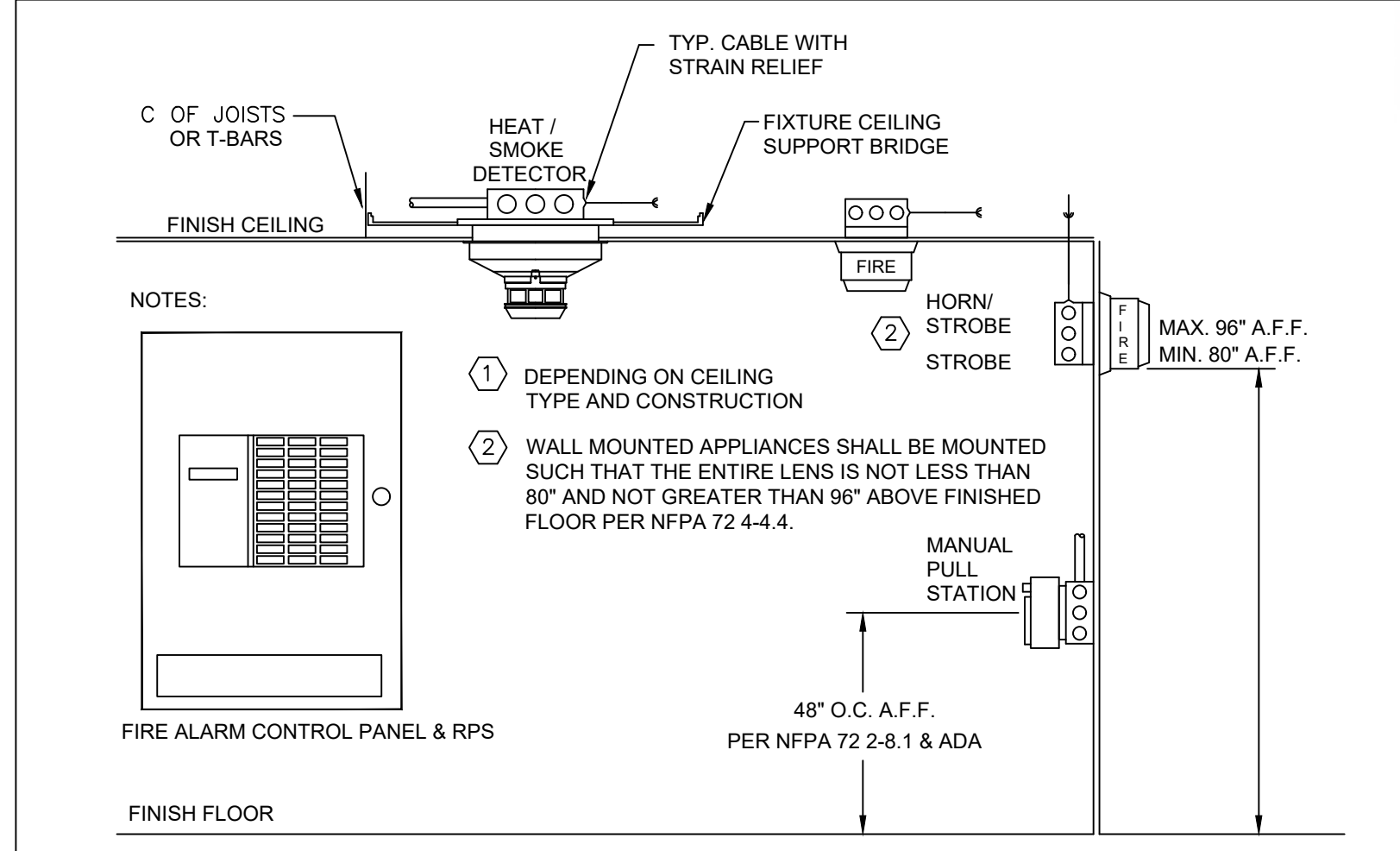


GENERAL NOTES

- ALL WALL MOUNTED HORN STROBES WILL BE MOUNTED 80" A.F.F. TO THE BOTTOM OF THE BOX.
- ALL MANUAL PULL STATIONS WILL BE MOUNTED 48" A.F.F. TO THE CENTER OF THE BOX.
- BUILDING WATERFLOW DEVICES WILL ANNUNCIATE AN ALARM AT THE FACP, NOTIFY AUTHORITIES AND ACTIVATE AN AUDIBLE ALARM IN EVERY UNIT.
- BUILDING TAMPER SWITCHES WILL INDICATE A SUPERVISORY SIGNAL AT THE FACP, NOTIFY THE CENTRAL STATION AND ANNUNCIATE AT THE FACP.
- ALL PLANS SHALL MEET THE MINIMUM DOCUMENTATION REQUIREMENT IN ACCORDANCE WITH 2016 NFPA 72 SECTION 7.2.
- INSTALLATION REQUIREMENTS SHALL MEET ALL REQUIREMENTS IN ACCORDANCE WITH 2016 NFPA 72 SECTION 7.4 (SHOP DRAWING REQUIREMENTS).
- PROJECT IDENTIFICATION: COMPLETE ADDRESS OF THE PROJECT (INCLUDE BUILDING NAMES/NUMBERS, SUITE NUMBERS, AND TRACT AND LOT NUMBERS FOR RESIDENTIAL PROJECTS).
- DEVICE DATA SHEETS: PROVIDE ONE SET OF DEVICE MANUFACTURE DATA SHEETS FOR ALL DEVICES.
- EQUIPMENT LEGEND/BILL OF MATERIALS: THE LEGEND SHALL INDICATE NEWLY ADDED, RELOCATED, AND REPLACED DEVICES. THE LEGEND SHALL ALSO PROVIDE DEVICE SYMBOLS, MANUFACTURER NAME, MODEL NUMBER, AND THE CSFM LISTING NUMBERS.
- APPROVED DRAWINGS AND DOCUMENTS SHALL BE RETAINED. DRAWINGS SHALL BE ACCESSIBLE UPON REQUEST. AFTER FINAL INSPECTION, APPROVED SHOP DRAWINGS AND MAINTENANCE INSTRUCTIONS SHALL BE PROPERLY DELIVERED TO A REPRESENTATIVE OF THE OCCUPYING BUSINESS, WHO SHALL OFFER COPIES TO THE BUILDING OWNER IN ACCORDANCE WITH 2016 NFPA 72, 7.5.3 AND 7.7.1.
- WRITTEN RECORDS AND REPORTS OF THE ALARM SYSTEM TESTING FREQUENCIES AND RESULTS SHALL BE AVAILABLE FOR REVIEW ON THE PREMISES FOR THE CFO INSPECTOR DURING FIRE INSPECTIONS.
- ANY FUTURE MODIFICATIONS TO THE SYSTEM AFTER THIS FINAL CFO INSPECTION SHALL CAUSE A NEW PLAN TO BE DRAFTED AND SUBMITTED BY THE TENANT OR BUILDING OWNER. THE MODIFICATIONS SHALL NOT BE STARTED UNTIL THE NEW PLANS ARE APPROVED BY CFO (NFPA 72, 7.5.6.6).
- THE BATTERIES SHALL BE ABLE TO RUN THE SYSTEM IN STAND-BY MODE FOR 24 HOURS WITHOUT BUILDING POWER IN A NON-ALARM CONDITION, AND THEN IMMEDIATELY BE ABLE TO OPERATE ALL DEVICES FOR 5 MINUTES (15 MINUTES IS REQUIRED FOR VOICE EVACUATION SYSTEMS) (NFPA 72, 10.6.7.2.1, CFC 907.1.2).
- WHERE A BUILDING FIRE ALARM OR MONITORING SYSTEM IS INSTALLED, AUTOMATIC FIREEXTINGUISHING SYSTEMS SHALL BE MONITORED TO THE CENTRAL SUPERVISING STATION BY THE BUILDING FIRE ALARM OR WATER FLOW SYSTEM IN ACCORDANCE WITH NFPA 72 AND CFC 904.3.5.
- DUCT DETECTION: DUCT DETECTORS ARE ONLY REQUIRED TO BE TIED TO THE MAIN FIRE ALARM PANEL WHEN THE ALARM SYSTEM IS REQUIRED BY CBC 907.2. WHEN TIED TO THE MAIN FIRE ALARM PANEL, DUCT DETECTION ACTIVATION SHALL ONLY CAUSE A SUPERVISORY SIGNAL TO THE CENTRAL SUPERVISING STATION. FOR BUILDINGS THAT ONLY HAVE A WATER FLOW ALARM, OR THE DUCT DETECTOR ACTIVATION SHALL PROVIDE A VISIBLE AND AUDIBLE SIGNAL AT AN APPROVED LOCATION, BUT DOES NOT NEED TO NOTIFY THE CENTRAL SUPERVISING STATION.
