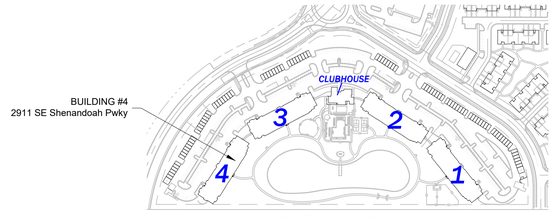
RESIDENCES AT BLACKWELL

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

Apartment Bldg #4 - 2911 SE Shenandoah Pwky

DRAWING INDEX:



SITE PLAN
NO SCALE

RELEASED FOR CONSTRUCTION
As Noted on Plan Review

Lee's Summit Fire Department
Lee's Summit, Missouri

02/07/2025

FIRE ALARM GENERAL NOTES

NOTE#	NOTE TEXT
1.	ALL CIRCUIT POLARITY SHALL BE MAINTAINED.
2.	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).
3.	ALL CIRCUITS SHALL BE FREE OF GROUNDS, WIRE TO WIRE SHORTS, AND OPENS.
4.	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.
5.	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".
6.	INSTALLATION MATERIALS (I.E. CONDUIT, FITTINGS, HANGERS, STANDARD BOXES, ETC.) ARE NOT PROVIDED BY MIDWEST ALARM SERVICES.
7.	ON OPEN WIRE INSTALLATIONS CONDUIT SHALL BE PROVIDED BY OTHERS THROUGH 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.).
8.	MANUAL PULL BOXES SHALL BE MOUNTED 48" AFF TO THE ACTUATING HANDLE.
9.	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.
10.	INSTALLATION SHALL BE IN STRICT CONFORMANCE WITH THE NATIONAL ELECTRIC CODE, NFPA CODES, LOCAL CODES, AUTHORITIES HAVING JURISDICTION AND ALL OF THE MANUFACTURERS REQUIREMENTS.
11.	ALL FIRE ALARM CONTROL RELAYS SHALL BE MOUNTED WITHIN 3' OF THE DEVICES THEY CONTROL. ALL RELAY CONTROL CIRCUITS SHALL BE SUPERVISED.
12.	ALL FIRE ALARM JUNCTION BOX COVERS SHALL BE PAINTED RED OR LABELED FOR DISTINCT IDENTIFICATION.
13.	ALL FIRE ALARM PANELS & EQUIPMENT CABINETS REQUIRE A DEDICATED 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	ALARM	SUPERVISORY	TROUBLE	REPORT TO FIRE ALARM CONTROL PANEL	TRANSMIT SIGNAL TO SUPERVISING STATION	ACTIVATE GENERAL FIRE ALARM BUILDING NOTIFICATION APPLIANCES	ACTIVATE EDC NOTIFICATION APPLIANCE	SHUTDOWN ASSOCIATED LOCAL FAN POWERED HVAC EQUIPMENT	ACTIVATE AIR CURTAIN AT ELEV. VESTIBULE (APT. BLDGS ONLY)	SOUND LOCAL ALARM SIGNAL AT DEVICE	ELEVATOR RECALL - SEND TO PRIMARY FLOOR	ELEVATOR RECALL - SEND TO ALTERNATE FLOOR	ELEVATOR FIRE HAT INDICATOR	ELEVATOR SHUNT TRIP ACTIVATION
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		●		●	1									
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).

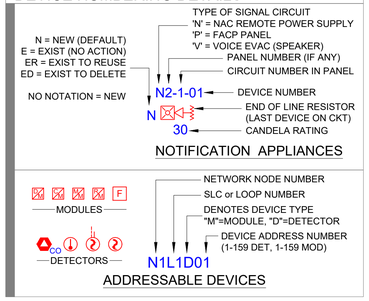
FIRE ALARM SYMBOLS LEGEND

SYMBL	DESCRIPTION
FACP	NOTIFIER NFS-320 FIRE ALARM PANEL MOUNT PANEL AS SHOWN AT 72" AFF TO TOP OF BOX BACK BOX: INCLUDED.
ANN	NOTIFIER FDU-80 LCD ANNUNCIATOR, 80 CHAR. MOUNT AS SHOWN ON SHEET FA-102 BACK BOX: SINGLE GANG
F	NOTIFIER NBG-12LX ADDRESSABLE MANUAL PULL STATION SEE FA GENERAL NOTE 7 FOR MOUNTING HEIGHT BACK BOX: SINGLE GANG 1.875" DEEP MIN
	NOTIFIER FSP-951 SMOKE DETECTOR (PHOTO) MOUNT ON B300-6 BASE, AS INDICATED BACK BOX: 4" SQUARE OR 3.5" OCTAGONAL x 1-1/2" DEEP
SS	SINGLE-STATION SMOKE ALARM PROVIDED BY OTHERS, SHOWN FOR REFERENCE ONLY BACK BOX:
CO SS	SINGLE-STATION COMBO CO/SMOKE ALARM 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
CO	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
	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 FOR MOUNTING HEIGHT SEE FA GENERAL NOTE 9. BACK BOX: SINGLE GANG x 1.875" DEEP MIN.
WP	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

FIRE ALARM WIRE LEGEND

TAG	DESCRIPTION
A	SIGNALING LINE CIRCUIT, CLASS B (2C) 18AWG SOLID, TWSTD, JACKETED CABLE FPLR
B	NOTIFICATION APPLIANCE CIRCUIT (NAC), CLASS B (2C) 14AWG SOLID, TWISTED, JACKETED CABLE. FPLP
P	AUX. POWER FOR ANNUNCIATOR (2C) 14AWG SOLID, TWISTED, JACKETED CABLE. FPLP
R	ANNUNCIATOR DATA CIRCUIT (ANN-BUS), CLASS A (2C) 18AWG SOLID, TWISTED, JACKETED CABLE. FPLP

DEVICE NUMBERING DETAILS



MIDWEST ALARM SERVICES
9745 Widmer, Lenexa, KS 66215
(913) 677-5771, FAX (913) 677-5772

REVISION DESCRIPTION | DATE | NO.

