

FIRE ALARM SYSTEM

SCOPE AND RELATED DOCUMENTS:

- A. THE WORK COVERED BY THIS SECTION OF THE SPECIFICATIONS INCLUDES THE FURNISHING OF ALL LABOR, EQUIPMENT, MATERIALS, AND PERFORMANCE OF ALL OPERATIONS ASSOCIATED WITH THE INSTALLATION OF THE FIRE ALARM SYSTEM AS SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED.
- B. THE REQUIREMENTS OF THE CONDITIONS OF THE CONTRACT, SUPPLEMENTARY CONDITIONS, AND GENERAL REQUIREMENTS APPLY TO THE WORK SPECIFIED IN THIS SECTION.
- C. THE COMPLETE INSTALLATION SHALL CONFORM TO THE APPLICABLE SECTIONS OF NFPA-72, NFPA 71, LOCAL CODE REQUIREMENTS, AND NATIONAL ELECTRICAL CODE WITH PARTICULAR ATTENTION TO ARTICLE 760.
- D. THE WORK COVERED BY THIS SECTION OF THE SPECIFICATIONS SHALL BE COORDINATED WITH THE RELATED WORK AS SPECIFIED ELSEWHERE UNDER THE PROJECT SPECIFICATIONS.

GENERAL:

- A. FURNISH AND INSTALL A COMPLETE FIRE ALARM SYSTEM AS DESCRIBED HEREIN AND AS SHOWN ON THE PLANS, TO BE WIRED, CONNECTED, AND LEFT IN FIRST CLASS OPERATING CONDITION. INCLUDE SUFFICIENT CONTROL PANEL(S), ANNUNCIATOR(S), MANUAL STATIONS, AUTOMATIC FIRE DETECTORS, SMOKE DETECTORS, ALARM INDICATING APPLIANCES, WIRING, TERMINATIONS, ELECTRICAL BOXES, AND ALL OTHER NECESSARY MATERIAL FOR A COMPLETE OPERATING SYSTEM.
 - 1. THE FIRE ALARM SYSTEM SHALL ALLOW FOR LOADING AND EDITING SPECIAL INSTRUCTIONS AND OPERATING SEQUENCES AS REQUIRED. THE SYSTEM SHALL BE CAPABLE OF ON-SITE PROGRAMMING TO ACCOMMODATE SYSTEM EXPANSION AND FACILITATE CHANGES IN OPERATION. ALL SOFTWARE OPERATIONS SHALL BE STORED IN A NON-VOLATILE PROGRAMMABLE MEMORY WITHIN THE FIRE ALARM CONTROL PANEL. LOSS OF PRIMARY AND SECONDARY POWER SHALL NOT ERASE THE INSTRUCTIONS STORED IN MEMORY.
 - 2. FULL FLEXIBILITY FOR SELECTIVE INPUT/OUTPUT CONTROL FUNCTIONS BASED ON BOOLEAN "AND-ING," "OR-ING," "NOT-ING," TIMING, AND SPECIAL CODED OPERATIONS SHALL ALSO BE INCORPORATED IN THE RESIDENT SOFTWARE PROGRAMMING OF THE SYSTEM.
- B. RESIDENT SOFTWARE SHALL ALLOW FOR FULL CONFIGURATION OF INITIATING CIRCUITS SO THAT ADDITIONAL HARDWARE SHALL NOT BE NECESSARY TO ACCOMMODATE CHANGES IN, FOR INSTANCE, SENSING OF NORMALLY OPEN CONTACT DEVICES TO SENSING OF NORMALLY CLOSED CONTACT DEVICES, OR FROM SENSING OF NORMALLY OPEN CONTACT DEVICES TO SENSING A COMBINATION OF CURRENT LIMITED AND NON-CURRENT LIMITED DEVICES ON THE SAME CIRCUIT AND BEING ABLE TO DIFFERENTIATE BETWEEN THE TWO, OR CHANGING FROM A NON-VERIFICATION CIRCUIT TO A VERIFICATION CIRCUIT OR VICE-VERSA.
- C. RESIDENT SOFTWARE SHALL ALSO ALLOW FOR CONFIGURATION OF INDICATING APPLIANCE AND CONTROL CIRCUITS SO THAT ADDITIONAL HARDWARE SHALL NOT BE NECESSARY TO ACCOMMODATE CHANGES IN, FOR INSTANCE, A NON-CODED INDICATING APPLIANCE CIRCUIT TO A CODED CIRCUIT, OR FROM A SLOW MARCH TIME (20 BPM) TO A FAST MARCH TIME (120 BPM).
- D. THE SYSTEM SHALL HAVE THE CAPABILITY OF RECALLING ALARMS AND TROUBLE CONDITIONS IN CHRONOLOGICAL ORDER FOR THE PURPOSE OF RECREATING AN EVENT HISTORY.
- E. ALL PANELS AND PERIPHERAL DEVICES SHALL BE THE STANDARD PRODUCT OF A SINGLE MANUFACTURER AND SHALL DISPLAY THE MANUFACTURER'S NAME ON EACH COMPONENT. THE CATALOG NUMBERS SPECIFIED UNDER THIS SECTION ARE THOSE OF SIMPLEX TIME RECORDER COMPANY AND CONSTITUTE THE TYPE, PRODUCT QUALITY, MATERIAL, AND DESIRED OPERATING FEATURES.