- IF PROPOSING A SYSTEM OR SPECIFIC DEVICES THAT ARE NOT REQUIRED BY CODES, PROVIDE A DISCLOSURE LETTER ("VOLUNTARY SYSTEMS/DEVICE") INDICATING SCOPE OF WORK. LETTER SHALL VERBATIM "THE SIGNEE IS AWARE THE DEVICES ARE NOT REQUIRED, BUT THE ADDITIONAL DEVICES FOR GREATER LIFE SAFETY PROTECTION FOR THE OCCUPANTS AND BUILDING PROTECTION. THE SYSTEM WILL BE TESTED AND MAINTAINED PER CODE REQUIREMENTS. THE DEVICES THAT ARE NOT REQUIRED ARE _____" (LIST INDIVIDUAL TYPES OF DEVICES).
- SYSTEM RECORD OF COMPLETION IS REQUIRED PRIOR TO ALL FIRE ALARM SYSTEM FINAL IN ACCORDANCE WITH CFC 907.7.2.
- ALL MODIFICATIONS MADE AFTER THE INITIAL INSTALLATION SHALL BE RECORDED ON A REVISION OF THE ORIGINAL COMPLETION DOCUMENTS.
- EMERGENCY COMMUNICATION SYSTEMS SUPPLEMENTARY RECORD OF COMPLETION IS REQUIRED PRIOR TO FINAL.
- FOR NEW INSTALLATIONS OF ELEVATORS, ELEVATOR MUST BE TESTED AND CERTIFIED BY THE STATE PRIOR TO FIRE ALARM FINAL.
- WHEN THE FIRE ALARM CONTROL UNIT (FACU) PANEL IS IN A ROOM ACCESSED THROUGH A DOOR, A PERMANENT SIGN SHALL BE PROVIDED ON THE DOOR INDICATING, "FIRE ALARM CONTROL UNIT" OR EQUIVALENT. WHEN THERE ARE SUB-PANELS, DOOR SIGNS SHALL ALSO INDICATE WHERE THE MAIN FACU PANEL IS LOCATED.
- CALL INSPECTION SCHEDULING LINE AT (760) 602-4660 TO SCHEDULE ALL INSPECTIONS AT LEAST 48 HOURS IN ADVANCE.

DEVICE MOUNTING NOTES



EVENT

EVENT	TRouble SIGNAL @ FIRE ALARM CONTROL PANEL	SUPERVISORY SIGNAL @ FIRE ALARM CONTROL PANEL	ALARM SIGNAL @ FIRE ALARM CONTROL PANEL	ACTIVATE HORN/STROBES	GENERAL HVAC SHUT/DOWN
SMOKE DETECTOR			●	●	
MANUAL PULL STATION			●	●	
DUCT DETECTOR	●				●
SPRINKLER WATERFLOW			●	●	
SPRINKLER TAMPER SWITCH		●			
FACP AC POWER FAILURE	●				
SYSTEM LOW BATTERY	●				
OPEN CIRCUIT	●				
GROUND FAULT	●				
NOTIFICATION APPLIANCE CIRCUIT SHORT	●				

NOTE: ALL SIGNALS WILL BE SENT TO A CENTRAL STATION

ACTION
TRouble SIGNAL @ FIRE ALARM CONTROL PANEL
SUPERVISORY SIGNAL @ FIRE ALARM CONTROL PANEL
ALARM SIGNAL @ FIRE ALARM CONTROL PANEL
ACTIVATE HORN/STROBES
GENERAL HVAC SHUT/DOWN

EQUIPMENT LIST

SYMBOL	QTY	EXISTING	MANUFACTURER	PART NO	DESCRIPTION	CSFM
FACP	1	X	SILENT KNIGHT	5808 (SK)	FIRE ALARM CONTROL PANEL, ADDRESSABLE, SK PROTOCOL	7165-0559-0142
FAA	1	X	SILENT KNIGHT	5860R	ANNUNCIATOR	7165-0559-0135
NAC	1	X	SILENT KNIGHT	5496	5496 6A INTELLIGENT REMOTE POWER SUPPLY	7300-0559-0171
ADM	5		SILENT KNIGHT	SK-RELAY	ADDRESSABLE RELAY MODULE	7300-0559-0155
S	5		SILENT KNIGHT	SK-DUCT	ADDRESSABLE DUCT SMOKE DETECTOR (INCLUDES PHOTO-R-W)	3242-0559-0162
S	1		SILENT KNIGHT	SK-PHOTO-W W/B300-6	ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR W/ 6" BASE	7272-0559-0512
SCWL	7		SYSTEM SENSOR	SCWL	STROBE, WHITE	7125-1653-0504
PC2WL	4		SYSTEM SENSOR	PC2WL	2-WIRE, HORN STROBE, WHITE	7135-1653-0503
RTS	5		SYSTEM SENSOR	RTS151KEY	REMOTE TEST STATION W/ SWITCH, ALARM & POWER LEDS, KEY RESET	7300-1653-0212