Residences at Blackwell
2840 SE Blue Parkway, Lee's Summit MO 64063

prepared for: Ridgeline Power Group
4700 Roe Parkway, Mission, KS 66205

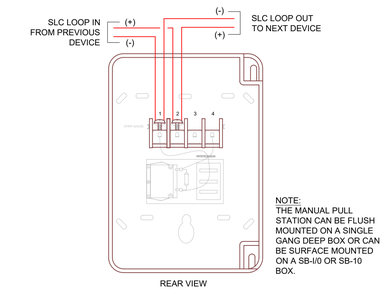
SEAL:

DRAWN BY: D.LANE	DATE: 05.28.2024
DESIGNED BY: PR	DATE: 05.07.24
APPROVED BY:	DATE:

PROJECT NUMBER: 3303 24050258

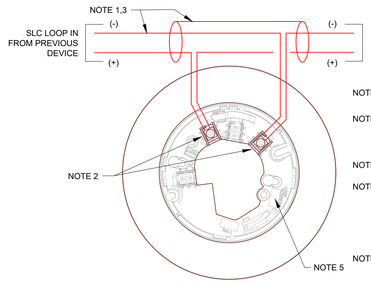
SHEET TITLE: FIRE ALARM SYSTEM Cover Page & Notes Calculations - Clubhouse

SHEET NUMBER: FA-0
1 of 8



NOTE:
THE MANUAL PULL STATION CAN BE FLUSH MOUNTED ON A SINGLE GANG DEEP BOX OR CAN BE SURFACE MOUNTED ON A SB-I/0 OR SB-10 BOX.

NBG-12LX MANUAL PULL STATION



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.

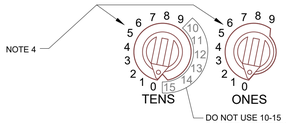
NOTE 3. OBSERVE PROPER POLARITY. DO NOT GROUND SLC WIRING.

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.

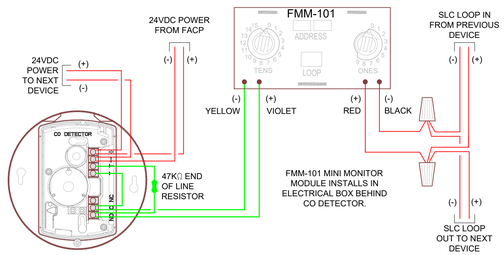
NOTE 5: OPTIONALLY RECORD THE SLC ADDRESS IN THE SPACE PROVIDED ON THE DETECTOR BASE

B300-6 DETECTOR BASE WIRING DETAIL

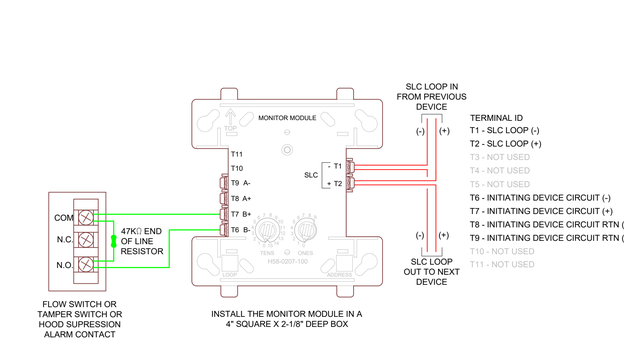
NOTE - LIMITED ADDRESSES:
EACH DEVICE CAN BE SET TO ONE OF 159 ADDRESSES (01-159). HOWEVER ONLY 99 DETECTOR AND 99 MODULE ADDRESSES ARE AVAILABLE IN THIS SYSTEM FOR A TOTAL OF 198 POINTS. CHANGE EACH DEVICE FROM FACTORY PRESET ADDRESS OF "00" USING A COMMON SCREWDRIVER TO ROTATE THE POINTER TO THE NUMBER DESIRED.



SETTING SLC ADDRESS (ROTARY DIALS)

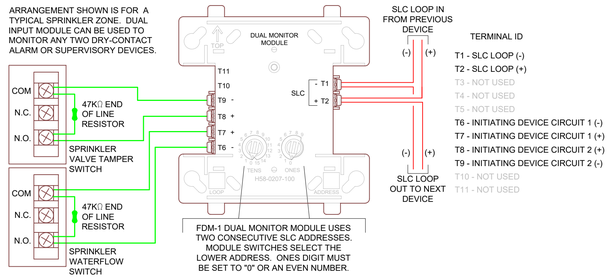


CO1224TR DETECTOR WITH FMM-101 MINI MONITOR MODULE

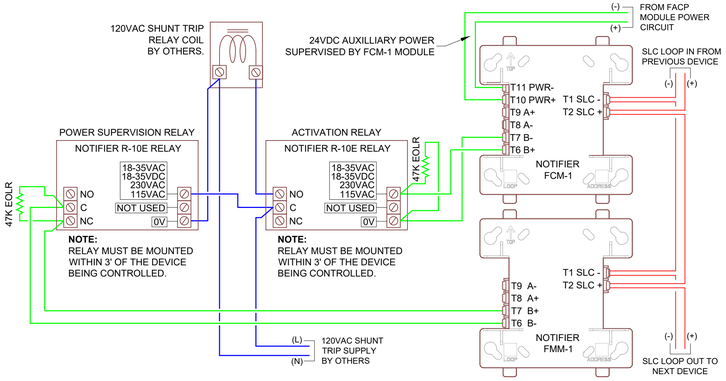


FMM-1 ADDRESSABLE MONITOR MODULE

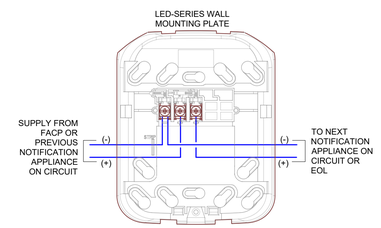
ARRANGEMENT SHOWN IS FOR A TYPICAL SPRINKLER ZONE. DUAL INPUT MODULE CAN BE USED TO MONITOR ANY TWO DRY-CONTACT ALARM OR SUPERVISORY DEVICES.