QUALITY ASSURANCE:

- A. EACH AND ALL ITEMS OF THE FIRE ALARM SYSTEM SHALL BE LISTED AS A PRODUCT OF A SINGLE FIRE ALARM SYSTEM MANUFACTURER UNDER THE APPROPRIATE CATEGORY BY UNDERWRITERS' LABORATORIES, INC. (UL), AND SHALL BEAR THE UL LABEL. ALL CONTROL EQUIPMENT SHALL BE LISTED UNDER UL CATEGORY U0JZ AS A SINGLE CONTROL UNIT. PARTIAL LISTING SHALL NOT BE ACCEPTABLE.
- B. ALL CONTROL EQUIPMENT MUST HAVE TRANSIENT PROTECTION TO COMPLY WITH UL864 REQUIREMENTS.
- C. WHERE FIRE ALARM CIRCUITS LEAVE THE BUILDING, ADDITIONAL TRANSIENT PROTECTION MUST BE PROVIDED FOR EACH CIRCUIT. DEVICES MUST BE UL LISTED UNDER STANDARD 497B, ISOLATED LOOP CIRCUIT PROTECTORS.
- D. IN ADDITION TO THE UL-U0JZ REQUIREMENT MENTIONED ABOVE, THE SYSTEM CONTROLS SHALL BE UL LISTED FOR POWER LIMITED APPLICATIONS AND ALL CIRCUITS MUST BE MARKED IN ACCORDANCE WITH NEC ARTICLE 780-23.

SUPERVISION:

- A. THE SYSTEM SHALL BE 100 ADDRESSABLE STYLE 4 SYSTEM. THE ALARM ACTIVATION OF ANY INITIATION CIRCUIT SHALL NOT PREVENT THE SUBSEQUENT ALARM OPERATION OF ANY OTHER INITIATION CIRCUIT.
- B. THERE SHALL BE SUPERVISORY SERVICE INITIATION DEVICE CIRCUITS FOR CONNECTION OF ALL SPRINKLER VALVE SUPERVISORY (TAMPER). DEVICE ACTIVATION SHALL CAUSE A SUPERVISORY ALARM AT THE CONTROL PANEL.
- C. THERE SHALL BE INDEPENDENTLY SUPERVISED AND INDEPENDENTLY FUSED INDICATING APPLIANCE CIRCUITS FOR ALARM HORNS AND FLASHING ALARM LAMPS. DISARRANGEMENT CONDITIONS OF ANY CIRCUIT SHALL NOT AFFECT THE OPERATION OF OTHER CIRCUITS.
- D. AUXILIARY MANUAL CONTROLS SHALL BE SUPERVISED SO THAT AN "OFF NORMAL" POSITION OF ANY SWITCH SHALL CAUSE AN "OFF NORMAL" SYSTEM TROUBLE.
- E. EACH INDEPENDENTLY SUPERVISED CIRCUIT SHALL INCLUDE A DISCRETE LCD READOUT TO INDICATE DISARRANGEMENT CONDITIONS PER CIRCUIT.
- F. THE INCOMING POWER TO THE SYSTEM SHALL BE SUPERVISED SO THAT A POWER FAILURE MUST BE AUDIBLY AND VISUALLY INDICATED AT THE CONTROL PANEL AND THE REMOTE ANNUNCIATOR. A GREEN "POWER ON" LED SHALL BE DISPLAYED CONTINUOUSLY WHILE INCOMING POWER IS PRESENT.
- G. THE SYSTEM BATTERIES SHALL BE SUPERVISED SO THAT A BATTERY WEAR CONDITION OR DISCONNECTION OF THE BATTERY SHALL AUDIBLY AND VISUALLY INDICATE AT THE CONTROL PANEL AND THE REMOTE ANNUNCIATOR.
- H. THE SYSTEM MODULES SHALL BE ELECTRICALLY SUPERVISED FOR MODULE PLACEMENT. SHOULD A MODULE BECOME DISCONNECTED, THE SYSTEM TROUBLE INDICATOR SHALL ILLUMINATE AND THE AUDIBLE TROUBLE SIGNAL SHALL SOUND.
- I. THE SYSTEM SHALL HAVE PROVISIONS FOR DISARMING AND ENROLLING ALL CIRCUITS INDIVIDUALLY FOR MAINTENANCE OR TESTING PURPOSES.
- J. WIRING OF HARDWired NON-SERVICE REMOTE ANNUNCIATOR SHALL BE SUPERVISED FOR OPEN AND SHORT CONDITIONS. A SERVICE ANNUNCIATOR TROUBLE LCD READOUT MUST BE PROVIDED. THIS SHALL ILLUMINATE AND AUDIBLE TROUBLE SIGNAL SOUND AT THE CONTROL PANEL UPON DETECTION OF AN OPEN OR GROUND CONDITION.
- K. THERE SHALL BE INDEPENDENT SUPERVISION FOR OPENS OF THE AIR HANDLING ON/OFF/AUTO SWITCHES. CONTROL OUTPUT WIRING, A DISCRETE TROUBLE LCD READOUT PER OUTPUT CIRCUIT MUST BE PROVIDED FOR INDICATION. A GROUND CONDITION OF THE AIR HANDLING CONTROL OUTPUT WIRING SHALL INDICATE A COMMON GROUND TROUBLE ON THE CONTROL PANEL.

