAL PIEZO ELECTRIC SIGNAL IN THE CONTROL PANEL SHALL SOUND.
 - C. A BACKLIT 40-CHARACTER LCD DISPLAY SHALL INDICATE ALL INFORMATION ASSOCIATED WITH THE FIRE ALARM CONDITION, INCLUDING THE TYPE OF ALARM POINT AND ITS LOCATION WITHIN THE PROTECTED PREMISES.
 - D. HISTORY STORAGE EQUIPMENT SHALL LOG THE INFORMATION ASSOCIATED EACH NEW FIRE ALARM CONTROL PANEL CONDITION, ALONG WITH TIME AND DATE OF OCCURRENCE.
 - E. ALL SYSTEM OUTLETPROGRAMS ASSIGNED VIA CONTROL-BY-EVENT EQUATIONS TO BE ACTIVATED BY THE PARTICULAR POINT IN ALARM SHALL BE EXECUTED AND THE ASSOCIATED SYSTEM OUTPUTS (ALARM NOTIFICATION APPLIANCES AND/OR RELAYS) SHALL BE ACTIVATED.

SUBMITTALS

- A. GENERAL:
 - 1. THREE COPIES OF ALL SUBMITTALS SHALL BE SUBMITTED TO ARCHITECT/ENGINEER FOR REVIEW.
 - 2. ALL REFERENCES TO MANUFACTURER'S MODEL NUMBERS AND PERTINENT INFORMATION HEREIN IS INTENDED TO ESTABLISH MINIMUM STANDARDS OF PERFORMANCE, FUNCTION AND QUALITY. EQUIVALENT EQUIPMENT (COMPATIBLE UL LISTED) FROM OTHER MANUFACTURERS MAY BE SUBSTITUTED FOR THE SPECIFIED EQUIPMENT AS LONG AS THE MINIMUM STANDARDS ARE MET.
 - 3. FOR EQUIPMENT OTHER THAN THAT SPECIFIED, THE CONTRACTOR SHALL SUPPLY EVIDENCE THAT EACH SUBSTITUTE EQUIPMENT EQUALS OR EXCEEDS THE FEATURED FUNCTIONS, PERFORMANCE, AND QUALITY OF THE SPECIFIED EQUIPMENT.
- B. SHOP DRAWINGS:
 - 1. SUFFICIENT INFORMATION, CLEARLY EXPRESSED, SHALL BE INCLUDED TO DETERMINE COMPLIANCE WITH THE SPECIFICATIONS.
 - 2. INCLUDE MANUFACTURER'S NAME(S), MODEL NUMBERS, RATINGS, POWER REQUIREMENTS, EQUIPMENT LAYOUT, WIRING ARRANGEMENT, COMPLETE WIRING, CONT-TYPEPRINT DIAGRAMS, AND CONDUIT LAYOUTS.
 - 3. SPECIFIC ANNUNCIATOR LAYOUT, CONFIGURATIONS, AND TERMINATIONS.
 - 4. PROVIDE A SCALE DRAWING OF COMPLETE FIRE ALARM SYSTEM WITH PROPER BOARD CALCULATIONS BASED ON NFPA CALCULATIONS.
- C. MANUALS:
 - 1. SUBMIT SIMULTANEOUSLY WITH THE SHOP DRAWINGS, COMPLETE WIRING AND MAINTENANCE MANUALS LISTING THE MANUFACTURER'S NAME INCLUDING TECHNICAL DATA SHEETS.
 - 2. WIRING DIAGRAMS SHALL INDICATE INTERNAL WIRING FOR EACH DEVICE AND THE INTERCONNECTIONS BETWEEN THE ITEMS OF EQUIPMENT.
 - 3. PROVIDE A CLEAR AND CONCISE DESCRIPTION OF OPERATION THAT GIVES, IN DETAIL, THE INFORMATION REQUIRED TO PROPERLY OPERATE THE EQUIPMENT AND SYSTEM.
- D. SOFTWARE MODIFICATIONS:
 - 1. PROVIDE THE SERVICES OF A FACTORY TRAINED AND AUTHORIZED TECHNICIAN TO PERFORM ALL SYSTEM SOFTWARE MODIFICATIONS, UPGRADES OR CHANGES. RESPONSE TIME OF THE TECHNICIAN TO THE SITE SHALL NOT EXCEED 24 HOURS.
 - 2. PROVIDE ALL HARDWARE, SOFTWARE, PROGRAMMING TOOLS AND DOCUMENTATION NECESSARY TO MODIFY THE FIRE ALARM SYSTEM ON SITE. MODIFICATION INCLUDES ADDITION AND DELETION OF DEVICES, CIRCUITS, ZONES AND CHANGES TO SYSTEM OPERATION AND CUSTOM LABEL CHANGES FOR DEVICES OR ZONES. THE SYSTEM STRUCTURE AND SOFTWARE SHALL PLACE NO LIMIT ON THE TYPE OR EXTENT OF SOFTWARE MODIFICATIONS ON-SITE. MODIFICATION OF SOFTWARE SHALL NOT REQUIRE POWER-DOWN OF THE SYSTEM OR LOSS OF SYSTEM FIRE PROTECTION WHILE MODIFICATIONS ARE BEING MADE.