CABLE AND WIRE LEGEND

LABEL	PART NO	AWG	RESISTANCE (Ω/KFT)	DESCRIPTION	TOTAL LENGTH
B	18/4 FPLP (RTS)	18	7.77	RTS - 4 COND. SOLID COPPER FPLP ANALOG UNSHIELDED	4'
D	18/2 FPLP (SLC)	18	7.77	SLC - 2 COND. SOLID COPPER FPLP ANALOG UNSHIELDED	1002'
V	14/2 FPLP (NAC)	14	3.07	NAC - 2 COND. SOLID COPPER FPLP ANALOG UNSHIELDED	819'

APPLICABLE CODES

- 2019 CALIFORNIA ADMINISTRATIVE CODE - PART 1, TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR)
- 2019 CALIFORNIA BUILDING CODE, VOLUMES 1 AND 2 - PART 2, TITLE 24, CCR
- 2019 CALIFORNIA ELECTRIC CODE - PART 3, TITLE 24, CCR
- 2019 CALIFORNIA MECHANICAL CODE - PART 4, TITLE 24, CCR
- 2019 CALIFORNIA PLUMBING CODE - PART 5, TITLE 24, CCR
- 2019 CALIFORNIA FIRE CODE - PART 9, TITLE 24, CCR
- NFPA 72 2016 EDITION

SCOPE OF WORK

- INSTALLATION OF NEW FIRE ALARM DEVICES FOR TENANT IMPROVEMENT AS SHOWN ON PLANS.
- THE FIRE ALARM SYSTEM SHALL BE COMPLIANT TO CURRENT CODES. (NFPA 72 2016 EDITION)

BUILDING DATA

OCCUPANCY GROUP:	B	FIRE PROTECTION:	FULLY SPRINKLERED
CONSTRUCTION TYPE:	III-B	STORIES:	3
YEAR BUILT:	2007	EXISTING USE:	OFFICE
WORK AREA:	T.1 APPROX. 5,756 SQ. FT	PROPOSED USE:	OFFICE
		ADJACENT SPACE:	OFFICE

PANEL BPS-1 (5496) BATTERY CALCULATION

(SECONDARY POWER SOURCE REQUIREMENTS)

PANEL COMPONENTS	QTY	PART NO.	DESCRIPTION	STANDBY CURRENT (AMPS)		SECONDARY ALARM CURRENT (AMPS)	
				CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
	1	5496 MAIN BOARD	5496 6A Intelligent Remote Power Supply Main Board	0.04	0.04	0.16	0.16
CIRCUIT	SYMBOL	QTY	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
BPS-1-N1	-	1	EXISTING NAC CIRCUIT	0	0	1.50000	1.50000
BPS-1-N2	-	1	EXISTING NAC CIRCUIT	0	0	1.50000	1.50000
BPS-1-N3	-	1	EXISTING NAC CIRCUIT	0	0	0.43900	0.43900
BPS-1-N4	⚡	1	PC2WL 2-Wire, Horn Strobe, White 30cd	0	0	0.09000	0.09000
	⚡	3	PC2WL 2-Wire, Horn Strobe, White 75cd	0	0	0.143	0.429
	⚡	4	SCWL Strobe, White 15cd	0	0	0.041	0.164
	⚡	2	SCWL Strobe, White 30cd	0	0	0.063	0.126
	⚡	1	SCWL Strobe, White 75cd	0	0	0.111	0.111
				TOTAL STANDBY (A)	0.04	TOTAL ALARM (A)	4.35900
				REQUIRED STANDBY TIME = 24 HOURS			
				REQUIRED ALARM TIME = 5 MINUTES			
SECONDARY STANDBY LOAD (A)				0.04	24	0.96	
SECONDARY ALARM LOAD (A)				4.35900	0.08333	0.36324	
STANDBY AND ALARM SUBTOTAL (AMP HOURS)				1.32324			
DERATING FACTOR				1.2			
SECONDARY LOAD REQUIREMENTS (AMP HOURS)				1.58789			
PROVIDE (2) 12V 7AH BATTERIES @ 24VDC							

BPS-1 N4 LUMP SUM REPORT

Circuit Wiring Properties:	CIRCUIT SETTINGS		TOTALS			
	Starting Calculation Voltage:	20.4	Max. Voltage Drop:	1.74144		
Distance measured using drawn segment lengths with 10.00 % additional length calculated	Min. Operational Voltage:	16	End Of Line Voltage:	18.65857		
	Max. Circuit Current (A):	3	Voltage Drop Percent:	8.54 %		
	Wire Resistance (Ω/Kft):	3.07	Total Circuit Current (A):	0.92		
	Total Circuit Length (Ft):	308	Spare Current (A):	2.08		
	Total Circuit Resistance (Ω):	1.892864	Spare Current (A) Percent:	69.33 %		
DEVICE TOTALS	Symbol	Part No.	Description	Qty.	Device Current (A)	Total Current (A)
	⚡	SCWL	Strobe, White 15cd	4	0.041	0.164
	⚡	SCWL	Strobe, White 30cd	2	0.063	0.126
	⚡	PC2WL	2-Wire, Horn Strobe, White 30cd	1	0.09	0.09
	⚡	SCWL	Strobe, White 75cd	1	0.111	0.111
	⚡	PC2WL	2-Wire, Horn Strobe, White 75cd	3	0.143	0.429

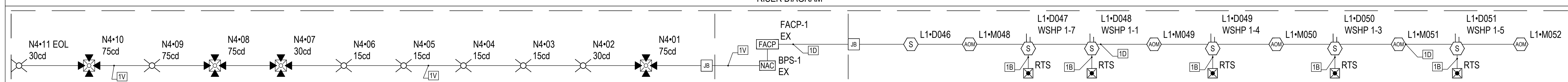
Calculation Methods:
 Total Resistance (Ω) = Wire Resistance (Ω/Ft) x 2 x Total Circuit Length (Ft)
 Total Voltage Drop = Total Resistance (Ω) x Total Circuit Current (A)

PANEL FACP-1 (5808 (SK)) BATTERY CALCULATION

(SECONDARY POWER SOURCE REQUIREMENTS)

