FIRE ALARM GENERAL NOTES NOTE# NOTE TEXT

- ALL CIRCUIT POLARITY SHALL BE MAINTAINED.
- SHIELD CONTINUITY SHALL BE MAINTAINED THROUGH OUT ALL SHIELDED CIRCUITS. SHIELDS SHALL BE GROUNDED AT ONLY ONE POINT (THE EQUIPMENT HEAD END UNLESS NOTED OTHERWISE).
- ALL CIRCUITS SHALL BE FREE OF GROUNDS, WIRE TO WIRE SHORTS, AND
- NOTIFICATION APPLIANCE CIRCUITS (NAC) & INITIATING DEVICE CIRCUITS (IDC) ARE SUPERVISED. NO PARALLEL BRANCHING (TEE-TAPPING) SHALL BE PERMITTED. NON-STYLE 6 & 7 SIGNALING LINE CIRCUITS (SLC) ALLOW PARALLEL BRANCHING (TEE-TAPPING) AT DEVICES AND RISER BOXES ONLY.
- ALL FIRE ALARM CONDUIT SHALL BE SIZED TO MEET OR EXCEED THE NEC MINIMUM REQUIREMENTS. ALL FIRE ALARM CONDUIT SIZE SHALL BE 3/4" MINIMUM UNLESS SHOWN OTHERWISE. STUB-UPS TO INDIVIDUAL DEVICES ALLOWED TO BE IN 1/2".
- INSTALLATION MATERIALS (I.E. CONDUIT, FITTINGS, HANGERS, STANDARD BOXES, ETC.) ARE NOT PROVIDED BY MIDWEST ALARM SERVICES.
- ON OPEN WIRE INSTALLATIONS CONDUIT SHALL BE PROVIDED BY OTHERS FHROUGH ALL INACCESSIBLE AREAS (I.E. ABOVE HARD CEILINGS, STUB-UPS THROUGH ENCLOSED WALLS, ECT.) AND IN ALL EXPOSED AREAS (I.E. MECHANICAL ROOMS, ELECTRICAL ROOMS, ETC.).
- MANUAL PULL BOXES SHALL BE MOUNTED 48" AFF TO THE ACTUATING HANDLE.
- WALL-MOUNTED AUDIBLE/VISUAL & VISUAL ONLY DEVICES SHALL BE MOUNTED 80" AFF TO THE BOTTOM OF THE DEVICE OR 6" FROM THE CEILING TO THE TOP OF THE DEVICE WHICHEVER IS LOWER.
- INSTALLATION SHALL BE IN STRICT CONFORMANCE WITH THE NATIONAL 10 ELECTRIC CODE, NFPA CODES, LOCAL CODES, AUTHORITIES HAVING JURISDICTION AND ALL OF THE MANUFACTURERS REQUIREMENTS.
- ALL FIRE ALARM CONTROL RELAYS SHALL BE MOUNTED WITHIN 3' OF THE DEVICES THEY CONTROL. ALL RELAY CONTROL CIRCUITS SHALL BE SUPERVISED
- ALL FIRE ALARM JUNCTION BOX COVERS SHALL BE PAINTED RED OR 12. LABELED FOR DISTINCT IDENTIFICATION. ALL FIRE ALARM PANELS & EQUIPMENT CABINETS REQUIRE A DEDICATED 13
- 120VAC CIRCUIT FOR PRIMARY POWER. FIRE ALARM AC POWER CIRCUITS SHALL BE PERMANENTLY IDENTIFIED AT THE DISTRIBUTION PANEL AND INSIDE THE FIRE EQUIPMENT CABINETS SERVED.

CODE REFERENCES

#	REFERENCED CODE	YEAR
1	International Building Code (IBC)	2018
2	International Fire Code (IFC)	2018
3	NFPA 70 National Electrical Code	2017
4	NFPA 72 National Fire Alarm Code	2016
5	NFPA 90A Standard on AC & Ventilating	2018

AUTHORITY HAVING JURISDICTION City of Lee's Summit, MO

PROJECT NARRATIVE

This project is a new apartment building complex including a clubhouse. All buildings are fully sprinklered per NFPA 13R. An addressible fire alarm system is being provided in each building with horn/strobe notification. Clubhouse

According to contract documents, the clubhouse building is occupancy group B and S-1 with areas of R-3 and A-3. None of the five AHUs are over 2,000 CFM to require detection and shutdown. Single-Station smoke and CO detectors for the R-3 area are provided by others. Apartment Units

According to contract documents, the apartment buildings are primary occupancy group R-2 with areas of A-3. Single-Station smoke and CO detectors for the R-2 area are provided by others. CO detection on bldg system is provided in the 1st floor corridor at communicating openings to the attached garages per IFC 915.1.5 exception #4. Wiring provisions for building notification in sleeping areas is provided and included in circuit calculations per code. None of the six AHUs are over 2,000 CFM to require detection and shutdown.

The Clubhouse building was submitted earlier. Sheets grayed out in the drawing index are not included this set.

> FIRE ALARM SEQUENCE OF OPERATIONS: (Input/Output Matrix)

> > SYSTEM INPUTS

SIGNALING LINE OR NOTIFICATION APPLIANCE CIRCUIT - OPEN SIGNALING LINE OR NOTIFICATION APPLIANCE CIRCUIT - SHORT SIGNALING LINE OR NOTIFICATION APPLIANCE CIRCUIT - GROUND FIRE ALARM CONTROL PANEL LOSS OF POWER FIRE ALARM CONTROL PANEL OTHER TROUBLE

SPRINKLER WATERFLOW ALARM ACTIVATION

MANUAL PULL STATION ACTIVATION SMOKE DETECTOR ACTIVATION

SMOKE DETECTOR ACTIVATION - ELEVATOR LANDING PRIMARY FLR SMOKE DETECTOR ACTIVATION - ELEVATOR LANDING OTHER FLOORS HEAT DETECTOR - ELEVATOR SHAFT OR MACHINE ROOM

DUCT SMOKE DETECTOR ACTIVATION SPRINKLER VALVE TAMPER SWITCH ACTIVATION

CARBON MONOXIDE (CO) DETECTOR (APT. GARAGES ONLY) 1. AC POWER LOSS REPORTED TO SUPERVISING STATION AFTER DELAY OF 30 MINUTES (PROGRAMMABLE).

SYSTEM OUTPUTS PRIORITY ullet u• • •

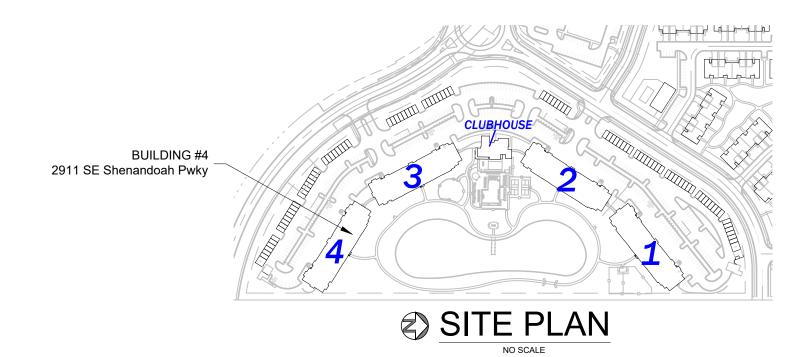
RESIDENCES AT BLACKWELL

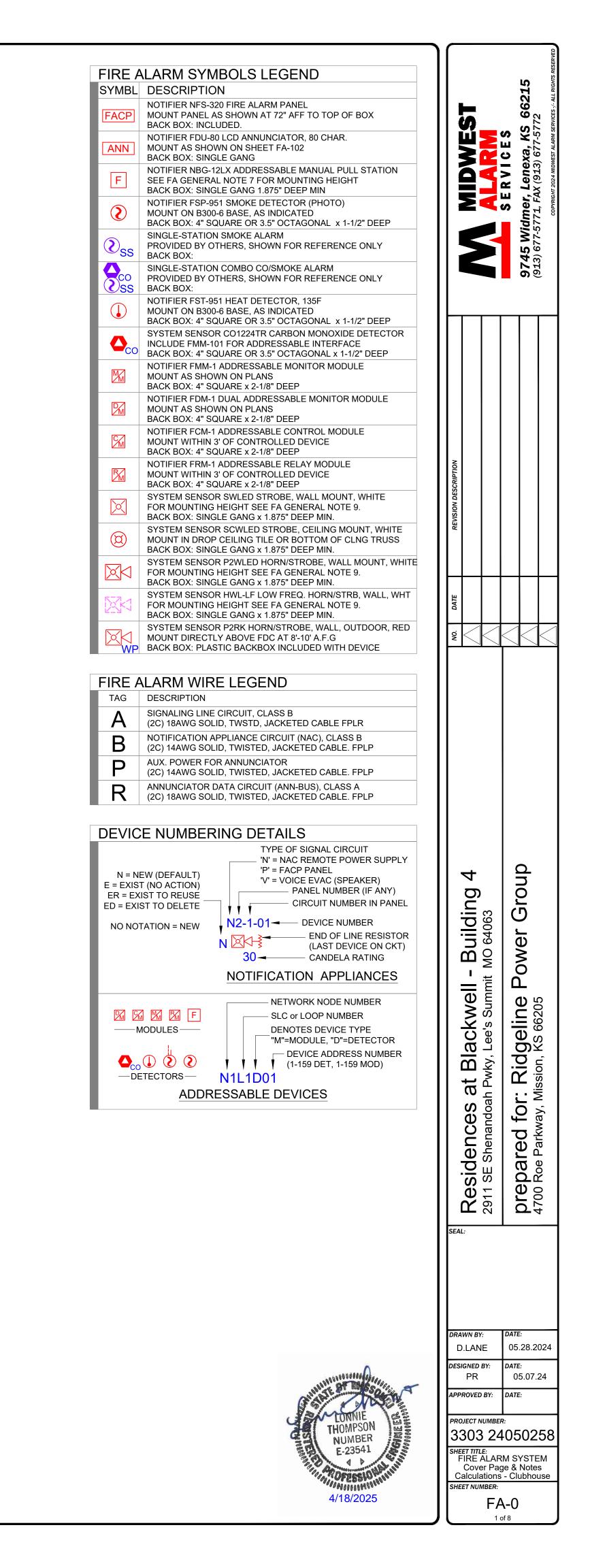
US 50 Hwy at Blackwell Lee's Summit, MO 64063 Fire Alarm System 28300