GUARANTY

- A. ALL WORK PERFORMED AND ALL MATERIAL AND EQUIPMENT FURNISHED UNDER THIS CONTRACT SHALL BE FREE FROM DEFECTS AND SHALL REMAIN SO FOR A PERIOD OF AT LEAST ONE (1) YEAR FROM THE DATE OF ACCEPTANCE. THE FULL COST OF MAINTENANCE, LABOR AND MATERIALS REQUIRED TO CORRECT ANY DEFECT DURING THIS ONE YEAR PERIOD SHALL BE INCLUDED IN THE SUBMITTAL BID.

APPLICABLE STANDARDS AND SPECIFICATIONS

- THE SPECIFICATIONS AND STANDARDS LISTED BELOW FORM A PART OF THIS SPECIFICATION. THE SYSTEM SHALL FULLY COMPLY WITH THE LATEST LOCALLY ADOPTED EDITIONS OF THESE STANDARDS:
 - A. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) - USA:
 - 1. NO. 72 NATIONAL FIRE ALARM CODE.
 - 2. NO. 101 LIFE SAFETY CODE.
 - B. UNDERWRITERS LABORATORIES INC. (UL) - USA:
 - 1. NO. 288 SMOKE DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS.
 - 2. NO. 864 CONTROL UNITS FOR FIRE PROTECTIVE SIGNALING SYSTEMS.
 - 3. NO. 288A SMOKE DETECTORS FOR DUCT APPLICATIONS.
 - 4. NO. 521 HEAT DETECTORS FOR FIRE PROTECTIVE DEVICES.
 - 5. NO. 464 AUDIBLE SIGNALING APPLIANCES.
 - 6. NO. 38 MANUALLY ACTUATED SIGNALING BOXES.
 - 7. NO. 346 WATERFLOW INDICATORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS.
 - 8. NO. 1971 VISUAL NOTIFICATION APPLIANCES.
 - C. LOCAL AND STATE BUILDING CODES.
 - D. ALL REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION (AHJ).

MAIN FIRE ALARM CONTROL PANEL

- A. THE FACP SHALL CONTAIN A MICROPROCESSOR BASED CENTRAL PROCESSING UNIT (CPU). THE CPU SHALL COMMUNICATE WITH AND CONTROL THE FOLLOWING TYPES OF EQUIPMENT USED TO MAKE UP THE SYSTEM: INTELLIGENT DETECTORS, ADDRESSABLE MODULES, ANNUNCIATORS, AND OTHER SYSTEM CONTROLLED DEVICES.
- B. SYSTEM CAPACITY AND GENERAL OPERATION:
 - 1. THE CONTROL PANEL SHALL PROVIDE, OR BE CAPABLE OF EXPANSION TO 198 INTELLIGENT/ADDRESSABLE DEVICES.
 - 2. THE SYSTEM SHALL INCLUDE FORM-C ALARM, FORM-C TROUBLE, AND FORM-A SUPERVISORY RELAYS RATED AT A MINIMUM OF 2.0 AMPS @ 30 VDC. IT SHALL ALSO INCLUDE FOUR CLASS B (NFPA STYLE Y) PROGRAMMABLE NOTIFICATION APPLIANCE CIRCUITS.