PANEL COMPONENTS	QTY	PART NO.	DESCRIPTION	STANDBY CURRENT (AMPS)		SECONDARY ALARM CURRENT (AMPS)	
				CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
	1	5808 MAIN BOARD	FIRE ALARM CONTROL PANEL MAIN BOARD SK PROTOCOL	0.17	0.17	0.365	0.365
CIRCUIT	SYMBOL	QTY	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
FACP-1-L1	⚡	92	EXISTING SLC DEVICES	0.00055	0.05060	0.00055	0.05060
FACP-1-L1	⚡	5	SK-DUCT ADDRESSABLE DUCT SMOKE DETECTOR (INCLUDES PHOTO-R-W)	0.00030	0.00150	0.00650	0.03250
	⚡	1	SK-PHOTO-W w/B300-6 ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR w/ 6" Base	0.00020	0.00020	0.0045	0.00450
	⚡	5	SK-RELAY ADDRESSABLE RELAY MODULE	0.000255	0.001275	0.000255	0.001275
FACP-1-N1	-	1	EXISTING NAC CIRCUIT	0	0	1.00000	1.00000
FACP-1-N2	-	1	EXISTING NAC CIRCUIT	0	0	1.00000	1.00000
FACP-1-N3	-	1	EXISTING NAC CIRCUIT	0	0	1.00000	1.00000
FACP-1-N4	-	1	EXISTING NAC CIRCUIT	0	0	1.00000	1.00000
FACP-1-SBUS	NAC	1	5496 6A Intelligent Remote Power Supply	0.01	0.01	0.01	0.01
	FAA	1	5860R ANNUNCIATOR	0.02	0.02	0.025	0.025
TOTAL STANDBY (A)				0.25358	0.25358	TOTAL ALARM (A)	4.48888
				REQUIRED STANDBY TIME = 24 HOURS			
				REQUIRED ALARM TIME = 5 MINUTES			
SECONDARY STANDBY LOAD (A)				0.25358	24	6.08592	
SECONDARY ALARM LOAD (A)				4.48888	0.08333	0.37406	
STANDBY AND ALARM SUBTOTAL (AMP HOURS)				6.45998			
DERATING FACTOR				1.20000			
SECONDARY LOAD REQUIREMENTS (AMP HOURS)				7.75198			
PROVIDE (2) 12V 12AH BATTERIES @ 24VDC							

RISER DIAGRAM

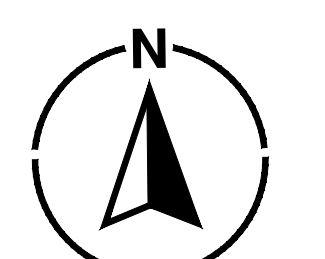
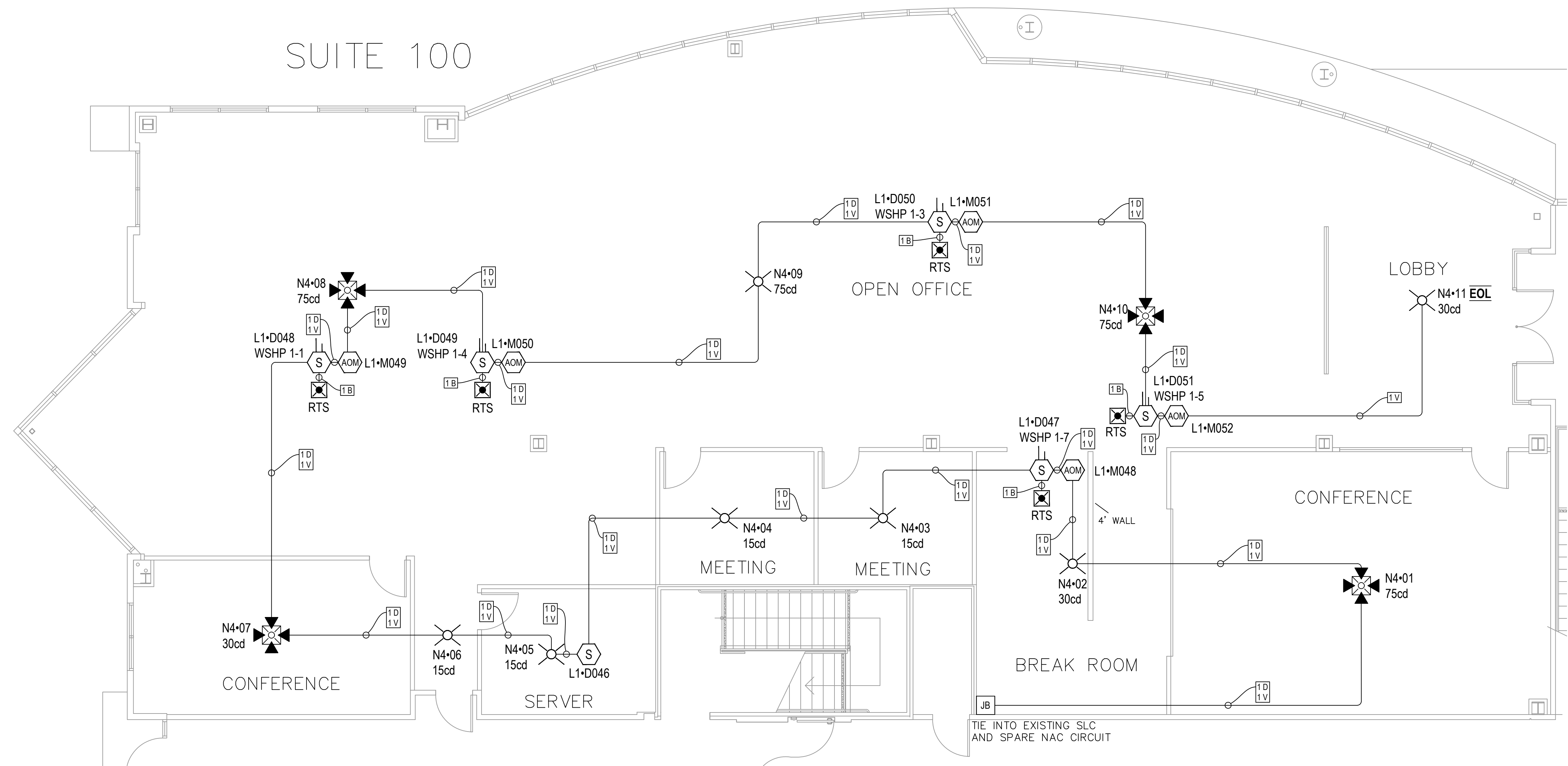


SHEET DESCRIPTION:
FIRE ALARM SYSTEM COVER SHEET

DRAWN BY: VMP
DATE: 3-15-2022
SCALE: N.T.S.

