

ALTIS SERENITY CLUBHOUSE

325 STREAMSIDE TERRACE,
FUQUAY-VARINA, NC 27526

New Fire Alarm System Scope of Work:

THIS SCOPE OF WORK INCLUDES THE INSTALLATION OF A NEW FIRE ALARM SYSTEM PER SIGNED AND SEALED DESIGN PROVIDED BY NC PROFESSIONAL ENGINEER ANGUS M. CLARK DATED 2/17/25. THE SYSTEM IS TO INCLUDE BUT IS NOT LIMITED TO: FIRE ALARM CONTROL UNIT, 2 REMOTE ANNUNCIATORS, 3 SMOKE DETECTORS, 2 MANUAL PULL STATIONS, 2 MONITOR MODULES, AND 2 OCCUPANT NOTIFICATION APPLIANCES. TEST AND INSPECT THE FULL SYSTEM WITH THE OWNERS REPRESENTATIVES AND THE HARTNETT COUNTY FIRE DEPARTMENT TO ENSURE PROPER FUNCTION AND OPERATION.

OCCUPANCY TYPE: A3
OCCUPANCY LOAD: 368
SQUARE FOOTAGE: 9,542 SF.
SPRINKLER SYSTEM: YES

System Test Plan	
FIRE SYSTEM TEST PLAN DOCUMENTATION (ALL SYSTEM TESTING IS PER NFPA 72 SECTION 14)	
THE FOLLOWING EQUIPMENT SHALL BE TESTED AS FOLLOWS:	
COMPONENT	FREQUENCY
FACU	ANNUALLY
REMOTE ANNUNCIATOR	ANNUALLY
SMOKE SENSOR	ANNUALLY
HEAT SENSOR	ANNUALLY
CO SENSOR	ANNUALLY
MANUAL PULL STATION	ANNUALLY
DUCT MOUNTED SMOKE SENSOR	ANNUALLY
CONTROL RELAY	ANNUALLY
MONITOR MODULE	ANNUALLY
NOTIFICATION APPLIANCE	ANNUALLY

TEST ALL ABOVE EQUIPMENT PER NFPA 72 CHAPTER 14 FOR INITIAL ACCEPTANCE, FUTURE TESTING FREQUENCY, AND METHOD OF TESTING EQUIPMENT. KEEP ALL PAPERWORK PERTAINING TO THIS PROJECT IN DOCUMENTATION CABINET.

INSTALLATION GENERAL NOTES

- NUMBERS ADJACENT TO DEVICE SYMBOLS DENOTE DEVICE CIRCUIT/ADDRESS. ALL ADDRESSABLE DEVICES INCLUDING BUT NOT LIMITED TO SMOKE DETECTORS, PULL STATIONS, INTERFACE MODULES MUST BE PROGRAMMED WITH DEVICE ADDRESS PRIOR TO INSTALLATION.
- DETECTION AND NOTIFICATION CIRCUIT POLARITY SHALL BE OBSERVED.
- AUDIBLE/VISUAL CIRCUIT WIRING IS SUPERVISED. NO PARALLEL BRANCHING (T-TAPPING) IS PERMISSIBLE UNLESS USING ADDRESSABLE NOTIFICATION APPLIANCES.
- WIRE RUNS SHOWN DIAGRAMMATICALLY. EXACT LOCATION IS TO BE DETERMINED IN THE FIELD.
- THE FIRE ALARM SYSTEM SHOWN HAS BEEN DESIGNED PER THE REQUIREMENTS OF NFPA 72, NFPA 70, IFC (SEE EXISTING CODE SUMMARY FOR EXISTING SYSTEM)
- INSTALLATION MATERIALS (I.E. CONDUIT, WIRE, FITTINGS, HANGERS, AND STANDARD BOXES) ARE NOT SUPPLIED BY FIRE ALARM PANEL SUPPLIER.
- DETECTORS SHALL NOT BE MOUNTED IN DIRECT AIR STREAM OF AIR SUPPLY OUTLETS.
- WIRING SHALL BE PER PLAN WITH RESPECT TO CONDUCTOR SIZE, TYPE, QUANTITY AND COLOR CODE. CONDUCTORS SHALL BE PERMANENTLY MARKED FOR FUTURE IDENTIFICATION.
- INSTALLING CONTRACTOR SHALL RETURN ONE SET OF ACCURATELY MARKED DRAWINGS FOR "AS BUILT" PURPOSES.
- FOR ADDITIONAL INSTALLATION INSTRUCTIONS, REFER TO CATALOG CUT SHEETS AND/OR INSTALLATION INSTRUCTIONS.
- 120vac POWER SHALL NOT BE APPLIED TO FIRE ALARM PANEL WITHOUT DIRECT SUPERVISION OF TECHNICIAN.
- ALL HORN/STROBE AND STROBE DEVICES SHALL BE MOUNTED AT A HEIGHT OF 80" A.F.F. OR 6" BELOW DROPPED CEILING, WHICHEVER IS LESS.
- ALL MANUAL PULL STATIONS SHALL BE MOUNTED AT A HEIGHT OF 48" ABOVE FINISHED FLOOR.
- SMOKE DETECTORS MOUNTED ON A WALL SHALL BE INSTALLED WITH THE TOP OF THE DETECTOR NOT LESS THAN 4" (102 mm) NOR MORE THAN 12" (305 mm) BELOW THE FINISHED CEILING.
- SMOKE DETECTORS SHALL BE INSTALLED NOT LESS THAN 1" FROM ANY FLOURESCENT LIGHT SOURCE AND 3" FROM ANY SUPPLY OR RETURN GRILLES.
- ALL ADDRESSABLE DEVICES (SMOKE DETECTORS PULL STATION, INTERFACE MODULES, ETC.) SHALL BE PROGRAMMED PRIOR TO INSTALLATION.
- STROBE CANDELA SETTINGS SHALL BE SET AS SHOWN ON DRAWINGS PRIOR TO INSTALLATION. IF CANDELA SETTING IS NOT SHOWN THEN STROBE CANDELA SHALL BE SET AT 15cd (FACTORY DEFAULT).
- EXACT LOCATION OF DUCT SMOKE DETECTORS SHALL BE COORDINATED IN THE FIELD WITH THE MECHANICAL CONTRACTOR. DUST COVERS MUST NOT BE REMOVED PRIOR TO STARTUP OF THE AIR HANDLING SYSTEM.
- SPEAKER WATTAGE TAPS SHALL BE SET AS SHOWN ON DRAWINGS PRIOR TO INSTALLATION. IF WATTAGE TAP IS NOT SHOWN THEN SPEAKERS SHALL BE TAPPED AT 1/2 WATT. SET SPEAKER VOLTAGE TO 70V.
- PER NFPA 72, DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER THE CONSTRUCTION CLEAN-UP OF ALL TRADES IS COMPLETE AND FINAL EXCEPTION WHERE REQUIRED BY THE AUTHORITY HAVING JURISDICTION FOR PROTECTION DURING CONSTRUCTION. DETECTORS THAT HAVE BEEN INSTALLED PRIOR TO FINAL CLEAN-UP BY ALL TRADES SHALL BE CLEANED OR REPLACED (IN ACCORDANCE WITH NFPA 72).
- WIRING SHALL RUN CONTINUOUS FROM FACU TO FIRST DEVICE ON A CIRCUIT AND THEN FROM DEVICE TO DEVICE WITHOUT SPLICING IN PULL BOXES OR OTHER BACK BOXES OF DIFFERENT CIRCUITS.
- ALL CABLES SHALL BE MARKED AS INDICATED ON FIRE ALARM RISER WITH A PERMANENT LABEL AT ALL DEVICES, JUNCTION BOXES AND FACU.
- THE ELECTRICAL CONTRACTOR SHALL CLEAN ALL DIRT AND DEBRIS FROM THE OUTSIDE AND INSIDE OF THE FIRE ALARM BACK BOXES AND JUNCTION BOXES AFTER COMPLETION OF THEIR INSTALLATION.
- DETECTORS MUST BE RATED FOR TEMPERATURE IN THE ENVIRONMENT IN WHICH IT IS LOCATED.
- ALL WIRING BETWEEN FLOORS SHALL BE LOCATED IN CONDUIT.

CHECKLIST FOR START UP

THE FOLLOWING IS A LIST OF CRITERIA THAT MUST BE MET PRIOR TO START UP

- MARK-UP THE SHOP DRAWINGS, SHOWING THE ACTUAL WIRE RUNS. NOTE ANY DISCREPANCIES/CHANGES BETWEEN THE ACTUAL CONDITIONS AND THE SYSTEM DRAWINGS SHOULD BE NOTED FOR INCLUSION ON THE FINAL AS-BUILT DRAWINGS OF RECORD.
- ALL DEVICES HAVE BEEN INSTALLED AND TERMINATED PROPERLY.
- IF YOUR SYSTEM IS BEING FURNISHED WITH A DEALER, (2) RJ45 PHONE JACKS MUST BE INSTALLED WITHIN 3FT. OF THE F.A.C.P. THESE PHONE LINES MUST BE CONNECTED BEFORE TO ALL BUILDING PHONE EQUIPMENT (NO 7 PINS), AND SHOULD HAVE NO DIAL-OUT RESTRICTIONS. BE SURE TO NOTE CENTRAL STATION ACCOUNT NUMBER, RECEIVER PHONE NUMBERS, CENTRAL STATION VOICE LINE NUMBER AND ALARM COMPANY PHONE NUMBER.
- ALL FIELD DEVICES, SMOKE DETECTORS, MONITOR MODULES, CONTROL MODULES, NOTIFICATION APPLIANCES BOTH VISUAL AND AUDIBLE ARE ADDRESSED AND OUTPUT SET (AS REQUIRED) AND INSTALLED.