- 3. THE FIRE ALARM CONTROL PANEL SHALL INCLUDE A FULL FEATURED OPERATOR INTERFACE CONTROL AND ANNUNCIATION PANEL THAT SHALL INCLUDE A BACKLIT LIQUID CRYSTAL DISPLAY, INDIVIDUAL COLOR CODED SYSTEM STATUS LEDES, AND AN ALPHANUMERIC KEYPAD FOR THE FIELD PROGRAMMING AND CONTROL OF THE FIRE ALARM SYSTEM.
- 4. ALL PROGRAMMING OR EDITING OF THE EXISTING PROGRAM IN THE SYSTEM SHALL BE ACHIEVED WITHOUT SPECIAL EQUIPMENT AND WITHOUT INTERRUPTING THE ALARM MONITORING FUNCTIONS OF THE FIRE ALARM CONTROL PANEL.
- 5. THE FACP SHALL PROVIDE THE FOLLOWING FEATURES:
 - a. MAINTENANCE ALERT TO WARN OF EXCESSIVE SMOKE DETECTOR DIRT OR DUST ACCUMULATION.
 - b. SYSTEM STATUS REPORTS TO DISPLAY OR PRINTER.
 - c. ALARM VERIFICATION.
 - d. RAPID MANUAL STATION REPORTING (UNDER 2 SECONDS).
 - e. PERIODIC DETECTOR TEST, CONDUCTED AUTOMATICALLY BY SOFTWARE.
 - f. PRE-ALARM FOR ADVANCED FIRE WARNING.
 - g. WALK TEST.
- C. ENCLOSURES:
 - 1. THE CONTROL PANEL SHALL BE HOUSED IN A UL LISTED CABINET SUITABLE FOR SURFACE OR SEMI-FLUSH MOUNTING. CABINET AND FRONT SHALL BE CORROSION PROTECTED, GIVEN A RUST-RESISTANT PRIME COAT, AND MANUFACTURER'S STANDARD FINISH.
 - 2. THE DOOR SHALL PROVIDE A KEY LOCK AND SHALL INCLUDE A GLASS OR OTHER TRANSPARENT OPENING FOR VIEWING OF ALL INDICATORS.
- D. ALL INTERFACES AND ASSOCIATED EQUIPMENT ARE TO BE PROTECTED SO THAT THEY WILL NOT BE AFFECTED BY VOLTAGE SURGES OR LINE TRANSIENTS, CONSISTENT WITH UL STANDARD 864.
- E. OPTIONAL PLUG-IN MODULES SHALL BE PROVIDED FOR BY NFPA 72 FOR AUXILIARY AND REMOTE STATION REQUIREMENTS.
- F. DIGITAL ALARM COMMUNICATOR TRANSMITTER (DACT). THE DACT IS AN INTERFACE FOR COMMUNICATING DIGITAL INFORMATION BETWEEN A FIRE ALARM CONTROL PANEL AND A UL-LISTED CENTRAL STATION, WHERE REQUIRED BY THE AHJ. THE DIGITAL COMMUNICATOR SHALL USE CELLULAR TELEPHONE TECHNOLOGY FOR COMMUNICATIONS IN LIEU OF WIRED TELEPHONE.
- G. POWER SUPPLY:
 - 1. THE POWER SUPPLY SHALL OPERATE ON 120 VAC, 60 HZ, AND SHALL PROVIDE ALL NECESSARY POWER FOR THE FACP.
 - 2. IT SHALL PROVIDE 3.0 AMPS OF USABLE NOTIFICATION APPLIANCE POWER, USING A SWITCHING 120 VDC REGULATOR. A 3.0 AMP NOTIFICATION EXPANSION POWER SUPPLY SHALL BE AVAILABLE FOR THE DEMANDING REQUIREMENTS OF UL 1971 AND ADA DEVICES.
 - 3. IT SHALL PROVIDE A BATTERY CHARGER CAPABLE OF CHARGING BATTERIES UP TO 17 AMP HOURS.
 - 4. IT SHALL PROVIDE FREQUENCY SWEEP EARTH DETECTION CIRCUIT, CAPABLE OF DETECTING PER UL STANDARD 1971.
 - 5. IT SHALL BE POWER-LIMITED PER UL STANDARD 1971.
- H. FIELD CHARGING POWER SUPPLY: THIS IS A DEVICE DESIGNED FOR USE AS EITHER A REMOTE 24 VOLT POWER SUPPLY OR USED TO RECHARGE NOTIFICATION APPLIANCES.