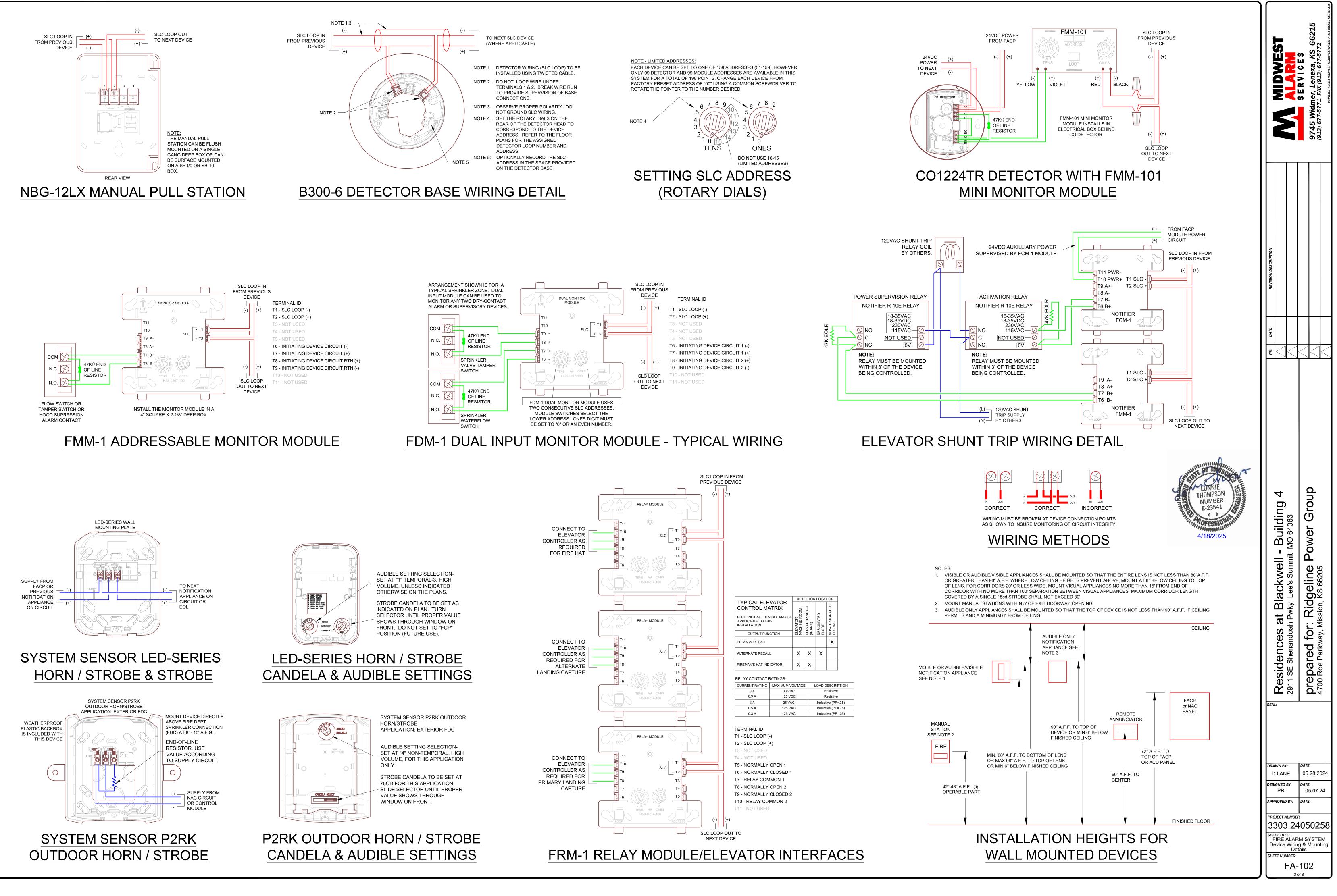
Apartment Bldg #4 - 2911 SE Shenandoah Pwky

DRAWING INDEX:

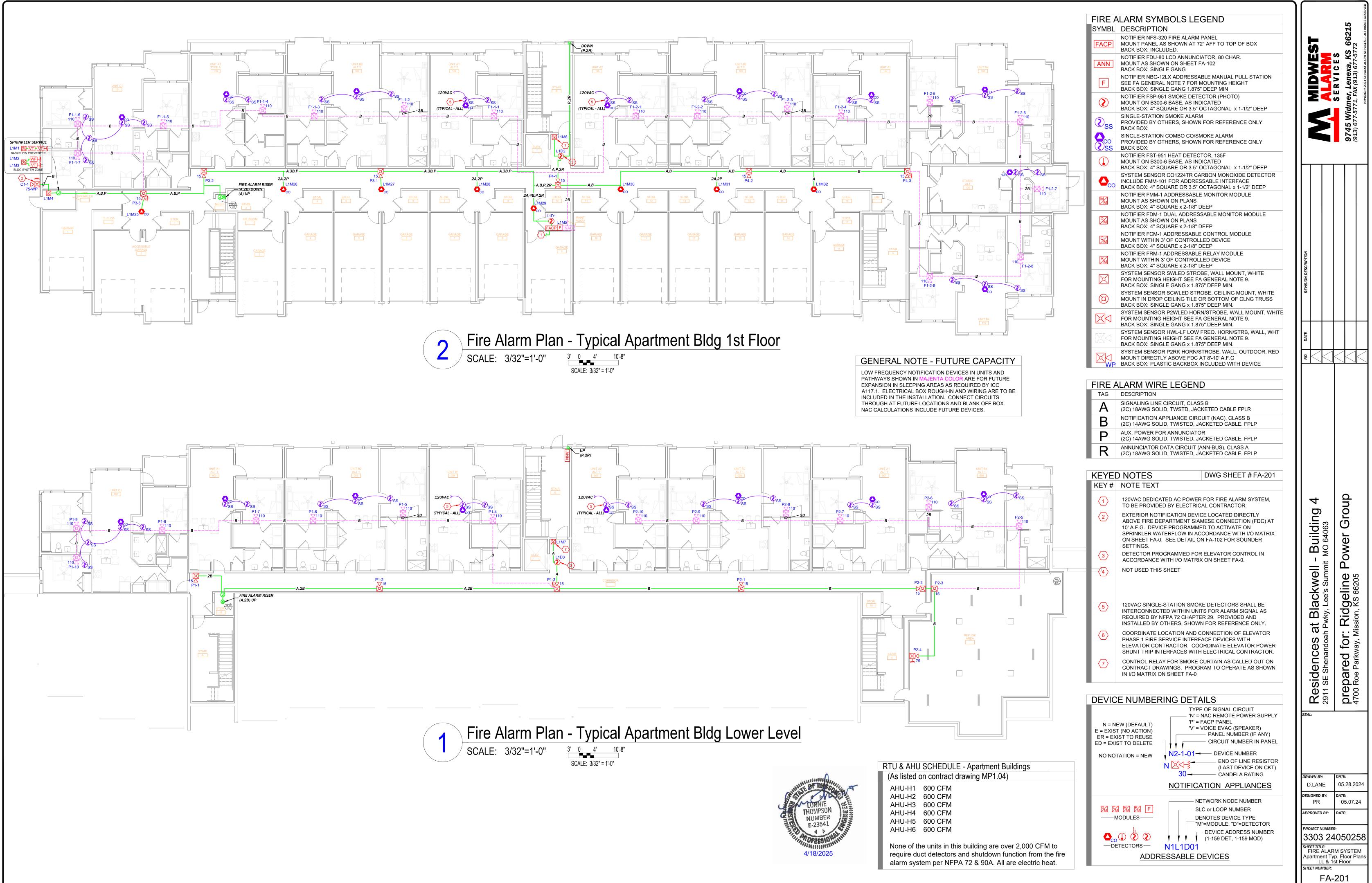
Sheet:	Title:	Revision #:	Date Issued:
FA-0	COVER SHEET, NOTES, CALCULATIONS FOR CLUBHOUSE		05.30.2024
FA-101	FIRE ALARM FLOOR PLAN - CLUBHOUSE		05.30.2024
FA-102	DEVICE MOUNTING & WIRING DETAILS		05.30.2024
FA-103	PANEL MOUNTING & WIRING, RISER DIAGRAM - CLUBHSE		05.30.2024
FA-201	FIRE ALARM FLOOR PLAN - APARTMENT LL, 1ST LEVEL	1	12.09.2024
FA-202	FIRE ALARM FLOOR PLAN - APARTMENT 2ND & 3RD LEVEL	1	12.09.2024
FA-203	FIRE ALARM FLOOR PLAN - APT. 4TH LVL, RISER	1	12.09.2024
FA-204	CALCULATIONS & PANEL MOUNTING - APARTMENT	1	01.17.2025