CHECK FIELD WIRING WITH AN OHM METER:

ALL FIRE ALARM CIRCUITS SHOULD BE COMPLETED AND TESTED BEFORE THE ARRIVAL OF THE FIRE ALARM TECHNICIAN. CIRCUITS MUST BE FREE OF OPENS, SHORTS, AND GROUND FAULTS BEFORE BEING CONNECTED TO THE SYSTEM. CIRCUITS SHOULD HAVE END OF LINE RESISTORS INSTALLED BEFORE TESTING. THEM ADHERENCE TO THIS PRACTICE WILL SAVE TIME AND MONEY FOR ALL CONCERNED PARTIES. IF IT IS A NAC CIRCUIT, THE RESISTOR IS WITH THE EQUIPMENT THAT CONTROLS THAT CIRCUIT.

A GROUND FAULT IS A CONDUCTOR THAT IS CONNECTED TO GROUND. THEY CAN OCCUR FROM SKINNED INSULATION OR INTERNAL DEVICE FAILURES. FIRE ALARM SYSTEMS MONITOR BOTH THE POSITIVE AND NEGATIVE CONDUCTORS FOR SHORTS TO GROUND. SHORTS CAN BE DETECTED BY USING A CONTINUITY DETECTOR OR AN OHMMETER. SIMPLY CONNECT ONE LEAD OF YOUR METER TO A GOOD GROUND SOURCE AND THE OTHER TO THE CONDUCTOR YOU ARE TRYING TO TEST. THE METER SHOULD GIVE AN INDICATION OF AN OPEN IF THE CIRCUIT IS FREE FROM A FAULT. ALL SYSTEM FIELD WIRING MUST BE FREE OF GROUNDS AND SHORTS, BEFORE THE START UP.

- MEASURE EACH CONDUCTOR OF THE ADDRESSABLE LOOP (SLC) TO GROUND, CONDUCTOR TO CONDUCTOR, CONDUCTOR TO SHIELD, AND SHIELD TO EARTH. THE RESISTANCE SHOULD BE GREATER THAN 1 MEGA OHM. NOTE LINE TO LINE MEASUREMENTS REQUIRE ONE END OF THE PAIR TO BE SHORTED. STRAY VOLTAGES SHOULD BE LESS THAN 1 VDC/AC. RECORD THE READINGS.
- MEASURE EACH CONDUCTOR OF THE NOTIFICATION APPLIANCE CIRCUIT (NAC) TO GROUND, AND CONDUCTOR TO CONDUCTOR. THE RESISTANCE SHOULD BE GREATER THAN 1 MEGA OHM, WITHOUT THE END OF LINE RESISTOR. STRAY VOLTAGES SHOULD BE LESS THAN 1 VDC/AC. RECORD THE READINGS.
- MEASURE ACROSS THE CONDUCTORS OF A NOTIFICATION APPLIANCE CIRCUIT(NAC), YOUR READING SHOULD BE EQUIVALENT TO THE VALUE OF THE END OF LINE RESISTOR INSTALLED AT THE LAST DEVICE.

IF THE MEASUREMENTS ARE NOT WITHIN THE ACCEPTABLE VALUES, THE CIRCUIT WIRING HAS A SHORT OR AN OPEN, AND IS NOT READY FOR START UP.

SYSTEM OPERATING MATRIX

SYSTEM INPUTS	SYSTEM OUTPUTS									
	MANUAL PULL STATIONS	AREA SMOKE SENSORS	SPRINKLER WATERFLOW	SPRINKLER TAMPER VALVE	AC POWER FAIL	LOW BATTERY	OPEN CIRCUIT	SHORT CIRCUIT	NOTIFICATION	REQUIRED FIRE SAFETY CONTROLS
MANUAL PULL STATIONS	•	•	•	•	•	•	•	•	•	•
AREA SMOKE SENSORS	•	•	•	•	•	•	•	•	•	•
SPRINKLER WATERFLOW	•	•	•	•	•	•	•	•	•	•
SPRINKLER TAMPER VALVE	•	•	•	•	•	•	•	•	•	•
AC POWER FAIL	•	•	•	•	•	•	•	•	•	•
LOW BATTERY	•	•	•	•	•	•	•	•	•	•
OPEN CIRCUIT	•	•	•	•	•	•	•	•	•	•
SHORT CIRCUIT	•	•	•	•	•	•	•	•	•	•

DRAWING INDEX

FAS - 01	COVER SHEET
FAS - 02	DEVICE LAYOUT FLOOR PLAN RISER DETAIL BATTERY AND VOLTAGE DROP CALCULATIONS DEVICE LEGEND
FAS - 03	FIRE ALARM COMPONENTS WIRING DIAGRAMS

SOUND PRESSURE LEVEL

(BASED ON TABLE A.18.4.4, NFPA 72: 2019 EDITION)
AUDIBLE NOTIFICATION APPLIANCES ARE TO PROVIDE 3-PULSE TEMPORAL PATTERN EVACUATION SIGNAL
AVERAGE AMBIENT SPL = 55dBA
REQUIRED SPL = 70dBA

AVERAGE AMBIENT SOUND LEVEL ACCORDING TO LOCATION

LOCATION	AVERAGE AMBIENT SOUND LEVEL (dBA)
BUSINESS OCCUPANCIES	54
EDUCATIONAL OCCUPANCIES	45
INDUSTRIAL OCCUPANCIES	86
INSTITUTIONAL OCCUPANCIES	50
MERCANTILE OCCUPANCIES	40
MECHANICAL ROOMS	91
PIERS AND WATER SURROUNDED STRUCTURES	40
PLACES OF ASSEMBLY	80
RESIDENTIAL OCCUPANCIES	35
STORAGE OCCUPANCIES	30
THOROUGHFARES, HIGH-DENSITY URBAN	70
THOROUGHFARES, MEDIUM-DENSITY URBAN	55
THOROUGHFARES, RURAL AND SUBURBAN	40
TOWER OCCUPANCIES	35
UNDERGROUND STRUCTURES AND VEHICLES AND VESSELS	40
	50

As-Built Markup Guidelines

- = DEVICE DELETED
- = DEVICE ADDED
- = DEVICE RELOCATED

WIRE SELECTION AND REQUIREMENTS

PLENUM CABLE VS. NON-PLENUM
THE NEC RECOGNIZES 3 TYPES OF POWER LIMITED FIRE ALARM CABLEING:

- FPL - THIS IS A GENERAL USE POWER LIMITED FIRE ALARM CABLE. IT CANNOT BE USED IN A PLENUM SPACE OR FOR RISERS (CABLE BETWEEN FLOORS).
- FPLR - THIS IS A POWER LIMITED RISER RATED CABLE THAT CAN BE USED FOR GENERAL PURPOSES OR BETWEEN FLOORS. IT CANNOT BE USED IN A PLENUM SPACE.
- FPLP - THIS IS A POWER LIMITED CABLE THAT CAN BE USED IN A PLENUM, RISER, OR FOR GENERAL PURPOSES.

A PLENUM IS ANY AREA USED TO CONDUIT ENVIRONMENTAL AIR. PLENUM SPACES CAN BE DUCTWORK, THE SPACE ABOVE A DROP CEILING, OR BELOW A RAISED FLOOR. BECAUSE THESE SPACES ARE BEING USED FOR THE AIR HANDLING SYSTEM THERE ARE STRICT RULES THAT MUST BE FOLLOWED TO REDUCE THE RISK OF INTRODUCING TOXIC FUMES IN THE EVENT OF A FIRE. SMOKE FIRE ALARM CABLEING IS OFTEN INSTALLED EXPOSED, WITHOUT CONDUIT, ABOVE DROP CEILING. THE CABLEING MUST BE RATED FOR USE IN A PLENUM SPACE.

CIRCUIT MARKING
THE EQUIPMENT SHALL BE DURABLY MARKED WHERE PLAINLY VISIBLE TO INDICATE EACH CIRCUIT THAT IS A POWER-LIMITED FIRE ALARM CIRCUIT.
EXCEPTION WHERE A POWER-LIMITED CIRCUIT IS TO BE RECLASSIFIED AS A NON-POWER-LIMITED CIRCUIT.

SUPPORT OF CONDUCTORS
POWER-LIMITED FIRE ALARM CIRCUIT CONDUCTORS SHALL NOT BE STRAPPED, TAPED, OR ATTACHED BY ANY MEANS TO THE EXTERIOR OF ANY CONDUIT OR OTHER RACEWAY AS A MEANS OF SUPPORT.

WIRE ROUTING
SEPARATION FROM ELECTRIC LIGHT, POWER, CLASS 1, NPLFA, AND MEDIUM POWER NETWORK-POWERED BROADBAND COMMUNICATIONS CIRCUIT CONDUCTORS.

(A) GENERAL, POWER-LIMITED FIRE ALARM CIRCUIT CABLES AND CONDUCTORS SHALL NOT BE PLACED IN ANY CABLE, CABLE TRAY, COMPARTMENT, ENCLOSURE, MANHOLE, OUTLET BOX, DEVICE BOX, RACEWAY, OR SIMILAR FITTING WITH CONDUCTORS OF ELECTRIC LIGHT, POWER, CLASS 1, NON-POWER-LIMITED FIRE ALARM CIRCUITS, AND MEDIUM POWER NETWORK-POWERED BROADBAND COMMUNICATIONS CIRCUITS.

IN HOISTWAYS, POWER-LIMITED FIRE ALARM CIRCUIT CONDUCTORS SHALL BE INSTALLED IN RIGID METAL CONDUIT, RIGID NONMETALLIC CONDUIT, INTERMEDIATE METAL CONDUIT, LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT, OR ELECTRICAL METALLIC TUBING. FOR ELEVATORS OR SIMILAR EQUIPMENT, THESE CONDUCTORS SHALL BE PERMITTED TO BE INSTALLED.