OPERATION:

- A. THE SYSTEM ALARM OPERATION SUBSEQUENT TO THE ALARM ACTIVATION OF ANY MANUAL STATION, AUTOMATIC DETECTION DEVICE, OR SPRINKLER FLOW SWITCH SHALL BE AS FOLLOWS:
 1. ALL AUDIBLE ALARM INDICATING APPLIANCES SHALL SOUND A CONTINUOUS FIRE ALARM SIGNAL UNTIL SILENCED BY THE ALARM SILENCE SWITCH AT THE CONTROL PANEL AT THE REMOTE ANNUNCIATOR.
 2. ALL VISIBLE ALARM INDICATING APPLIANCES SHALL FLASH CONTINUOUSLY UNTIL SYSTEM IS RESET.
 3. ALARM INDICATING APPLIANCES SHALL OPERATE SELECTIVELY BY ZONE.
 4. THE AUDIBLE ALARMS SHALL BE AUTOMATICALLY SILENCED AFTER 2 MINUTES OF ALARM OPERATION.
 5. ANY SUBSEQUENT ZONE ALARM SHALL REACTIVATE THE ALARM INDICATING APPLIANCES.
 6. ALL DOORS NORMALLY HELD OPEN BY DOOR CONTROL DEVICES SHALL RELEASE AFTER A 5-SECOND TIME DELAY.
 7. A SUPERVISED SIGNAL TO NOTIFY THE LOCAL FIRE DEPARTMENT SHALL BE ACTIVATED.
 8. THE MECHANICAL CONTROLS SHALL ACTIVATE THE AIR HANDLING SYSTEMS IN ACCORDANCE WITH NFPA 90.
- B. UPON RESET OF THE FIRE ALARM CONTROL PANEL AIR HANDLING UNITS SHALL SEQUENTIALLY START UP TO MINIMIZE POWER DEMAND.
- C. THE ALARM SHALL BE DISPLAYED ON AN 80 CHARACTER LCD DISPLAY. THE TOP LINE OF 40 CHARACTERS SHALL BE THE POINT LABEL AND THE SECOND LINE SHALL BE THE DEVICE TYPE IDENTIFIER. THE SYSTEM ALARM LED SHALL FLASH ON THE CONTROL PANEL AND THE REMOTE ANNUNCIATOR UNTIL THE ALARM HAS BEEN ACKNOWLEDGED. ONCE ACKNOWLEDGED, THIS SAME LED SHALL LATCH ON. A SUBSEQUENT ALARM RECEIVED FROM ANOTHER ZONE SHALL FLASH THE SYSTEM ALARM LED ON THE CONTROL PANEL AND REMOTE ANNUNCIATOR. THE LCD DISPLAY SHALL SHOW THE NEW ALARM INFORMATION.
- D. A PULSING ALARM TONE SHALL OCCUR WITHIN THE CONTROL PANEL AND THE REMOTE ANNUNCIATOR UNTIL THE EVENT HAS BEEN ACKNOWLEDGED.
- E. THE ACTIVATION OF ANY SYSTEM SMOKE DETECTOR SHALL INITIATE AN ALARM VERIFICATION OPERATION WHEREBY THE PANEL WILL RESET THE ACTIVATED DETECTOR AND WAIT FOR A SECOND ALARM ACTIVATION. IF, WITHIN ONE (1) MINUTE AFTER RESETTING, A SECOND ALARM IS REPORTED FROM THE SAME OR ANY OTHER SMOKE DETECTOR, THE SYSTEM SHALL PROCESS THE ALARM AS DESCRIBED PREVIOUSLY. IF NO SECOND ALARM OCCURS WITHIN ONE MINUTE, THE SYSTEM SHALL RETURN TO NORMAL OPERATION. THE ALARM VERIFICATION SHALL OPERATE ONLY ON SMOKE DETECTOR ALARMS. OTHER ACTIVATED INITIATING DEVICES SHALL BE PROCESSED IMMEDIATELY. THE ALARM VERIFICATION OPERATION SHALL BE SELECTABLE BY ZONE.
 1. THE CONTROL PANEL SHALL HAVE THE CAPABILITY TO DISPLAY THE NUMBER OF TIMES THAT A ZONE HAS GONE INTO A VERIFICATION MODE. SHOULD THIS SMOKE VERIFICATION TALLY REACH A PRE-PROGRAMMED NUMBER, A TROUBLE CONDITION SHALL OCCUR.
 2. ALARM VERIFICATION ZONES SHALL BE ABLE TO BE DIVIDED INTO EIGHT SEPARATE GROUPS WHEREBY ONLY VERIFICATION ZONES FROM THE SAME GROUP WILL CAUSE THE FIRST ACTIVATION AND CAUSE THE ALARM SEQUENCE TO OCCUR.
- F. THE CONTROL PANEL SHALL HAVE A DEDICATED SUPERVISORY SERVICE LED AND A DEDICATED SUPERVISORY SERVICE ACKNOWLEDGE SWITCH.
 1. THE ACTIVATION OF ANY STANDPIPE OR SPRINKLER VALVE SUPERVISORY (TAMPER) SWITCH SHALL ACTIVATE THE SYSTEM SUPERVISORY SERVICE AUDIBLE SIGNAL AND ILLUMINATE THE LED AT THE CONTROL PANEL AND THE REMOTE ANNUNCIATOR. DIFFERENTIATION BETWEEN VALVE TAMPER ACTIVATION AND OPENS AND/OR GROUNDS ON THE INITIATION CIRCUIT WIRING SHALL BE PROVIDED.
 2. PRESSING THE SUPERVISORY SERVICE ACKNOWLEDGE KEY WILL SILENCE THE SUPERVISORY AUDIBLE SIGNAL WHILE MAINTAINING THE SUPERVISORY SERVICE LED "ON" INDICATING THE OFF-NORMAL CONDITION.
 3. RESTORING THE VALVE TO THE NORMAL POSITION SHALL CAUSE THE SUPERVISORY SERVICE LED TO EXTINGUISH, INDICATING RESTORATION TO NORMAL.
- G. THE ALARM ACTIVATION BY EITHER A MANUAL OR AN ELECTRICALLY-OPERATED CODED STATION SHALL PULSE THE ALARM INDICATING APPLIANCE TO FOLLOW THAT CODE. THE CODED INPUT SIGNAL SHALL TAKE PRIORITY OVER ALL OTHER INPUT SIGNALS. ALL OTHER ALARM INPUTS SHALL BE PROCESSED ACCORDINGLY AFTER CODING IS COMPLETED. IF PNIS CODE IS INTERRUPTED, IT MUST BE RESTARTED AND COMPLETED IN ITS ENTIRETY WITHOUT MISSING ANY PORTION OF THE CODE. ACTIVATION OF CONTROL CIRCUITS FOR DOOR RELEASE AND AIR HANDLING SYSTEM SHALL NOT BE DELAYED.
- H. A MANUAL EVACUATION (DRILL) SWITCH SHALL BE PROVIDED TO OPERATE THE ALARM INDICATING APPLIANCES WITHOUT USING OTHER CONTROL CIRCUITS TO BE ACTIVATED. HOWEVER, SHOULD A TRUE ALARM OCCUR, ALL ALARM FUNCTIONS WOULD OCCUR AS DESCRIBED PREVIOUSLY.
- I. ACTIVATION OF AN AUXILIARY BYPASS SWITCH SHALL OVERRIDE THE SELECTED AUTOMATIC FUNCTIONS.
- J. THE SYSTEM SHALL HAVE A SINGLE KEY THAT WILL ALLOW THE OPERATOR TO DISPLAY ALL ALARMS, TROUBLES, AND SUPERVISORY SERVICE CONDITIONS INCLUDING THE TIME OF EACH OCCURRENCE.
- K. THE ACTIVATION OF THE "ENABLE" TEST MODE AT THE CONTROL PANEL SHALL ACTIVATE THE "WALK TEST" MODE OF THE SYSTEM WHICH SHALL CAUSE THE FOLLOWING TO OCCUR:
 1. THE CITY CIRCUIT CONNECTION SHALL BE BYPASSED.
 2. CONTROL RELAY FUNCTIONS SHALL BE BYPASSED.
 3. THE CONTROL PANEL SHALL SHOW A SINGLE CONDITION.
 4. THE ALARM ACTIVATION OF ANY INITIATION DEVICE SHALL CAUSE THE AUDIBLE SIGNALS TO ACTIVATE FOR TWO SECONDS.
 5. THE PANEL SHALL AUTOMATICALLY RESET ITSELF AFTER SIGNALING IS COMPLETE.
 6. A MOMENTARY OPENING OF AN INITIATING OR INDICATING APPLIANCE CIRCUIT WIRING SHALL CAUSE THE AUDIBLE SIGNALS TO SOUND FOR 4 SECONDS INDICATING A TROUBLE CONDITION.
 7. THE SYSTEM SHALL HAVE THE CAPACITY OF A B DISTINCTIVE WALK TEST GROUPS SUCH THAT ONLY A PORTION OF THE SYSTEM NEED BE DISABLED DURING TESTING.

