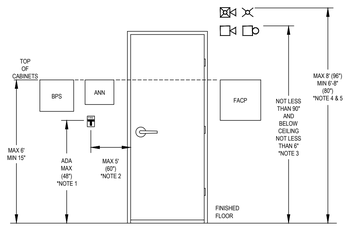
BUILDING DATA

CONSTRUCTION TYPE:	II-B	FIRE PROTECTION:	FULLY SPRINKLERED
OCCUPANCY GROUP:	H-3, M	NUMBER OF STORIES:	2
OCCUPANT LOAD:	146	WORK AREA:	21,750 SQFT

TYPICAL MOUNTING HEIGHTS

1. NFPA 72 2022 17.15.6 THE OPERABLE PART OF EACH MANUAL FIRE ALARM BOX SHALL BE NOT LESS THAN 42in AND NOT MORE THAN 48in FROM THE FINISHED FLOOR.
2. NFPA 72 2022 17.15.9.4 MANUAL FIRE ALARM BOXES SHALL BE LOCATED WITHIN 5ft OF EACH EXIT DOORWAY ON EACH FLOOR.
3. NFPA 72 2022 18.4.9.1 IF CEILING HEIGHTS ALLOW, AND UNLESS OTHERWISE PERMITTED BY 18.4.9.2 THROUGH 18.4.9.5, WALL-MOUNTED APPLIANCES SHALL HAVE THEIR TOPS ABOVE THE FINISHED FLOORS AT HEIGHTS OF NOT LESS THAN 90in AND BELOW THE FINISHED CEILINGS AT DISTANCES OF NOT LESS THAN 6in.
4. NFPA 72 2022 18.4.9.3 IF COMBINATION AUDIBLE/ VISIBLE APPLIANCES ARE INSTALLED, THE LOCATION OF THE INSTALLED APPLIANCE SHALL BE DETERMINED BY THE REQUIREMENTS OF 18.5.5. (SEE NOTE 5).
5. NFPA 72 2022 18.5.5.1 WALL-MOUNTED APPLIANCES SHALL BE MOUNTED SUCH THAT THE ENTIRE LENS IS NOT LESS THAN 80in. AND NOT GREATER THAN 96in ABOVE THE FINISHED FLOOR OR AT THE MOUNTING HEIGHT SPECIFIED USING THE PERFORMANCE BASED ALTERNATIVE OF 18.5.5.7.



SITE PLAN

GENERAL NOTES

1. THESE DRAWINGS DEPICT GENERAL LOCATIONS OF LIFE SAFETY EQUIPMENT & FIELD DEVICES. EXACT ROUTING OF CONDUITS TO BE DETERMINED IN THE FIELD BY THE INSTALLING CONTRACTOR TO SUIT CONDITIONS.
2. ALL FIRE ALARM SYSTEM WIRING SHALL BE CLEAR FROM SHORTS, OPENS AND GROUNDS.
3. SHOULD ANY CONDITIONS EXIST THAT DIFFER FROM WHAT IS INDICATED ON THESE DRAWINGS WHICH CAUSE MAJOR DEVIATIONS IN THE WORK SHOWN, THE CONTRACTOR SHALL CONTACT THE DESIGNER IN A TIMELY MANNER SO AS NOT TO IMPAIR THE CONSTRUCTION SCHEDULE.
4. CONTRACTOR IS RESPONSIBLE FOR MAKING AND OBTAINING APPROVAL FOR ALL NECESSARY ADJUSTMENTS IN CIRCUITING AS REQUIRED TO ACCOMMODATE THE RELOCATION OF EQUIPMENT AND/OR DEVICES WHICH ARE AFFECTED BY ANY AUTHORIZED CHANGE.
5. THE POWER CIRCUIT TO THE FACP AND TO THE FIRE ALARM POWER SUPPLIES SHALL BE ON A DEDICATED 120V, 20A BRANCH CIRCUIT BREAKER, AND SHALL HAVE A RED MARKING, LOCK-ON PROVISION AND SHALL BE IDENTIFIED AS "FIRE ALARM CIRCUIT CONTROL." THE LOCATION OF THE CIRCUIT DISCONNECT MEANS (CIRCUIT BREAKER) SHALL BE PERMANENTLY IDENTIFIED AT THE FIRE ALARM CONTROL UNIT.
6. ANY SMOKE DETECTOR HEAD INSTALLED BEFORE THE BUILDING IS CLEANED AND ACCEPTED SHALL BE COVERED TO PROTECT FROM DUST.
7. INSTALLATION OF DEVICES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. POWER LIMITED AND NON-POWER LIMITED FIELD WIRING MUST BE INSTALLED WITHIN THE FACP ENCLOSURE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
8. ALL WIRING SHALL BE INSTALLED ACCORDING TO NFPA 70 (NEC).
9. FIRE ALARM CIRCUITS EXTENDING BEYOND ONE BUILDING AND RUN OUTDOORS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 70 ARTICLES 760, 770, 725 AND 800 WHERE APPLICABLE.
10. ALL WIRING, INCLUDING SHIELDS MUST BE DRY AND FREE OF SHORTS AND GROUNDS.
11. ALL SHIELDED WIRE MUST HAVE SHIELD CONTINUITY AT FULL LENGTH OF THE WIRE.
12. ONLY FIRE ALARM SYSTEM WIRING CAN BE RUN IN THE SAME CONDUIT.
13. MAINTAIN 40 PERCENT MAXIMUM CONDUIT FILL RATIO AS PER NEC REQUIREMENTS.
14. EXISTING CONDUITS MAY BE USED BY THE INSTALLATION CONTRACTOR AS DEEMED NECESSARY, HOWEVER, ANY EXISTING CONDUIT WILL BE USED ONLY IF CONDUITS MEET CURRENT STANDARDS AND CODES.
15. THE FIRE ALARM SYSTEM SHALL BE MONITORED BY A CENTRAL UL LISTED MONITORING STATION.
16. ALL CEILINGS ARE ASSUMED TO BE 10' A.F.F., SMOOTH CONSTRUCTION UNLESS NOTED OTHERWISE.