CABLES INSTALLED IN DUCTS, PLENUMS, AND OTHER SPACES USED FOR ENVIRONMENTAL AIR SHALL BE TYPE FPLP. ABANDONED CABLES SHALL NOT BE PERMITTED TO REMAIN. TYPES FPLP, FPLR, AND FPL CABLES SHALL BE PERMITTED.

CABLES INSTALLED IN VERTICAL RUNS AND PENETRATING MORE THAN ONE FLOOR, OR CABLES INSTALLED IN VERTICAL RUNS IN A SHAFT, SHALL BE TYPE FPLR. FLOOR PENETRATIONS REQUIRING TYPE FPLR SHALL CONTAIN ONLY CABLES SUITABLE FOR RISER OR PLENUM USE. ABANDONED CABLES SHALL NOT BE PERMITTED TO REMAIN.

GENERAL REFERENCE NOTE REGARDING FPLP PER NFPA 70 (NATIONAL ELECTRIC CODE)
TYPE FPLP: TYPE FPLP POWER-LIMITED FIRE ALARM PLENUM CABLE SHALL BE LISTED AS BEING SUITABLE FOR USE IN DUCTS, PLENUMS, AND OTHER SPACES USED FOR ENVIRONMENTAL AIR AND SHALL ALSO BE LISTED AS HAVING ADEQUATE FIRE-RESISTANT AND LOW SMOKE-PRODUCING CHARACTERISTICS.
TYPE FPLR: TYPE FPLR POWER-LIMITED FIRE ALARM RISER CABLE SHALL BE LISTED AS BEING SUITABLE FOR USE IN A VERTICAL RUN IN A SHAFT OR FROM FLOOR TO FLOOR AND SHALL ALSO BE LISTED AS HAVING FIRE-RESISTANT CHARACTERISTICS CAPABLE OF PREVENTING THE SPREADING OF FIRE FROM FLOOR TO FLOOR.

INSTALLATION GUIDELINES

THE UL LISTED OPERATING TEMPERATURE RANGE FOR ALL ADDRESSABLE DEVICES (FP-11'S, TRS, PFI-11'S, ETC.) IS FROM 32°F (0°C) TO 100°F (38°C). IF A DEVICE IS SHOWN IN AN AREA WHICH MAY EXPERIENCE EXTREME COLD OR HEAT, CONTACT YOUR FIRE ALARM EQUIPMENT SUPPLIER REPRESENTATIVE.

GENERAL RULE: IF IT IS UNCOMFORTABLE FOR YOU, THE DEVICE WILL PROBABLY NOT OPERATE CORRECTLY.

NEVER ALLOW ANY FIRE ALARM EQUIPMENT TO GET WET. ONLY WEATHERPROOF NOTIFICATION APPLIANCES (HORNS, STROBES, STROBES, ETC.) MAY BE PLACED OUTSIDE.

IF EQUIPMENT DOES GET WET, CONTACT YOUR SUPPLIER PROJECT MANAGER.

DO NOT INSTALL ADDRESSABLE DEVICES UNTIL THEY HAVE BEEN PROGRAMMED.

DO NOT REMOVE RED DUST COVER(S) FROM SMOKE DETECTORS UNTIL ALL CONSTRUCTION HAS BEEN COMPLETED.

DETECTORS THAT HAVE HAD THEIR DUST COVERS REMOVED PRIOR TO THE FINAL CLEAN-UP OF ALL TRADES SHALL BE CLEANED OR REPLACED. SUPPLIERS CANNOT BE RESPONSIBLE FOR FAULTS FOUND TO BE DUST & DIRT RELATED.

ALL INITIATING DEVICES (SMOKES, MANUAL PULLS, ETC.) AND NOTIFICATION APPLIANCES (HORNS, STROBES, ETC.) MUST BE INSTALLED WITH BACKBOXES. THE EQUIPMENT SHOULD NEVER BE SUPPORTED WITH THE CIRCUIT WIRES.

ACOUSTICALLY DISTINGUISHABLE SPACES

(A) INTELLIGIBLE VOICE MESSAGE - REQUIRED PER NFPA 72 SECTION 18.4.10 - COMMON AREAS, AREA OF MEANS OF EGRESS, PUBLIC GATHERING OR MULTI-OCCUPANT OFFICES.

(B) AUDIBLE TONE - INTELLIGIBILITY NOT REQUIRED PER NFPA 72 SECTION 18.4.10 - AUDIBILITY REQUIRED PER NFPA 72 SECTION 18.4.3 - SINGLE OCCUPANT OFFICES, STORAGE ROOMS, ELECTRICAL, MECHANICAL, ELEVATOR CARS, ELEVATOR EQUIPMENT ROOMS.

(C) VISIBLE NOTIFICATION ONLY - AREAS ASSIGNED THIS DESIGNATION ARE THOSE THAT ARE EXPECTED TO HAVE AVERAGE AMBIENT SOUND LEVELS AT OR ABOVE 95 DBA, OR HAVE HIGHLY REVERBERANT INTERIOR FINISHES SUCH AS RESTROOMS OR SHOWERS.

(D) NO NOTIFICATION REQUIRED - NORMALLY UNOCCUPIED SPACES LESS THAN 100 SQUARE FEET.

WIRE FILL CHART FOR EMT

TRADE SIZE	NOMINAL INTERNAL DIA. INCH	TOTAL AREA 100% FILL SQ. INCH	1 WIRE 60% FILL SQ. INCH	2 WIRES 53% FILL SQ. INCH	3 WIRES 46% FILL SQ. INCH	4 WIRES 40% FILL SQ. INCH
1/2 INCH	.622	.304	.182	.161	.142	.122
3/4 INCH	.824	.533	.320	.283	.245	.213
1 INCH	1.049	.864	.519	.458	.396	.346
1-1/4 INCH	1.380	1.496	.897	.793	.684	.598
1-1/2 INCH	1.610	2.036	1.221	1.079	.931	.814
2 INCH	2.067	3.356	2.013	1.778	1.540	1.342
2-1/2 INCH	2.731	5.858	3.515	3.105	2.743	2.343
3 INCH	3.356	8.846	5.307	4.688	4.042	3.538
3-1/2 INCH	3.834	11.545	6.927	6.119	5.379	4.618
4 INCH	4.334	14.753	8.852	7.819	6.751	5.901

NOTE: DRAWINGS ARE BASED UPON A CONDUIT INSTALLATION.

ABBREVIATIONS LEGEND

(AC) = ABOVE CEILING	FS = WATERFLOW SWITCH	FTU = ELEVATOR PIT
(C) = CEILING MOUNTED	FSD = FIRE SMOKE DAMPER	RTU = ROOF TOP UNIT
(EX) = EXISTING	GCC = GRAPHIC COMMAND CENTER	SCC = STATUS COMMAND CENTER
AFF = ABOVE FINISHED FLOOR	HT = HEIGHT	SLC = SIGNALING LINE CIRCUIT
AJ = AUTHORITY HAVING JURISDICTION	H/LD = HIGH/LOW AIR PRESSURE	SB = SOUNDER BASE
AH = AIR HANDLING UNIT	LES = LOW FREQUENCY SOUNDER BASE	SUPV = SUPERVISORY
ALM = ALARM	MAX = MAXIMUM	TTS = ELEVATOR TOP OF SHAFT
BMS = BUILDING MANAGEMENT SYSTEM	MIN = MINIMUM	TRE = TROUBLE
CD = CANDELA (EX-15cd)	N/A = NOT APPLICABLE	TS = VALVE TAMPER
DET = DETECTOR	NAC = NOTIFICATION APPLIANCE CIRCUIT	TYP = TYPICAL
ELEV = ELEVATOR	NDU = NETWORK DISPLAY UNIT	UNO = UNLESS NOTED OTHERWISE
EOL = END OF LINE	NEC = NATIONAL ELECTRICAL CODE	VCC = VOICE COMMAND CENTER
EPO = EMERGENCY POWER OFF	NFPA = NATIONAL FIRE PROTECTION ASSOCIATION	W = WITH
EX = EXISTING TO REMAIN	NC = NOT IN CONTRACT	W = (EX 1/2W) WATT
FACU = FIRE ALARM CONTROL UNIT	NTS = NOT TO SCALE	WP = WEATHERPROOF
FATC = FIRE ALARM TERMINAL CABINET	OHU = OUTSIDE AIR HANDLING UNIT	XP = EXPLOSION PROOF
FBO = FURNISHED BY OTHERS	PG = PROTECTIVE GUARD (WIRE CAGE)	
FCC = FIRE COMMAND CENTER	PG = PROTECTIVE GUARD (PLASTIC TYPE WITH PIEZO HORN)	

FIRE ALARM SYSTEM DESIGN COVER SHEET

SCALE: NTS

VSC FIRE & SECURITY, INC.
MAILING ADDRESS:
GARBER, NC 27529
919-645-5880



ALTIS SERENITY CLUBHOUSE
325 STREAMSIDE TERRACE,
FUQUAY-VARINA, NC 27526

REVISIONS:	DATE:
Permit Set	1-29-26
DRAWN BY:	KH
PROJECT MGR:	TBD
AHJ:	HARTNETT COUNTY
DATE:	1/29/26
SCALE:	AS-NOTED
JOB NO.:	TBD
TYPE:	FIRE ALARM SYSTEM

FOR SUBMITTAL, DRAWING RECORD
I have reviewed these plans and certify that they comply with the applicable codes and standards. I certify they were created from original engineering plans.