SHEET:
FA-00
1 OF 2

DEVICE LEGEND	
SYMBOL	DESCRIPTION
	ADDRESSABLE DUCT SMOKE DETECTOR (INCLUDES PHOTO-R-W)
	ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR W/ 6" BASE
	ADDRESSABLE RELAY MODULE
	REMOTE TEST STATION W/ SWITCH, ALARM & POWER LEDES, KEY RESET
	STROBE, WHITE
	2-WIRE, HORN STROBE, WHITE
	STANDARD JUNCTION BOX



SCALE: 3/16"=1'

SHEET DESCRIPTION:
FIRE ALARM SYSTEM
DESIGN PLAN

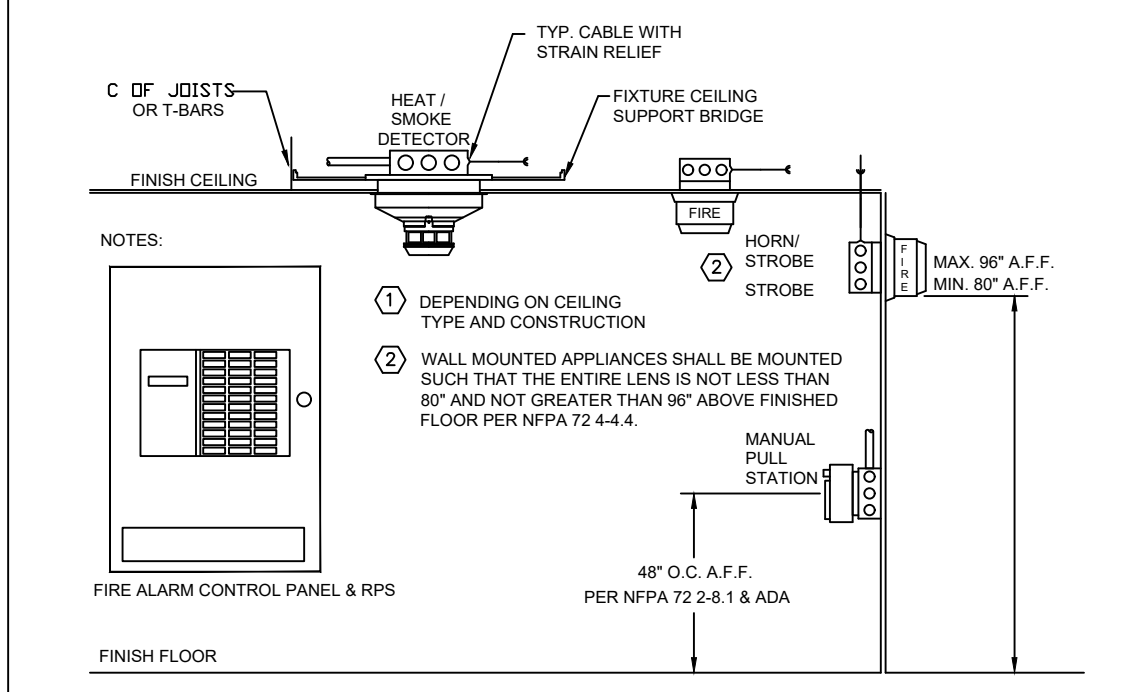
DRAWN BY: VMP
DATE: 3.18.2022
SCALE: 3/16"=1'-0"

SHEET:
FA-01
2 OF 2

GENERAL NOTES

1. ALL WALL MOUNTED HORN STROBES WILL BE MOUNTED 80" A.F.F. TO THE BOTTOM OF THE BOX.
2. ALL MANUAL PULL STATIONS WILL BE MOUNTED 48" A.F.F. TO THE CENTER OF THE BOX.
3. BUILDING WATERFLOW DEVICES WILL ANNUNCIATE AN ALARM AT THE FACP, NOTIFY AUTHORITIES AND ACTIVATE AN AUDIBLE ALARM IN EVERY UNIT.
4. BUILDING TAMPER SWITCHES WILL INDICATE A SUPERVISORY SIGNAL AT THE FACP, NOTIFY THE CENTRAL STATION AND ANNUNCIATE AT THE FACP.

DEVICE MOUNTING NOTES



EQUIPMENT LIST					
SYMBOL	QTY	EXISTING	MANUFACTURER	PART NO	DESCRIPTION
FACP	1	X	SILENT KNIGHT	5820XL (SD)	FIRE ALARM CONTROL PANEL, ADDRESSABLE, SD PROTOCOL
MIC	1		SILENT KNIGHT	SKE-SRM	SKE-SRM REMOTE MICROPHONE MODULE
NAC	1		SILENT KNIGHT	SK-PS10	10 AMP POWER SUPPLY
EVAC	1		SILENT KNIGHT	SKE-450 (25V 4 CIRCUIT)	FIRE ALARM CONTROL PANEL VOICE EVACUATION SYSTEM (SKE-ZN4 - 25V)
	1		SILENT KNIGHT	SKE-ZN4 (25V)	4 ZONE AUDIO MODULE (SKE-450 25V)
AM CO	7		SYSTEM SENSOR	CO-1224	CARBON MONOXIDE CO DETECTOR
	7		SILENT KNIGHT	SD500-MIM	ADDRESSABLE MINI INPUT MODULE
S	13		SILENT KNIGHT	SD505-PHOTO W/SD505-6AB BASE	ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR
F	8		SILENT KNIGHT	SD500-PSDA	ADDRESSABLE MANUAL PULL STATION, DOUBLE-ACTION
RTS	6		SILENT KNIGHT	SD505-DTS-K	REMOTE TEST STATION W/ SWITCH, ALARM & POWER LEDS, KEY RESET
S R	6		SILENT KNIGHT	SD505-DUCTR	ADDRESSABLE DUCT SMOKE DETECTOR
SCWL	3		SYSTEM SENSOR	SCWL	STROBE, WHITE
SPSCWL	28		SYSTEM SENSOR	SPSCWL	SPEAKER/STROBE CEILING MOUNT, WHITE

CABLE AND WIRE LEGEND

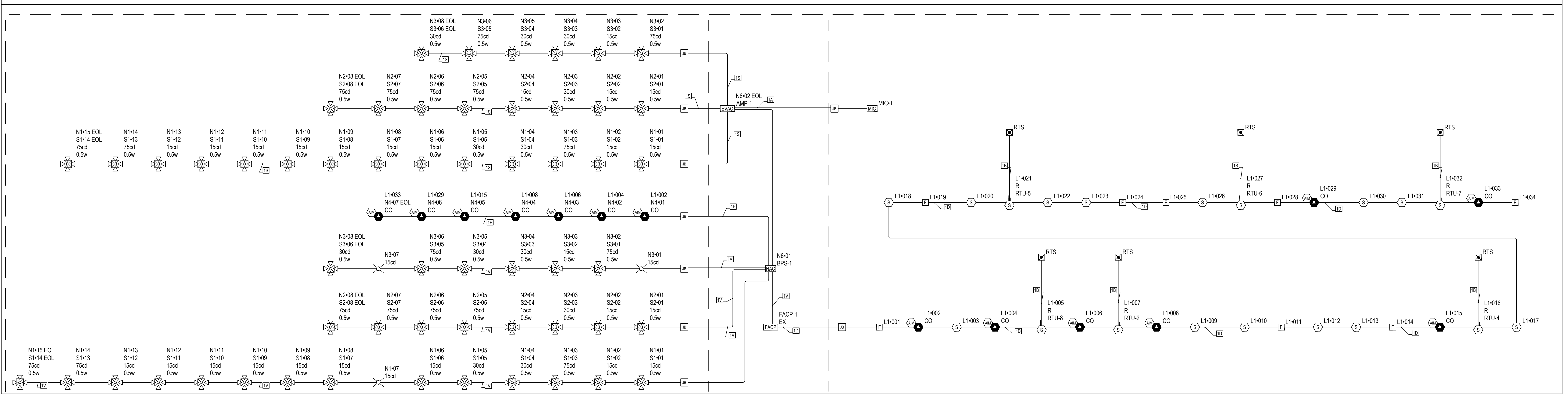
LABEL	PART NO	AWG	RESISTANCE (Ω/KFT)	DESCRIPTION	TOTAL LENGTH
A	18/4 FPLP (MIC)	18	7.77	MIC - 4 COND. SOLID COPPER FPLP ANALOG UNSHIELDED	359'
B	18/4 FPLP (RTS)	18	7.77	RTS - 4 COND. SOLID COPPER FPLP ANALOG SHIELDED	7'
D	16/2 FPLP (SLC)	16	4.1	SLC - 2 COND. SOLID COPPER FPLP ANALOG UNSHIELDED	883'
P	14/2 FPLP (AUX)	14	3.07	AUX POWER - 2 COND. SOLID COPPER FPLP ANALOG UNSHIELDED	894'
S	16/2 FPLP (SPK)	16	4.89	SPEAKER - 2 COND. SOLID COPPER FPLP ANALOG SHIELDED	1292'
V	14/2 FPLP (NAC)	14	3.07	NAC - 2 COND. SOLID COPPER FPLP ANALOG UNSHIELDED	1270'