SCOPE OF WORK

INSTALLATION OF A NEW MANUAL AND AUTOMATIC FIRE ALARM SYSTEM IN AN EXISTING BUILDING. NEW VOICE EVACUATION FIRE ALARM PANEL IS BEING INSTALLED ALONG WITH NOTIFICATION DEVICES AS PER THE APPLICABLE CODES, WITH PULL STATIONS AT EVERY EXIT. SPRINKLER WATERFLOW SWITCH IS BEING MONITORED TO ACTIVATE NOTIFICATION DEVICES UPON ALARM.

APPLICABLE CODES

OHIO BUILDING CODE - 2021 ED.
OHIO MECHANICAL CODE - 2021 ED.
OHIO PLUMBING CODE - 2021 ED.
OHIO FUEL GAS CODE - 2021
OHIO ENERGY CODE - 2021 ED.
OHIO ELECTRICAL CODE - 2023 ED.
INTERNATIONAL FIRE CODE - 2018 ED.
ADA STANDARDS FOR ACCESSIBLE DESIGN - 2010 ED.
NFPA 72 2022

CONTRACTOR INFO

SYSTEM DESIGNER/INSTALLER
NAME:
EMAIL:
PHONE #:
ADDRESS:

DRAWINGS PREPARED BY
JEM SYSTEMS LLC
hmadeira@jemsystems.com
480-977-3555

MONITORING COMPANY

NAME:
EMAIL:
PHONE #:
ADDRESS:

SHEET INDEX

CABLE AND WIRE LEGEND

LABEL	PART NO	RESISTANCE MFT	AWG	DESCRIPTION	TOTAL LENGTH
A	18/2 FPLP (ANN)	6.50	18	ANNUNCIATOR - 2 COND. SOLID COPPER FPLP ANALOG UNSHIELDED	136'
D	16/2 FPLP (SLC)	4.10	16	SLC - 2 COND. SOLID COPPER FPLP ADDRESSABLE UNSHIELDED	1537'
E	RJ31X (PHL)	16.14	22	PHONE LINE - RJ31X SOLID COPPER TWISTED SHIELDED	10'
P	14/2 FPLP (AUX)	2.60	14	AUX POWER - 2 COND. SOLID COPPER FPLP UNSHIELDED	139'
S	16/2 FPLP (SPK)	4.10	16	SPEAKER - 2 COND. SOLID COPPER FPLP ANALOG SHIELDED	750'
V	14/2 FPLP (NAC)	2.60	14	NAC - 2 COND. SOLID COPPER FPLP ANALOG UNSHIELDED	754'

EQUIPMENT LIST

SYMBOL	QUANTITY	MANUFACTURER	PART NO	DESCRIPTION
FACU	1	SIEMENS	FV924	FIRE ALARM CONTROL PANEL
	1	SIEMENS	FCA2015-U1	DIALER MODULE (DACT)
	1	SIEMENS	FCA2016-U1	RS-485 INTERFACE
	1	SIEMENS	FCA2031-A1	CONNECTION MODULE
	1	SIEMENS	FCI2016-U1	PERIPHERY BOARD (252 PTS)
	1	SIEMENS	FCM2018-U3	STANDARD OPERATING UNIT
	1	SIEMENS	FHB2005-R1	BACK BOX
	1	SIEMENS	FHD2004-U1	INNER DOOR (BLACK)
	1	SIEMENS	FHD2006-U1	CLEAR WINDOW
	1	SIEMENS	FP2012-U1	300W POWER SUPPLY
	1	SIEMENS	FT2015-U3	REMOTE TERMINAL (KEY, BL)
	1	SIEMENS	VCA2002-A1	VOICE I/O CARD
	1	SIEMENS	VCC2001-A1	VOICE CPU CARD
	1	SIEMENS	VCI2001-U1 (25/70.7V)	VOICE AMPLIFIER CARD 50 WATT
	1	SIEMENS	VTO2001-U3	OPTION MODULE (24 SWITCHES)
	1	SIEMENS	VTO2004-U3	OPTION MODULE (MICROPHONE)
DOC	1	SPACE AGE ELECTRONICS	SSU00691	DOCUMENT CABINET
CELL	1	NAPCO	SLE-MAX2-FIRE	COMMUNICATOR
FAA	1	SIEMENS	FT2015-U3	ANNUNCIATOR
NAC	1	SIEMENS	PAD-5-9A	POWER SUPPLY
F	10	SIEMENS	XMS-S	ADDRESSABLE MANUAL STATION
AIO	8	SIEMENS	XTRI-R	ADDRESSABLE RELAY MODULE
AIM	5	SIEMENS	XTRI-S	ADDRESSABLE MONITOR MODULE
H	2	SIEMENS	HI921 W/DB-11 BASE	ADDRESSABLE HEAT DETECTOR W/6" BASE
S	27	SIEMENS	OP921 W/DB-11	ADDRESSABLE SMOKE DETECTOR W/6" BASE
S	12	SIEMENS	FDBZ492-HR	DUCT HOUSING - 2 WIRE WITH RELAY
	12	SIEMENS	OP921	ADDRESSABLE DUCT DETECTOR
	12	SIEMENS	ST-100	SAMPLING TIUBE
	12	AIR PRODUCTS AND CONTROLS	WP-2000	WP ENCLOSURE- DUCT HOUSING (NEMA 3R)
	12	SIEMENS	TSM-1X	REMOTE TEST SWITCH
	18	SIEMENS	SC-SS-WW-F	SPEAKER/STROBE WALL, WHITE, FIRE
	3	SIEMENS	SC-ST-WW-F	STROBE, WALL, WHITE, FIRE
WP	1	SIEMENS	SET-S17-W-WP	OUTDOOR SPEAKER/STROBE WALL