DATE: 1/29/26
DRAWN BY: KH
PROJECT MGR: TBD
AHJ: HARTNETT COUNTY
DATE: 1/29/26
SCALE: AS-NOTED
JOB NO.: TBD
TYPE: FIRE ALARM SYSTEM

SHEET NUMBER:
FAS-01



REVISIONS:	DATE:
Permit Set	1-29-26

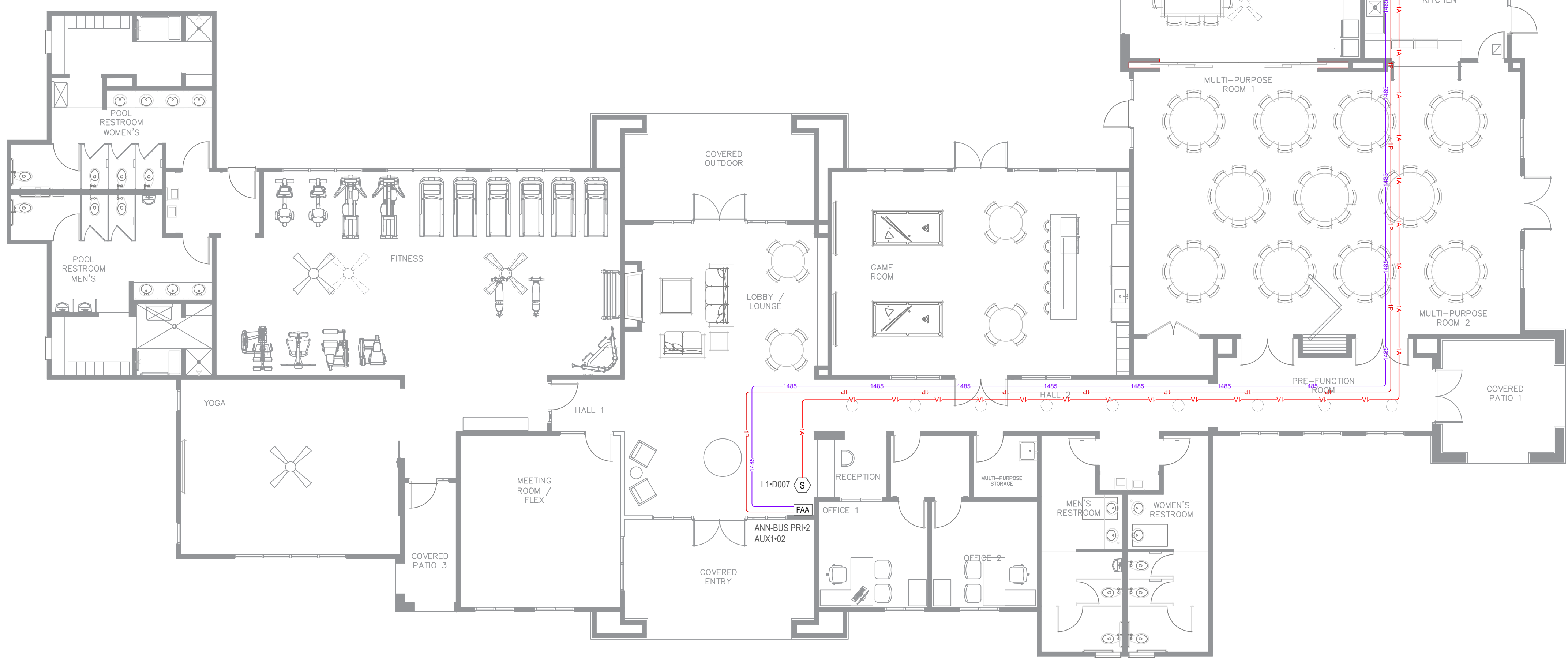
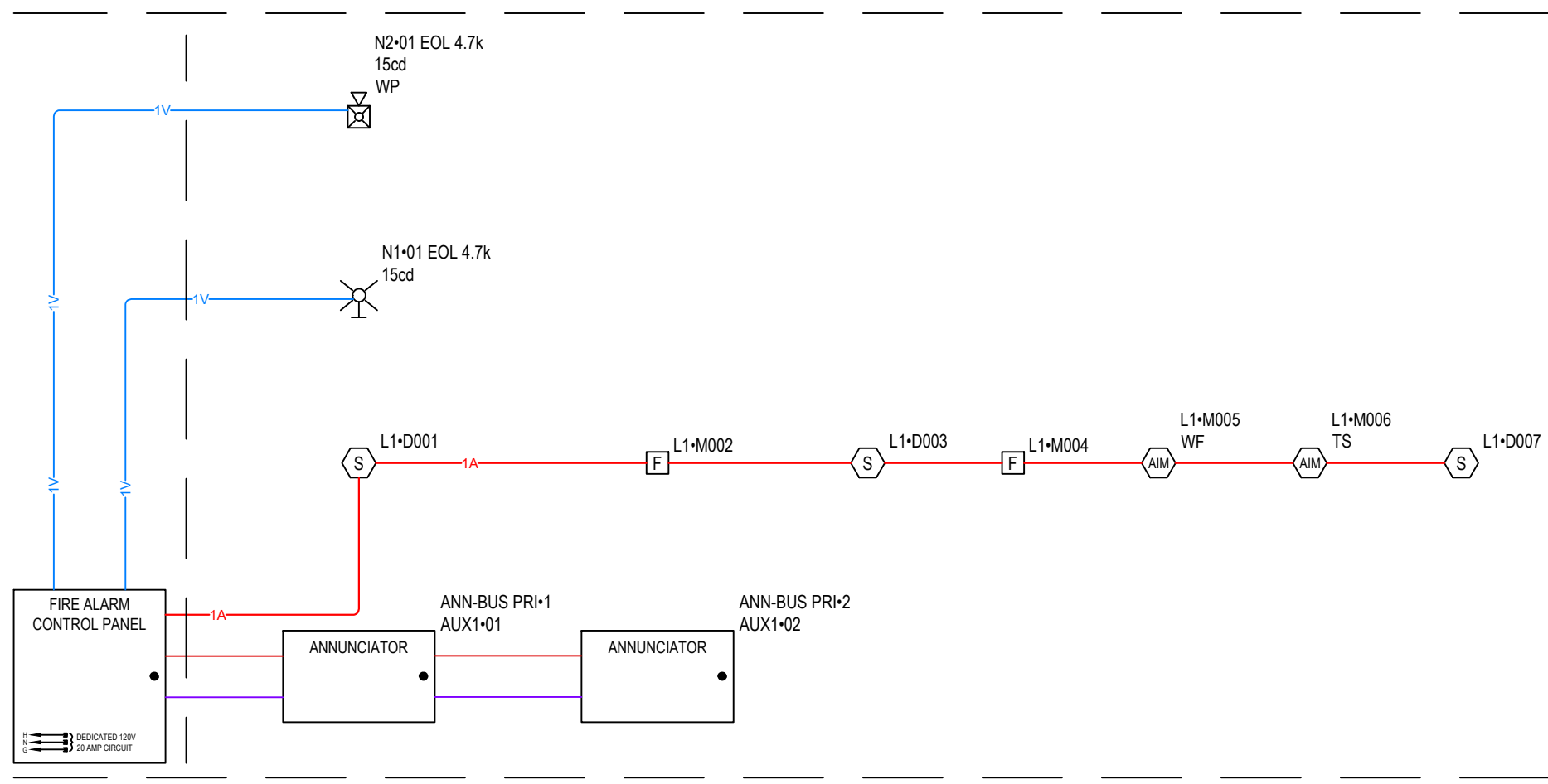
DRAWN BY:	KH
PROJECT MGR:	TBD
AHJ:	HARTNETT COUNTY
DATE:	1/29/26
SCALE:	AS-NOTED
JOB NO.:	TBD
TYPE:	FIRE ALARM SYSTEM

FOR SUBMITTAL, DRAWING RECORD
 I have reviewed these plans and certify that they comply with the applicable codes and standards. I certify that they were created from field engineering plans.

DATE: 1/29/26
 VSC FIRE & SECURITY, INC.
 PROJECT MGR: [Signature]
 DATE: 1-29-26

DEVICE LEGEND				
SYMBOL	QUANTITY	MANUFACTURER	PART NO	DESCRIPTION
[FACU]	1	FIRELITE	ES-50XP	ADDRESSABLE FIRE ALARM CONTROL PANEL WITH ONE SLC LOOP. INCLUDES MAIN CIRCUIT BOARD WITH DISPLAY, PRE-INSTALLED CLSS PATHWAY PRO COMMUNICATOR, CHASSIS WITH TRANSFORMER, DRESS PANEL, BACKBOX WITH DOOR, PLASTIC BAG CONTAINING SCREWS, CABLES, KEY, ETC.
[FAA]	2	FIRELITE	ANN-80	RED 80 CHARACTER LCD ANNUNCIATOR
[AM]	2	FIRELITE	MMF-300	ADDRESSABLE MONITOR MODULE W/ FLASHSCAN, SUPERVISES CLASS A OR CLASS B OF DRY CONTACT INPUT
[F]	2	FIRELITE	BG-12LX	ADDRESSABLE MANUAL PULL STATION WITH INTERFACE MODULE MOUNTED INSIDE
[S]	3	FIRELITE	SD365 W/B300-6	WHITE, ADDRESSABLE PHOTOELECTRIC DETECTOR, STANDARD BASE
[SWLED]	1	SYSTEM SENSOR	SWLED	STROBE, WALL, WHITE
[P2GRKLED]	1	SYSTEM SENSOR	P2GRKLED	2-WIRE, COMPACT HORN STROBE, WALL, RED, OUTDOOR
[SS 120v]	1	SPACE AGE ELECTRONICS	T120-DG W/SNAP TRACK	2 PAIR / 4 WIRE SURGE MODULE, 120V
[DOC]	1	SPACE AGE ELECTRONICS	SSU01690	FIRE ALARM DOCUMENT CABINET W/8GB USB DRIVE (ACE-11), BLACK WITH CUSTOM LOGO
ADDITIONAL ASSEMBLY COMPONENTS AND HARDWARE				
	1	FIRELITE	CLSS PATHWAY PRO	CLSS
	1	FIRELITE	ES-50XP MAIN BOARD	MAIN BOARD