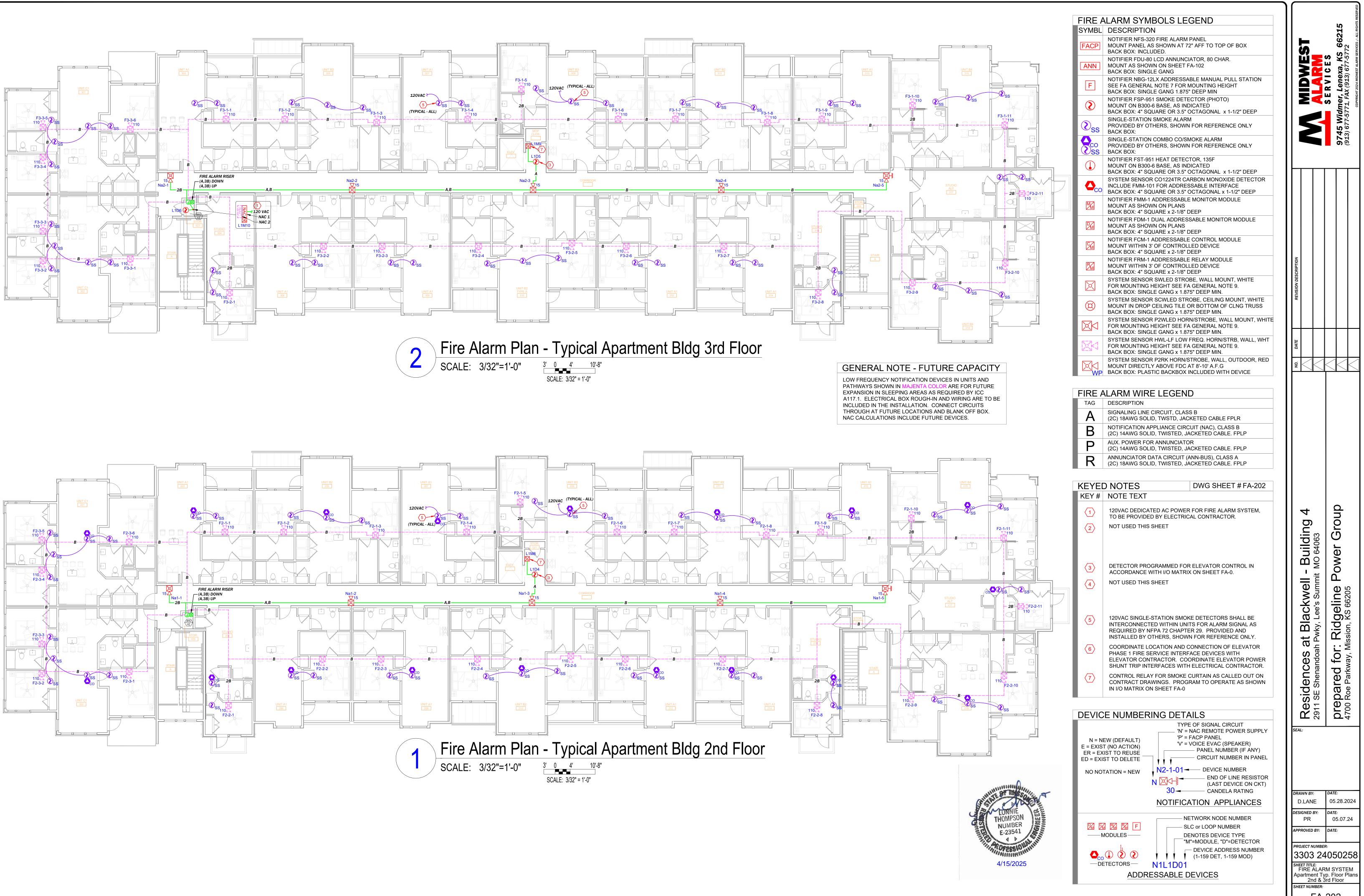


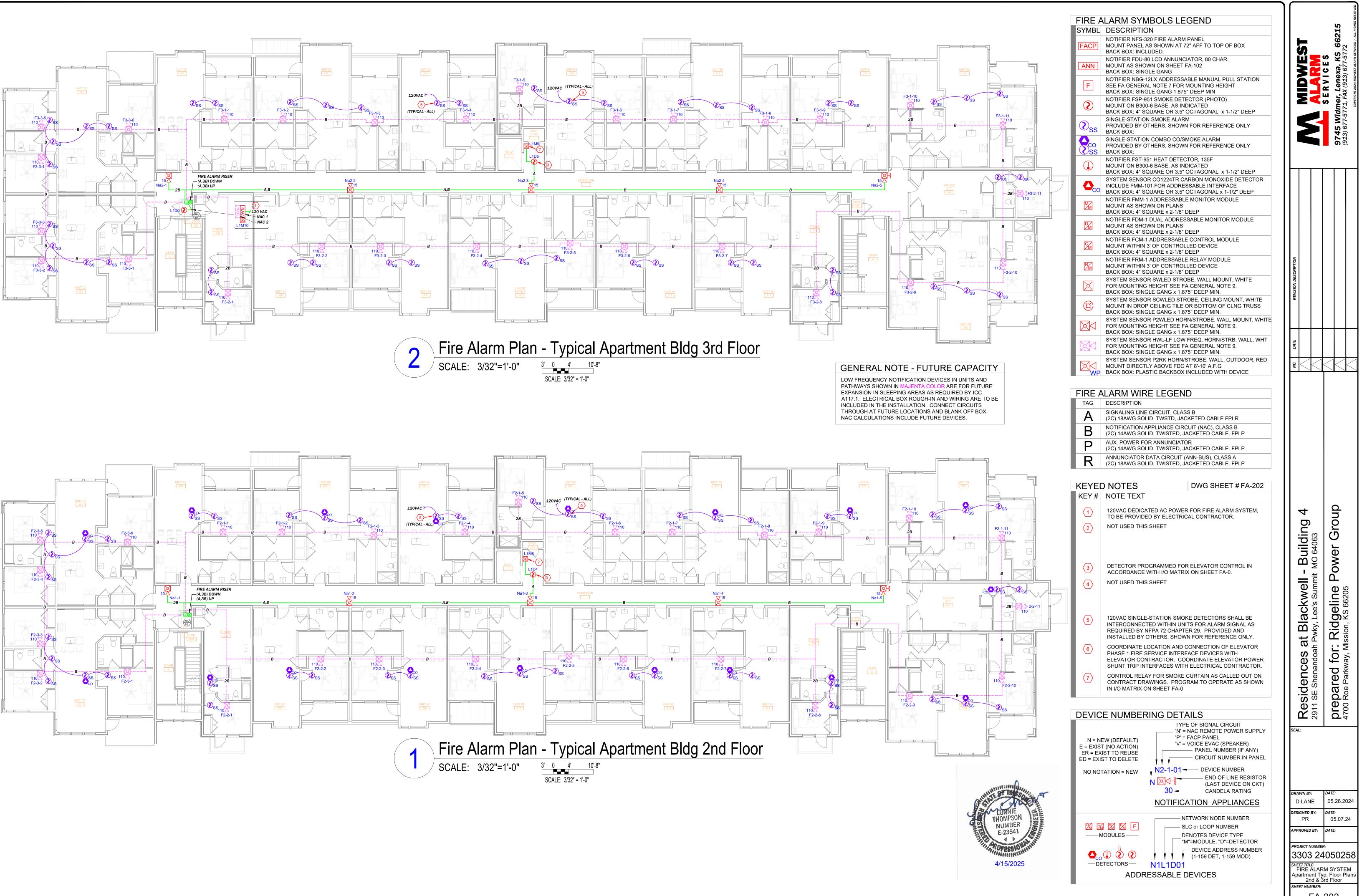


	NOTE 1.	DETECTOR WIRING (SLC LOOP) TO BE INSTALLED USING TWISTED CABLE.
	NOTE 2.	DO NOT LOOP WIRE UNDER TERMINALS 1 & 2. BREAK WIRE RUN TO PROVIDE SUPERVISION OF BASE CONNECTIONS.
	NOTE 3.	OBSERVE PROPER POLARITY. DO NOT GROUND SLC WIRING.
	NOTE 4.	SET THE ROTARY DIALS ON THE REAR OF THE DETECTOR HEAD TO CORRESPOND TO THE DEVICE ADDRESS. REFER TO THE FLOOR PLANS FOR THE ASSIGNED DETECTOR LOOP NUMBER AND ADDRESS.
─ NOTE 5	NOTE 5:	OPTIONALLY RECORD THE SLC ADDRESS IN THE SPACE PROVIDED ON THE DETECTOR BASE

