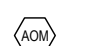
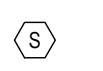


FIRE ALARM SYSTEM FOR:

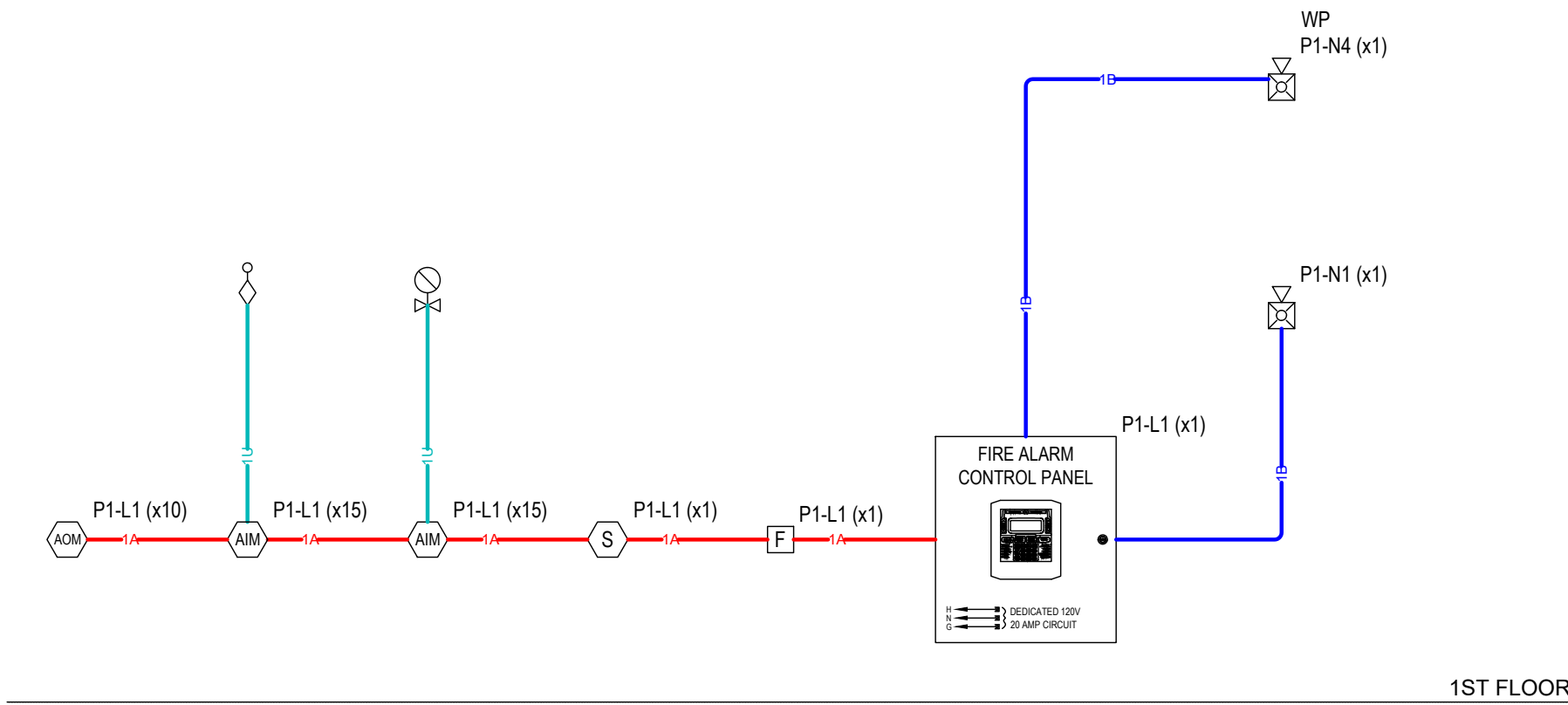
TOWN CENTRE 22, LOT 4

500 NE TOWN CENTER BLVD.

LEE'S SUMMIT, MO 64064

DEVICE LEGEND				
SYMBOL	QTY	MANUFACTURER	PART NO	DESCRIPTION
	15	GENERIC		VALVE TAMPER SUPERVISORY SWITCH
	1	NOTIFIER	NFW-100X	FIREWARDEN-100X (NFW-100X) INTELLIGENT ADDRESSABLE FACP WITH COMMUNICATOR
	15	GENERIC		WATERFLOW SWITCH
	1	NOTIFIER	NOT-BG12LX	ADDRESSABLE PULL STATION
	30	NOTIFIER	NMM-100P	MONITOR MODULE, MINIATURE.
	10	NOTIFIER	NC-100R	INTELLIGENT ADDRESSABLE RELAY MODULE.
	1	NOTIFIER	NP-200	ADDRESSABLE LOW-PROFILE PHOTOELECTRIC SMOKE DETECTOR, B300-6 BASE INCLUDED, FLASHSCAN ONLY.
	1	SYSTEM SENSOR	P2RK	2-WIRE HORN STROBE, STANDARD CD, OUTDOOR
	1	SYSTEM SENSOR	P2RL	2-WIRE, HORN STROBE, RED

CABLE AND WIRE LEGEND					
LABEL	PART NO	AW G	RESISTANCE (Q/KFT)	DESCRIPTION	TOTAL LENGTH