POWER REQUIREMENTS:

- A. THE CONTROL PANEL SHALL RECEIVE 120 VAC POWER (AS NOTED ON THE PLANS) VIA A DEDICATED FUSED DISCONNECT CIRCUIT.
- B. THE SYSTEM SHALL BE PROVIDED WITH SUFFICIENT BATTERY CAPACITY TO OPERATE THE ENTIRE SYSTEM UPON LOSS OF NORMAL 120 VAC POWER IN A NORMAL SUPERVISORY MODE FOR A PERIOD OF FOUR (4) HOURS WITH 15 MINUTES OF ALARM OPERATION AT THE END OF THIS PERIOD. THE SYSTEM SHALL AUTOMATICALLY TRANSFER TO THE STANDBY BATTERIES UPON POWER FAILURE. ALL BATTERY CHARGING AND RECHARGING OPERATIONS SHALL BE AUTOMATIC.
- C. ALL EXTERNAL CIRCUITS REQUIRING SYSTEM OPERATING POWER SHALL BE 24 VDC AND SHALL BE INDIVIDUALLY FUSED AT THE CONTROL PANEL.

FIRE ALARM CONTROL PANEL:

- A. CONTROL PANEL CONSTRUCTION SHALL BE MODULAR WITH SOLID-STATE, MICROPROCESSOR-BASED ELECTRONICS. IT SHALL DISPLAY ONLY THOSE PRIMARY CONTROLS AND DISPLAYS ESSENTIAL TO OPERATION DURING A FIRE ALARM CONDITION. KEYBOARDS OR KEYPADS SHALL NOT BE REQUIRED TO OPERATE THE SYSTEM DURING FIRE ALARM CONDITIONS.
 1. A LOCAL AUDIBLE DEVICE SHALL SOUND DURING ALARM, TROUBLE, OR SUPERVISORY CONDITIONS. THIS AUDIBLE DEVICE SHALL SOUND DIFFERENTLY DURING EACH CONDITION TO DISTINGUISH ONE CONDITION FROM ANOTHER WITHOUT HAVING TO VIEW THE PANEL. THIS AUDIBLE DEVICE SHALL ALSO SOUND DURING EACH KEYPRESS TO PROVIDE AN AUDIBLE FEEDBACK TO ENSURE THAT THE KEY HAS BEEN PRESSED PROPERLY.
- B. THE FOLLOWING PRIMARY CONTROLS SHALL BE VISIBLE THROUGH A FRONT ACCESS PANEL:
 1. EIGHTY CHARACTER LIQUID CRYSTAL DISPLAY.
 2. INDIVIDUAL RED SYSTEM ALARM LED.
 3. INDIVIDUAL YELLOW SUPERVISORY SERVICE LED.
 4. INDIVIDUAL YELLOW TROUBLE LED.
 5. GREEN "POWER ON" LED.
 6. ALARM ACKNOWLEDGE KEY.
 7. SUPERVISORY ACKNOWLEDGE KEY.
 8. TROUBLE ACKNOWLEDGE KEY.
 9. ALARM SILENCE KEY.
 10. SYSTEM RESET KEY.
 11. INDIVIDUAL RED PRIORITY 2 ALARM LED.
 12. YELLOW SIGNALS SILENCED LED.
 13. PRIORITY 2 ALARM ACKNOWLEDGE KEY.
- C. THE FOLLOWING SECONDARY CONTROL SWITCHES AND LEDS SHALL BE AVAILABLE BEHIND AN ACCESS DOOR:
 1. CITY DISCONNECT/SWITCH.
 2. MANUAL EVACUATION (DRILL).
 3. DOOR HOLDER RELEASE BYPASS.
 4. FUTURE.
- D. THE CONTROL PANEL SHALL PROVIDE THE FOLLOWING:
 1. SETTING OF TIME AND DATE.
 2. LED TESTING.
 3. ALARM, TROUBLE, AND ABNORMAL CONDITION LISTING.
 4. ENABLING AND DISABLING OF EACH MONITOR POINT SEPARATELY.
 5. ACTIVATION AND DEACTIVATION OF EACH CONTROL POINT SEPARATELY.
 6. CHANGING OPERATOR ACCESS LEVELS.
 7. WALK TEST ENABLE.
 8. RUNNING DIAGNOSTIC FUNCTIONS.
 9. DISPLAYING SOFTWARE REVISION LEVEL.
 10. DISPLAYING HISTORICAL LOGS.
 11. DISPLAYING CARD STATUS.
 12. POINT LISTING.
- E. FOR MAINTENANCE PURPOSES, THE FOLLOWING LISTS SHALL BE AVAILABLE FROM THE POINT LISTS MENU:
 1. ALL POINTS LIST BY ADDRESS.
 2. MONITOR POINT LIST.
 3. SIGNALLING AND DISABLING OF EACH MONITOR POINT SEPARATELY.
 4. AUXILIARY CONTROL LIST.
 5. FEEDBACK POINT LIST.
 6. PSEUDO POINT LIST.
 7. LED/SWITCH STATUS LIST.
- F. SCROLLING THROUGH MENU OPTIONS MUST BE ACCOMPLISHED IN A SELF-DIRECTING MANNER IN WHICH PROGRAMMING MESSAGES DIRECT THE USER. THESE CONTROLS SHALL BE LOCATED WITHIN AN ACCESS DOOR.
- G. PRIMARY KEYS, LEDs, AND LCD DISPLAY:
 1. THE CONTROL PANEL SHALL HAVE A 2 LINE X 80 CHARACTER LIQUID CRYSTAL DISPLAY WHICH SHALL BE BACKLIT FOR ENHANCED READABILITY. SO AS TO CONSERVE BATTERY AND BATTERY POWER, IT SHALL NOT BE LIT DURING AN ACTIVE MAINTENANCE OR ALARM CONDITION OCCURS OR THERE IS KEYPAD ACTIVATION.
 2. THE DISPLAY SHALL SUPPORT BOTH UPPER AND LOWER CASE LETTERS. LOWERCASE LETTERS SHALL BE USED FOR SOFTKEY TITLES AND PROMPTING THE USER. UPPERCASE LETTERS SHALL BE USED FOR SYSTEM STATUS INFORMATION. THE ADDRESS INDICATOR SHALL BE VISIBLE WHEN ENTERING INFORMATION.