EVENT / ACTION

EVENT	TROUBLE SIGNAL @ FIRE ALARM CONTROL PANEL	SUPERVISORY SIGNAL @ FIRE ALARM CONTROL PANEL	ALARM SIGNAL @ FIRE ALARM CONTROL PANEL	TROUBLE SIGNAL @ OFF SITE MONITORING	SUPERVISORY SIGNAL @ OFF SITE MONITORING	ALARM SIGNAL @ OFF SITE MONITORING	ACTIVATE NOTIFICATION DEVICES	ACTIVATE EXTERIOR NOTIFICATION DEVICE AT F.D. RESPONSE POINT	CLOSE FIRE DOORS	GENERAL HVAC SHUTDOWN	VARIABLE FREQUENCY DRIVE	ACCESS CONTROL	LOCAL HVAC SHUTDOWN
SMOKE/HEAT DETECTOR			●			●	●		●	●	●	●	
MANUAL PULL STATION			●			●	●		●	●	●	●	
WATERFLOW SWITCH			●			●	●	●	●	●	●	●	
LOCAL DUCT DETECTOR		●			●								●
TAMPER SWITCH		●			●								
GENERATOR RUNNING		●			●								
GENERATOR COMMON FAULT		●			●								
GENERATOR NOT IN AUTO		●			●								
FACP AC POWER FAILURE	●			●								●	
SYSTEM LOW BATTERY	●			●									
OPEN CIRCUIT	●			●									
GROUND FAULT	●			●									
NOTIFICATION APPLIANCE CIRCUIT SHORT	●			●									
CELLULAR DISCONNECT	●			●									

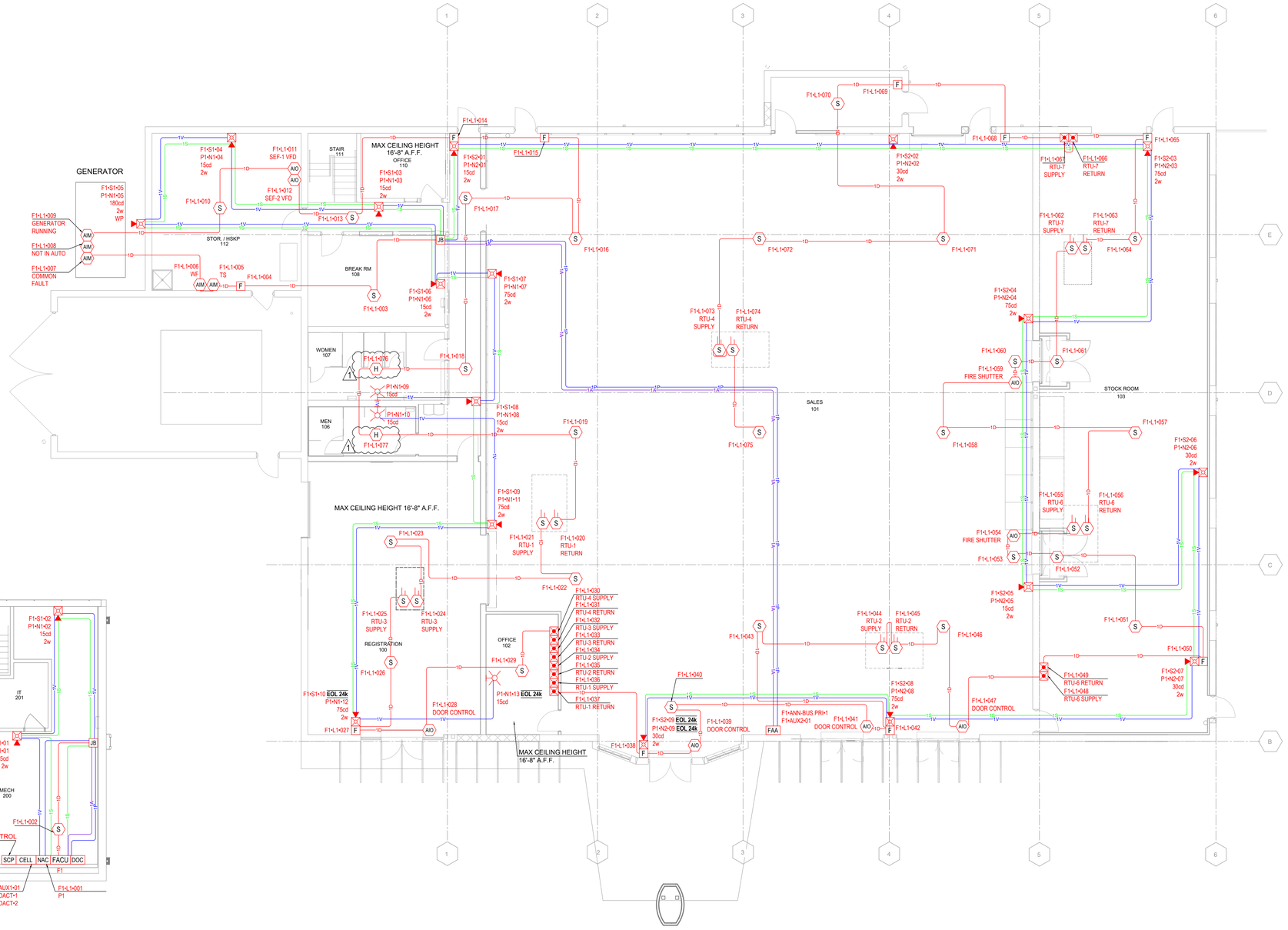
NOTE: ALL SIGNALS WILL BE SENT TO A CENTRAL STATION

REVISION	DESCRIPTION	DATE	APPR.
1 FIRE DEPARTMENT CORRECTIONS		02/24/25	

Date: 01/10/2025
Scale: N.T.S.
Project Number: -
Designed by:
Drawn by:
Approved By: JEM Systems

Fire Alarm Systems

SHEET REFERENCE NUMBER: 1
TOTAL SHEETS 6



2 MEZZANINE PLAN

0 1' 5' 10' 15'
1/8" = 1'-0"

1 FLOOR PLAN

0 1' 5' 10' 15'
1/8" = 1'-0"