EVENT

EVENT	TROUBLE SIGNAL @ FIRE ALARM CONTROL PANEL	SUPERVISORY SIGNAL @ FIRE ALARM CONTROL PANEL	ALARM SIGNAL @ FIRE ALARM CONTROL PANEL	ACTIVATE SPEAKER/STROBES	GENERAL HVAC SHUT DOWN	LOCAL HVAC SHUT DOWN
SMOKE DETECTOR			●	●	●	
MANUAL PULL STATION			●	●	●	
LOCAL DUCT DETECTOR	●					●
FACP AC POWER FAILURE	●					
SYSTEM LOW BATTERY	●					
OPEN CIRCUIT	●					
GROUND FAULT	●					
NOTIFICATION APPLIANCE CIRCUIT SHORT	●					

NOTE: ALL SIGNALS WILL BE SENT TO A CENTRAL STATION

RISER



PROJECT

REVISION:

△	FIRST RELEASE
△	
△	
△	

SHEET DESCRIPTION:
FIRE ALARM SYSTEM
COVER SHEET

DRAWN BY: VITOR PAES
DATE: 4.5.2022
SCALE: N.T.S.

SHEET:
FA-00
1 OF 3

PANEL FACP-1 (5820XL (SD)) BATTERY CALCULATION							
(SECONDARY POWER SOURCE REQUIREMENTS)							
PANEL COMPONENTS	QTY	PART NO.	DESCRIPTION	STANDBY CURRENT (AMPS)		SECONDARY ALARM CURRENT (AMPS)	
				CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
	1	5815XL SD PROTOCOL	Signaling Line Circuit Expander, 127 pts (SD)	0.055	0.055	0.055	0.055
	1	5815XL SD PROTOCOL/RMK	Signaling Line Circuit Expander, 127 pts (SD) In 5815RMK Cabinet	0.055	0.055	0.055	0.055
	1	5820XL MAIN BOARD	FIRE ALARM CONTROL PANEL MAIN BOARD SD PROTOCOL	0.215	0.215	0.385	0.385
CIRCUIT	SYMBOL	QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	TOTAL (A)
FACP-1-L1		7	CO-1224 w/SD500-MIM	Carbon Monoxide CO Detector w/SD500-MIM	0.00055	0.00385	0.00385
		8	SD500-PSDA	ADDRESSABLE MANUAL PULL STATION, DOUBLE-ACTION	0.00055	0.0044	0.0044
		6	SD505-DUCTR	ADDRESSABLE DUCT SMOKE DETECTOR	0.00055	0.0033	0.0033
FACP-1-N6		13	SD505-PHOTO w/SD505-6AB Base	ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR	0.00055	0.00715	0.00715
		1	SKE-450 (25V 4 Circuit)	FIRE ALARM CONTROL PANEL VOICE EVACUATION SYSTEM (SKE-ZN4 - 25V)	0.0001	0.0001	0.0001
		1	SK-PS10	10 AMP POWER SUPPLY	0	0	0
				TOTAL STANDBY (A)	0.3438	TOTAL ALARM (A)	0.5138
				REQUIRED STANDBY TIME = 24 HOURS REQUIRED ALARM TIME = 5 MINUTES			
SECONDARY STANDBY LOAD (A)				0.3438	24	8.2512	
SECONDARY ALARM LOAD (A)				0.5138	0.08333	0.04282	
STANDBY AND ALARM SUBTOTAL (AMP HOURS)				8.29402			
DERATING FACTOR				1.2			
SECONDARY LOAD REQUIREMENTS (AMP HOURS)				9.95282			
PROVIDE (2) 12V 12AH BATTERIES @ 24VDC							

PANEL AMP-1 (SKE-450 (25V 4 CIRCUIT)) BATTERY CALCULATION							
(SECONDARY POWER SOURCE REQUIREMENTS)							
PANEL COMPONENTS	QTY	PART NO.	DESCRIPTION	STANDBY CURRENT (AMPS)		SECONDARY ALARM CURRENT (AMPS)	
				CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
	1	SKE-450 MAIN BOARD	FIRE ALARM CONTROL PANEL MAIN BOARD	0.14	0.14	0.59	0.59
	1	SKE-ZN4 (25V)	4 ZONE AUDIO MODULE (SKE-450 25V)	0.045	0.045	0.25	0.25
CIRCUIT	SYMBOL	QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	TOTAL (A)
AMP-1-MIC		1	SKE-SRM	SKE-SRM Remote Microphone Module	0.03	0.03	0.03
AMP-1-S1		14	SPSCWL	Speaker/Strobe Ceiling Mount, White	0	0	0.28
AMP-1-S2		8	SPSCWL	Speaker/Strobe Ceiling Mount, White	0	0	0.16
AMP-1-S3		6	SPSCWL	Speaker/Strobe Ceiling Mount, White	0	0	0.12
				TOTAL STANDBY (A)	0.215	TOTAL ALARM (A)	1.43
				REQUIRED STANDBY TIME = 24 HOURS REQUIRED ALARM TIME = 5 MINUTES			
SECONDARY STANDBY LOAD (A)				0.215	24	5.16	
SECONDARY ALARM LOAD (A)				1.43	0.08333	0.11917	
STANDBY AND ALARM SUBTOTAL (AMP HOURS)				5.27917			
DERATING FACTOR				1.2			
SECONDARY LOAD REQUIREMENTS (AMP HOURS)				6.335			
PROVIDE (2) 12V 12AH BATTERIES @ 24VDC							