A	18/2 FPLP/R (SLC)	18	7.77	2 COND. SOLID COPPER FPLP/R ADDRESSABLE UNSHIELDED	404'
B	14/2 FPLP/R (NAC)	14	3.07	2 COND. SOLID COPPER FPLP/R ANALOG UNSHIELDED	39'
U	18/2 FPLP/R (IDC)	18	7.77	2 COND. SOLID COPPER FPLP/R ANALOG UNSHIELDED	126'



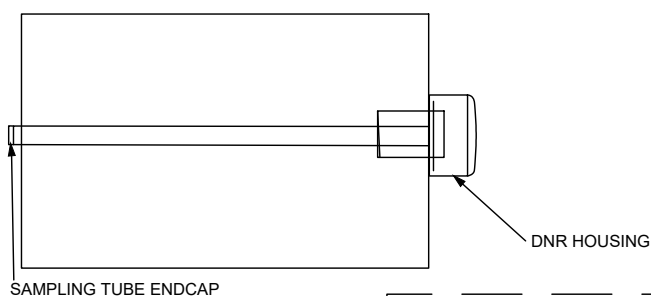
RISER DIAGRAM

SHEET LEGEND		
SHEET NUMBER	SHEET REFERENCE NUMBER	DESCRIPTION
1	FA001	COVER SHEET, LEGEND & RISER DIAGRAM
2	FA101	FIRE ALARM PLANS
3	FA501	CONNECTION DETAILS, CALCULATIONS & SEQUENCE OF OPERATIONS

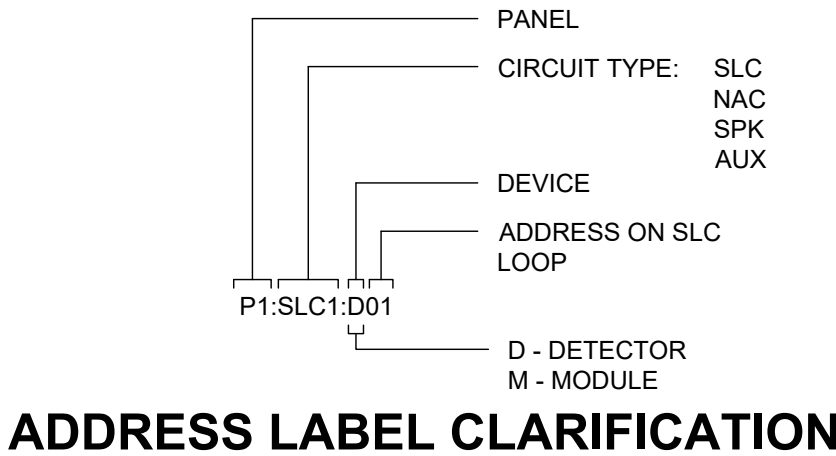
INSTALLING CONTRACTOR WILL NEED TO PROVIDE ACCURATE AS-BUILT INFORMATION TO TECH ELECTRONICS. THIS SHALL INCLUDE ALL WIRING TYPE AND ROUTING INFORMATION FOR ALL ADDRESSABLE LOOP (SLC), HORN, SPEAKER AND STROBE (NAC) AND ZONE (IDC) CIRCUITS. THE AS-BUILT DRAWINGS SHALL SHOW THE EXACT QUANTITY AND PLACEMENT OF ALL DEVICES AND EACH EXACT DEVICE ADDRESS INSTALLED, IF APPLICABLE. ALL DELETED, ADDED AND CHANGES MUST BE SHOWN.