SYSTEM PANEL OPERATION AND CAPABILITIES:

- A. UNDER NORMAL CONDITION, THE FRONT PANEL SHALL DISPLAY A "SYSTEM IS NORMAL" MESSAGE AND THE CURRENT TIME AND DATE.
- B. SHOULD AN ABNORMAL CONDITION BE DETECTED, THE APPROPRIATE LED (ALARM, SUPERVISORY, OR TROUBLE) SHALL FLASH. THE PANEL AUDIBLE SIGNAL SHALL PULSE FOR ALARM CONDITIONS AND SOUND STEADY FOR TROUBLE AND SUPERVISORY CONDITIONS.
- C. FIRE ALARM CONTROL SYSTEM NETWORK:
 1. FIRE ALARM CONTROL PANEL SHALL OPERATE AS A PROPRIETARY LOCAL SYSTEM WITH DATA COMMUNICATION TO A HIGHER ORDER CENTRAL PROCESSING UNIT (CPU).
 2. THE CPU SHALL MONITOR ALL ALARMS AND TROUBLES OF EACH FIRE ALARM CONTROL PANEL.
 3. THE CPU SHALL CONTROL EACH FIRE ALARM CONTROL PANEL AS LISTED IN THIS SPECIFICATION.
 4. ALL DATA COMMUNICATION WIRING BETWEEN THE CPU AND FIRE ALARM CONTROL PANEL SHALL BE SUPERVISED FOR OPENS, SHORTS, AND GROUNDS.
- D. TWO METHODS OF ACKNOWLEDGEMENT FOR EACH ABNORMAL CONDITION SHALL BE PROVIDED. ONE MAY BE CHOSEN DEPENDING ON THE NFPA REQUIREMENTS.
 1. FOR NFPA 72D REQUIREMENTS: PRESSING THE APPROPRIATE ACKNOWLEDGE BUTTON SHALL DISPLAY THE FIRST UNACKNOWLEDGED CONDITION IN THE APPROPRIATE LIST (EITHER ALARM, SUPERVISORY, OR TROUBLE), AND REQUIRE ANOTHER ACKNOWLEDGE BUTTON PRESS TO ACKNOWLEDGE ONLY THE DISPLAYED POINT.
 2. FOR NFPA 72A, B, OR C REQUIREMENTS: PRESSING THE APPROPRIATE ACKNOWLEDGE BUTTON SHALL GLOBALLY ACKNOWLEDGE EVERY POINT IN THE LIST.
- E. EQUIPMENT ENCLOSURES: PROVIDE CABINETS OF SUFFICIENT SIZE TO ACCOMMODATE THE FOREMENTIONED EQUIPMENT. CABINET SHALL BE EQUIPPED WITH LOCKS AND TRANSPARENT DOOR PANEL PROVIDING FREEDOM FROM TAMPERING YET ALLOWING FULL VIEW OF THE VARIOUS LIGHTS AND CONTROLS.

MULTIPLE ADDRESSABLE PERIPHERAL NETWORK (MAPNET):