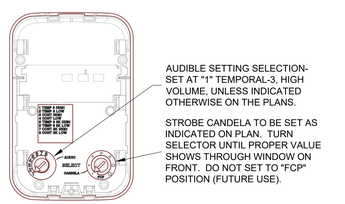
FDM-1 DUAL INPUT MONITOR MODULE - TYPICAL WIRING



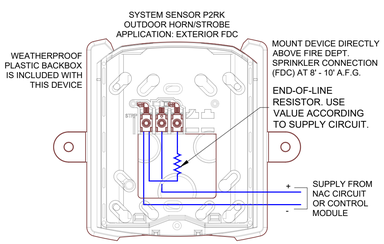
ELEVATOR SHUNT TRIP WIRING DETAIL



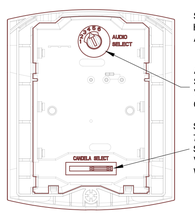
SYSTEM SENSOR LED-SERIES HORN / STROBE & STROBE



LED-SERIES HORN / STROBE CANDELA & AUDIBLE SETTINGS



SYSTEM SENSOR P2RK OUTDOOR HORN / STROBE

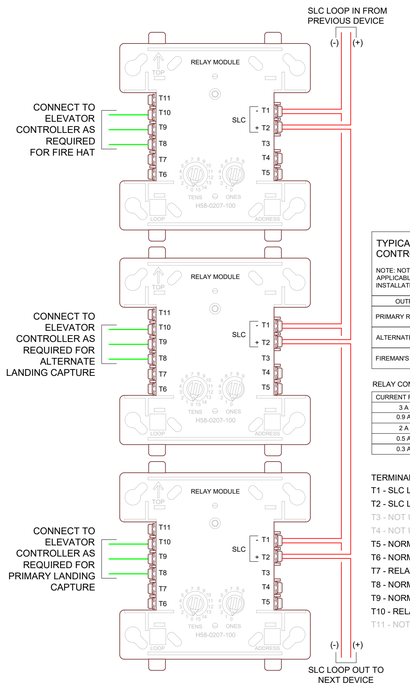


SYSTEM SENSOR P2RK OUTDOOR HORN/STROBE APPLICATION: EXTERIOR FDC

AUDIBLE SETTING SELECTION- SET AT "4" NON-TEMPORAL, HIGH VOLUME, FOR THIS APPLICATION ONLY.

STROBE CANDELA TO BE SET AT 75CD FOR THIS APPLICATION. SLIDE SELECTOR UNTIL PROPER VALUE SHOWS THROUGH WINDOW ON FRONT.

P2RK OUTDOOR HORN / STROBE CANDELA & AUDIBLE SETTINGS



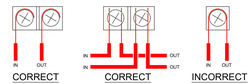
TYPICAL ELEVATOR CONTROL MATRIX NOTE: NOT ALL DEVICES MAY BE APPLICABLE TO THIS INSTALLATION	DETECTOR LOCATION			
	ELEVATOR MACHINE ROOM	ELEVATOR SHAFT (IF ANY)	ELEVATOR LOBBY FLOOR	NON-DESIGNATED FLOORS
OUTPUT FUNCTION				
PRIMARY RECALL				X
ALTERNATE RECALL	X	X	X	
FIREMAN'S HAT INDICATOR	X	X		

RELAY CONTACT RATINGS:

CURRENT RATING	MAXIMUM VOLTAGE	LOAD DESCRIPTION
3 A	30 VDC	Resistive
0.9 A	125 VDC	Resistive
2 A	25 VAC	Inductive (PF=.35)
0.5 A	125 VAC	Inductive (PF=.75)
0.3 A	125 VAC	Inductive (PF=.35)

TERMINAL ID
T1 - SLC LOOP (-)
T2 - SLC LOOP (+)
T3 - NOT USED
T4 - NOT USED
T5 - NORMALLY OPEN 1
T6 - NORMALLY CLOSED 1
T7 - RELAY COMMON 1
T8 - NORMALLY OPEN 2
T9 - NORMALLY CLOSED 2
T10 - RELAY COMMON 2
T11 - NOT USED

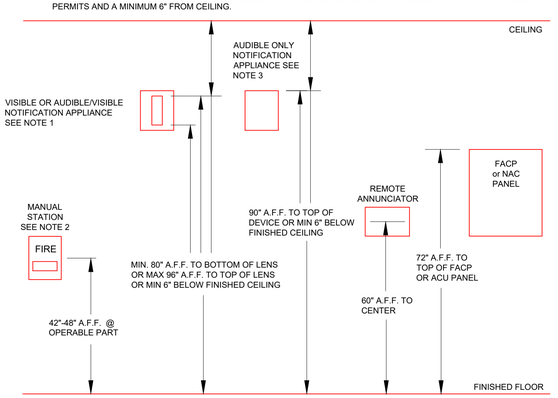
FRM-1 RELAY MODULE/ELEVATOR INTERFACES



WIRING MUST BE BROKEN AT DEVICE CONNECTION POINTS AS SHOWN TO INSURE MONITORING OF CIRCUIT INTEGRITY.