ALL 120VAC POWER SHALL BE NOTED WITH THE CIRCUIT BREAKER NUMBER, SIZE OF BREAKER AND THE LOCATION OF THE CIRCUIT BREAKER PANEL. THE CIRCUIT BREAKER MUST BE LOCKED. ALL ABOVE INFORMATION IS REQUIRED BY AND SHALL BE PROVIDED PER NFPA 72. SEE CURRENTLY ENFORCED ORDINANCE IF NECESSARY.

Per NFPA sampling tubes over 3 feet long should be supported at the end opposite of the duct detector. In ducts wider than 8 feet, work must be performed inside the duct to couple the other section of the sampling tube to the section already installed using the 1/2 inch conduit fitting supplied. Make sure that the holes on both sections of the air inlet sampling tube are lined up and facing into the airflow.



DUCT DETECTOR MOUNTING



ABBREVIATIONS

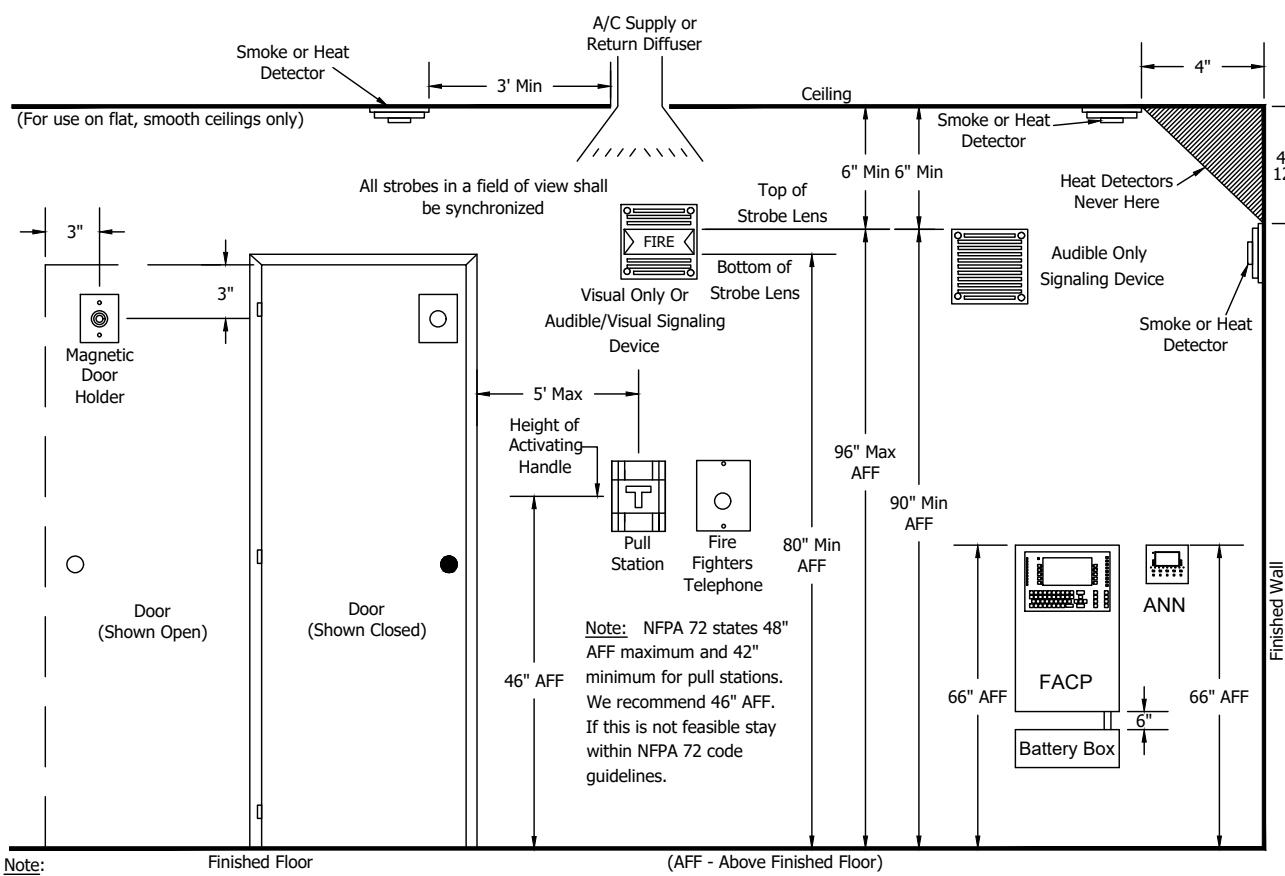
AHJ - AUTHORITY HAVING JURISDICTION
DD - DUCT DETECTOR
DH - DOOR HOLDER
DUA- DWELLING UNIT ALARM
E- PSD/HD W/ ELEV INTERFACE
ELEV1- PRIMARY ELEVATOR RECALL
ELEV2- ALTERNATE ELEVATOR RECALL
EST- ELEVATOR SHUNT TRIP
EXG - EXISTING
FH- ELEVATOR FIREHAT
FL - FIELD LOCATE
FM- FLUSH MOUNT
FGS- FIRE PLACE GAS SHUTOFF