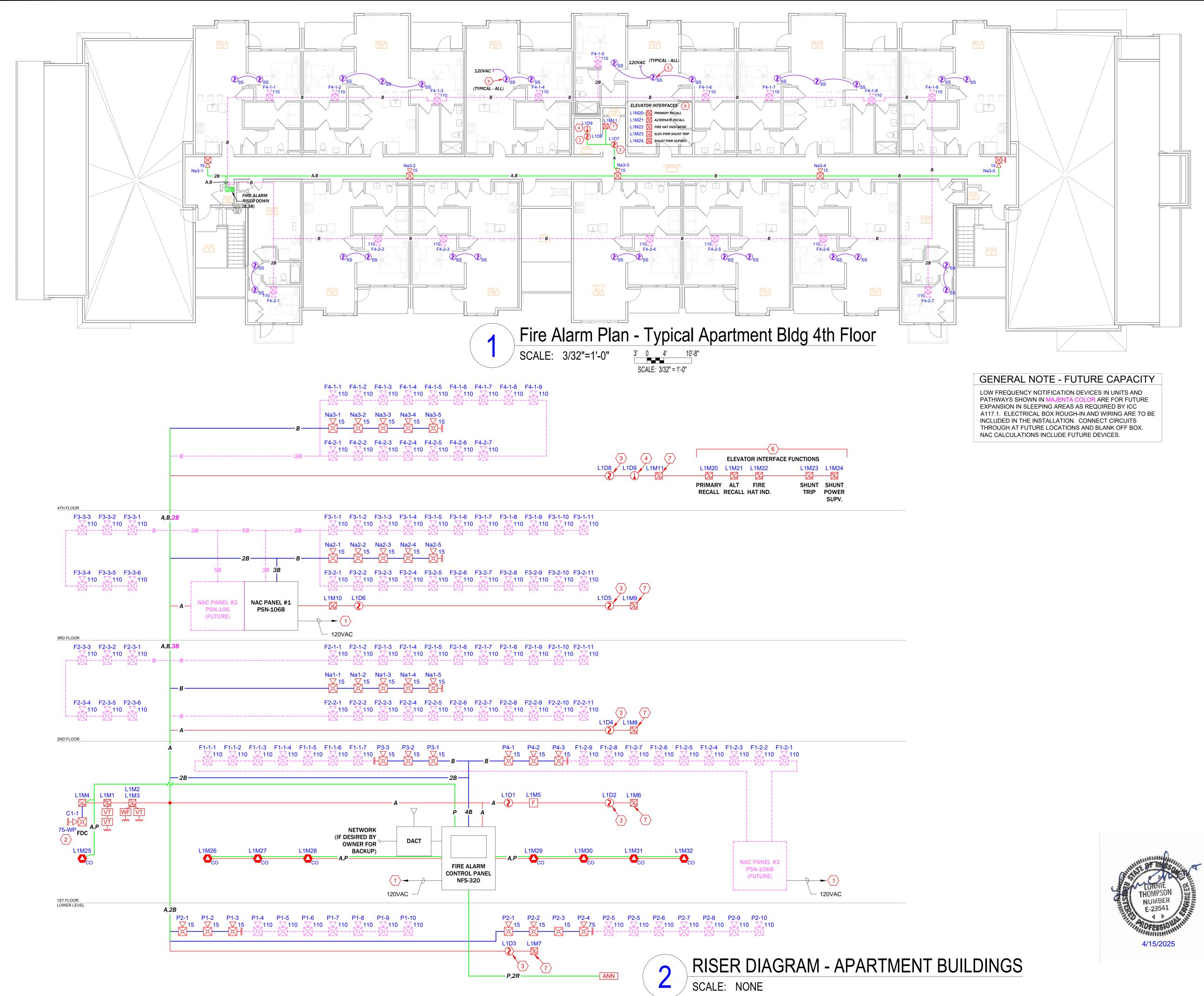


5 of 8

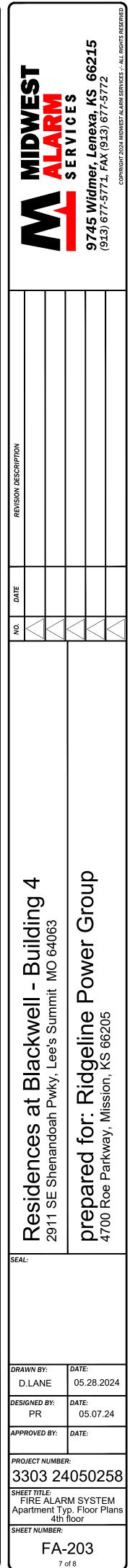




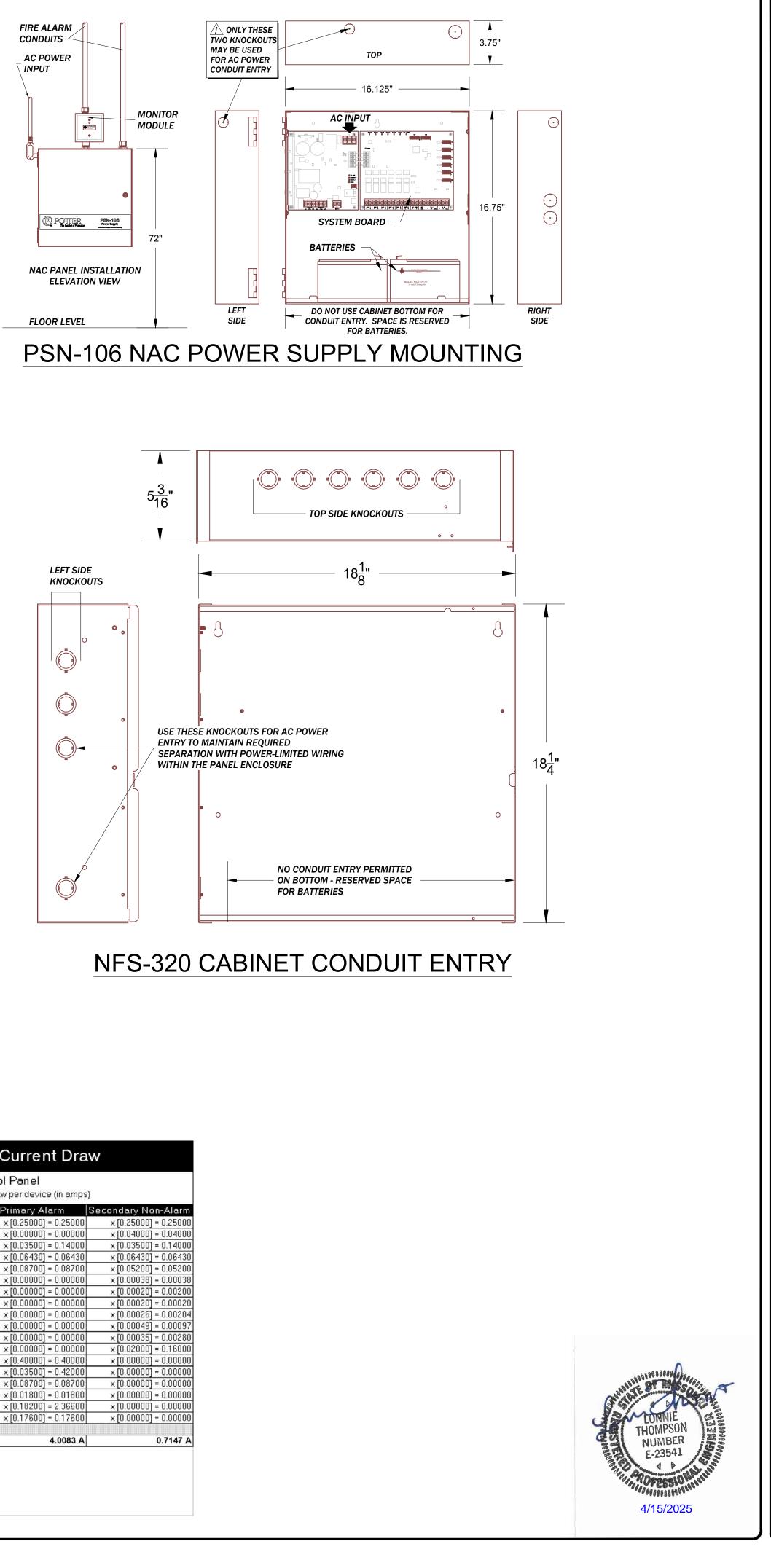
FA-202 6 of 8

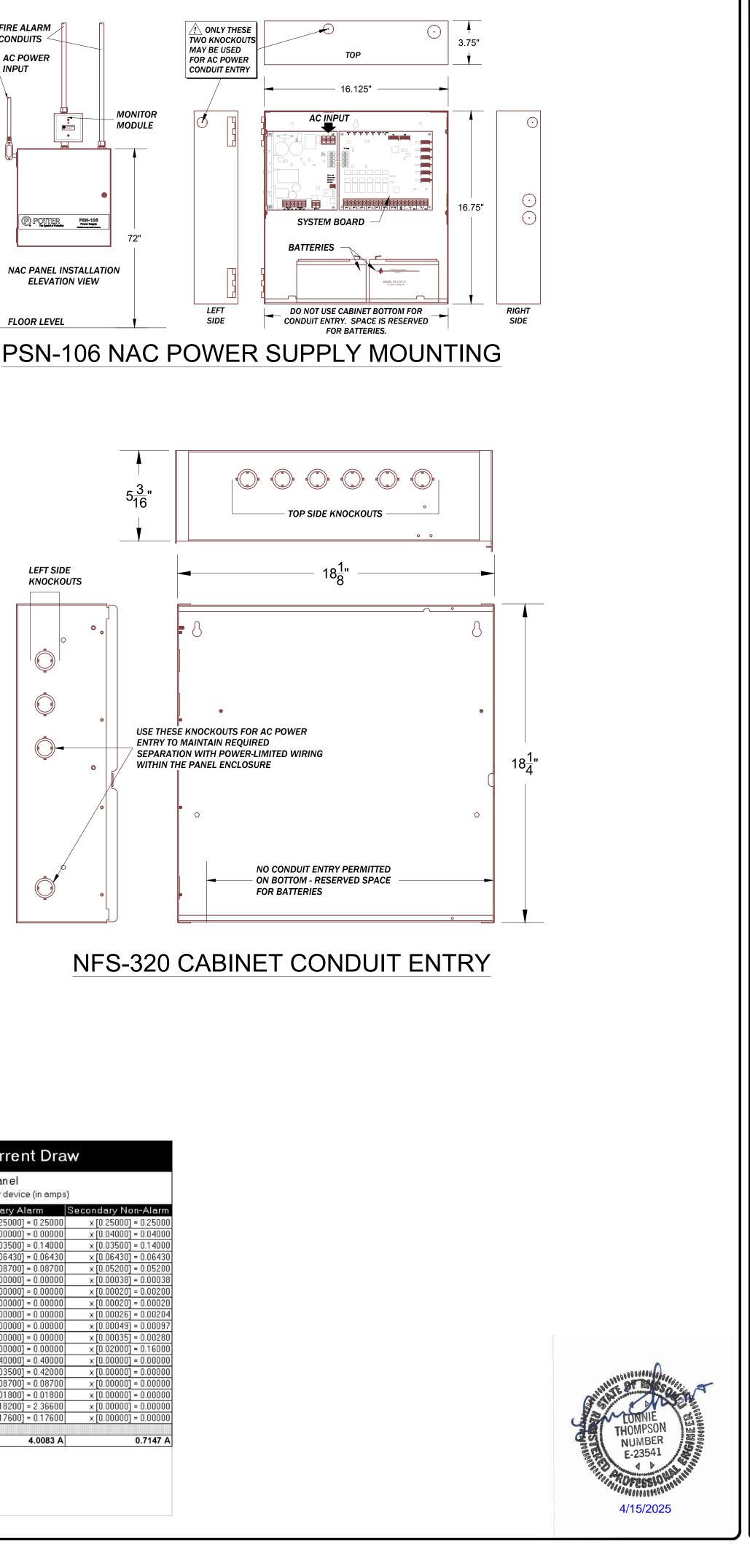


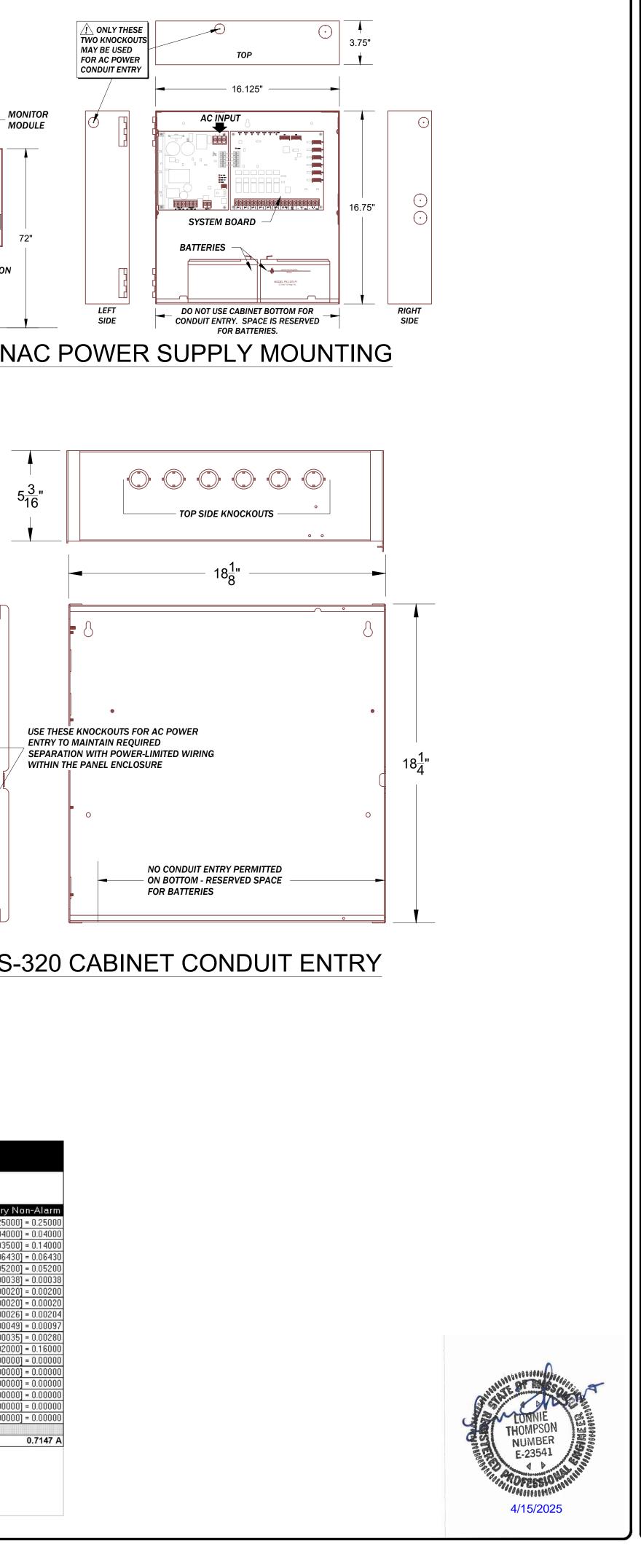
	DESCRIPTION NOTIFIER NFS-320 FIRE ALARM PANEL MOUNT PANEL AS SHOWN AT 72" AFE TO TOP OF BOX
FACP	MOUNT PANEL AS SHOWN AT 72" AFF TO TOP OF BOX BACK BOX: INCLUDED. NOTIFIER FDU-80 LCD ANNUNCIATOR, 80 CHAR.
	MOUNT AS SHOWN ON SHEET FA-102 BACK BOX: SINGLE GANG NOTIFIER NBG-12LX ADDRESSABLE MANUAL PULL STATION
F	SEE FA GENERAL NOTE 7 FOR MOUNTING HEIGHT BACK BOX: SINGLE GANG 1.875" DEEP MIN NOTIFIER FSP-951 SMOKE DETECTOR (PHOTO)
(\mathbf{O})	MOUNT ON B300-6 BASE, AS INDICATED BACK BOX: 4" SQUARE OR 3.5" OCTAGONAL x 1-1/2" DEEP SINGLE-STATION SMOKE ALARM
2 _{SS}	PROVIDED BY OTHERS, SHOWN FOR REFERENCE ONLY BACK BOX:
	NOTIFIER FST-951 HEAT DETECTOR, 135F MOUNT ON B300-6 BASE, AS INDICATED BACK BOX: 4" SQUARE OR 3.5" OCTAGONAL x 1-1/2" DEEP
	SYSTEM SENSOR CO1224TR CARBON MONOXIDE DETECTOR INCLUDE FMM-101 FOR ADDRESSABLE INTERFACE BACK BOX: 4" SQUARE OR 3.5" OCTAGONAL x 1-1/2" DEEP
M	NOTIFIER FMM-1 ADDRESSABLE MONITOR MODULE MOUNT AS SHOWN ON PLANS BACK BOX: 4" SQUARE x 2-1/8" DEEP
	NOTIFIER FDM-1 DUAL ADDRESSABLE MONITOR MODULE MOUNT AS SHOWN ON PLANS
	BACK BOX: 4" SQUARE x 2-1/8" DEEP NOTIFIER FCM-1 ADDRESSABLE CONTROL MODULE MOUNT WITHIN 3' OF CONTROLLED DEVICE
	BACK BOX: 4" SQUARE x 2-1/8" DEEP NOTIFIER FRM-1 ADDRESSABLE RELAY MODULE MOUNT WITHIN 3' OF CONTROLLED DEVICE