WIRING METHODS

NOTES:
1. VISIBLE OR AUDIBLE/VISIBLE APPLIANCES SHALL BE MOUNTED SO THAT THE ENTIRE LENS IS NOT LESS THAN 80"A.F.F. OR GREATER THAN 96" A.F.F. WHERE LOW CEILING HEIGHTS PREVENT ABOVE, MOUNT AT 6" BELOW CEILING TO TOP OF LENS. FOR CORRIDORS 20' OR LESS WIDE, MOUNT VISUAL APPLIANCES NO MORE THAN 15' FROM END OF CORRIDOR WITH NO MORE THAN 100' SEPARATION BETWEEN VISUAL APPLIANCES. MAXIMUM CORRIDOR LENGTH COVERED BY A SINGLE 15cd STROBE SHALL NOT EXCEED 30'.
2. MOUNT MANUAL STATIONS WITHIN 5' OF EXIT DOORWAY OPENING.
3. AUDIBLE ONLY APPLIANCES SHALL BE MOUNTED SO THAT THE TOP OF DEVICE IS NOT LESS THAN 90" A.F.F. IF CEILING PERMITS AND A MINIMUM 6" FROM CEILING.



INSTALLATION HEIGHTS FOR WALL MOUNTED DEVICES

MIDWEST ALARM SERVICES
9745 Widmer, Lenexa, KS 66215
(913) 677-5771, FAX (913) 677-5772

NO.	DATE	REVISION DESCRIPTION

Residences at Blackwell
2840 SE Blue Parkway, Lee's Summit MO 64063

prepared for: Ridgeline Power Group
4700 Roe Parkway, Mission, KS 66205

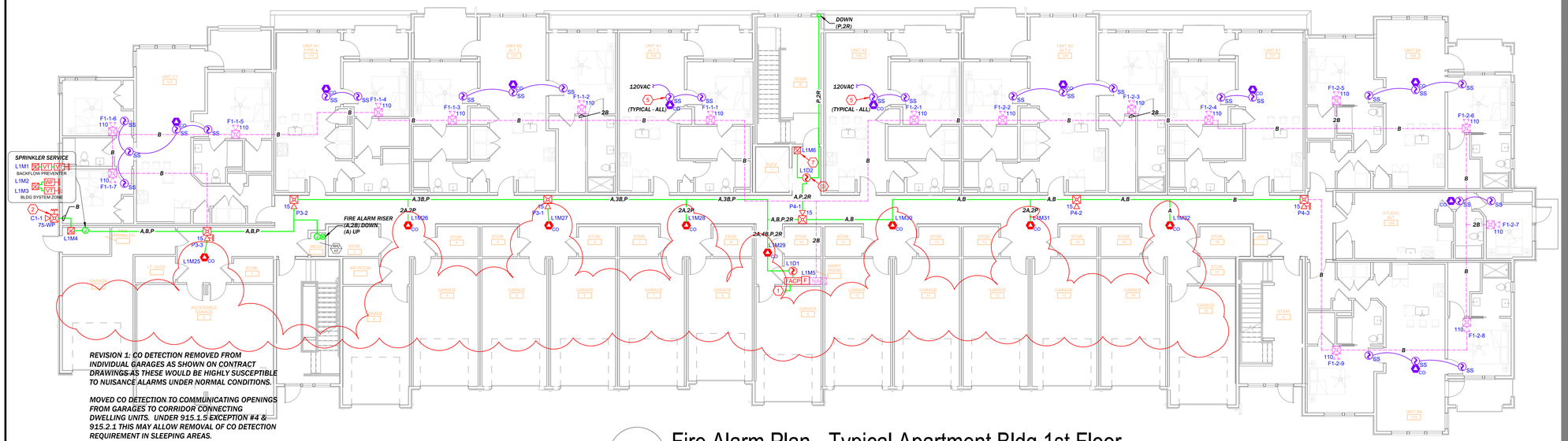
SEAL:

DRAWN BY: D.LANE	DATE: 05.28.2024
DESIGNED BY: PR	DATE: 05.07.24
APPROVED BY:	DATE:

PROJECT NUMBER: 3303 24050258

SHEET TITLE: FIRE ALARM SYSTEM Device Wiring & Mounting Details

SHEET NUMBER: FA-102



REVISION 1: CO DETECTION REMOVED FROM INDIVIDUAL GARAGES AS SHOWN ON CONTRACT DRAWINGS AS THESE WOULD BE HIGHLY SUSCEPTIBLE TO NUISANCE ALARMS UNDER NORMAL CONDITIONS.

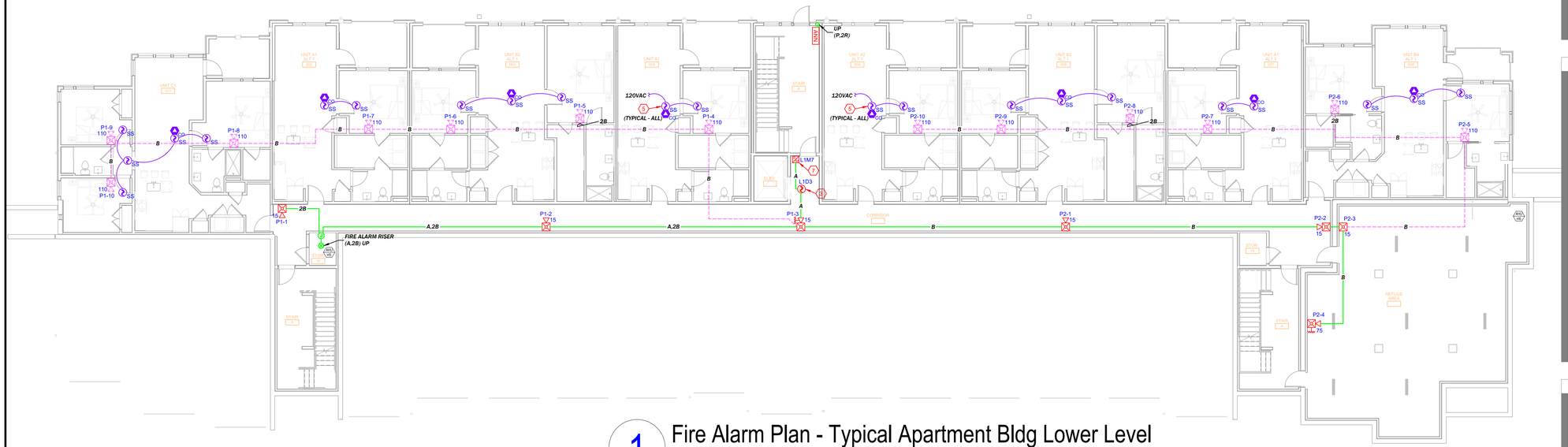
MOVED CO DETECTION TO COMMUNICATING OPENINGS FROM GARAGES TO CORRIDOR CONNECTING DWELLING UNITS. UNDER 915.1.5 EXCEPTION #4 & 915.2.1 THIS MAY ALLOW REMOVAL OF CO DETECTION REQUIREMENT IN SLEEPING AREAS.