CABLE AND WIRE LEGEND							
LABEL	PART NO	MANUFACTURER	APPLICATION	RESISTANCE MFT	AWG	DESCRIPTION	TOTAL LENGTH
485	18/2 FPL/PR	GENERIC	RS-485	7.77	18	2 COND. SOLID COPPER FPL/PR ANALOG UNSHIELDED	167'
A	16/2 FPL/PR	GENERIC	SLC	4.89	16	2 COND. SOLID COPPER FPL/PR ADDRESSABLE	201'
P	14/2 FPL/PR	GENERIC	AUX	3.07	14	2 COND. SOLID COPPER FPL/PR UNSHIELDED	165'
V	14/2 FPL/PR	GENERIC	NAC	3.07	14	2 COND. SOLID COPPER FPL/PR ANALOG UNSHIELDED	11'



PANEL (ES-50XP) BATTERY CALCULATION (SECONDARY POWER SOURCE REQUIREMENTS)									
PANEL COMPONENTS		QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	SECONDARY ALARM CURRENT	TOTAL (A)	
1	ES-50XP	1	ES-50XP	ADDRESSABLE FIRE ALARM CONTROL PANEL WITH ONE SLC LOOP. INCLUDES MAIN CIRCUIT BOARD WITH DISPLAY, PRE-INSTALLED CLSS PATHWAY PRO COMMUNICATOR, CHASSIS WITH TRANSFORMER, DRESS PANEL, BACKBOX WITH DOOR, PLASTIC BAG CONTAINING SCREWS, CABLES, KEY, ETC.	0	0	0	0	
1	CLSS PATHWAY PRO	1	CLSS	CLSS	0.1	0.1	0.1	0.1	
1	ES-50XP MAIN BOARD	1	MAIN BOARD	MAIN BOARD	0.141	0.141	0.257	0.257	
2	ANN-80	2	ANN-80	RED 80 CHARACTER LCD ANNUNCIATOR	0	0	0	0	
2	ANN-80	2	ANN-80	RED 80 CHARACTER LCD ANNUNCIATOR	0.015	0.03	0.04	0.08	
2	BG-12LX	2	BG-12LX	ADDRESSABLE MANUAL PULL STATION WITH INTERFACE MODULE MOUNTED INSIDE	0.000375	0.00075	0.005	0.01	
2	MMF-300	2	MMF-300	ADDRESSABLE MONITOR MODULE W/ FLASHSCAN, SUPERVISES CLASS A OR CLASS B OF DRY CONTACT INPUT	0.000375	0.00075	0.005	0.01	
3	SD365 W/B300-6	3	SD365 W/B300-6	WHITE, ADDRESSABLE PHOTOELECTRIC DETECTOR, STANDARD BASE	0.0002	0.0006	0.0045	0.0135	
1	SWLED	1	SWLED	STROBE, WALL, WHITE 15CD	0	0	0.018	0.018	
1	P2GRKLED	1	P2GRKLED	2-WIRE, COMPACT HORN STROBE, WALL, RED, OUTDOOR 15CD	0	0	0.035	0.035	
					TOTAL STANDBY (A)	0.2731	TOTAL ALARM (A)	0.52350	
					REQUIRED STANDBY TIME (HOURS)	24	REQUIRED ALARM TIME (MINUTES)	5	
					SECONDARY STANDBY LOAD (A)	0.2731	SECONDARY ALARM LOAD (A)	6.55	
					STANDBY AND ALARM SUBTOTAL (AMP HOURS)	6.55	DERATING FACTOR	0.043625	
					SECONDARY LOAD REQUIREMENTS (AMP HOURS)	1.25		8.25	
PROVIDE (2) 12V 12AH BATTERIES									
*BATTERY BOX SIZE CAPACITY NOT SPECIFIED. REFER TO MANUFACTURER DOCUMENTATION.									

AUX1 POINT-TO-POINT REPORT				
DEVI	PART	DESCRIPTION	CANDELAS	ALARM CURRENT (A)
AUX1-01	ANN-80	RED 80 CHARACTER LCD ANNUNCIATOR		0.04
AUX1-02	ANN-80	RED 80 CHARACTER LCD ANNUNCIATOR		0.04

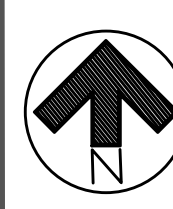
N1 POINT-TO-POINT REPORT				
DEVI	PART	DESCRIPTION	CANDELAS	ALARM CURRENT (A)
N1-01 EOL 4.7k	SWLED	STROBE, WALL, WHITE 15CD		0.018

N2 POINT-TO-POINT REPORT				
DEVI	PART	DESCRIPTION	CANDELAS	ALARM CURRENT (A)
N2-01 EOL 4.7k	P2GRKLED	2-WIRE, COMPACT HORN STROBE, WALL, RED, OUTDOOR 15CD		0.035

CURRENT SUMMARY		POWER SUMMARY	
MAX. CIRCUIT CURRENT (A):	1	STARTING CALC. VOLTAGE:	20.40
TOTAL CIRCUIT CURRENT (A):	0.08	MAX. VOLTAGE DROP:	0.04
SPARE CIRCUIT CURRENT (A):	0.320	VOLTAGE DROP %:	0.20 %
SPARE CIRCUIT CURRENT %:	92.00 %	MIN. OPERATIONAL VOLTAGE:	16
TOTAL CARD CURRENT (A):	0.1665	END OF LINE VOLTAGE:	20.36
SPARE CARD CURRENT (A):	2.53	TOTAL CIRCUIT LENGTH (FT):	165
SPARE CARD CURRENT %:	93.83 %	TOTAL CIRCUIT RESISTANCE (DI):	1.02

CURRENT SUMMARY		POWER SUMMARY	
MAX. CIRCUIT CURRENT (A):	2.50	STARTING CALC. VOLTAGE:	20.40
TOTAL CIRCUIT CURRENT (A):	0.018	MAX. VOLTAGE DROP:	0
SPARE CIRCUIT CURRENT (A):	2.48	VOLTAGE DROP %:	0.00 %
SPARE CIRCUIT CURRENT %:	99.28 %	MIN. OPERATIONAL VOLTAGE:	16
TOTAL CARD CURRENT (A):	0.1665	END OF LINE VOLTAGE:	20.40
SPARE CARD CURRENT (A):	2.53	TOTAL CIRCUIT LENGTH (FT):	3
SPARE CARD CURRENT %:	93.83 %	TOTAL CIRCUIT RESISTANCE (DI):	0.018937