DEVICE LEGEND

SYMBOL	DESCRIPTION
FACU	FIRE ALARM CONTROL PANEL
DOC	DOCUMENT CABINET
SCP	SMOKE CONTROL PANEL
CELL	COMMUNICATOR
FAA	ANNUNCIATOR
NAC	POWER SUPPLY
F	ADDRESSABLE MANUAL STATION
AIO	ADDRESSABLE RELAY MODULE
AIM	ADDRESSABLE MONITOR MODULE
H	THERMAL (HEAT) DETECTOR USE WITH DB-11 DETECTOR BASE
S	ADDRESSABLE SMOKE DETECTOR W/6" BASE
S	DUCT HOUSING - 2 WIRE WITH RELAY
	REMOTE TEST SWITCH
	SPEAKER/STROBE WALL, WHITE, FIRE
	STROBE, WALL, WHITE, FIRE
WP	OUTDOOR SPEAKER/STROBE WALL
JB	JUNCTION BOX

ABBREVIATIONS

RTU	ROOFTOP UNIT
SEF	SMOKE EXHAUST FAN
TS	TAMPER SWITCH
VFD	VARIABLE FREQUENCY DRIVE
WF	WATERFLOW SWITCH

CABLE & WIRE LEGEND

LABEL	AWG	DESCRIPTION
A	18	ANNUNCIATOR - 2 COND. SOLID COPPER FPLP ANALOG UNSHIELDED
D	16	SLC - 2 COND. SOLID COPPER FPLP ADDRESSABLE UNSHIELDED
E	22	PHONE LINE - RJ31X SOLID COPPER TWISTED SHIELDED
P	14	AUX POWER - 2 COND. SOLID COPPER FPLP UNSHIELDED
S	16	SPEAKER - 2 COND. SOLID COPPER FPLP ANALOG SHIELDED
V	14	NAC - 2 COND. SOLID COPPER FPLP ANALOG UNSHIELDED

ADDRESS & LABEL CLARIFICATION

F1•L1•001
- PANEL NUMBER
- SLC LOOP NUMBER
- DEVICE ADDRESS ON SLC LOOP

F1•N1•01
- PANEL NUMBER
- NOTIFICATION CIRCUIT NUMBER
- DEVICE NUMBER ON CIRCUIT

1D
- CABLE QUANTITY
- TYPE OF CABLE (CHECK CABLE AND WIRE LEGEND)

PANEL NAME:
F1: FIRE ALARM CONTROL PANEL
P1: POWER SUPPLY

NFPA 72 - TABLE A.18.4.4
AVERAGE AMBIENT SOUND LEVEL ACCORDING TO LOCATION

LOCATION	SOUND LEVEL (dBA)
1. BUSINESS OCCUPANCIES	54
2. EDUCATIONAL OCCUPANCIES	45
3. INDUSTRIAL OCCUPANCIES	88
4. INSTITUTIONAL OCCUPANCIES	50
5. MERCANTILE OCCUPANCIES	40
6. MECHANICAL ROOMS	91
7. PIERS AND WATER SURROUNDED STRUCTURES	40
8. PLACES OF ASSEMBLY	60
9. RESIDENTIAL OCCUPANCIES	35
10. STORAGE OCCUPANCIES	30
11. THOROUGHFARES, HIGH-DENSITY URBAN	70
12. THOROUGHFARES, MEDIUM-DENSITY URBAN	55
13. THOROUGHFARES, RURAL AND SUBURBAN	40
14. TOWER OCCUPANCIES	35
15. UNDERGROUND STRUCTURES AND WINDOWLESS BLDS	40
16. VEHICLES AND VESSELS	50