2 Fire Alarm Plan - Typical Apartment Bldg 1st Floor

SCALE: 3/32"=1'-0"

3' 0 4' 10'-8"

SCALE: 3/32" = 1'-0"



1 Fire Alarm Plan - Typical Apartment Bldg Lower Level

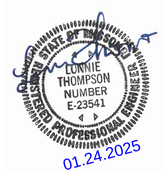
SCALE: 3/32"=1'-0"

3' 0 4' 10'-8"

SCALE: 3/32" = 1'-0"

GENERAL NOTE - FUTURE CAPACITY

LOW FREQUENCY NOTIFICATION DEVICES IN UNITS AND PATHWAYS SHOWN IN MAJENTA COLOR ARE FOR FUTURE EXPANSION IN SLEEPING AREAS AS REQUIRED BY ICC A117.1. ELECTRICAL BOX ROUGH-IN AND WIRING ARE TO BE INCLUDED IN THE INSTALLATION. CONNECT CIRCUITS THROUGH AT FUTURE LOCATIONS AND BLANK OFF BOX. NAC CALCULATIONS INCLUDE FUTURE DEVICES.



RTU & AHU SCHEDULE - Apartment Buildings

(As listed on contract drawing MP1.04)

AHU-H1	600 CFM
AHU-H2	600 CFM
AHU-H3	600 CFM
AHU-H4	600 CFM
AHU-H5	600 CFM
AHU-H6	600 CFM

None of the units in this building are over 2,000 CFM to require duct detectors and shutdown function from the fire alarm system per NFPA 72 & 90A. All are electric heat.

FIRE ALARM SYMBOLS LEGEND

SYMBL	DESCRIPTION
FACP	NOTIFIER NFS-320 FIRE ALARM PANEL MOUNT PANEL AS SHOWN AT 72" AFF TO TOP OF BOX BACK BOX: INCLUDED.
ANN	NOTIFIER FDU-80 LCD ANNUNCIATOR, 80 CHAR. MOUNT AS SHOWN ON SHEET FA-102 BACK BOX: SINGLE GANG
F	NOTIFIER NBG-12LX ADDRESSABLE MANUAL PULL STATION SEE FA GENERAL NOTE 7 FOR MOUNTING HEIGHT BACK BOX: SINGLE GANG 1.875" DEEP MIN
	NOTIFIER FSP-951 SMOKE DETECTOR (PHOTO) MOUNT ON B300-6 BASE, AS INDICATED BACK BOX: 4" SQUARE OR 3.5" OCTAGONAL x 1-1/2" DEEP
SS	SINGLE-STATION SMOKE ALARM PROVIDED BY OTHERS, SHOWN FOR REFERENCE ONLY BACK BOX:
CO SS	SINGLE-STATION COMBO CO/SMOKE ALARM 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
CO	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
M	NOTIFIER FDM-1 DUAL ADDRESSABLE MONITOR MODULE MOUNT AS SHOWN ON PLANS BACK BOX: 4" SQUARE x 2-1/8" DEEP
M	NOTIFIER FCM-1 ADDRESSABLE CONTROL MODULE MOUNT WITHIN 3' OF CONTROLLED DEVICE BACK BOX: 4" SQUARE x 2-1/8" DEEP
M	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 FOR MOUNTING HEIGHT SEE FA GENERAL NOTE 9. BACK BOX: SINGLE GANG x 1.875" DEEP MIN.
WP	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

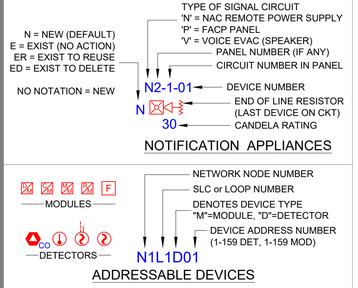
FIRE ALARM WIRE LEGEND

TAG	DESCRIPTION
A	SIGNALING LINE CIRCUIT, CLASS B (2C) 18AWG SOLID, TWSTD, JACKETED CABLE FPLR
B	NOTIFICATION APPLIANCE CIRCUIT (NAC), CLASS B (2C) 14AWG SOLID, TWISTED, JACKETED CABLE. FPLP
P	AUX. POWER FOR ANNUNCIATOR (2C) 14AWG SOLID, TWISTED, JACKETED CABLE. FPLP
R	ANNUNCIATOR DATA CIRCUIT (ANN-BUS), CLASS A (2C) 18AWG SOLID, TWISTED, JACKETED CABLE. FPLP

KEYED NOTES — DWG SHEET # FA-201

KEY #	NOTE TEXT
1	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 SETTINGS.
3	DETECTOR PROGRAMMED FOR ELEVATOR CONTROL IN ACCORDANCE WITH I/O MATRIX ON SHEET FA-0.
4	NOT USED THIS SHEET
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.
6	COORDINATE LOCATION AND CONNECTION OF ELEVATOR PHASE 1 FIRE SERVICE INTERFACE DEVICES WITH ELEVATOR CONTRACTOR. COORDINATE ELEVATOR POWER SHUNT TRIP INTERFACES WITH ELECTRICAL CONTRACTOR.
7	CONTROL RELAY FOR SMOKE CURTAIN AS CALLED OUT ON CONTRACT DRAWINGS. PROGRAM TO OPERATE AS SHOWN IN I/O MATRIX ON SHEET FA-0