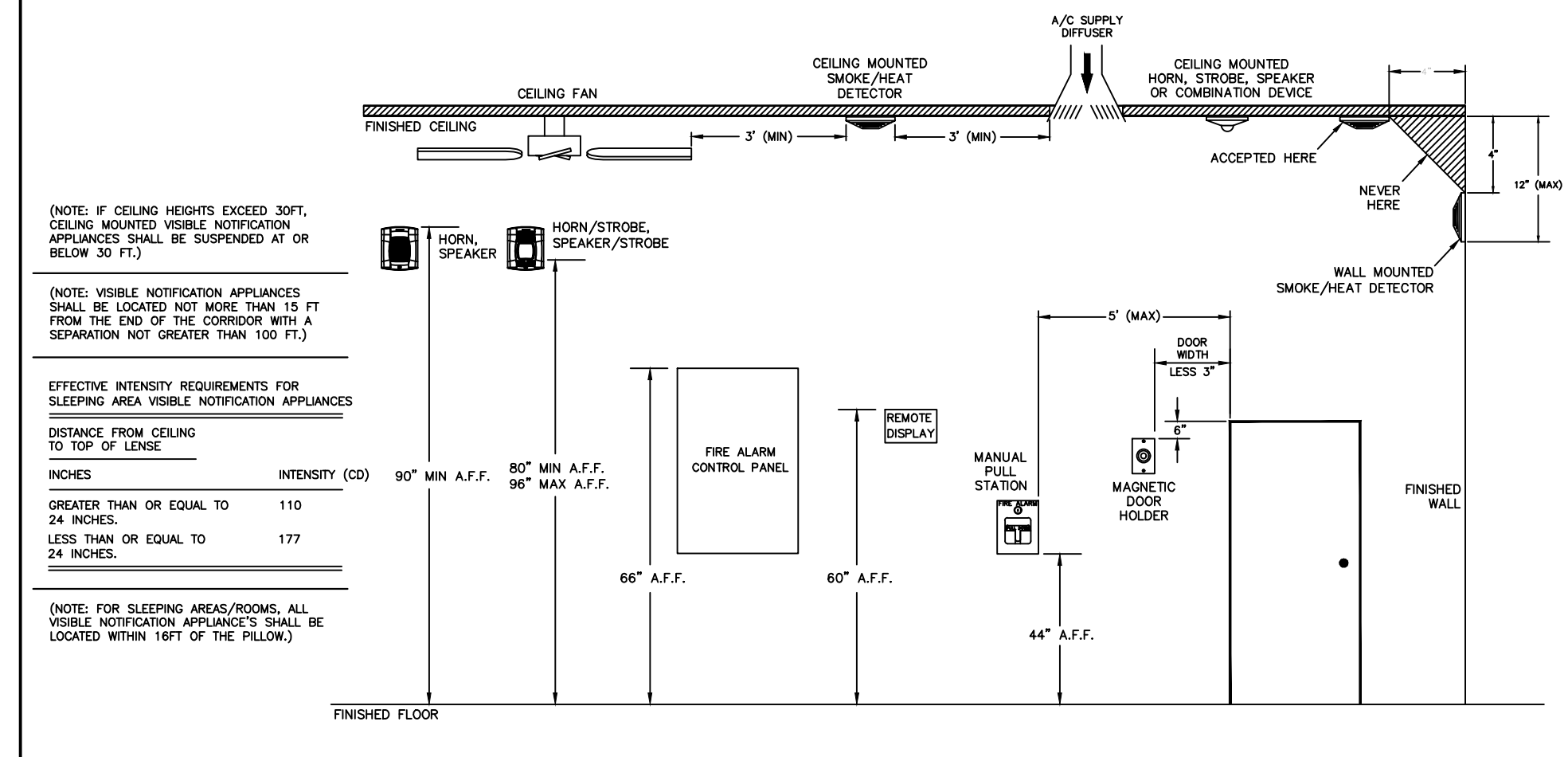
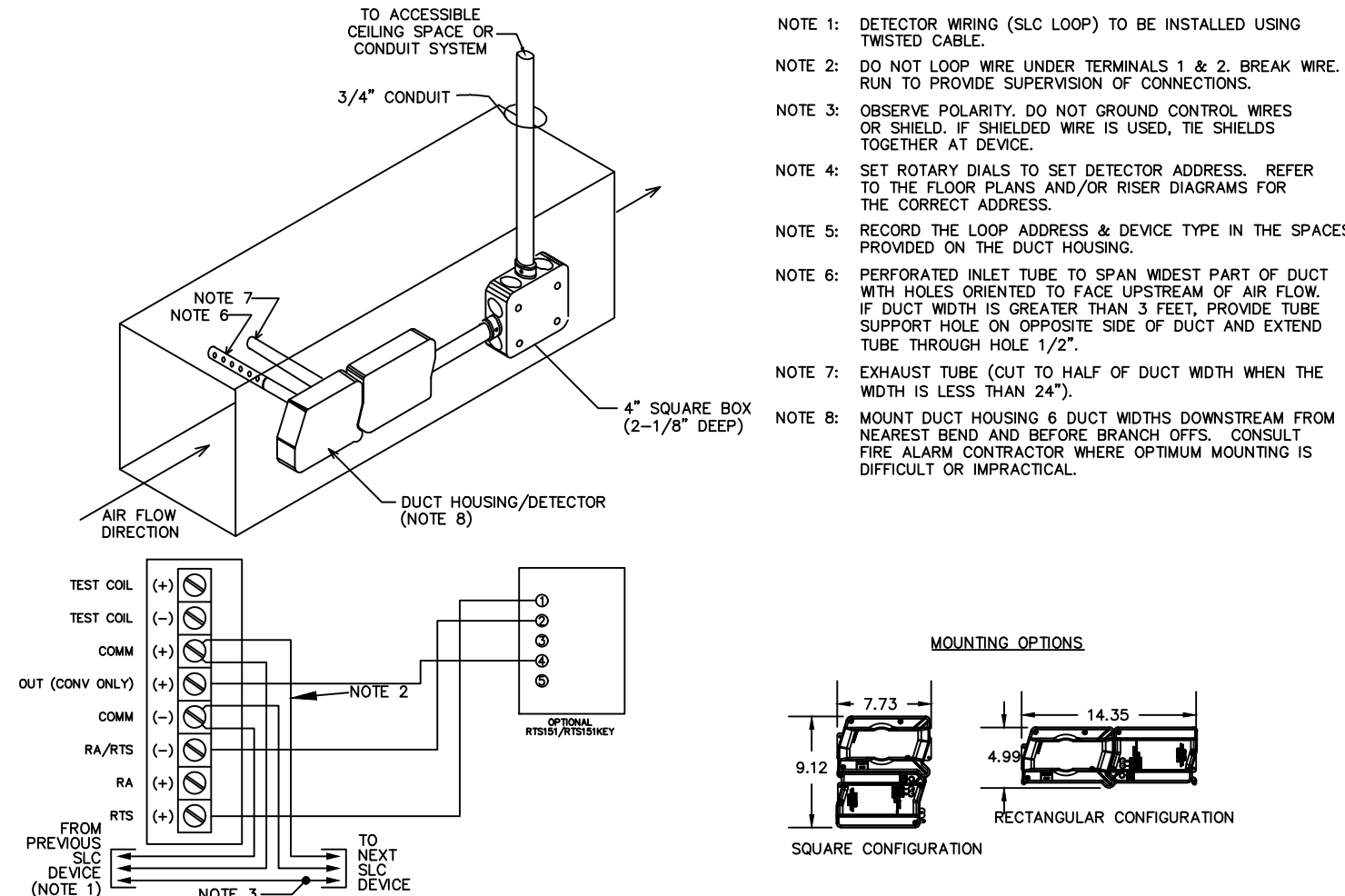
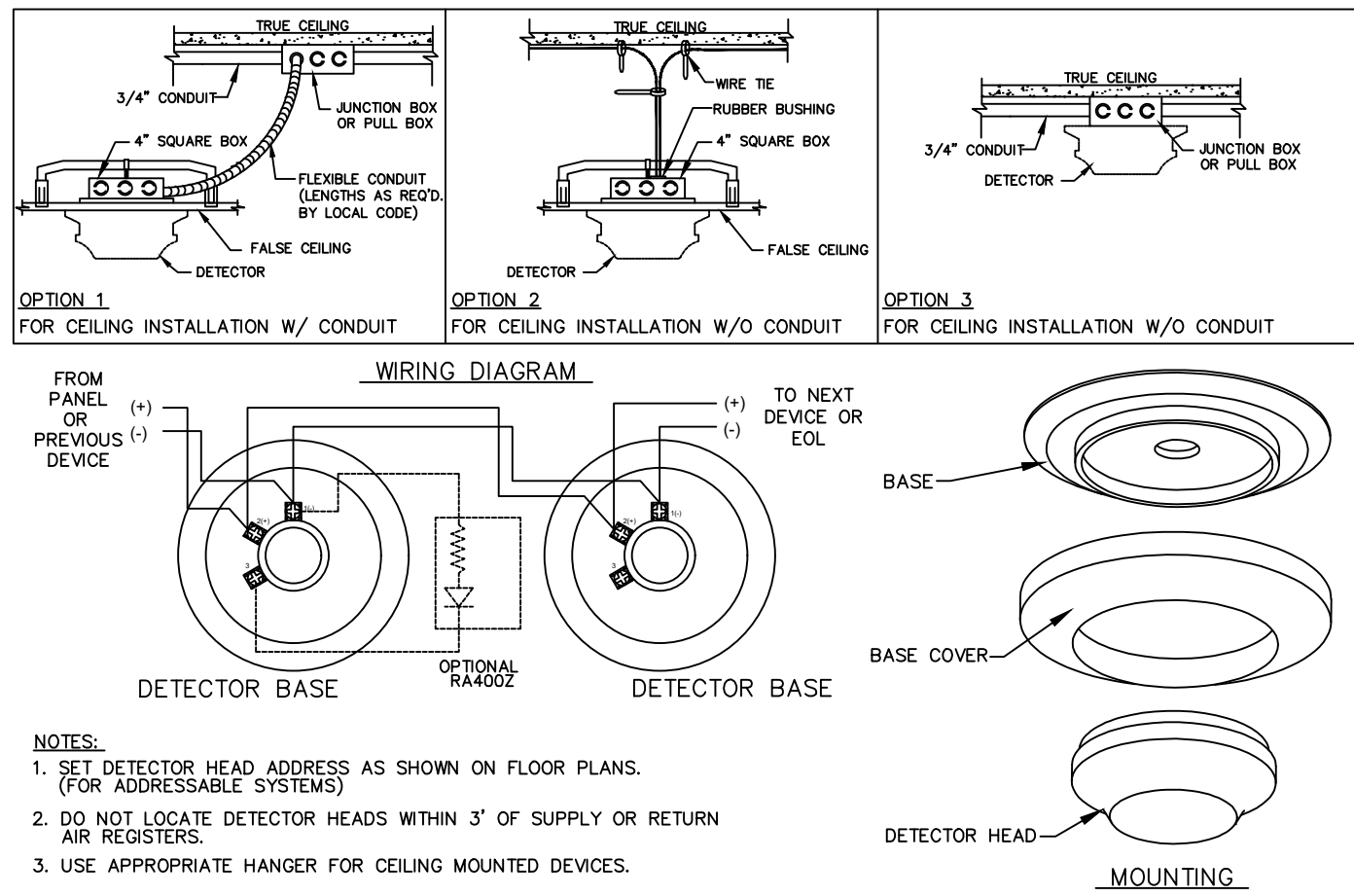
CURRENT SUMMARY		POWER SUMMARY	
MAX. CIRCUIT CURRENT (A):	2.50	STARTING CALC. VOLTAGE:	20.40
TOTAL CIRCUIT CURRENT (A):	0.035	MAX. VOLTAGE DROP:	0
SPARE CIRCUIT CURRENT (A):	2.47	VOLTAGE DROP %:	0.01 %
SPARE CIRCUIT CURRENT %:	96.80 %	MIN. OPERATIONAL VOLTAGE:	16
TOTAL CARD CURRENT (A):	0.1665	END OF LINE VOLTAGE:	20.40
SPARE CARD CURRENT (A):	2.53	TOTAL CIRCUIT LENGTH (FT):	8
SPARE CARD CURRENT %:	93.83 %	TOTAL CIRCUIT RESISTANCE (DI):	0.048037



FIRE ALARM SYSTEM DESIGN LAYOUT, RISER DETAIL, BATTERY/VOLTAGE DROP CALCULATIONS

SCALE: 1/8" = 1'-0"

NOT ALL DEVICES REPRESENTED ON THIS PAGE MAY BE USED ON THIS PROJECT.
 DEVICE DRAWINGS ARE FOR REFERENCE ONLY. INSTALLING CONTRACTOR IS RESPONSIBLE FOR ALL FIELD
 WIRING. REFER TO INDIVIDUAL CUT SHEETS THAT COME WITH EACH DEVICE FOR MORE INFORMATION.