FSD- FIRE/SMOKE DAMPER
KB- KNOX BOX
KH- KITCHEN HOOD
PIV- SPRINKLER POST INITIATOR VALVE
NT- NAC TRIGGER
RD- RETURN DUCT
RL- RELOCATE
RTU- ROOF TOP UNIT
SD- SUPPLY DUCT
TS - TAMPER SWITCH
VL - VERIFY LOCATION
WF - WATERFLOW
WP- WEATHER PROOF

GENERAL INSTALLATION NOTES:

- INSTALLATION MUST COMPLY WITH ALL APPLICABLE FEDERAL, STATE, OR LOCAL LAWS, REGULATIONS, CODES, AND SPECIFICATIONS. THIS SYSTEM SHALL BE IN STRICT CONFORMANCE WITH THESE DRAWINGS; 2018 IBC ; NFPA 72 2016 EDITION; NFPA 70, 2017 EDITION; AND AHJ.
- WHERE CONDUCTORS ARE RUN IN CONDUIT, USE ONLY APPROVED CABLE WITHIN RACEWAYS, PIPES OR CONDUITS. ALL SHIELDED WIRE MUST BE CONTINUOUS THROUGHOUT CIRCUIT. ALL SHIELDS SHALL BE ISOLATED FROM GROUND, ALL SHIELDS SHALL TERMINATE AT THE FIRE ALARM CONTROL PANEL (FACP) ONLY.
- PER NFPA 72 2019, 17.7.1.11 - WHERE DETECTORS ARE INSTALLED FOR SIGNAL INITIATION DURING CONSTRUCTION, THEY SHALL BE CLEANED AND VERIFIED TO BE OPERATING IN ACCORDANCE WITH THE LISTED SENSITIVITY, OR THEY SHALL BE REPLACED PRIOR TO THE FINAL COMMISSIONING OF THE SYSTEM. WHERE DETECTION IS NOT REQUIRED DURING CONSTRUCTION, DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER ALL OTHER CONSTRUCTION TRADES HAVE COMPLETED CLEANUP.
- ALL FIRE ALARM SYSTEM WIRING SHALL BE CLEAR FROM SHORTS, OPENS AND GROUNDS.
- NOTIFICATION CIRCUIT WIRE RUNS ARE CRITICAL. ANY INCREASE IN LENGTH OF WIRE MAY AFFECT CIRCUIT CONFIGURATIONS.

RECOMMENDED MOUNTING HEIGHTS PER CODES AND STANDARDS



Note:
1. Contact Tech Electronics if you have questions concerning these instructions, discrepancies, or if your specific conditions require a solution not addressed by this document.
2. Refer to the proper device installation instructions for backbox mounting height

TECH ELECTRONICS
Heights_and_Mounting.dwg:B
11/23/20

6/21/2023



NO. DATE: REVISION DESCRIPTION:

TOWN CENTRE LOGISTICS, LOT 4
500 NE TOWN CENTRE BLVD.
LEE'S SUMMIT, MO 64064

NEW FIRE ALARM SYSTEM

PROJECT NAME / CUSTOMER / LOCATION:

PROJECT MANAGER:
DARIN WASSINGER
(816) 206-3328

DESIGNER: SAS DRAFTER: SAS

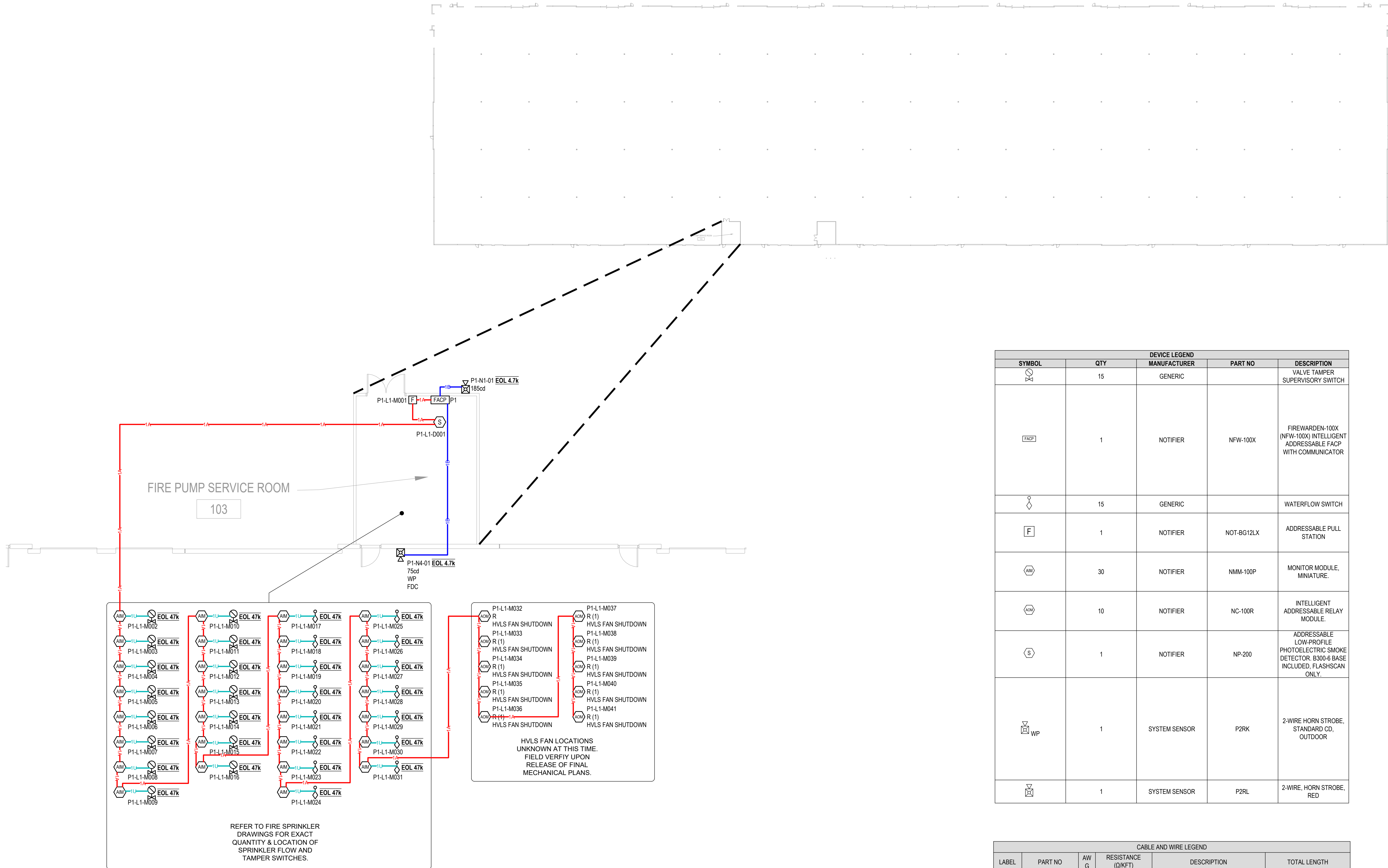
DRAWING #:
FA001

PROJECT
JOB#: PJ2305300006

DATE: 06/19/2023

ISSUED FOR: CONSTRUCTION

6/21/2023



FLOOR PLAN - FIRE ALARM

1/8" = 1'-0"

0 4' 8' 16'