DEVICE NUMBERING DETAILS



MIDWEST ALARM SERVICES
9745 Widmer, Lenexa, KS 66215
(913) 677-5771, FAX (913) 677-5772

NO.	DATE	REVISION DESCRIPTION
1	12.09.24	Revised CO detection per AHJ review

Residences at Blackwell
2840 SE Blue Parkway, Lee's Summit MO 64063

prepared for: Ridgeline Power Group
4700 Roe Parkway, Mission, KS 66205

SEAL:

DRAWN BY: D.LANE	DATE: 05.28.2024
DESIGNED BY: PR	DATE: 05.07.24
APPROVED BY:	DATE:

PROJECT NUMBER: 3303 24050258

SHEET TITLE: FIRE ALARM SYSTEM Apartment Typ. Floor Plans LL & 1st Floor

SHEET NUMBER: FA-201

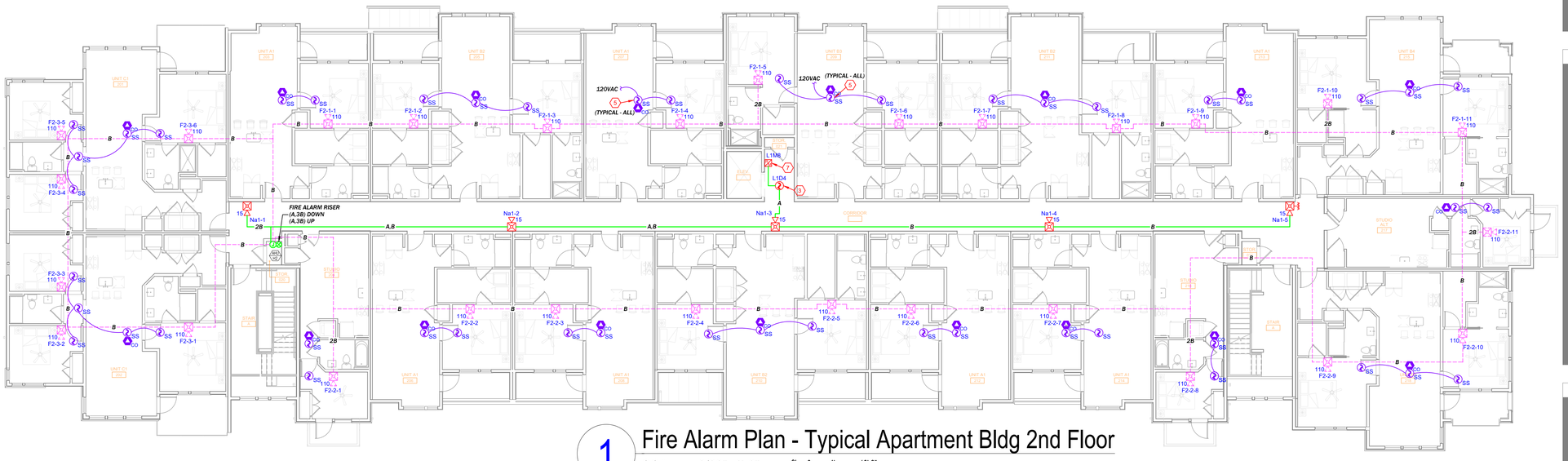
5 of 8

2 Fire Alarm Plan - Typical Apartment Bldg 3rd Floor

SCALE: 3/32"=1'-0"

3' 0 4' 10'-8"

SCALE: 3/32" = 1'-0"



1 Fire Alarm Plan - Typical Apartment Bldg 2nd Floor

SCALE: 3/32"=1'-0"

3' 0 4' 10'-8"

SCALE: 3/32" = 1'-0"

FIRE ALARM SYMBOLS LEGEND

SYMBL	DESCRIPTION
FACP	NOTIFIER NFS-320 FIRE ALARM PANEL MOUNT PANEL AS SHOWN AT 72" AFF TO TOP OF BOX BACK BOX: INCLUDED.
ANN	NOTIFIER FDU-80 LCD ANNUNCIATOR, 80 CHAR. MOUNT AS SHOWN ON SHEET FA-102 BACK BOX: SINGLE GANG
F	NOTIFIER NBG-12LX ADDRESSABLE MANUAL PULL STATION SEE FA GENERAL NOTE 7 FOR MOUNTING HEIGHT BACK BOX: SINGLE GANG 1.875" DEEP MIN
	NOTIFIER FSP-951 SMOKE DETECTOR (PHOTO) MOUNT ON B300-6 BASE, AS INDICATED BACK BOX: 4" SQUARE OR 3.5" OCTAGONAL x 1-1/2" DEEP
SS	SINGLE-STATION SMOKE ALARM PROVIDED BY OTHERS, SHOWN FOR REFERENCE ONLY BACK BOX:
CO SS	SINGLE-STATION COMBO CO/SMOKE ALARM 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
CO	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
M	NOTIFIER FDM-1 DUAL ADDRESSABLE MONITOR MODULE MOUNT AS SHOWN ON PLANS BACK BOX: 4" SQUARE x 2-1/8" DEEP
M	NOTIFIER FCM-1 ADDRESSABLE CONTROL MODULE MOUNT WITHIN 3' OF CONTROLLED DEVICE BACK BOX: 4" SQUARE x 2-1/8" DEEP
M	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 FOR MOUNTING HEIGHT SEE FA GENERAL NOTE 9. BACK BOX: SINGLE GANG x 1.875" DEEP MIN.
WP	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

GENERAL NOTE - FUTURE CAPACITY

LOW FREQUENCY NOTIFICATION DEVICES IN UNITS AND PATHWAYS SHOWN IN MAJENTA COLOR ARE FOR FUTURE EXPANSION IN SLEEPING AREAS AS REQUIRED BY ICC A117.1. ELECTRICAL BOX ROUGH-IN AND WIRING ARE TO BE INCLUDED IN THE INSTALLATION. CONNECT CIRCUITS THROUGH AT FUTURE LOCATIONS AND BLANK OFF BOX. NAC CALCULATIONS INCLUDE FUTURE DEVICES.