SYSTEM COMPONENTS

- A. PROGRAMMABLE ELECTRONIC SOUNDERS:
 - 1. ELECTRONIC SOUNDERS SHALL OPERATE ON 24 VDC NOMINAL. THE SOUNDERS SHALL BE FIELD ADDRESSABLE WITHOUT THE USE OF SPECIAL TOOLS, TO PROVIDE SEVEN (7) CONTINUOUS, TEMPORARY INTERRUPTED TONES WITH AN OUTPUT SOUND LEVEL OF AT LEAST 65 DB(A) MEASURED AT 10 FEET FROM THE DEVICE.
 - 2. WHERE LOCATED IN SLEEPING ROOMS, ELECTRONIC SOUNDERS SHALL BE LOW FREQUENCY (520 HZ ± 10%) SQUARE WAVE OUTPUT TYPE.
 - 3. THEY SHALL BE FIELD MOUNTED AS SHOWN ON PLANS.
 - 4. DEVICES SHALL BE FIELD MOUNTED IN WHITE LETTERING, OR WHITE WITH RED LETTERING. COORDINATE COLOR SELECTION WITH THE ARCHITECT.
- B. STROBE LIGHTS SHALL MEET THE REQUIREMENTS OF THE ADA, UL STANDARD 1971 AND SHALL MEET THE FOLLOWING CRITERIA:
 - 1. THE MAXIMUM PULSE DURATION SHALL BE 2/10 OF ONE SECOND.
 - 2. STROBE LIGHTS SHALL MEET THE REQUIREMENTS OF UL 1971.
 - 3. THE FLASH RATE SHALL MEET THE REQUIREMENTS OF UL 1971.
 - 4. DEVICES SHALL BE RED WITH WHITE LETTERING, OR WHITE WITH RED LETTERING. COORDINATE COLOR SELECTION WITH THE ARCHITECT.
- C. AUDIBLE/VISUAL COMBINATION DEVICES:
 - 1. SHALL MEET THE APPLICABLE REQUIREMENTS OF SECTION A LISTED ABOVE FOR AUDIBILITY.
 - 2. SHALL MEET THE REQUIREMENTS OF SECTION B LISTED ABOVE FOR VISIBILITY.
- D. ADDRESSABLE DEVICES - GENERAL:
 - 1. ADDRESSABLE DEVICES SHALL USE SIMPLE TO INSTALL AND MAINTAIN DECODE (NUMBERED 0 TO 9) TYPE ADDRESS SWITCHES. DEVICES WHICH USE A BINARY ADDRESS SETTING METHOD, SUCH AS A DIP SWITCH, ARE NOT AN ALLOWABLE SUBSTITUTE.
- E. ADDRESSABLE PULL BOX (MANUAL STATION):
 - 1. ADDRESSABLE PULL BOXES SHALL, ON COMMAND FROM THE CONTROL PANEL, SEND DATA TO THE PANEL REPRESENTING THE STATE OF THE MANUAL SWITCH AND THE ADDRESSABLE COMMUNICATION MODULE STATUS. THEY SHALL USE A KEY OPERATED TEST/RESET LOCK, AND SHALL BE DESIGNED SO THAT AFTER ACTUAL EMERGENCY OPERATION, THEY CANNOT BE RESTORED TO NORMAL USE EXCEPT BY THE USE OF A KEY. ACTIVATION SHALL BE SINGLE-ACTION UNLESS DOUBLE-ACTION IS REQUIRED BY THE AHJ. "BRICK GLASS" OR "GLASS ROD" OR ANY OTHER ACTION TYPE WHICH REQUIRES REPLACEMENT OF ANY COMPONENTS AFTER USE IS NOT ACCEPTABLE.
 - 2. ALL OPERATED STATIONS SHALL HAVE A POSITIVE, VISUAL INDICATION OF OPERATION AND UTILIZE A KEY TYPE RESET.
 - 3. MANUAL STATIONS SHALL BE CONSTRUCTED OF LEXAN WITH CLEARLY VISIBLE OPERATING INSTRUCTIONS PROVIDED ON THE COVER. THE WORD FIRE SHALL APPEAR ON THE FRONT OF THE STATIONS IN RAISED LETTERS, 1.75 INCHES OR LARGER.
- F. ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR:
 - 1. THE DETECTORS SHALL USE THE PHOTOELECTRIC (LIGHT-SCATTERING) PRINCIPAL TO MEASURE SMOKE DENSITY AND SHALL, ON COMMAND FROM THE CONTROL PANEL, SEND DATA TO THE PANEL REPRESENTING THE ANALOG LEVEL OF SMOKE DENSITY.
- G. INTELLIGENT DUCT SMOKE DETECTOR:
 - 1. THE IN-DUCT SMOKE DETECTOR HOUSING SHALL ACCOMMODATE EITHER AN INTELLIGENT IONIZATION DETECTOR OR AN INTELLIGENT PHOTOELECTRIC DETECTOR THAT PROVIDES CONTINUOUS ANALOG MONITORING AND ALARM VERIFICATION FROM THE PANEL.
 - 2. WHEN SUFFICIENT SMOKE IS SENSED, AN ALARM SIGNAL IS INITIATED AT THE FACP, AND APPROPRIATE ACTION TAKEN TO CHANGE OVER AIR HANDLING SYSTEMS TO HELP PREVENT THE RAPID DISTRIBUTION OF TOXIC SMOKE AND FIRE GASES THROUGHOUT THE AREAS SERVED BY THE DUCT SYSTEM.
- H. ADDRESSABLE DRY CONTACT MONITOR MODULE:
 - 1. ADDRESSABLE MONITOR MODULES SHALL BE PROVIDED TO CONNECT ONE SUPERVISED IDC ZONE OF CONVENTIONAL ALARM INITIATING DEVICES (ANY N.O. DRY CONTACT DEVICE) TO ONE OF THE FIRE ALARM CONTROL PANEL SLCs.
 - 2. THE MONITOR MODULE SHALL MOUNT IN A 4-INCH SQUARE, 2-1/8 INCH DEEP ELECTRICAL BOX.
 - 3. THE IDC ZONE SHALL BE SUITABLE FOR STYLE D OR STYLE B OPERATION. AN LED SHALL BE PROVIDED THAT SHALL FLASH UNDER NORMAL CONDITIONS, INDICATING THAT THE MONITOR MODULE IS OPERATIONAL AND IN REGULAR COMMUNICATION WITH THE CONTROL PANEL.
 - 4. FOR DIFFICULT TO REACH AREAS, THE MONITOR MODULE SHALL BE AVAILABLE IN A MINIATURE PACKAGE. THIS VERSION NEED NOT INCLUDE STYLE D OR AN LED.