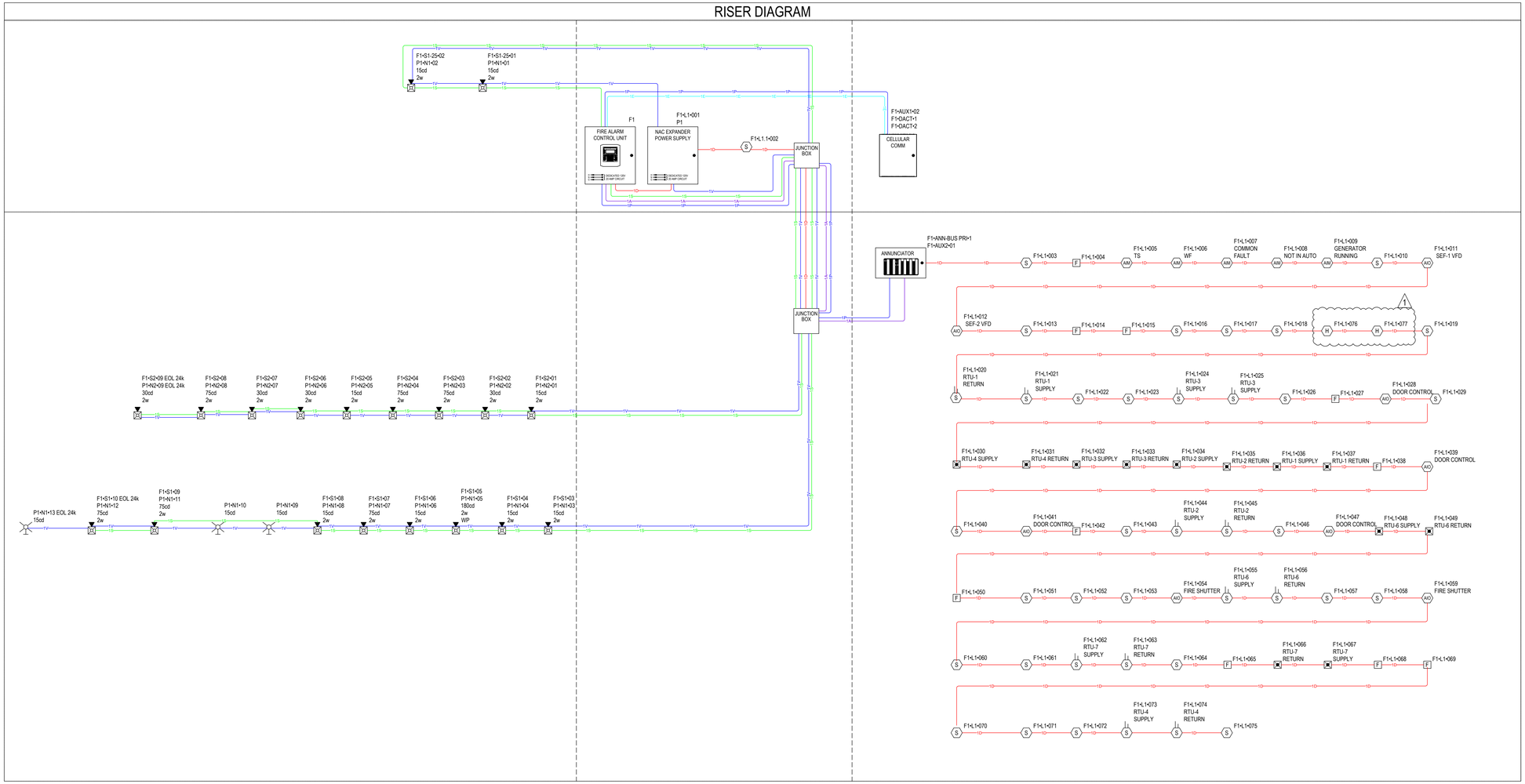
REVISION	DESCRIPTION	DATE	APPR.
1 FIRE DEPARTMENT CORRECTIONS		02/24/25	

Date: 01/10/2025
Scale: 1/8" = 1'
Project Number: -
Designed by:
Drawn by:
Approved By: JEM Systems

Fire Alarm Systems

SHEET REFERENCE NUMBER: 2
TOTAL SHEETS 6

RISER DIAGRAM



REVISION	DESCRIPTION	DATE	APPR.
1	FIRE DEPARTMENT CORRECTIONS	02/24/25	

Date: 01/10/2025
Scale: N.T.S.
Project Number: -
Designed by:
Drawn by:
Approved by: JEM Systems

Fire Alarm Systems

SHEET REFERENCE NUMBER: 3
TOTAL SHEETS 6

A B C D

5 4 3 2 1

PANEL F1 (FV924) BATTERY CALCULATION

(SECONDARY POWER SOURCE REQUIREMENTS)

PANEL POWER SUPPLY MAX CURRENT = 6A				TOTAL USED CAPACITY (IN ALARM) = 4.61455A (76.91 %)			
				STANDBY CURRENT (AMPS)		SECONDARY ALARM CURRENT (AMPS)	
	QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL
PANEL COMPONENTS	1	FCA2015-U1	Dialer module (DACT)	0.025	0.025	0.033	0.033
	1	FCA2016-U1	RS485 class A module (iso.)	0.075	0.075	0.136	0.136
	1	FCA2031-A1	Connection Module (MoNet) Used for communication between an FCI2018/FCI2019 operating unit and either the VCC2001 Voice CPU (for fire/voice panels) or the FN2012 Ethernet Switch (for fire only panels). The FCA2031 mounts in Position 1 on an FCI2018/FCI2019 operating unit.	0	0	0.1	0.1
	1	FCI2016-U1	Periphery board (252 pts)	0.11	0.11	0.136	0.136
	1	FCM2018-U3	Standard Operating Unit	0.13	0.13	0.17	0.17
	1	FP2012-U1	300W power supply	0	0	0	0
	1	VCC2001-A1	Voice CPU Card Voice CPU card which supervises and controls all voice modules and functions. This card gets mounted in the VCA2002 card cage (2nd slot from the left), and works with the VCC2002 Voice I/O card to control the voice system.	0.2	0.2	0.21	0.21
	1	VCI2001-U1 (25/70.7V)	Voice Amplifier Card 50 Watt amplifier card for the Voice system. The VCI2001 gets mounted in the VCA2002 card cage, with all speaker zone wiring connected to the card cage. Up to four VCI2001 amplifiers are supported on a single system.	0.33	0.33	3.20	3.20
	1	VTO2001-U3	Option module (24 switches) Cerberus PRO switch module used on FVS922/FV924 to add manual voice control. Up to four VTO2001-U3s can be supported on a single panel enclosure row.	0.017	0.017	0.143	0.143
	1	VTO2004-U3	Option module (microphone) Cerberus PRO microphone module used on FVS922/FV924 to add a paging microphone. The VTO2004-U3 can be either a main microphone installed in the main system enclosure, or as a remote microphone in a remote enclosure. Up to two microphones are supported for each FVS922/FV924.	0.029	0.029	0.054	0.054
CIRCUIT	**SYMBOL**	**QTY**	**PART NO**	**DESCRIPTION**	**CURRENT DRAW (A)**	**TOTAL (A)**	**CURRENT DRAW (A)**	**TOTAL (A)**
F1-NNN-BUS PRI	FAA	1	FT2015-U3	Remote terminal (key, bl)	0	0	0	0
F1-AUX1	CELL	1	SLE-MAX2-FIRE	Universal Fire Communicator, Dual SIM, Dual Path, Panel-Powered Technology, ABS Plastic Housing	0.085	0.085	0.325	0.325
F1-AUX2	FAA	1	FT2015-U3	Remote terminal (key, bl)	0.034	0.034	0.055	0.055
F1-DACT	CELL	1	SLE-MAX2-FIRE	Universal Fire Communicator, Dual SIM, Dual Path, Panel-Powered Technology, ABS Plastic Housing	0	0	0	0
F1-L1	S	12	FDBZ492-HR w/OP921	DUCT HOUSING - 2 WIRE WITH RELAY FOR ADDRESSABLE SYSTEMS w/ OP921	0.0003	0.0036	0.0003	0.0036
	H	2	HI921 w/DB-11 BASE	Thermal (Heat) Detector use with DB-11 Detector Base	0.0003	0.0006	0.0003	0.0006
	S	27	OP921 w/DB-11	Smoke Detector w/6" Base	0.0003	0.0081	0.0003	0.0081
	NAC	1	PAD-5-9A	Complete 9A PAD-5 Kit	0.012	0.012	0.02	0.02
	▣	12	TSM-1X	TSM-1X Intel Remote Test Switch, LED with Built-In Isolator	0.0005	0.006	0.0005	0.006
	F	10	XMS-S	MANUAL STATION - SINGLE ACTION	0.0005	0.005	0.0005	0.005
	AO	8	XTRI-R	Single Input Monitor Module with Relay with Built-In Isolator	0.00075	0.006	0.00075	0.006
	AM	5	XTRI-S	Single Input Monitor Module with Built-In Isolator	0.00065	0.00325	0.00065	0.00325
F1-S1	SA	9	SC-SS-WW-F	SPEAKER/STROBE WALL, WHITE, FIRE 2w	0	0	0	0
	SA WP	1	SET-S17-W-WP	ET SPKR 15/75 STROBE WHITE WEATHERPROOF 2w	0	0	0	0
F1-S2	SA	9	SC-SS-WW-F	SPEAKER/STROBE WALL, WHITE, FIRE 2w	0	0	0	0
					TOTAL STANDBY (A)	1.08	TOTAL ALARM (A)	4.61
				REQUIRED STANDBY TIME = 24 HOURS				
				REQUIRED ALARM TIME = 15 MINUTES				
SECONDARY STANDBY LOAD (A)		1.08		24		25.91		
SECONDARY ALARM LOAD (A)		4.61		0.25		1.15		
STANDBY AND ALARM SUBTOTAL (AMP HOURS)				27.06				
DERATING FACTOR				1.25				
SECONDARY LOAD REQUIREMENTS (AMP HOURS)				33.83				