	BACK BOX: 4" SQUARE x 2-1/8" DEEP SYSTEM SENSOR SWLED STROBE, WALL MOUNT, WHITE FOR MOUNTING HEIGHT SEE FA GENERAL NOTE 9.
	BACK BOX: SINGLE GANG x 1.875" DEEP MIN. SYSTEM SENSOR SCWLED STROBE, CEILING MOUNT, WHITE MOUNT IN DROP CEILING TILE OR BOTTOM OF CLNG TRUSS
	BACK BOX: SINGLE GANG x 1.875" DEEP MIN. SYSTEM SENSOR P2WLED HORN/STROBE, WALL MOUNT, WHITE
	FOR MOUNTING HEIGHT SEE FA GENERAL NOTE 9. BACK BOX: SINGLE GANG x 1.875" DEEP MIN. SYSTEM SENSOR HWL-LF LOW FREQ. HORN/STRB, WALL, WHT
<u>×</u> k1	FOR MOUNTING HEIGHT SEE FA GENERAL NOTE 9. BACK BOX: SINGLE GANG x 1.875" DEEP MIN. SYSTEM SENSOR P2RK HORN/STROBE, WALL, OUTDOOR, RED
	MOUNT DIRECTLY ABOVE FDC AT 8'-10' A.F.G BACK BOX: PLASTIC BACKBOX INCLUDED WITH DEVICE
IRE A	ALARM WIRE LEGEND
TAG	DESCRIPTION SIGNALING LINE CIRCUIT, CLASS B
A B	(2C) 18AWG SOLID, TWSTD, JACKETED CABLE FPLR NOTIFICATION APPLIANCE CIRCUIT (NAC), CLASS B
P	(2C) 14AWG SOLID, TWISTED, JACKETED CABLE. FPLP AUX. POWER FOR ANNUNCIATOR
г R	(2C) 14AWG SOLID, TWISTED, JACKETED CABLE. FPLP ANNUNCIATOR DATA CIRCUIT (ANN-BUS), CLASS A (2C) 18AWG SOLID, TWISTED, JACKETED CABLE. FPLP
	D NOTES DWG SHEET # FA-203 NOTE TEXT
	120VAC DEDICATED AC POWER FOR FIRE ALARM SYSTEM, TO BE PROVIDED BY ELECTRICAL CONTRACTOR.
2	EXTERIOR NOTIFICATION DEVICE LOCATED DIRECTLY ABOVE FIRE DEPARTMENT SIAMESE CONNECTION (FDC) AT 10' A.F.G. DEVICE PROGRAMMED TO ACTIVATE ON
	SPRINKLER WATERFLOW IN ACCORDANCE WITH I/O MATRIX ON SHEET FA-0. SEE DETAIL ON FA-102 FOR SOUNDER
3	SETTINGS. DETECTOR PROGRAMMED FOR ELEVATOR CONTROL IN ACCORDANCE WITH I/O MATRIX ON SHEET FA-0.