DEVICE LEGEND				
SYMBOL	QTY	MANUFACTURER	PART NO	DESCRIPTION
	15	GENERIC		VALVE TAMPER SUPERVISORY SWITCH
	1	NOTIFIER	NFW-100X	FIREWARDEN-100X (NFW-100X) INTELLIGENT ADDRESSABLE FACP WITH COMMUNICATOR
	15	GENERIC		WATERFLOW SWITCH
	1	NOTIFIER	NOT-BG12LX	ADDRESSABLE PULL STATION
	30	NOTIFIER	NMM-100P	MONITOR MODULE, MINIATURE.
	10	NOTIFIER	NC-100R	INTELLIGENT ADDRESSABLE RELAY MODULE.
	1	NOTIFIER	NP-200	ADDRESSABLE LOW-PROFILE PHOTOELECTRIC SMOKE DETECTOR. B300-6 BASE INCLUDED. FLASHSCAN ONLY.
	1	SYSTEM SENSOR	P2RK	2-WIRE HORN STROBE, STANDARD CD, OUTDOOR
	1	SYSTEM SENSOR	P2RL	2-WIRE, HORN STROBE, RED

CABLE AND WIRE LEGEND					
LABEL	PART NO	AWG	RESISTANCE (OHM/FT)	DESCRIPTION	TOTAL LENGTH
A	18/2 FPLP/R (SLC)	18	7.77	2 COND. SOLID COPPER FPLP/R ADDRESSABLE UNSHIELDED	404'
B	14/2 FPLP/R (NAC)	14	3.07	2 COND. SOLID COPPER FPLP/R ANALOG UNSHIELDED	39'
U	18/2 FPLP/R (IDC)	18	7.77	2 COND. SOLID COPPER FPLP/R ANALOG UNSHIELDED	126'

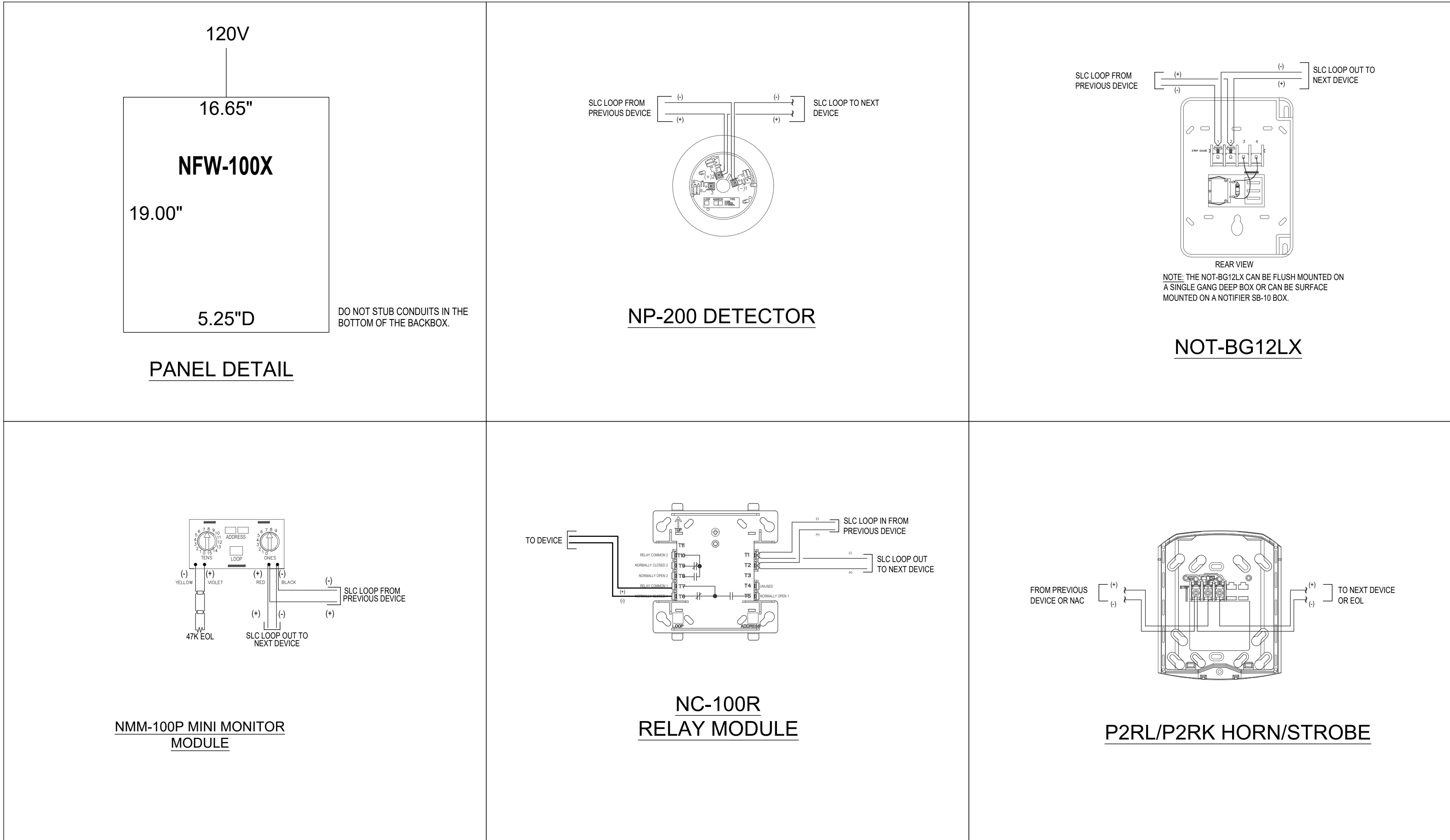
PROJECT NAME / CUSTOMER / LOCATION:

TOWN CENTRE LOGISTICS, LOT 4
500 NE TOWN CENTRE BLVD.
LEE'S SUMMIT, MO 64064

SYSTEM DESCRIPTION:

NEW FIRE ALARM SYSTEM

PROJECT MANAGER:
DARIN WASSINGER
(816) 206-3328
DESIGNER: SAS DRAFTER: SAS
DRAWING #: FA101
PROJECT JOB#: PJ2305300006
DATE: 06/19/2023
ISSUED FOR: CONSTRUCTION



SYSTEM INPUTS										SYSTEM OUTPUTS													
SYSTEM INPUTS										SYSTEM OUTPUTS													
1	2	3	4	5	6	7	8	9	10	A	B	C	D	E	F	G	H	I	J	K	L	M	N
MANUAL PULL STATION										*	*					*	*	*	*				*
SMOKE DETECTOR										*	*					*	*	*	*				*
WATERFLOW SWITCH										*	*					*	*	*	*				*
VALVE TAMPER SWITCH												*	*							*	*		*
FIRE ALARM CONTROL PANEL AC POWER FAILURE													*	*						*	*		*
FIRE ALARM CONTROL PANEL LOW BATTERY													*	*						*	*		*
OPEN CIRCUIT													*	*						*	*		*
GROUND FAULT													*	*						*	*		*
NOTIFICATION APPLIANCE CIRCUIT SHORTED													*	*						*	*		*
ALL OTHER TROUBLES													*	*						*	*		*
										A	B	C	D	E	F	G	H	I	J	K	L	M	N
										PERFORM OPERATION/REPORT DEVICE STATUS													

PANEL P1 (NFW-100X) BATTERY CALCULATION									
(SECONDARY POWER SOURCE REQUIREMENTS)									
PANEL POWER SUPPLY MAX CURRENT = 6A				TOTAL USED CAPACITY (IN ALARM) = 0.7785A (12.98 %)					
				STANDBY CURRENT (AMPS)		SECONDARY ALARM CURRENT (AMPS)			
PANEL COMPONENTS		QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL	
		1	NFW-100X Main Board	Fire Alarm Control Panel Main Board	0.141	0.141	0.257	0.257	
		1	PWRMOD24	Power Expander Module	0.007	0.007	0.008	0.008	
CIRCUIT	SYMBOL	QTY	PART NO	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)	
P1-L1		10	NC-100R	Intelligent addressable relay module.	0.000255	0.00255	0.0065	0.065	
		30	NMM-100P	Monitor module, miniature.	0.00035	0.0105	0.0006	0.018	
		1	NOT-BG12LX	Addressable Pull Station	0.000375	0.000375	0.005	0.005	
		1	NP-200	Addressable low-profile photoelectric smoke detector. B300-6 base included. FlashScan only.	0.0002	0.0002	0.0045	0.0045	
P1-N1		1	P2RL	2-Wire, Horn Strobe, Red 185cd	0	0	0.245	0.245	
P1-N4		1	P2RK	2-Wire Horn Strobe, Standard cd, Outdoor 75cd	0	0	0.176	0.176	
TOTAL STANDBY (A)					0.161625		TOTAL ALARM (A)		0.7785
					REQUIRED STANDBY TIME = 24 HOURS				
					REQUIRED ALARM TIME = 5 MINUTES				
SECONDARY STANDBY LOAD (A)				0.161625	24	3.88			
SECONDARY ALARM LOAD (A)				0.7785	0.08	0.06			
STANDBY AND ALARM SUBTOTAL (AMP HOURS)						3.94			
DERATING FACTOR						1.25			
SECONDARY LOAD REQUIREMENTS (AMP HOURS)						4.93			
PROVIDE (2) 12V 12AH BATTERIES									
*BATTERY BOX SIZE CAPACITY NOT SPECIFIED. REFER TO MANUFACTURER DOCUMENTATION.									