- I. TWO WIRE DETECTOR MONITOR MODULE:
 - 1. ADDRESSABLE MONITOR MODULES SHALL BE PROVIDED TO CONNECT ONE SUPERVISED IDC ZONE OF CONVENTIONAL 2-WIRE SMOKE DETECTORS OR ALARM INITIATING DEVICES (ANY N.O. DRY CONTACT DEVICE).
 - 2. THE TWO-WIRE MONITOR MODULE SHALL MOUNT IN A 4-INCH SQUARE, 2-1/8 INCH DEEP ELECTRICAL BOX OR WITH AN OPTIONAL SURFACE BACKBOX.
 - 3. THE IDC ZONE MAY BE WIRED FOR CLASS A OR B (STYLE D OR STYLE B) OPERATION. AN LED SHALL BE PROVIDED THAT SHALL FLASH UNDER NORMAL CONDITIONS, INDICATING THAT THE MONITOR MODULE IS OPERATIONAL AND IN REGULAR COMMUNICATION WITH THE CONTROL PANEL.
- J. ADDRESSABLE CONTROL MODULE:
 - 1. ADDRESSABLE CONTROL MODULES SHALL BE PROVIDED TO SUPERVISE AND CONTROL THE OPERATION OF ONE CONVENTIONAL NACS OF COMPATIBLE, 24 VDC POWERED, POLARIZED AUDIO/VISUAL NOTIFICATION APPLIANCES. FOR FAN SHUTDOWN AND OTHER AUXILIARY CONTROL APPLIANCES, THE CONTROL MODULE MAY BE SET TO OPERATE AS A DRY CONTACT RELAY.
 - 2. THE CONTROL MODULE SHALL MOUNT IN A STANDARD 4-INCH SQUARE, 2-1/8 INCH DEEP ELECTRICAL BOX, OR TO A SURFACE MOUNTED BACKBOX.
 - 3. THE CONTROL MODULE NAC MAY BE WIRED FOR STYLE Z OR STYLE Y (CLASS A/B) WITH UP TO 1 AMP OF INDUCTIVE A/V SIGNAL, OR 2 AMPS OF RESISTIVE A/V SIGNAL OPERATION, OR AS A DRY CONTACT (FORM-C) RELAY. THE RELAY COIL SHALL BE MAGNETICALLY LATCHED TO REDUCE WIRING CONNECTION REQUIREMENTS, AND TO INSURE THAT WORK OF ALL AUXILIARY RELAY OR NACS MAY BE ENERGIZED AT THE SAME TIME ON THE SAME PAIR OF WIRES.