4	HEAT DETECTOR(S) TO BE LOCATED WITHIN 24" OF EACH SPRINKLER HEAD IN ELEVATOR HOISTWAY AND MACHINE
	ROOM. DEVICE PROGRAMMED FOR ELEVATOR POWER SHUNT TRIP IN ACCORDANCE WITH I/O MATRIX ON SHEET FA-0. SHUNT TRIP EQUIPMENT BY OTHERS.
5	120VAC SINGLE-STATION SMOKE DETECTORS SHALL BE INTERCONNECTED WITHIN UNITS FOR ALARM SIGNAL AS
	REQUIRED BY NFPA 72 CHAPTER 29. PROVIDED AND INSTALLED BY OTHERS, SHOWN FOR REFERENCE ONLY. COORDINATE LOCATION AND CONNECTION OF ELEVATOR
<u>(6)</u>	COORDINATE LOCATION AND CONNECTION OF ELEVATOR PHASE 1 FIRE SERVICE INTERFACE DEVICES WITH ELEVATOR CONTRACTOR. COORDINATE ELEVATOR POWER SHUNT TRIP INTERFACES WITH ELECTRICAL CONTRACTOR.
$\langle 7 \rangle$	CONTROL RELAY FOR SMOKE CURTAIN AS CALLED OUT ON CONTRACT DRAWINGS. PROGRAM TO OPERATE AS SHOWN
	IN I/O MATRIX ON SHEET FA-0
EVIC	E NUMBERING DETAILS
	TYPE OF SIGNAL CIRCUIT 'N' = NAC REMOTE POWER SUPPLY 'P' = FACP PANEL
E = EXIS	EW (DEFAULT) 'V' = VOICE EVAC (SPEAKER) T (NO ACTION) 'V' = VOICE EVAC (SPEAKER) IST TO REUSE PANEL NUMBER (IF ANY)
	TATION = NEW
	END OF LINE RESISTOR
	N CONTRACT END OF LINE RESISTOR (LAST DEVICE ON CKT) 30 - CANDELA RATING
	N C END OF LINE RESISTOR (LAST DEVICE ON CKT)
NO NO	N Contraction of the second contraction of t
NO NO	N X CHARACTER SISTOR (LAST DEVICE ON CKT) 30 - CANDELA RATING NOTIFICATION APPLIANCES NOTIFICATION APPLIANCES NETWORK NODE NUMBER ODULES F NETWORK NODE NUMBER DENOTES DEVICE TYPE "M"=MODULE, "D"=DETECTOR DEVICE ADDRESS NUMBER
	N Contraction of the second contraction of t