7. TYPICAL DETECTOR WIRING DETAIL

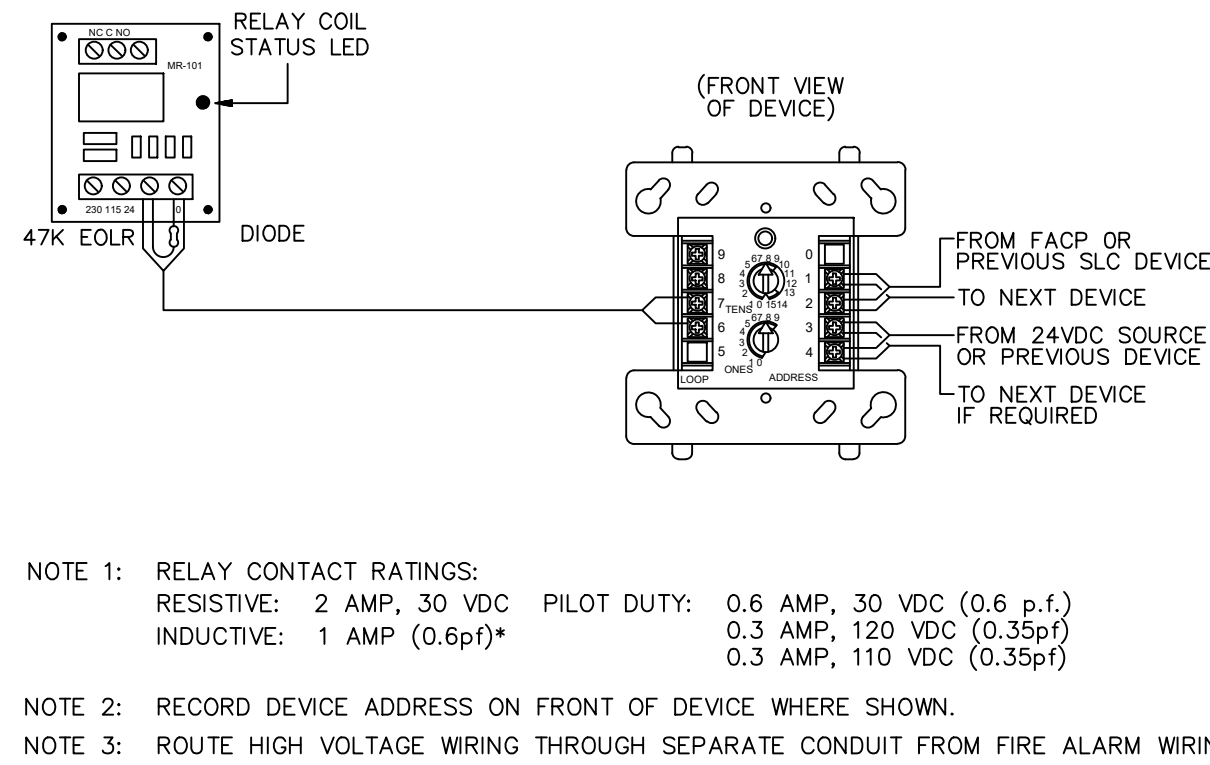
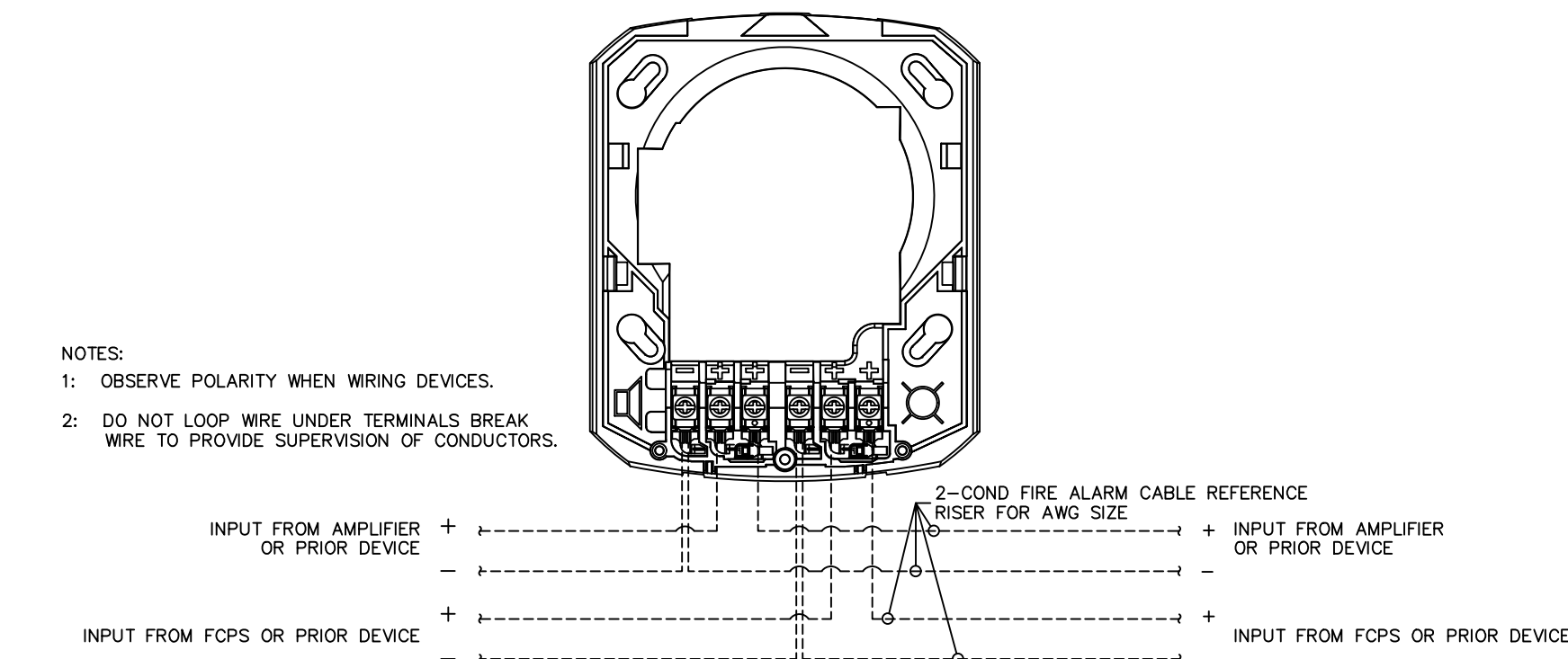
8. TYPICAL DUCT SMOKE DETECTOR WIRING DETAIL