FACP-1 N6 LUMP SUM REPORT				CIRCUIT SETTINGS		TOTALS	
Starting Calculation Voltage:				20.4	Max. Voltage Drop:		0
Min. Operational Voltage:				16	End Of Line Voltage:		20.4
Max. Circuit Current (A):				3	Voltage Drop Percent:		0.00 %
Wire Resistance (Ω/KFT):				3.07	Total Circuit Current (A):		0.0001
Total Circuit Length (FT):				2	Spare Current (A):		2.9999
Total Circuit Resistance (Ω):				0.011958	Spare Current (A) Percent:		100.00 %
DEVICE TOTALS	Symbol	Part No.	Description	Qty.	Device Current (A)	Total Current (A)	
		SK-PS10	10 AMP POWER SUPPLY	1	0	0	
		SKE-450 (25V 4 Circuit)	FIRE ALARM CONTROL PANEL VOICE EVACUATION SYSTEM (SKE-ZN4 - 25V)	1	0.0001	0.0001	

Calculation Methods:
Total Resistance (Ω) = Wire Resistance (Ω/FT) x 2 x Total Circuit Length (FT)
Total Voltage Drop = Total Resistance (Ω) x Total Circuit Current (A)

PANEL BPS-1 (SK-PS10) BATTERY CALCULATION							
(SECONDARY POWER SOURCE REQUIREMENTS)							
PANEL POWER SUPPLY MAX CURRENT = 10A				TOTAL USED CAPACITY (IN ALARM) = 2.498A (24.98 %)			
PANEL COMPONENTS	QTY	PART NO.	DESCRIPTION	STANDBY CURRENT (AMPS)		SECONDARY ALARM CURRENT (AMPS)	
				CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
	1	SK-PS10 MAIN BOARD	10 AMP POWER SUPPLY	0.156	0.156	0.185	0.185
CIRCUIT	SYMBOL	QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	TOTAL (A)
BPS-1-N1		1	SCWL	Strobe, White 15cd	0	0	0.041
		9	SPSCWL	Speaker/Strobe Ceiling Mount, White 15cd	0	0	0.369
		2	SPSCWL	Speaker/Strobe Ceiling Mount, White 30cd	0	0	0.126
BPS-1-N2		3	SPSCWL	Speaker/Strobe Ceiling Mount, White 75cd	0	0	0.333
		3	SPSCWL	Speaker/Strobe Ceiling Mount, White 15cd	0	0	0.123
		1	SPSCWL	Speaker/Strobe Ceiling Mount, White 30cd	0	0	0.063
BPS-1-N3		4	SPSCWL	Speaker/Strobe Ceiling Mount, White 75cd	0	0	0.444
		2	SCWL	Strobe, White 15cd	0	0	0.082
		1	SPSCWL	Speaker/Strobe Ceiling Mount, White 15cd	0	0	0.041
BPS-1-N4		3	SPSCWL	Speaker/Strobe Ceiling Mount, White 30cd	0	0	0.189
		2	SPSCWL	Speaker/Strobe Ceiling Mount, White 75cd	0	0	0.222
		7	CO-1224 w/SD500-MIM	Carbon Monoxide CO Detector w/SD505-MIM	0.02	0.14	0.28
				TOTAL STANDBY (A)	0.296	TOTAL ALARM (A)	2.498
				REQUIRED STANDBY TIME = 24 HOURS REQUIRED ALARM TIME = 5 MINUTES			
SECONDARY STANDBY LOAD (A)				0.296	24	7.104	
SECONDARY ALARM LOAD (A)				2.498	0.08333	0.20817	
STANDBY AND ALARM SUBTOTAL (AMP HOURS)				7.31217			
DERATING FACTOR				1.2			
SECONDARY LOAD REQUIREMENTS (AMP HOURS)				8.7746			
PROVIDE (2) 12V 12AH BATTERIES @ 24VDC							

BPS-1 N1 LUMP SUM REPORT				CIRCUIT SETTINGS		TOTALS	
Starting Calculation Voltage:				20.4	Max. Voltage Drop:		1.87106
Min. Operational Voltage:				16	End Of Line Voltage:		18.52894
Max. Circuit Current (A):				3	Voltage Drop Percent:		9.17 %
Wire Resistance (Ω/KFT):				3.07	Total Circuit Current (A):		0.869
Total Circuit Length (FT):				351	Spare Current (A):		2.131
Total Circuit Resistance (Ω):				2.15312	Spare Current (A) Percent:		71.03 %
DEVICE TOTALS	Symbol	Part No.	Description	Qty.	Device Current (A)	Total Current (A)	
		SPSCWL	Speaker/Strobe Ceiling Mount, White 15cd	9	0.041	0.369	
		SCWL	Strobe, White 15cd	1	0.041	0.041	
		SPSCWL	Speaker/Strobe Ceiling Mount, White 30cd	2	0.063	0.126	
		SPSCWL	Speaker/Strobe Ceiling Mount, White 75cd	3	0.111	0.333	

BPS-1 N2 LUMP SUM REPORT				CIRCUIT SETTINGS		TOTALS	
Starting Calculation Voltage:				20.4	Max. Voltage Drop:		2.45823
Min. Operational Voltage:				16	End Of Line Voltage:		17.94177
Max. Circuit Current (A):				3	Voltage Drop Percent:		12.05 %
Wire Resistance (Ω/KFT):				3.07	Total Circuit Current (A):		0.63
Total Circuit Length (FT):				635	Spare Current (A):		2.37
Total Circuit Resistance (Ω):				3.901957	Spare Current (A) Percent:		79.00 %
DEVICE TOTALS	Symbol	Part No.	Description	Qty.	Device Current (A)	Total Current (A)	
		SPSCWL	Speaker/Strobe Ceiling Mount, White 15cd	3	0.041	0.123	
		SPSCWL	Speaker/Strobe Ceiling Mount, White 30cd	1	0.063	0.063	
		SPSCWL	Speaker/Strobe Ceiling Mount, White 75cd	4	0.111	0.444	

BPS-1 N3 LUMP SUM REPORT				CIRCUIT SETTINGS		TOTALS	
Starting Calculation Voltage:				20.4	Max. Voltage Drop:		0.92542
Min. Operational Voltage:				16	End Of Line Voltage:		19.47458
Max. Circuit Current (A):				3	Voltage Drop Percent:		4.54 %
Wire Resistance (Ω/KFT):				3.07	Total Circuit Current (A):		0.534
Total Circuit Length (FT):				282	Spare Current (A):		2.466
Total Circuit Resistance (Ω):				1.732991	Spare Current (A) Percent:		82.20 %
DEVICE TOTALS	Symbol	Part No.	Description	Qty.	Device Current (A)	Total Current (A)	
		SCWL	Strobe, White 15cd	2	0.041	0.082	
		SPSCWL	Speaker/Strobe Ceiling Mount, White 15cd	1	0.041	0.041	
		SPSCWL	Speaker/Strobe Ceiling Mount, White 30cd	3	0.063	0.189	
		SPSCWL	Speaker/Strobe Ceiling Mount, White 75cd	2	0.111	0.222	