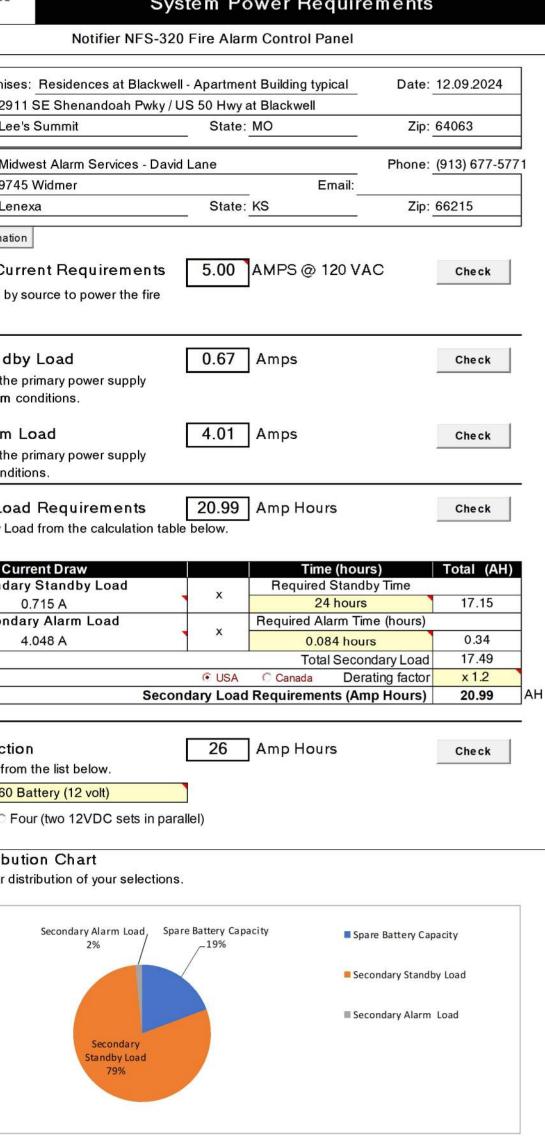


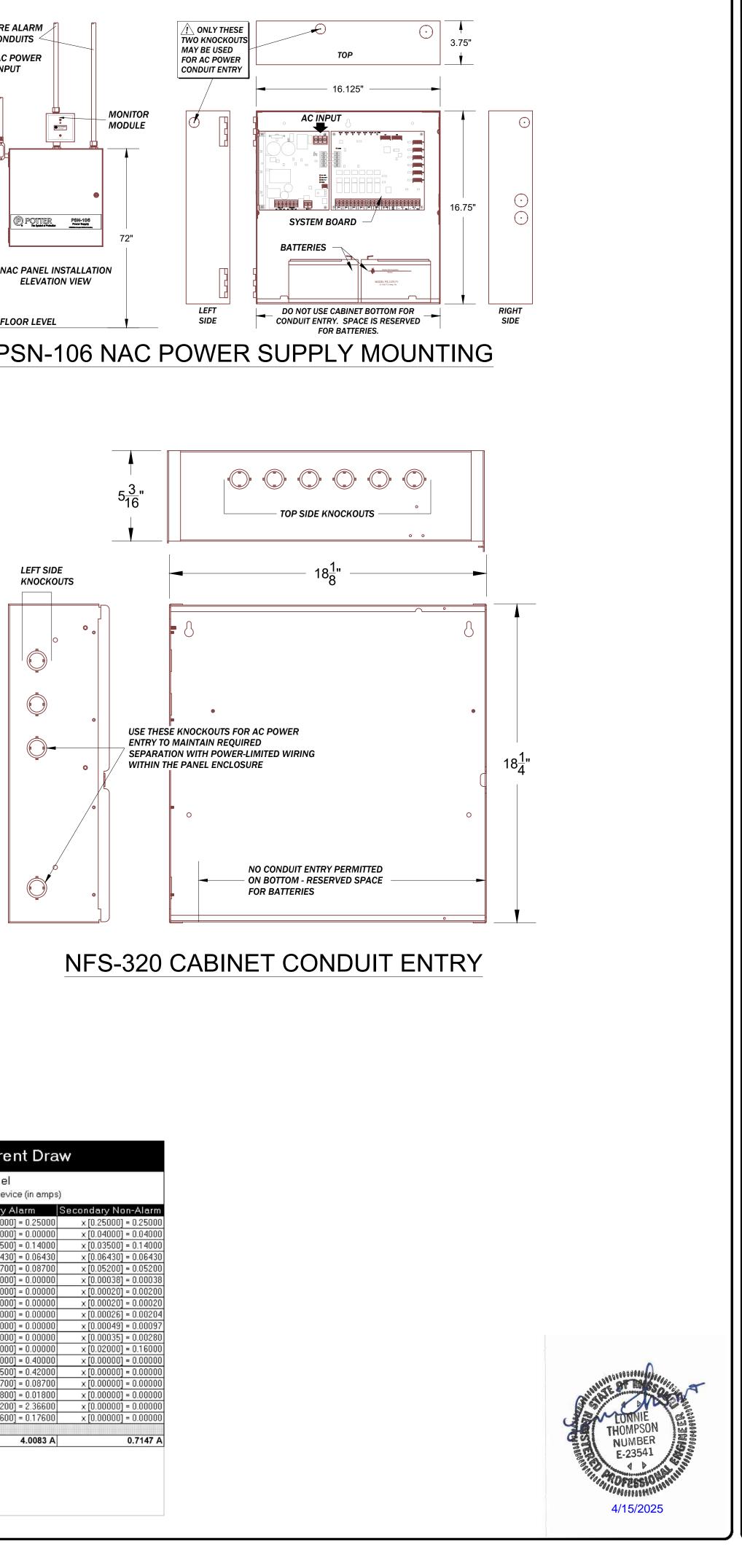
The Symbol of Protection PSN-106 Install Battery & Voltage Drop Design	Name: Residences at Blackwell Standby Hours: 24 Lee's Summit MO Alarm Mins: 5 ed By: Midwest Alarm Services Safety Margin: 20% ed By: David Lane NAC Source Voltage: 20.4	NOTIFICATION POWER SUMMARY - HORN/STROBE CIRCUITS Ckt Qty Alarm Max. Percent Circuit Start Line Load e En FACP Desig Dev Load Load of Max Length wire type Volts Ω Ω Drop Volts LL corr W + future P1 10 1.379 A 1.50 A 91.93% 405 Ft 14ga solid Cu 20.4 2.49 14.8 3.43 V 16 LL corr W + future P2 10 1.267 A 1.50 A 84.47% 495 Ft 14ga solid Cu 20.4 3.04 16.1 3.85 V 16 1st floor Corr W P3 4 0.140 A 1.50 A 9.33% 130 Ft 14ga solid Cu 20.4 0.80 145.7 0.11 V 20 1st floor Corr E P4 3 0.105 A 1.50 A 7.00% 125 Ft 14ga solid Cu 20.4 0.77 194.3 0.08 V 20	IS IS IS IS IS IS IS IS IS IS
Model #: PSN-106 Panel ID: NAC #1 (apartment bldg typical) Location: 3rd floor storage room	Max Panel Current (amps): 10 User assumes all responsibility to ensure the quantities and current draw values in this worksheet are accurate prior to	N/A P 0 0.000 A 0.00 A #DIV/0! 0 Ft 14ga solid Cu 20.4 0.00 0.00 V 20 N/A P 0 0.000 A 0.00 A #DIV/0! 0 Ft 14ga solid Cu 20.4 0.00 0.00 V 20 TOTALS 27 2.891 A 7.4 A 39.07% V	
Panel Qty Part # Description 1 PSN-106 NAC Power Expander	submittal. Standby (amps) Alarm (amps) Each Total Each Tota 0.075 0.075 0.075 0.075	NAC pnl #1 Circuit Qty Alm Load Max. % Loaded Length wire type Volts Line Ω Load Ω Vdrop end 2nd floor corridor Na1 5 0.175 A 3.00 A 5.83% 235 Ft 14ga solid Cu 20.4 1.44 116.6 0.05 V 200	.35
NAC Circuits (See NAC Configuration below)	Panel Standby: 0.075 Panel Alarm: 0.075 Standby (amps) Alarm (amps)	3rd floor corridor Na2 5 0.175 A 3.00 A 5.83% 225 Ft 14ga solid Cu 20.4 1.38 116.6 0.05 V 20 4th floor corridor Na3 5 0.175 A 3.00 A 5.83% 220 Ft 14ga solid Cu 20.4 1.38 116.6 0.05 V 20 Future 3rd floor #3 Na4 6 1.092 A 3.00 A 36.40% 140 Ft 14ga solid Cu 20.4 1.35 116.6 0.05 V 20 Future 4th floor #1 Na5 9 1.638 A 3.00 A 54.60% 220 Ft 14ga solid Cu 20.4 1.35 12.5 1.31 V 19	.35
Ckt Use Description 1 Notification 2nd floor corridor 2 Notification 3rd floor corridor	Class Total Total Class B 0.00000 0.17500 Class B 0.00000 0.17500 Class B 0.00000 0.17500	Future 4th floor #2 Na6 7 1.274 A 3.00 A 42.47% 215 Ft 14ga solid Cu 20.4 1.35 12.5 1.31 V 18 Future 4th floor #2 Na6 7 1.274 A 3.00 A 42.47% 215 Ft 14ga solid Cu 20.4 1.35 12.5 1.31 V 18 TOTALS 37 4.529 A 10.0 A 45.29% Image: Control of the solid Cu 20.4 1.32 16.0 0.98 V 19	
3Notification4th floor corridor4Notification(FUTURE) 3rd flr units #35Notification(FUTURE) 4th flr units #16Notification(FUTURE) 4th flr units #2	Class B 0.00000 0.17500 Class B 0.00000 1.09200 Class B 0.00000 1.63800 Class B 0.00000 1.27400	NAC pnl #2 (future) Circuit Qty Alm Load Max. % Loaded Length wire type Volts Line Ω Load Ω Vdrop end Future 2nd floor #1 F2-1 11 2.002 A 3.00 A 66.73% 300 Ft 14ga solid Cu 20.4 1.84 10.2 2.03 V 18 Future 2nd floor #2 F2-2 11 2.002 A 3.00 A 66.73% 360 Ft 14ga solid Cu 20.4 2.21 10.2 2.42 V 17	IV .37 .98
AUX Aux Power	NAC Standby: 0.00000 NAC Alarm: 4.52900	Future 2nd floor #3 F2-3 6 1.092 A 3.00 A 36.40% 150 Ft 14ga solid Cu 20.4 0.92 18.7 0.65 V 19 Future 3rd floor #1 F3-1 11 2.002 A 3.00 A 66.73% 290 Ft 14ga solid Cu 20.4 1.78 10.2 1.91 V 18 Future 3rd floor #2 F3-2 11 2.002 A 3.00 A 66.73% 350 Ft 14ga solid Cu 20.4 1.78 10.2 1.91 V 18 Future 3rd floor #2 F3-2 11 2.002 A 3.00 A 66.73% 350 Ft 14ga solid Cu 20.4 2.15 10.2 2.30 V 18	.75 .49
Battery Calculation Summary	Standby (amps)Alarm (amps)Panel Current:0.075000.07500DAD Gine is Current:0.020001.52000	spare ckt 6 0 0.000 A 3.00 A 0.00% 0 Ft 14ga solid Cu 20.4 0.00 0.00 V 20 TOTALS 50 9.100 A 10.0 A 91.00% 0 Ft 14ga solid Cu 20.4 0.00 V 0.00 V 20	FLOOR LEVEL
	NAC Circuit Current:0.000004.52900Total Standby:0.075000Total Alarm:4.60400Standby Hours:24Alarm Mins:5	NAC pnl #3 (future) Circuit Qty Alm Load Max. % Loaded Length wire type Volts Line Ω Load Ω Vdrop end Future 1st floor #1 F1-1 7 1.274 A 3.00 A 42.47% 160 Ft 14ga solid Cu 20.4 0.98 16.0 0.18 V 20 Future 1st floor #2 F1-2 9 1.638 A 3.00 A 54.60% 215 Ft 14ga solid Cu 20.4 1.32 12.5 0.24 V 20	.22
	AH Required: 1.80 AH Required: 0.39 Total Combined Standby & Alarm AmpHours Required: 2.19 Efficiency Factor: 20%	spare Nc-3 0 0.000 A 3.00 A 0.00% 0 Ft 14ga solid Cu 20.4 0.00 0.00 V 20 spare Nc-4 0 0.000 A 3.00 A 0.00% 0 Ft 14ga solid Cu 20.4 0.00 0.00 V 20 spare Nc-5 0 0.000 A 3.00 A 0.00% 0 Ft 14ga solid Cu 20.4 0.00 0.00 V 20	.40
	Required Battery AmpHours: 2.63 Battery AmpHours Provided: 7	spare Nc-6 0 0.000 A 3.00 A 0.00% 0 Ft 14ga solid Cu 20.4 0.00 0.00 V 20 TOTALS 16 2.912 A 10.0 A 29.12% V	
			5 <u>3</u> "
The Symbol of Protection	Name: Residences at Blackwell Standby Hours: 24 Lee's Summit MO Alarm Mins: 5		
Battery & Voltage Drop Design	ed By: Midwest Alarm Services Safety Margin: 20% ed By: David Lane Date: 07.18.2024 NAC Source Voltage: 20.4	System Power Requirements	LEFT SIDE KNOCKOUTS
Model #: PSN-106 Panel ID: NAC #2 (apartment bldg typical)	Max Panel Current (amps): 10 User assumes all responsibility to ensure the quantities and current draw values in this worksheet are accurate prior to	Notifier NFS-320 Fire Alarm Control Panel	
Location: 3rd floor storage room (FUTURE) Panel Qty Part # Description	submittal. Standby (amps) Alarm (amps) Each Total Each Total	Protected Premises: Residences at Blackwell - Apartment Building typical Date: 12.09.202 Address: 2911 SE Shenandoah Pwky / US 50 Hwy at Blackwell Date: 12.09.202 City: Lee's Summit State: MO Zip: 64063	
1 PSN-106 NAC Power Expander NAC Circuits (See NAC Configuration below)	0.075 0.075 0.075 0.075 Panel Standby: 0.075 Panel Alarm: 0.075 Standby (amps) Alarm (amps)	Prepared By: Midwest Alarm Services - David Lane Phone: (913) 677	-5771
Ckt Use Description 1 Notification (FUTURE) 2nd flr units #1 2 Notification (FUTURE) 2nd flr units #2	Class Total Total Class B 0.00000 2.00200 Class B 0.00000 2.00200	Address: 9745 Widmer Email: City: Lenexa State: KS Zip: 66215	