P1 N1 POINT-TO-POINT REPORT							CIRCUIT SETTINGS		TOTALS	
Circuit Wiring Properties: 'B' 14/2 FPLP/R (NAC) 14 AWG, 2 Cond. Solid Copper FPLP/R Analog Unshielded Distance measured using drawn segment lengths with 10.00 % additional length calculated							Starting Calculation Voltage:	20.4	Max. Voltage Drop:	0.01
							Min. Operational Voltage:	16	End Of Line Voltage:	20.39
							Max. Circuit Current (A):	2.5	Voltage Drop Percent:	0.04 %
							Wire Resistance (Ω/kFt):	3.07	Total Circuit Current (A):	0.245
							Total Circuit Length (Ft):	5	Spare Current (A):	2.255
							Total Circuit Resistance (Ω):	0.032707	Spare Current (A) Percent:	90.20 %
Device Label	Part No.	Description	Device Current (A)	Remaining Current (A)	Dist. From Previous (Ft)	Resistance From Previous (Ω)	Voltage Drop From Previous	Voltage At Device	Total Voltage Drop	Voltage Drop Percent
P1-N1-01 EOL 4.7k	P2RL	2-Wire, Horn Strobe, Red 185cd	0.245	0.245	5	0.032707	0.01	20.39	0.01	0.04 %
Calculation Methods: Resistance From Previous (Ω) = Wire Resistance (Ω/Ft) x 2 x Dist. From Previous (Ft) Voltage Drop From Previous = Resistance From Previous (Ω) x Remaining Current (A)										
P1 N4 POINT-TO-POINT REPORT							CIRCUIT SETTINGS		TOTALS	
Circuit Wiring Properties: 'B' 14/2 FPLP/R (NAC) 14 AWG, 2 Cond. Solid Copper FPLP/R Analog Unshielded Distance measured using drawn segment lengths with 10.00 % additional length calculated							Starting Calculation Voltage:	20.4	Max. Voltage Drop:	0.04
							Min. Operational Voltage:	16	End Of Line Voltage:	20.36
							Max. Circuit Current (A):	2.5	Voltage Drop Percent:	0.18 %
							Wire Resistance (Ω/kFt):	3.07	Total Circuit Current (A):	0.176
							Total Circuit Length (Ft):	34	Spare Current (A):	2.324
							Total Circuit Resistance (Ω):	0.208491	Spare Current (A) Percent:	92.96 %
Device Label	Part No.	Description	Device Current (A)	Remaining Current (A)	Dist. From Previous (Ft)	Resistance From Previous (Ω)	Voltage Drop From Previous	Voltage At Device	Total Voltage Drop	Voltage Drop Percent
P1-N4-01 EOL 4.7k	P2RK	2-Wire Horn Strobe, Standard cd, Outdoor 75cd	0.176	0.176	34	0.208491	0.04	20.36	0.04	0.18 %
Calculation Methods: Resistance From Previous (Ω) = Wire Resistance (Ω/Ft) x 2 x Dist. From Previous (Ft) Voltage Drop From Previous = Resistance From Previous (Ω) x Remaining Current (A)										

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6/21/2023

BC ENGINEERS INCORPORATED

5720 Reeder Shawnee, Ks. 66203 (913)262-1772

PROJECT NAME / CUSTOMER / LOCATION:

TOWN CENTRE LOGISTICS, LOT 4
500 NE TOWN CENTRE BLVD.
LEE'S SUMMIT, MO 64064

SYSTEM DESCRIPTION:

NEW FIRE ALARM SYSTEM

PROJECT MANAGER:

DARIN WASSINGER
(816) 206-3328

DESIGNER:

SAS

DRAFTER:

SAS

DRAWING #:

FA501

PROJECT JOB#:

PJ2305300006

DATE:

06/19/2023

ISSUED FOR:

CONSTRUCTION