PANEL P1 (PAD-5-9A) BATTERY CALCULATION

(SECONDARY POWER SOURCE REQUIREMENTS)

PANEL POWER SUPPLY MAX CURRENT = 9A				TOTAL USED CAPACITY (IN ALARM) = 1.422A (15.80 %)			
				STANDBY CURRENT (AMPS)		SECONDARY ALARM CURRENT (AMPS)	
	QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL
PANEL COMPONENTS	1	PAB-ENCL	PAD & AMP BOOSTER ENCL 1HU BLK	0	0	0	0
	1	PAD-5-MB	Addressable Power Supply Unit Main Board	0.078	0.078	0.174	0.174
CIRCUIT	**SYMBOL**	**QTY**	**PART NO**	**DESCRIPTION**	**CURRENT DRAW (A)**	**TOTAL (A)**	**CURRENT DRAW (A)**	**TOTAL (A)**
P1-N1	SA	6	SC-SS-WW-F	SPEAKER/STROBE WALL, WHITE, FIRE 15cd	0	0	0.03	0.18
	SA	3	SC-SS-WW-F	SPEAKER/STROBE WALL, WHITE, FIRE 75cd	0	0	0.102	0.306
	ST	3	SC-ST-WW-F	STROBE, WALL, WHITE, FIRE 15cd	0	0	0.03	0.09
	SA WP	1	SET-S17-W-WP	ET SPKR 15/75 STROBE WHITE WEATHERPROOF 180cd	0	0	0.146	0.146
P1-N2	SA	2	SC-SS-WW-F	SPEAKER/STROBE WALL, WHITE, FIRE 15cd	0	0	0.03	0.06
	SA	4	SC-SS-WW-F	SPEAKER/STROBE WALL, WHITE, FIRE 30cd	0	0	0.04	0.16
	SA	3	SC-SS-WW-F	SPEAKER/STROBE WALL, WHITE, FIRE 75cd	0	0	0.102	0.306
					TOTAL STANDBY (A)	0.078	TOTAL ALARM (A)	1.42
				REQUIRED STANDBY TIME = 24 HOURS				
				REQUIRED ALARM TIME = 15 MINUTES				
SECONDARY STANDBY LOAD (A)		0.078		24		1.87		
SECONDARY ALARM LOAD (A)		1.42		0.25		0.36		
STANDBY AND ALARM SUBTOTAL (AMP HOURS)				2.23				
DERATING FACTOR				1.25				
SECONDARY LOAD REQUIREMENTS (AMP HOURS)				2.78				
				PROVIDE (2) 12V 35AH BATTERIES				

LUMP SUM REPORT SUMMARY

DISTANCE MEASURED USING DRAWN SEGMENT LENGTHS WITH 10.00 % ADDITIONAL LENGTH CALCULATED

SOURCE	CIRCUIT	PART NO	MAX. CARD CURRENT (A)	TOTAL CARD CURRENT (A)	SPARE CARD CURRENT (A)	SPARE CARD CURRENT %	MAX. CIRCUIT CURRENT (A)	TOTAL CIRCUIT CURRENT (A)	SPARE CIRCUIT CURRENT (A)	SPARE CIRCUIT CURRENT %	WIRE GAUGE	WIRE RESISTANCE (Ω/KFT)	TOTAL CIRCUIT LENGTH (FT)	TOTAL CIRCUIT RESISTANCE (Ω)	STARTING CALCULATION VOLTAGE	MIN. OPERATIONAL VOLTAGE	MAX. VOLTAGE DROP	END OF LINE VOLTAGE	VOLTAGE DROP %
F1 (FV924)	AUX1	FCI2016-U1	6	0.43195	5.57	**92.80 %**	0.5	0.325	0.175	**35.00 %**	14	2.60	6	0.0286	20.40	16	0.01	20.39	**0.05 %**
	AUX2						0.5	0.055	0.445	**89.00 %**	14	2.60	287	1.49	20.40	16	0.08	20.32	**0.40 %**
P1 (PAD-5-9A)	N1	PAD-5-MB	9	1.25	7.75	**86.13 %**	3	0.7220	2.28	**75.93 %**	14	2.60	492	2.56	24	16	1.85	22.15	**7.69 %**
	N2						3	0.5260	2.47	**82.47 %**	14	2.60	547	2.84	24	16	1.50	22.50	**6.23 %**

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)