- 4. AUDIO/VISUAL POWER SHALL BE PROVIDED BY A SEPARATE SUPERVISED POWER CIRCUIT FROM THE MAIN FIRE ALARM CONTROL PANEL OR FROM A SUPERVISED, UL LISTED, REMOTE POWER SUPPLY.
- 5. THE CONTROL MODULE SHALL BE SUITABLE FOR PILOT DUTY APPLICATIONS AND RATED FOR A MINIMUM OF 0.6 AMPS AT 30 VDC.
- K. LCD ALPHANUMERIC DISPLAY ANNUNCIATOR:
 - 1. THE ALPHANUMERIC DISPLAY ANNUNCIATOR SHALL BE A SUPERVISED, BACK-LIT LCD DISPLAY CONTAINING A MINIMUM OF EIGHTY CHARACTERS FOR ALARM ANNUNCIATION IN CLEAR ENGLISH TEXT.
 - 2. THE LCD ANNUNCIATOR SHALL DISPLAY ALL ALARM AND TROUBLE CONDITIONS IN THE SYSTEM.
 - 3. SYSTEM SHALL HAVE CAPACITY FOR AT LEAST SIX SIMULTANEOUSLY CONNECTED ANNUNCIATORS. LCD ANNUNCIATORS SHALL NOT REDUCE THE ANNUNCIATION OR POINT CAPACITY OF THE SYSTEM. EACH LCD SHALL INCLUDE VITAL SYSTEM WIDE FUNCTIONS SUCH AS: SYSTEM ACKNOWLEDGE, SILENCE AND RESET.
 - 4. LCD DISPLAY ANNUNCIATORS SHALL MIMIC THE MAIN CONTROL PANEL 80 CHARACTER DISPLAY AND SHALL NOT REQUIRE SPECIAL PROGRAMMING.
 - 5. THE LCD ANNUNCIATOR SHALL HAVE SWITCHES FOR SYSTEM CONTROL SUCH AS, ACKNOWLEDGE, SIGNAL SILENCE AND SYSTEM RESET. THESE SWITCH INPUTS SHALL BE CAPABLE OF BEING DISABLED PERMANENTLY OR BY A KEY LOCKOUT FUNCTION ON THE FRONT PLATE.

BATTERIES

- A. SHALL BE 12 VOLT, GELL-CELL TYPE (AT LEAST TWO REQUIRED).
- B. BATTERY SHALL HAVE SUFFICIENT CAPACITY TO POWER THE FIRE ALARM SYSTEM FOR NOT LESS THAN TWENTY-FOUR HOURS PLUS 3 HOURS OF SUBSEQUENT ALARM UPON A FAILURE OF NORMAL AC POWER.
- C. THE BATTERIES ARE TO BE COMPLETELY MAINTENANCE FREE.