BPS-1 N4 LUMP SUM REPORT				CIRCUIT SETTINGS		TOTALS	
Starting Calculation Voltage:				20.4	Max. Voltage Drop:		1.53738
Min. Operational Voltage:				16	End Of Line Voltage:		18.86262
Max. Circuit Current (A):				3	Voltage Drop Percent:		7.54 %
Wire Resistance (Ω/KFT):				3.07	Total Circuit Current (A):		0.28
Total Circuit Length (FT):				894	Spare Current (A):		2.72
Total Circuit Resistance (Ω):				5.490637	Spare Current (A) Percent:		90.67 %
DEVICE TOTALS	Symbol	Part No.	Description	Qty.	Device Current (A)	Total Current (A)	
		CO-1224 w/SD500-MIM	Carbon Monoxide CO Detector w/SD505-MIM	7	0.04	0.28	

Calculation Methods:
Total Resistance (Ω) = Wire Resistance (Ω/FT) x 2 x Total Circuit Length (FT)
Total Voltage Drop = Total Resistance (Ω) x Total Circuit Current (A)

PROJECT

REVISION:

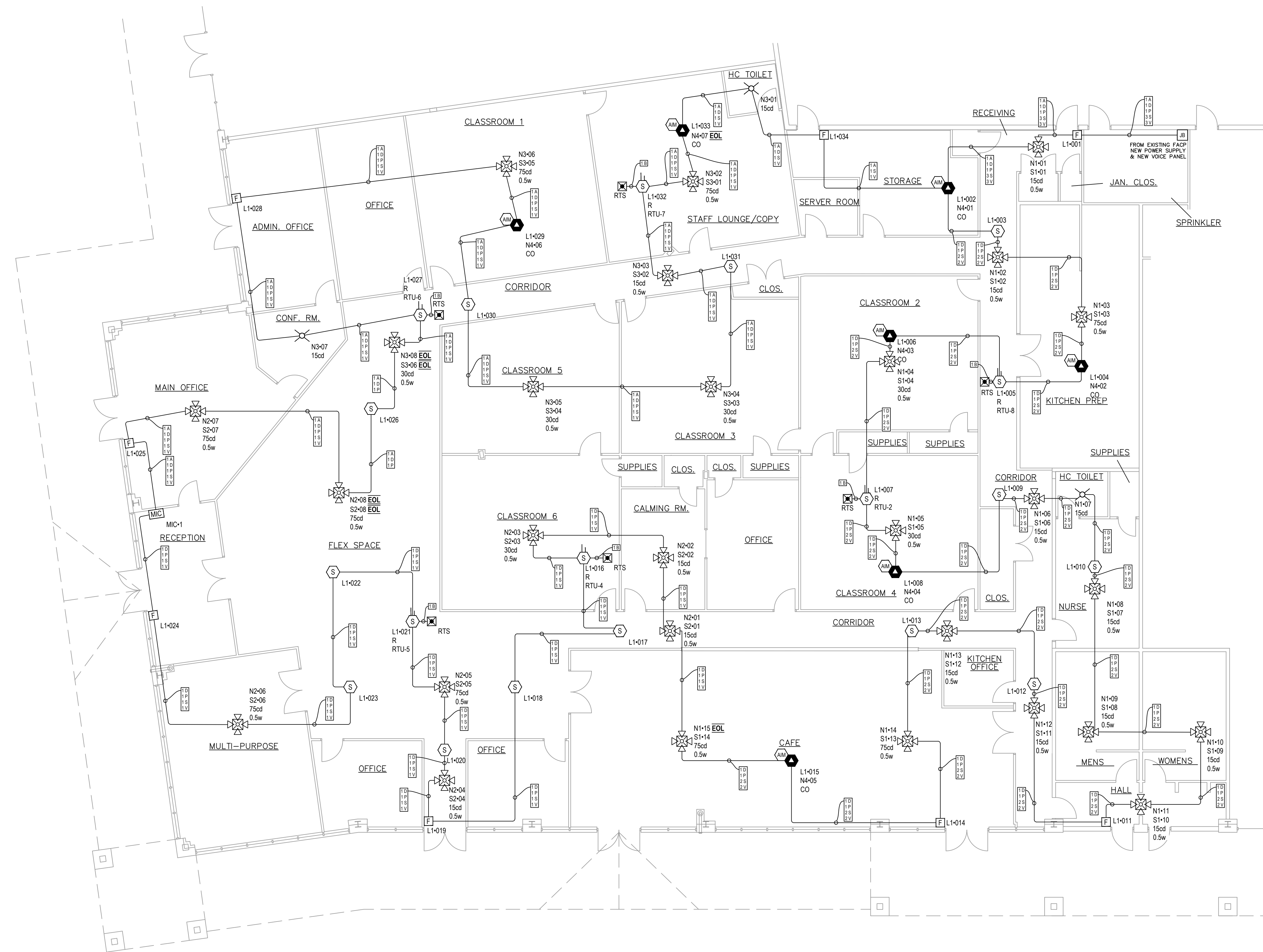
- △ FIRST RELEASE
- △
- △
- △
- △

SHEET DESCRIPTION:
FIRE ALARM SYSTEM CALCULATIONS

DRAWN BY: VITOR PAES
DATE: 4.5.2022
SCALE: N.T.S.

SHEET:
FA-01
2 OF 3

DEVICE LEGEND	
SYMBOL	DESCRIPTION
[FACP]	FIRE ALARM CONTROL PANEL, ADDRESSABLE, SD PROTOCOL
[MIC]	SKE-SRM REMOTE MICROPHONE MODULE
[NAC]	10 AMP POWER SUPPLY
[EVAC]	FIRE ALARM CONTROL PANEL, VOICE EVACUATION SYSTEM (SKE-ZN4 - 25V)
[AM] CO	CARBON MONOXIDE CO DETECTOR W/SD505-MIM
[S]	ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR
[F]	ADDRESSABLE MANUAL PULL STATION, DOUBLE-ACTION
[RTS]	REMOTE TEST STATION W/ SWITCH, ALARM & POWER LEDS, KEY RESET
[S] R	ADDRESSABLE DUCT SMOKE DETECTOR
[S] R	STROBE, WHITE
[S] R	SPEAKER/STROBE CEILING MOUNT, WHITE
[JB]	STANDARD JUNCTION BOX



FLOOR PLAN

PROJECT

REVISION:	▲ FIRST RELEASE
	▲
	▲
	▲

SHEET DESCRIPTION:
FIRE ALARM SYSTEM
DESIGN PLAN

DRAWN BY: VITOR PAES
DATE: 4.5.2022
SCALE: 1/8"=1'-0"

SHEET:
FA-03
3 OF 3