3Notification(FUTURE) 2nd flr units #34Notification(FUTURE) 3rd flr units #15Notification(FUTURE) 3rd flr units #2	Class B 0.00000 1.09200 Class B 0.00000 2.00200 Class B 0.00000 2.00200	Clear Project Information AC Branch Current Requirements 5.00 AMPS @ 120 VAC Check	
6 Unused UX Aux Power	Class B 0.00000 0.00000 0.00000 0.00000 0.00000 NAC Standby: 0.00000 NAC Alarm: 9.10000	Current required by source to power the fire alarm system.	
Battery Calculation Summary	Standby (amps)Alarm (amps)Panel Current:0.075000.07500	Primary Standby Load 0.67 Amps Check Current load on the primary power supply during non-alarm conditions.	
	NAC Circuit Current: 0.00000 9.10000 Total Standby: 0.075000 Total Alarm: 9.17500 Standby Hours: 24 Alarm Mins: 55	Primary Alarm Load 4.01 Amps Check	
	AH Required: 1.80 AH Required: 0.77 Total Combined Standby & Alarm AmpHours Required: 2.57 Efficiency Factor: 20%	Current load on the primary power supply during alarm conditions. Secondary Load Requirements 20.99 Amp Hours Check	
	Required Battery AmpHours: 3.08 Battery AmpHours Provided: 7	Total Secondary Load from the calculation table below.	NFS-32
		Current DrawTime (hours)Total (normalized for the secondary standby Load0.715 AxRequired Standby Time0.715 A24 hours17.15	
POTTER The Symbol of Protection Project I	Name: Residences at Blackwell Standby Hours: 24 Lee's Summit MO Alarm Mins: 5	Secondary Alarm Load x Required Alarm Time (hours) 4.048 A 0.084 hours 0.34 Total Secondary Load	
Battery & Voltage Drop Design	ed By: Midwest Alarm Services Safety Margin: 20% ed By: David Lane Date: 07.18.2024 NAC Source Voltage: 20.4	Image: USA Canada Derating factor x 1.2 Secondary Load Requirements (Amp Hours) 20.99	
Model #: PSN-106 Panel ID: NAC #3 (apartment bldg typical)	Max Panel Current (amps): 10 User assumes all responsibility to ensure the quantities and	Battery Selection 26 Amp Hours Check Select batteries from the list below. 26 Amp Hours Check	
Location: 1st floor mech room (FUTURE) Panel Qty Part # Description	current draw values in this worksheet are accurate prior to submittal. Standby (amps) Alarm (amps) Each Total Each Total	26 AH BAT-12260 Battery (12 volt) Image: Two Image: Four (two 12VDC sets in parallel)	NOTIFIER* Device Current Draw by Honeywell NFS-320 Fire Alarm Control Panel
1 PSN-106 NAC Power Expander	0.075 0.075 0.075 0.075 Panel Standby: 0.075 Panel Alarm: 0.075	Battery Distribution Chart Shows amp-hour distribution of your selections.	Quantity x [device current draw] = total current draw per device (in amps) Part Number Qty Primary Non-Alarm Primary Alarm Secondary Non-Ala
NAC Circuits (See NAC Configuration below) Ckt Use Description 1 Notification (FUTURE) 1st flr units #1 2 Notification (FUTURE) 1st flr units #2	Standby (amps) Alarm (amps) Class Total Total Class B 0.00000 1.27400 Class B 0.00000 1.63800	Secondary Alarm Load Spare Battery Capacity Spare Battery Capacity	CPU-320 1 x [0.25000] = 0.25000 x [0.25000] = 0.25000 x [0.25000] = 0.25000 CPS-24 1 x [0.00000] = 0.00000 x [0.00000] = 0.00000 x [0.04000] = 0.0400 # of NACs in use 4 x [0.03500] = 0.14000 x [0.03500] = 0.14000 x [0.03500] = 0.14000 FDU-80 1 x [0.06430] = 0.06430 x [0.06430] = 0.06430 x [0.06430] = 0.06430
3 Unused 4 Unused 5 Unused	Class B 0.00000 0.00000 Class B 0.00000 0.00000 Class B 0.00000 0.00000 Class B 0.00000 0.00000	2% –19% Secondary Standby Load	UDACT-2 Communicator 1 x [0.05200] = 0.05200 x [0.08700] = 0.08700 x [0.05200] = 0.05 NBG-12LX 1 x [0.00038] = 0.00038 x [0.00000] = 0.00000 x [0.00038] = 0.00 FSP-951 10 x [0.00020] = 0.00200 x [0.00000] = 0.00000 x [0.00020] = 0.00
6 Unused NUX Aux Power	Class B 0.00000 0.00000 Class B 0.00000 0.00000 0.00000 0.00000 0.00000 NAC Standby: 0.00000 NAC Alarm: 2.91200	Secondary Alarm Load	FST-951 1 x [0.00020] = 0.00020 x [0.00000] = 0.00000 x [0.00020] = 0.00 FRM-1 8 x [0.00026] = 0.00204 x [0.00000] = 0.00000 x [0.00026] = 0.00 FCM-1 2 x [0.00049] = 0.00097 x [0.00000] = 0.00000 x [0.00049] = 0.00 FMM-101 8 x [0.00035] = 0.00280 x [0.00000] = 0.00000 x [0.00035] = 0.00
Battery Calculation Summary	Standby (amps) Alarm (amps)	Standby Load 79%	CO1224T 8 x [0.02000] = 0.16000 x [0.00000] = 0.00000 x [0.02000] = 0.16 SLC Loop Device Activation Current 1 x [0.00000] = 0.00000 x [0.40000] = 0.40000 x [0.00000] = 0.00 P2RLED-15 12 x [0.00000] = 0.00000 x [0.03500] = 0.42000 x [0.00000] = 0.00
	Panel Current: 0.07500 0.07500 NAC Circuit Current: 0.00000 2.91200 Total Standby: 0.075000 Total Alarm: 2.98700	Commonte	P2RLED-75 1 x [0.00000] = 0.0000 x [0.08700] = 0.08700 x [0.00000] = 0.000 SRLED-15 1 x [0.00000] = 0.00000 x [0.01800] = 0.01800 x [0.00000] = 0.000 P2RL110 13 x [0.00000] = 0.00000 x [0.18200] = 2.36600 x [0.00000] = 0.000
	Standby Hours: 24 Alarm Mins: 5 AH Required: 1.80 AH Required: 0.25 Total Combined Standby & Alarm AmpHours Required: 2.05	Comments 1. Batteries will fit in the FACP cabinet. 2. Selected battery size meets secondary load requirements. 3. The selected batteries (26 A H) are within the charges range of this neuron supply (18, 200 A H).	P2RK75 1 x [0.00000] = 0.00000 x [0.17600] = 0.17600 x [0.00000] = 0.000 Total (Amperes): 0.6747 A 4.0083 A 0.714
	Efficiency Factor: 20% Required Battery AmpHours: 2.46	3. The selected batteries (26AH) are within the charger range of this power supply (18-200AH). Spare Battery Capacity 5.01 Battery Selection (AH) - Secondary Load Requirements (AH) Secondary Standby Load 20.58 Secondary Standby Load (AH) * Derating Factor	Part Number Qty Secondary Alarm Total Primary Alarm Load - C2 1 × [4.00830] = 4.00830 CPS-24 1 × [0.04000] = 0.04000
	Battery AmpHours Provided: 7	Secondary Alarm Load 0.41 Secondary Alarm Load (AH) * Derating Factor	Total (Amperes): 4.0483 A











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Prepared for: Ridgeline Power Group Mo DATE REVIOU DESCRIPTION 2840 SE Blue Parkway, Lee's Summit MO 64063 Mo DATE REVIOU DESCRIPTION Prepared for: Ridgeline Power Group Mo Mo Mo Mo 4700 Rose Parkway, Mission, KS 66205 Mo Mo Mo Mo	ALARM	SERVICES 9745 Widmer, Lenexa, KS 66215 (913) 677-5771, FAX (913) 677-5772 сорчаент 2024 MIDWEST ALARM SERVICES -/- ALL RIGHTS RESERVED
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