- A. COMMUNICATION WITH ADDRESSABLE DEVICES. THE SYSTEM MUST PROVIDE COMMUNICATION WITH INITIATING AND CONTROL DEVICES INDIVIDUALLY. ALL OF THESE DEVICES WILL BE INDIVIDUALLY ANNUNCIATED AT THE CONTROL PANEL. ANNUNCIATION SHALL INCLUDE THE FOLLOWING CONDITIONS FOR EACH POINT:
 1. ALARM.
 2. TROUBLE.
 3. OPEN.
 4. SHORT.
 5. DEVICE MISSING/FAILED.
- B. ALL ADDRESSABLE DEVICES SHALL HAVE THE CAPABILITY OF BEING DISABLED OR ENABLED INDIVIDUALLY.
- C. UP TO 127 ADDRESSABLE DEVICES MAY BE MULTIDROPPED FROM A SINGLE PAIR OF WIRES. SYSTEMS THAT REQUIRE FACTORY REPROGRAMMING TO ADD OR DELETE DEVICES ARE UNACCEPTABLE.
- D. FORMAT: THE COMMUNICATION FORMAT MUST BE A COMPLETELY DIGITAL POLL/RESPONSE PROTOCOL TO ALLOW T-TAPPING OF THE CIRCUIT WIRING. A HIGH DEGREE OF COMMUNICATION RELIABILITY MUST BE OBTAINED BY USING PARITY DATA BIT ERROR CHECKING ROUTINES FOR ADDRESS CODES AND CHECK SUM ROUTINES FOR THE DATA TRANSMISSION PORTION OF THE PROTOCOL. SYSTEMS THAT DO NOT UTILIZE FULL DIGITAL TRANSMISSION PROTOCOL ARE NOT ACCEPTABLE.
- E. IDENTIFICATION OF ADDRESSABLE DEVICES: EACH ADDRESSABLE DEVICE MUST BE UNIQUELY IDENTIFIED BY AN ADDRESS CODE ENTERED ON EACH DEVICE AT TIME OF INSTALLATION. THE USE OF JUMPS TO SET ADDRESS WILL NOT BE ACCEPTABLE DUE TO THE POTENTIAL OF VIBRATION AND POOR CONTACT. DEVICE IDENTIFICATION SCHEMES THAT DO NOT USE UNIQUELY SET ADDRESSES BUT RELY ON ELECTRICAL POSITION ALONG THE COMMUNICATION CHANNEL ARE UNACCEPTABLE. THESE SYSTEMS CANNOT ACCOMMODATE T-TAPPING THE ADDITION OF AN ADDRESSABLE DEVICE BETWEEN EXISTING DEVICES REQUIRES REPROGRAMMING ALL EXISTING ELECTRICALLY FURTHER DEVICES. THE SYSTEM MUST VERIFY THAT PROPER TYPE DEVICE IS IN PLACE AND MATCHES THE DESIRED SOFTWARE CONFIGURATION.
- F. WIRING TYPE, DISTANCES, SURVIVABILITY, AND CONFIGURATIONS: WIRING TYPES WILL BE APPROVED BY THE EQUIPMENT MANUFACTURER. EXISTING WIRING WILL BE UTILIZED IN SOFT APPLICATIONS. THE SYSTEM SHALL ALLOW A LINE DISTANCE OF UP TO 200 FEET TO THE FURTHER ADDRESSABLE DEVICE ON A CLASS B CIRCUIT. (CLASS C CANNOT BE PROVIDED WHERE SHOWN ON THE DRAWINGS. WIRE WILL BE SO ROUTED TO MAINTAIN SUFFICIENT DISTANCE BETWEEN FORWARD AND RETURN LOOP AS CALLED FOR BY THE AUTHORITY HAVING JURISDICTION.) MINIMIZE WIRE ROUTING AND TO FACILITATE FUTURE ADDITIONS, T-TAPPING OF THE COMMUNICATIONS CHANNEL WILL BE SUPPORTED EXCEPT WHERE CLASS A WIRING IS REQUIRED.
- G. ADDRESSABLE DEVICE TYPES:
 1. GENERAL: THE SYSTEM CONTROL PANEL MUST BE CAPABLE OF COMMUNICATING WITH THE TYPES OF ADDRESSABLE DEVICES SPECIFIED BELOW. ADDRESSABLE DEVICES WILL BE LOCATED AS SHOWN ON THE DRAWINGS.
 2. TRUE/ALARM ADDRESSABLE DETECTOR HEADS -- SIMPLEX TYPE 4098-9781: ALL ADDRESSABLE SMOKE AND HEAT DETECTOR HEADS AS SPECIFIED BELOW WILL BE PLUGGABLE INTO THEIR BASES. THE BASE WILL CONTAIN ELECTRONICS THAT COMMUNICATE THE DETECTOR STATUS (NORMAL, ALARM, TROUBLE) TO THE CONTROL PANEL OVER TWO WIRES. THE SAME TWO WIRES SHALL ALSO PROVIDE POWER TO THE BATTERY DETECTOR. DETECTOR DETECTOR HEADS (SMOKE OR HEAT) MUST BE INTERCHANGEABLE. UPON REMOVAL OF THE HEAD, A TROUBLE SIGNAL WILL BE TRANSMITTED TO THE CONTROL PANEL.
 3. PHOTOELECTRIC ALARM SENSOR :