SPEAKER SCHEDULE SUMMARY

DISTANCE MEASURED USING DRAWN SEGMENT LENGTHS WITH 10.00 % ADDITIONAL LENGTH CALCULATED

SOURCE	CIRCUIT	PART NO	MAX. CARD WATTS	TOTAL CARD WATTS	SPARE CARD WATTS	SPARE CARD CURRENT %	MAX. CIRCUIT WATTS	TOTAL CIRCUIT WATTS	SPARE CIRCUIT WATTS	SPARE CIRCUIT WATTS %	WIRE GAUGE	WIRE RESISTANCE (Ω/KFT)	TOTAL CIRCUIT LENGTH (FT)	TOTAL CIRCUIT RESISTANCE (Ω)	STARTING CALCULATION VOLTAGE	MIN. OPERATIONAL VOLTAGE	MAX. DB LOSS	END OF LINE VOLTAGE	VOLTAGE DROP %
F1 (FV924)	S1	VCI2001-U1 (25/70.7V)	50	38	12	**24.00 %**	25	20	5	**20.00 %**	16	4.10	436	3.58	70.70	63	-0.077	70.08	**0.88 %**
	S2						25	18	7	**28.00 %**	16	4.10	543	4.45	70.70	63	-0.093670	69.94	**1.07 %**

CALCULATION METHODS:

WATTS TO AMPS CONVERSION = DEVICE WATTS / VOLTAGE

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)

DB LOSS FROM PREVIOUS = 20 × LOG (VOLTAGE AT PREVIOUS DEVICE / VOLTAGE AT DEVICE)

MAX. DB LOSS = 20 × LOG (VOLTAGE AT LAST DEVICE / START VOLTAGE)

REVISION

Number:	DESCRIPTION	DATE:	APPR.
1	FIRE DEPARTMENT CORRECTIONS	02/24/25	

Date: 01/10/2025

Scale: N.T.S.

Project Number: -

Designed by:

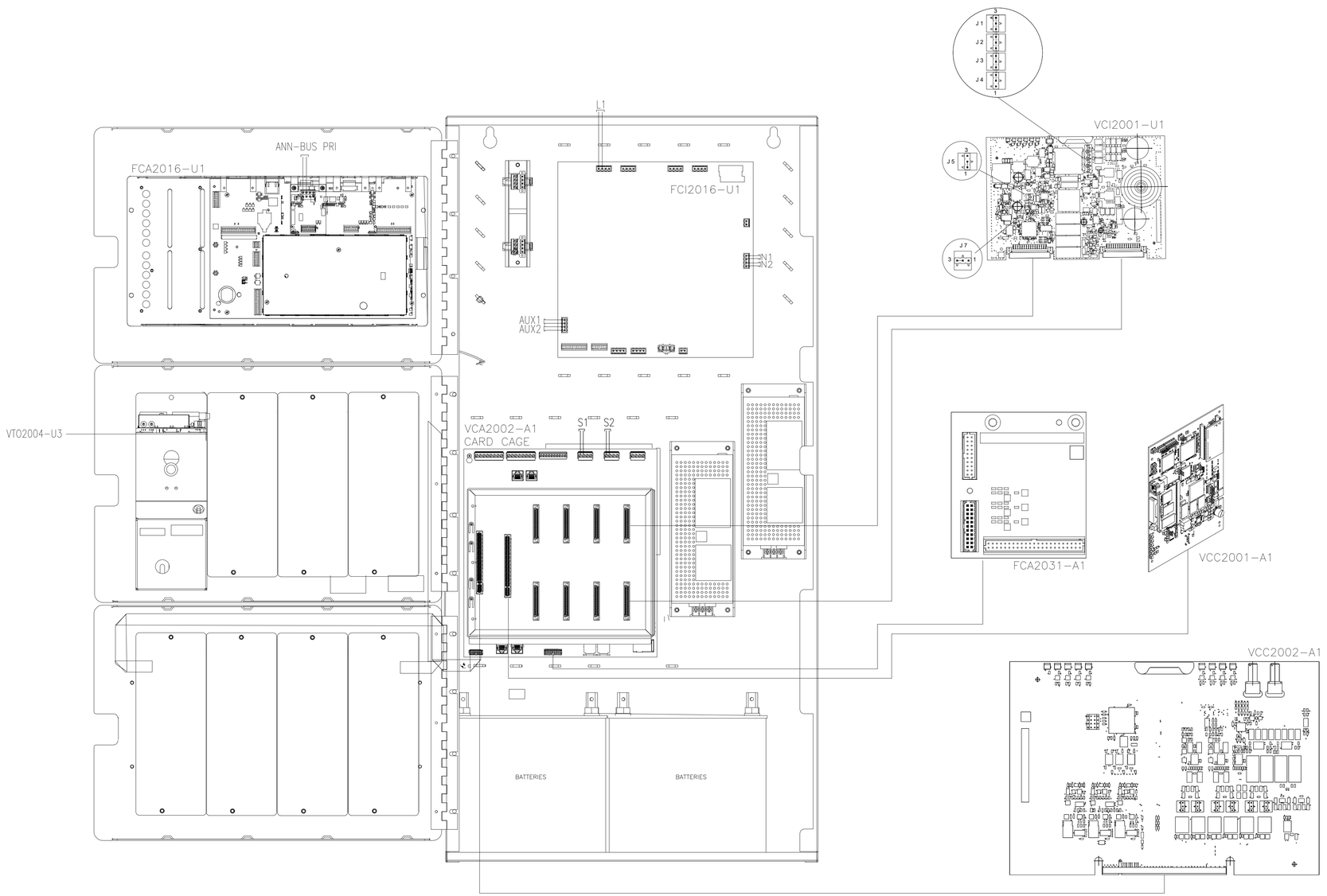
Drawn by:

Approved By: JEM Systems

Fire Alarm Systems

SHEET REFERENCE NUMBER: 4

TOTAL SHEETS 6



FV924 / F1 / FIRE ALARM CONTROL PANEL WIRING

NOT TO SCALE

REVISION			
⚠	Number:	DESCRIPTION	DATE: APPR.
		FIRE DEPARTMENT CORRECTIONS	02/24/25

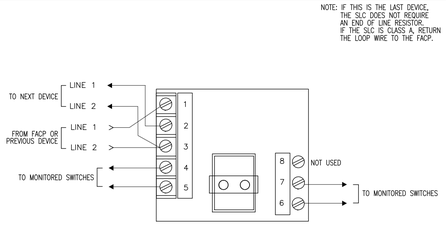
Date: 01/10/2025
Scale: N.T.S.
Project Number: -
Designed by:
Drawn by:
Approved By: JEM Systems

Fire Alarm Systems

SHEET REFERENCE NUMBER: 5
TOTAL SHEETS 6

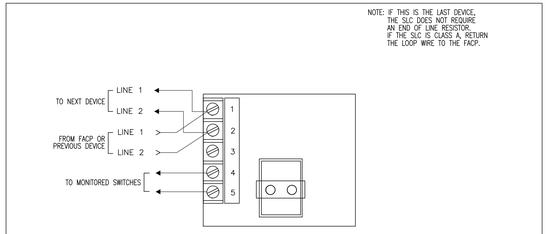
A B C D

5 4 3 2 1



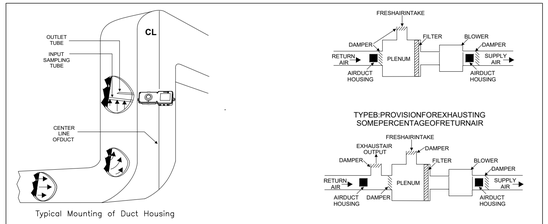
XTRI-D / DUAL MONITOR MODULE WIRING

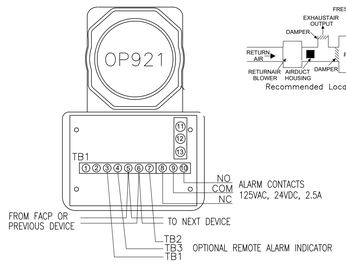
NOT TO SCALE



XTRI-S / SINGLE MONITOR MODULE WIRING

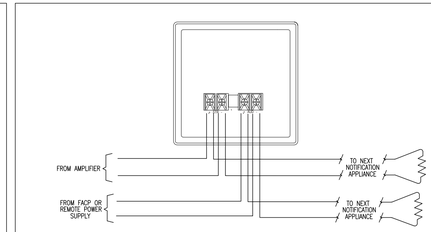
NOT TO SCALE





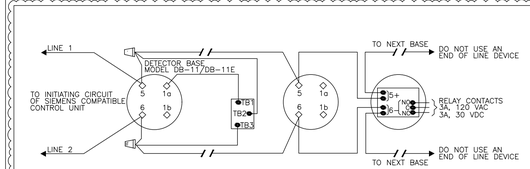
FDBZ492-HR SMOKE DUCT DETECTOR WIRING

NOT TO SCALE



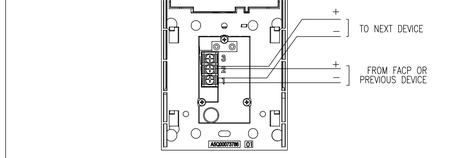
SET-S17-W-WP CEILING/WALL MOUNT SPEAKER/STROBE WIRING

NOT TO SCALE



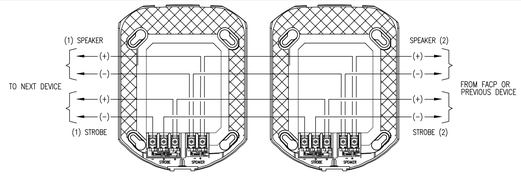
OP921 / OPTICAL SMOKE DETECTOR WIRING
HI921 / HEAT DETECTOR WIRING
DB-11 / STANDARD BASE WIRING

NOT TO SCALE



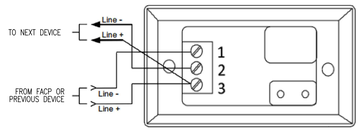
XMS-S / MANUAL PULL STATION WIRING

NOT TO SCALE



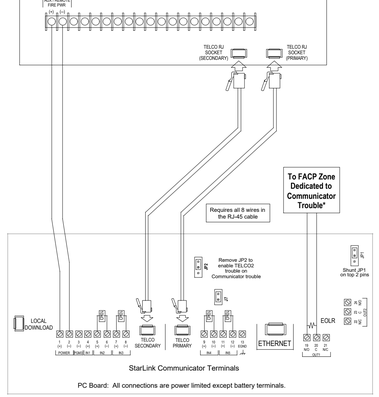
SC-SS-WWF & SC-ST-WW-F WALL MOUNT SPEAKER/STROBE WIRING
SC-SS-CW-F / CEILING MOUNT STROBE WIRING

NOT TO SCALE



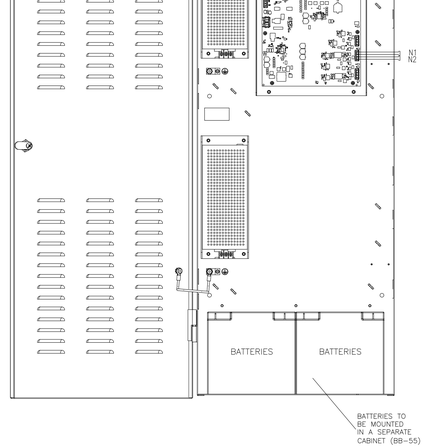
TSM-1X / REMOTE TEST STATION WIRING

NOT TO SCALE



SLE-MAX2-FIRE / COMMUNICATOR WIRING

NOT TO SCALE



PAD-5-9A / REMOTE POWER SUPPLY WIRING

NOT TO SCALE

REVISION	DESCRIPTION	DATE	APPR.
FIRE DEPARTMENT CORRECTIONS		02/24/05	
Number:			

Date: 01/10/2025
Scale: N.T.S.
Project Number: -
Designed by:
Drawn by:
Approved By: JEM Systems

Fire Alarm Systems

SHEET REFERENCE NUMBER: 6
TOTAL SHEETS 6

A
B
C
D

5 4 3 2 1