EXECUTION

- INSTALLATION
- A. INSTALLATION SHALL BE IN ACCORDANCE WITH NEC, NFPA 72, LOCAL AND STATE CODES AS SHOWN ON THE DRAWINGS, ACCEPTABLE TO THE AHJ, AND AS RECOMMENDED BY THE MAJOR EQUIPMENT MANUFACTURER.
- B. ALL ALARM WIRING SHALL BE CONDUIT. MINIMUM SIZE SHALL BE 3/4" CONDUIT SHALL BE METAL EXCEPT WHERE BELOW GRADE, WHERE NON-METAL CONDUIT IS USED. PROVIDE GROUNDING BUSHINGS AT THE TRANSITION TO METAL CONDUIT AND A #12AWG GREEN GROUNDING CONDUCTOR TO MAINTAIN CONDUIT SYSTEM GROUNDING INTEGRITY.
- C. ALL CONDUIT CONNECTION BOXES, CONDUIT SUPPORTS AND HANGERS SHALL BE CONCEALED IN FINISHED AREAS AND MAY BE EXPOSED IN UNFINISHED AREAS.
- D. SMOKE DETECTORS SHALL NOT BE INSTALLED PRIOR TO THE SYSTEM PROGRAMMING AND TEST PERIOD. IF CONSTRUCTION IS ONGOING DURING THIS PERIOD, MEASURES SHALL BE TAKEN TO PROTECT SMOKE DETECTORS FROM CONTAMINATION AND PHYSICAL DAMAGE.
- E. ALL FIRE DETECTION AND ALARM SYSTEM DEVICES, CONTROL PANELS AND REMOTE ANNUNCIATORS SHALL BE FLUSH MOUNTED WHEN LOCATED IN FINISHED AREAS AND MAY BE SURFACE MOUNTED WHEN LOCATED IN UNFINISHED AREAS.
- F. FIELD CHARGING POWER SUPPLY CABINETS SHALL BE LOCATED IN ACCESSIBLE LOCATIONS IN JANITORIAL, MECHANICAL, ELECTRICAL, OR OTHER UTILITY SPACES OUT OF VIEW OF NORMAL BUILDING OCCUPANTS. PROVIDE 20 AMPERE 120 VAC POWER TO EACH REQUIRED CABINET VIA A DEDICATED CIRCUIT. PROVIDE BRANCH CIRCUIT BREAKER WITH A RED HANDLE AND A LOCK-ON DEVICE TO PREVENT SHUT-OFF, AND LABEL "FIRE ALARM CIRCUIT."
- G. VERIFY SOUNDER TONE PATTERN WITH AHJ PRIOR TO INSTALLATION.
- H. PROVIDE THE SERVICE OF A COMPETENT, FACTORY-TRAINED ENGINEER OR TECHNICIAN AUTHORIZED BY THE MANUFACTURER OF THE FIRE ALARM EQUIPMENT TO TECHNICALLY SUPERVISE AND PARTICIPATE DURING ALL OF THE ADJUSTMENTS AND TESTS FOR THE SYSTEM. ALL TESTING SHALL BE IN ACCORDANCE WITH NFPA 72, CHAPTER 7.