 - a. THE PHOTOELECTRIC TYPE DETECTOR SHALL BE A PLUG-IN UNIT WHICH MOUNTS TO A TWIN LOCK BASE, AND SHALL BE UL APPROVED.
 - b. THE FRONT OF THE STATION IS TO BE HINGED TO BACKPLATE ASSEMBLY AND MUST BE OPENED WITH A KEY TO RESET THE STATION. THE KEY SHALL BE COMMON WITH THE CONTROL PANELS. STATIONS WHICH USE ALLEN WRENCHES OR SPECIAL TOOLS TO RESET, WILL NOT BE ACCEPTED. THE STATION SHALL CONSIST OF HIGH IMPACT LEXAN PLASTIC, RED IN COLOR.
 - c. THE ADDRESSABLE MANUAL STATION SHALL BE CAPABLE OF FIELD PROGRAMMING OF ITS "ADDRESS" LOCATION ON AN ADDRESSABLE INITIATING CIRCUIT. THE MANUAL STATION SHALL BE FITTED WITH SCREW TERMINALS FOR FIELD WIRE ATTACHMENT.
 - d. THERE SHALL BE NO LIMIT TO THE NUMBER OF DETECTORS OR ZONE ADAPTER MODULES WHICH MAY BE ACTIVATED OR "IN ALARM" SIMULTANEOUSLY.
 - e. THE ADDRESSABLE MANUAL STATION SHALL BE UL LISTED.
 2. THERMAL DETECTOR HEADS:
 - a. ADDRESSABLE PULL STATIONS :
 1. ADDRESSABLE PULL STATIONS WILL CONTAIN ELECTRONICS THAT COMMUNICATE THE STATION'S STATUS (ALARM, NORMAL) TO THE TRANSDUCER OVER TWO WIRES WHICH ALSO PROVIDE POWER TO THE PULL STATION. THE ADDRESS WILL BE SET ON THE STATION. THEY WILL BE MANUFACTURED FROM HIGH IMPACT RED LEXAN. STATION WILL MECHANICALLY LATCH UPON OPERATION AND REMAIN SO UNTIL MANUALLY RESET BY OPENING WITH A KEY COMMON TO ALL SYSTEM LOCKS. PULL STATIONS WILL BE DOUBLE ACTION.
 2. THE FRONT OF THE STATION IS TO BE HINGED TO BACKPLATE ASSEMBLY AND MUST BE OPENED WITH A KEY TO RESET THE STATION. THE KEY SHALL BE COMMON WITH THE CONTROL PANELS. STATIONS WHICH USE ALLEN WRENCHES OR SPECIAL TOOLS TO RESET, WILL NOT BE ACCEPTED. THE STATION SHALL CONSIST OF HIGH IMPACT LEXAN PLASTIC, RED IN COLOR.
 - b. "ADDRESS" LOCATION ON AN ADDRESSABLE INITIATING CIRCUIT. THE MANUAL STATION SHALL BE FITTED WITH SCREW TERMINALS FOR FIELD WIRE ATTACHMENT.
 - d. THERE SHALL BE NO LIMIT TO THE NUMBER OF STATIONS, DETECTORS OR ZONE ADAPTER MODULES, WHICH MAY BE ACTIVATED OR "IN ALARM" SIMULTANEOUSLY.
 - e. THE ADDRESSABLE MANUAL STATION SHALL BE UL LISTED.
 3. WATER FLOW VALVE TAMPER, NON-ADDRESSABLE DETECTORS, AND FOR CONTROL OF EVACUATION INDICATING APPLIANCES AND AHU SYSTEMS:
 - a. ADDRESSABLE DEVICE SUPERVISION:
 1. ALL DEVICES SHALL BE SUPERVISED FOR TROUBLE CONDITIONS. THE SYSTEM CONTROL PANEL WILL BE CAPABLE OF DISPLAYING THE TYPE OF TROUBLE CONDITION (OPEN, SHORT, DEVICE MISSING/FAILED).
 2. SHOULD A DEVICE FAIL, IT WILL NOT HINDER THE OPERATION OF OTHER SYSTEM DEVICES.
- H. EVACUATION SIGNALS:
 1. CHIME AND FLASHING ADA STROBE: WHEELLOCK CH70-241575W-FR.
 2. HORN AND FLASHING XENON LIGHT: 4903-9219 ADA STROBE.
 3. FLASHING XENON LIGHT: 4904-9137 WITH STANDARD LETTERING WHEN WALL MOUNTED. SPECIAL LETTERING, VERTICAL ON RECTANGULAR FACES AND HORIZONTAL ON TRIANGULAR WHEN CEILING MOUNTED.
 4. WATERFLOW SWITCHES SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 15 AND CONNECTED BY THE ELECTRICAL CONTRACTOR, TO PREVENT FALSE ALARMS, THE FLOW SWITCH SHALL INCORPORATE AN ADJUSTABLE TIME DELAY MECHANISM BETWEEN THE PADDED OPERATED STEM AND THE ALARM INITIATING CONTACTS.
 5. SPRINKLER VALVE TAMPER SWITCHES SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 15 AND CONNECTED BY DIVISION 18. COVER REMOVAL SHALL BE SUPERVISED.