9. DEVICE MOUNTING HEIGHTS

NOT TO SCALE

NOT TO SCALE

NOT TO SCALE



4. TYPICAL SPEAKER/STROBE WIRING DETAIL

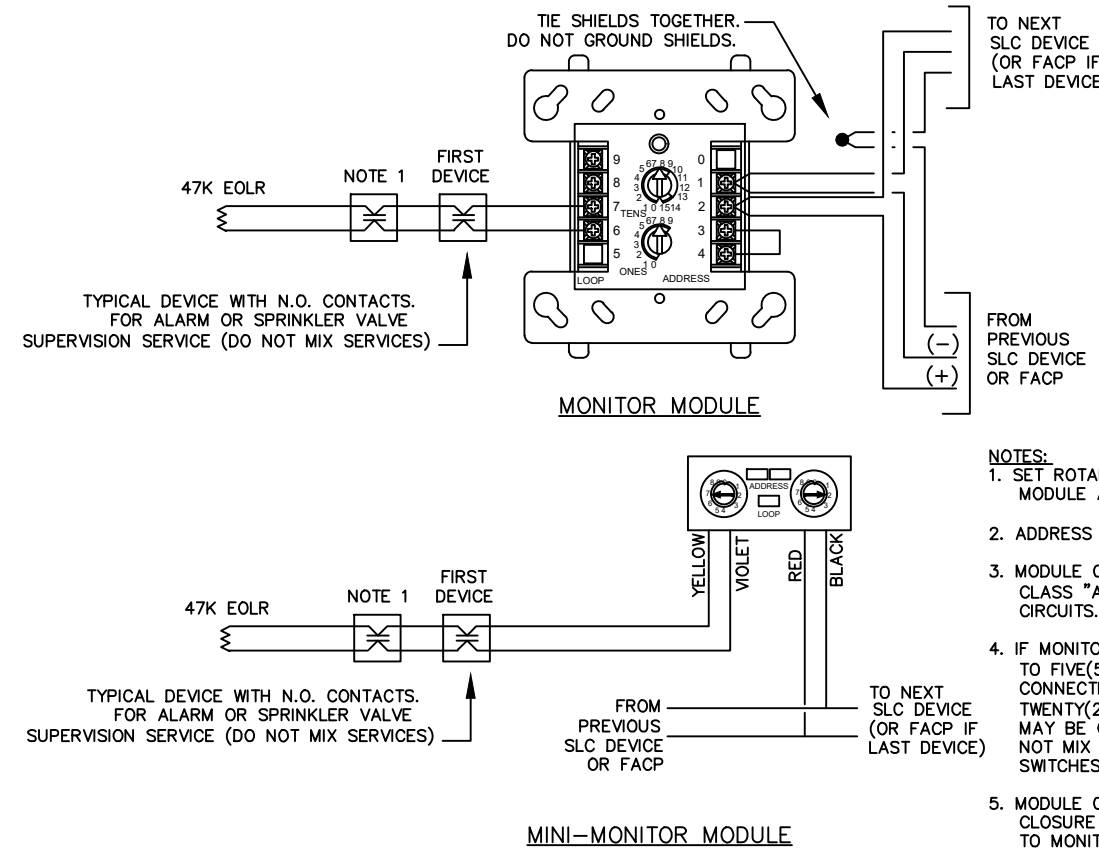
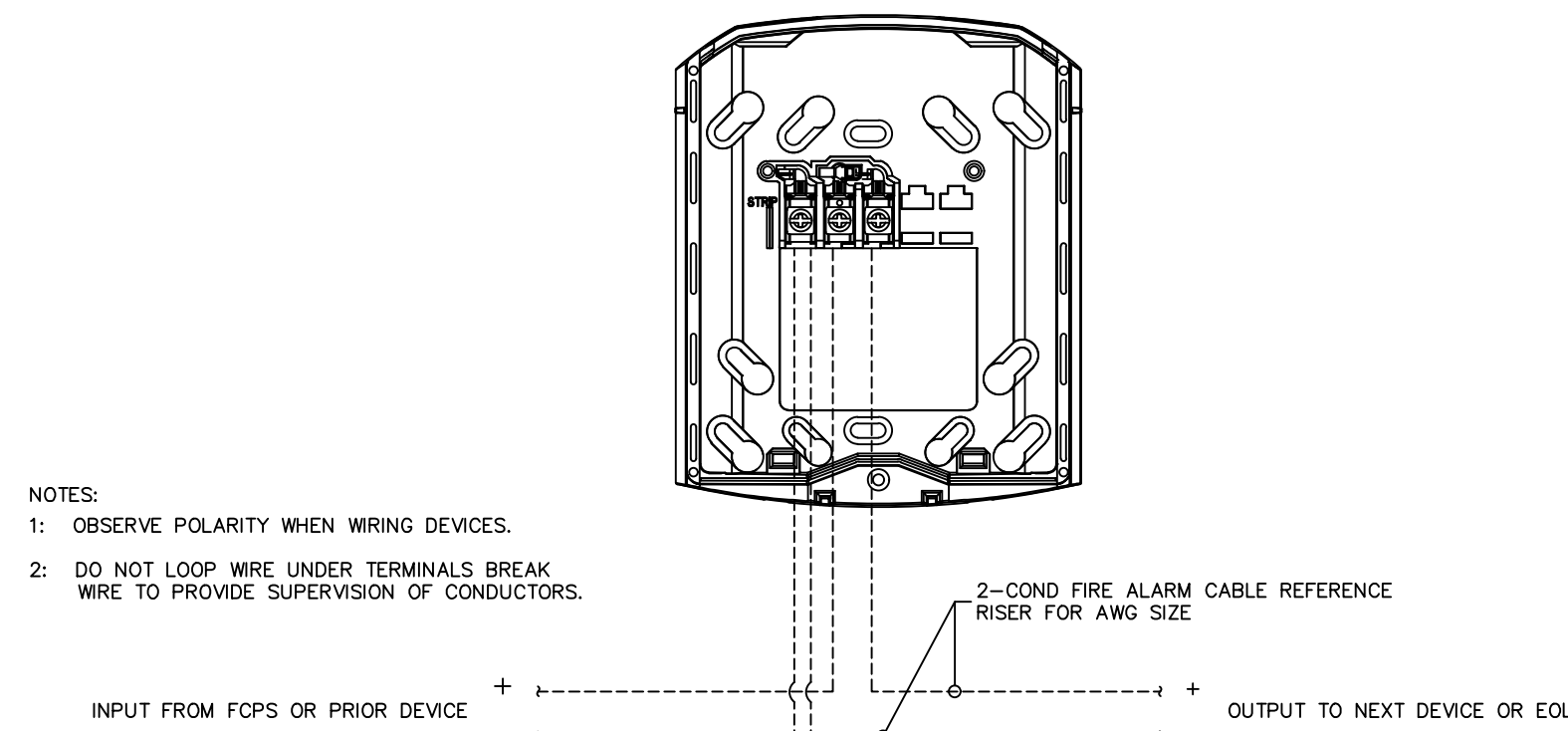
5. ADDRESSABLE CONTROL MODULE W/ MR-201 WIRING DTL.

6. TYPICAL MANUAL PULL STATION WIRING DETAIL

NOT TO SCALE

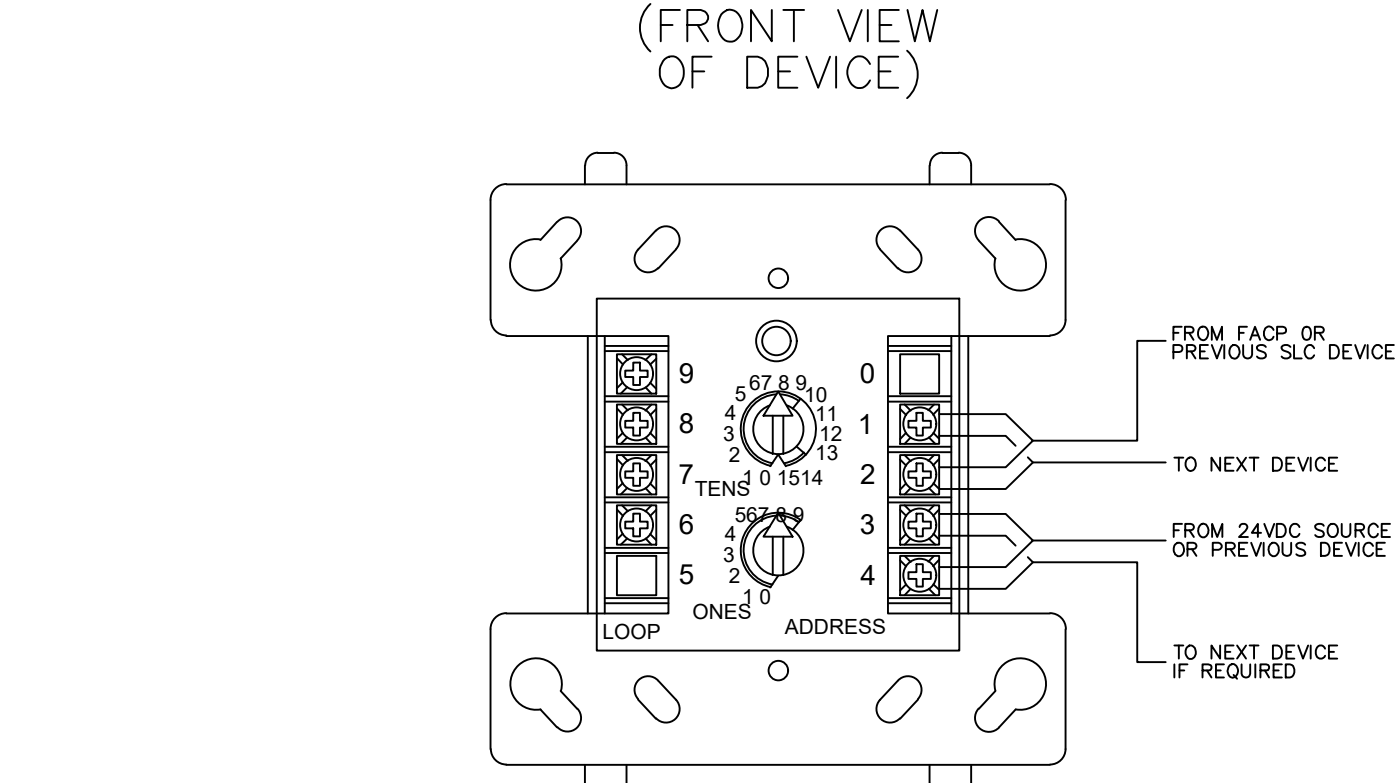
NOT TO SCALE

NOT TO SCALE



1. TYPICAL HORN/STROBE, STROBE, HORN WIRING DETAIL

2. ADDRESSABLE MONITOR MODULE WIRING DETAIL



3. ADDRESSABLE RELAY MODULE WIRING DETAIL

NOT TO SCALE

NOT TO SCALE

NOT TO SCALE

VSC FIRE & SECURITY, INC.
 MAILING ADDRESS:
 325 STREAMSIDE TERRACE,
 FAYETTEVILLE, NC 27529
 919-645-5880



ALTIS SERENITY CLUBHOUSE
 325 STREAMSIDE TERRACE,
 FAYETTEVILLE, NC 27529

REVISIONS:	DATE:
Permit Set	1-29-26

DRAWN BY: K.H.
 PROJECT MGR: TBD
 A/E: HARNETT COUNTY
 DATE: 1/29/26
 SCALE: AS-NOTED
 JOB NO.: TBD
 TYPE: FIRE ALARM SYSTEM

FOR SUBMITTAL, DRAWING RECORD
 I/We have reviewed these plans and certify that they comply with the applicable codes and standards. I/We certify they were created from model engineering plans.

Dylan Hink
 NC Fire Alarm System
 CERTIFICATION # 14850
 VALID THROUGH 06-30-2027

Dylan T. Hink
 1-29-26
 DATE