TEST

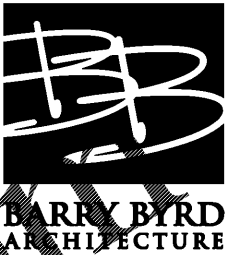
- 1. BEFORE ENERGIZING THE CABLES AND WIRES, CHECK FOR CORRECT CONNECTIONS AND TEST FOR SHORT CIRCUITS, GROUND FAULTS, CONTINUITY, AND INSULATION.
- 2. CLOSE EACH SPRINKLER SYSTEM FLOW VALVE AND VERIFY PROPER SUPERVISORY ALARM AT THE FACP.
- 3. OPEN INITIATING DEVICE CIRCUITS AND VERIFY THAT THE TROUBLE SIGNAL ACTUATES.
- 4. OPEN AND SHORT SIGNALING LINE CIRCUITS AND VERIFY THAT THE TROUBLE SIGNAL ACTUATES.
- 5. OPEN AND SHORT NOTIFICATION APPLIANCE CIRCUITS AND VERIFY THAT TROUBLE SIGNAL ACTUATES.
- 6. GROUND ALL CIRCUITS AND VERIFY RESPONSE OF TROUBLE SIGNALS.
- 7. CHECK PRESENCE AND AUDIBILITY OF TONE AT ALL ALARM NOTIFICATION DEVICES.
- 8. CHECK INSTALLATION, SUPERVISION, AND OPERATION OF ALL INTELLIGENT SMOKE DETECTORS USING THE WALK TEST.
- 9. EACH OF THE ALARM CONDITIONS THAT THE SYSTEM IS REQUIRED TO DETECT SHOULD BE INTRODUCED ON THE SYSTEM. VERIFY THE PROPER RECEIPT AND THE PROPER PROCESSING OF THE SIGNAL AT THE FACP AND THE CORRECT ACTIVATION OF THE CONTROL POINTS.
- 10. WHEN THE SYSTEM IS EQUIPPED WITH OPTIONAL FEATURES, THE MANUFACTURER'S MANUAL SHOULD BE CONSULTED TO DETERMINE THE PROPER TESTING PROCEDURES. THIS IS INTENDED TO ADDRESS SUCH ITEMS AS VERIFYING CONTROLS PERFORMED BY INDIVIDUALLY ADDRESSED OR GROUPED DEVICES, SENSITIVITY MONITORING, VERIFICATION FUNCTIONALITY AND SIMILAR.

FINAL INSPECTION

- A. AT THE FINAL INSPECTION A AUTHORIZED REPRESENTATIVE OF THE MANUFACTURER OF THE MAJOR EQUIPMENT SHALL DEMONSTRATE THAT THE SYSTEMS FUNCTION PROPERLY IN EVERY RESPECT.

INSTRUCTION

- A. PROVIDE INSTRUCTION AS REQUIRED FOR OPERATING THE SYSTEM. HANDS-ON DEMONSTRATIONS OF THE OPERATION OF ALL SYSTEM COMPONENTS AND THE ENTIRE SYSTEM INCLUDING PROGRAM CHANGES AND FUNCTIONS SHALL BE PROVIDED.
 - B. THE CONTRACTOR AND/OR THE SYSTEMS MANUFACTURER'S AUTHORIZED REPRESENTATIVES SHALL PROVIDE A TYPED "SEQUENCE OF OPERATION."
 - C. ALL REQUIRED DOCUMENTATION REGARDING THE DESIGN OF FIRE DETECTION, ALARM, AND COMMUNICATIONS SYSTEMS AND THE PROCEDURES FOR MAINTENANCE, INSPECTION, AND TESTING OF FIRE DETECTION, ALARM, AND COMMUNICATIONS SYSTEMS SHALL BE MAINTAINED AT AN APPROVED, SECURED LOCATION FOR THE LIFE OF THE SYSTEM.
- MONITORING**
- A. INCLUDE IN THE BID PRICE A ONE-YEAR MONITORING CONTRACT WITH A UL LISTED MONITORING SERVICE ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION. FURNISH ALL DOCUMENTATION REQUIRED FOR THE OWNER TO TRANSFER THE MONITORING CONTRACT TO THEIR ACCOUNT PRIOR TO THE EXPIRATION OF THE CONTRACT.



**Barry Byrd
ARCHITECTURE**

P.O. Box 5482
Knoxville, TN 37928
(865) 687-6500

Seal:



THIS DRAWING IS THE PROPERTY OF BARRY BYRD ARCHITECTURE. ANY USE OR REPRODUCTION IN PART OR IN WHOLE IS PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF BARRY BYRD ARCHITECTURE.

Project Name:
GERMANTOWN2

Drawn By:
MWE

Revisions:

No.	DATE	DESCRIPTION

Project Title:

**RETAIL
SPACE**

Poplar Avenue &
Exeter Road

Location:
Germantown, TN

Sheet Contents:
Electrical
Specifications

Date:
November 11, 2016

Sheet Number:
E-216