INSTALLATION:

- A. PROVIDE AND INSTALL THE SYSTEM IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS, ALL APPLICABLE CODES AND THE MANUFACTURER'S RECOMMENDATIONS. ALL WIRING SHALL BE INSTALLED IN CONDUIT. ALL WIRING SHALL BE INSTALLED IN STRICT COMPLIANCE WITH ALL THE PROVISIONS OF NEC ARTICLE 780 A AND C. POWER-LIMITED FIRE PROTECTIVE SIGNALING CIRCUITS OR REQUIRED WIRING MAY BE RECLASSIFIED AS NON-POWER LIMITED AND WIRED IN ACCORDANCE WITH NEC-ARTICLE 760 A AND B. UPON COMPLETION, THE CONTRACTOR SHALL SO CERTIFY IN WRITING TO THE OWNER AND GENERAL CONTRACTOR.
 1. ALL JUNCTION BOXES SHALL BE SPRAYED RED AND LABELED "FIRE ALARM." WIRING COLOR CODE SHALL BE MAINTAINED THROUGHOUT THE INSTALLATION.
- B. INSTALLATION OF EQUIPMENT AND DEVICES THAT PERTAIN TO OTHER WORK IN THE CONTRACT SHALL BE CLOSELY COORDINATED WITH THE APPROPRIATE SUBCONTRACTORS.
- C. THE CONTRACTOR SHALL CLEAN ALL DIRT AND DEBRIS FROM THE INSIDE AND THE OUTSIDE OF THE FIRE ALARM EQUIPMENT AFTER COMPLETION OF THE INSTALLATION.
- D. THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE SHALL PROVIDE ON-SITE SUPERVISION OF INSTALLATION.
- 1.02 TESTING: THE COMPLETED FIRE ALARM SYSTEM SHALL BE FULLY TESTED IN ACCORDANCE WITH NFPA-71H BY THE CONTRACTOR IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE AND THE LOCAL FIRE MARSHAL. UPON COMPLETION OF A SUCCESSFUL TEST, THE CONTRACTOR SHALL SO CERTIFY IN WRITING TO THE OWNER AND GENERAL CONTRACTOR.
- 1.03 WARRANTY:
 - a. THE CONTRACTOR SHALL WARRANT THE COMPLETED FIRE ALARM SYSTEM WIRING AND EQUIPMENT TO BE FREE FROM INHERENT MECHANICAL AND ELECTRICAL DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF THE COMPLETED AND CERTIFIED TEST OR FROM THE DATE OF FIRST BENEFICIAL USE.

RETAIL DEVELOPMENT
 POP'S WINE & SPIRITS
 2-1 764 TR A-B MCFARLAND 400 IND PARK
 MCFARLAND PKWY ALPHARETTA GA 30004

FIRE ALARM
 SPECIFICATION

PROJ. NO: 201834
 DATE:

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