FIRE ALARM WIRE LEGEND

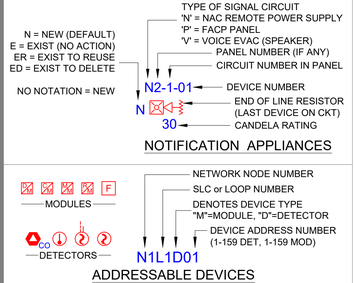
TAG	DESCRIPTION
A	SIGNALING LINE CIRCUIT, CLASS B (2C) 18AWG SOLID, TWSTD, JACKETED CABLE FPLR
B	NOTIFICATION APPLIANCE CIRCUIT (NAC), CLASS B (2C) 14AWG SOLID, TWISTED, JACKETED CABLE. FPLP
P	AUX. POWER FOR ANNUNCIATOR (2C) 14AWG SOLID, TWISTED, JACKETED CABLE. FPLP
R	ANNUNCIATOR DATA CIRCUIT (ANN-BUS), CLASS A (2C) 18AWG SOLID, TWISTED, JACKETED CABLE. FPLP

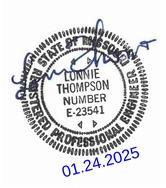
KEYED NOTES

DWG SHEET # FA-202

KEY #	NOTE TEXT
1	120VAC DEDICATED AC POWER FOR FIRE ALARM SYSTEM, TO BE PROVIDED BY ELECTRICAL CONTRACTOR.
2	NOT USED THIS SHEET
3	DETECTOR PROGRAMMED FOR ELEVATOR CONTROL IN ACCORDANCE WITH I/O MATRIX ON SHEET FA-0.
4	NOT USED THIS SHEET
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.
6	COORDINATE LOCATION AND CONNECTION OF ELEVATOR PHASE 1 FIRE SERVICE INTERFACE DEVICES WITH ELEVATOR CONTRACTOR. COORDINATE ELEVATOR POWER SHUNT TRIP INTERFACES WITH ELECTRICAL CONTRACTOR.
7	CONTROL RELAY FOR SMOKE CURTAIN AS CALLED OUT ON CONTRACT DRAWINGS. PROGRAM TO OPERATE AS SHOWN IN I/O MATRIX ON SHEET FA-0

DEVICE NUMBERING DETAILS





MIDWEST ALARM SERVICES
9745 Widmer, Lenexa, KS 66215
(913) 677-5771, FAX (913) 677-5772

NO.	DATE	REVISION DESCRIPTION

Residences at Blackwell
2840 SE Blue Parkway, Lee's Summit MO 64063

prepared for: Ridgeline Power Group
4700 Roe Parkway, Mission, KS 66205

SEAL:

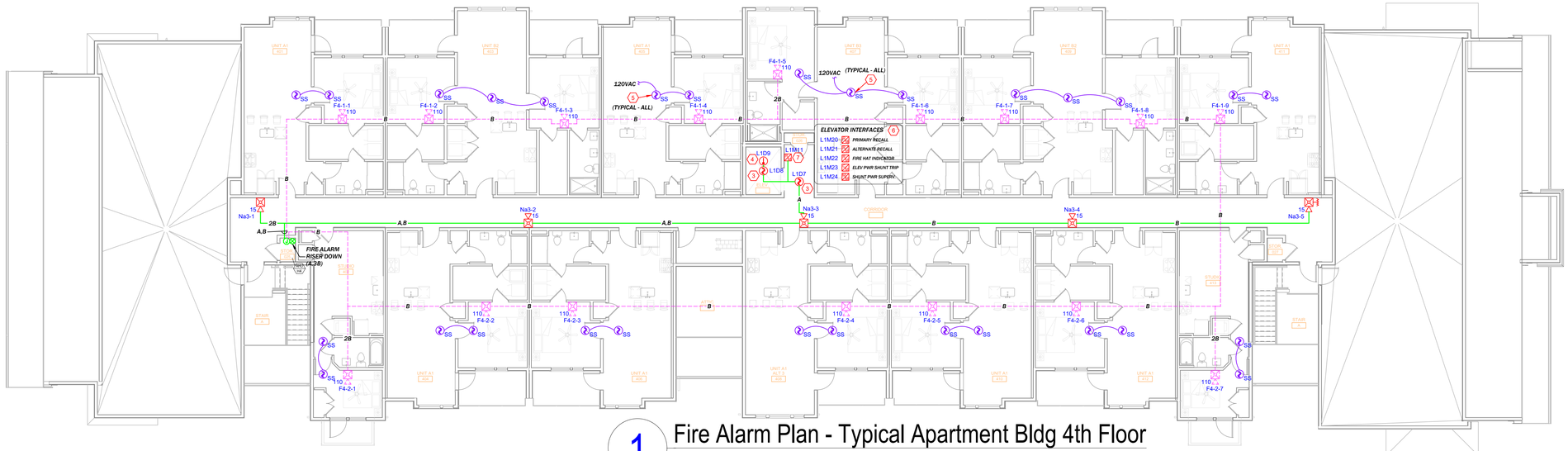
DRAWN BY: D.LANE	DATE: 05.28.2024
DESIGNED BY: PR	DATE: 05.07.24
APPROVED BY:	DATE:

PROJECT NUMBER: 3303 24050258

SHEET TITLE: FIRE ALARM SYSTEM Apartment Typ. Floor Plans 2nd & 3rd Floor

SHEET NUMBER: FA-202

6 of 8

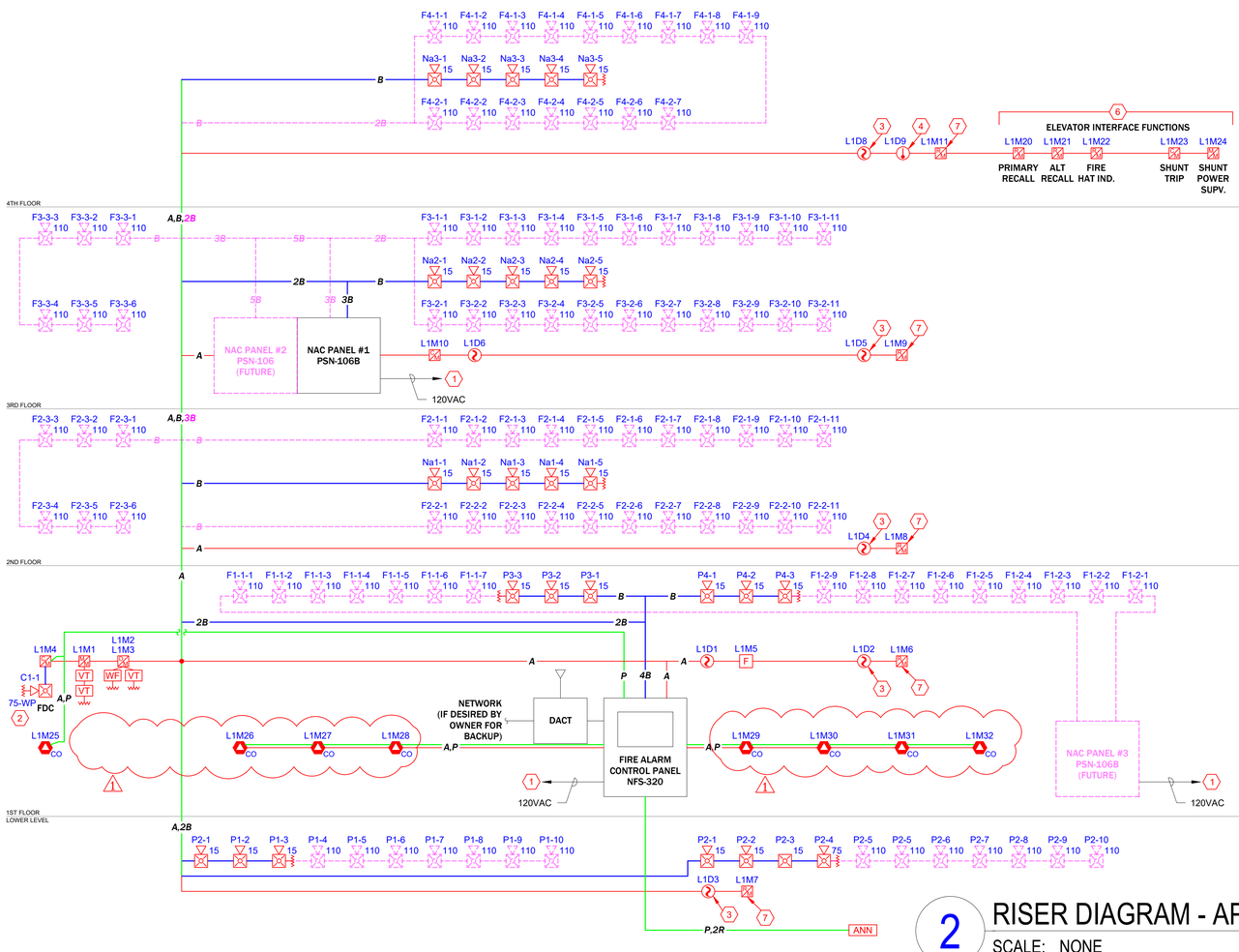


1 Fire Alarm Plan - Typical Apartment Bldg 4th Floor

SCALE: 3/32"=1'-0"

3' 0 4' 10'-8"

SCALE: 3/32" = 1'-0"



2 RISER DIAGRAM - APARTMENT BUILDINGS

SCALE: NONE

GENERAL NOTE - FUTURE CAPACITY

LOW FREQUENCY NOTIFICATION DEVICES IN UNITS AND PATHWAYS SHOWN IN MAJENTA COLOR ARE FOR FUTURE EXPANSION IN SLEEPING AREAS AS REQUIRED BY ICC A117.1. ELECTRICAL BOX ROUGH-IN AND WIRING ARE TO BE INCLUDED IN THE INSTALLATION. CONNECT CIRCUITS THROUGH AT FUTURE LOCATIONS AND BLANK OFF BOX. NAC CALCULATIONS INCLUDE FUTURE DEVICES.

FIRE ALARM SYMBOLS LEGEND

SYMBL	DESCRIPTION
FACP	NOTIFIER NFS-320 FIRE ALARM PANEL MOUNT PANEL AS SHOWN AT 72" AFF TO TOP OF BOX BACK BOX: INCLUDED.
ANN	NOTIFIER FDU-80 LCD ANNUNCIATOR, 80 CHAR. MOUNT AS SHOWN ON SHEET FA-102 BACK BOX: SINGLE GANG
F	NOTIFIER NBG-12LX ADDRESSABLE MANUAL PULL STATION SEE FA GENERAL NOTE 7 FOR MOUNTING HEIGHT BACK BOX: SINGLE GANG 1.875" DEEP MIN
	NOTIFIER FSP-951 SMOKE DETECTOR (PHOTO) MOUNT ON B300-6 BASE, AS INDICATED BACK BOX: 4" SQUARE OR 3.5" OCTAGONAL x 1-1/2" DEEP
SS	SINGLE-STATION SMOKE ALARM 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
CO	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
M	NOTIFIER FDM-1 DUAL ADDRESSABLE MONITOR MODULE MOUNT AS SHOWN ON PLANS BACK BOX: 4" SQUARE x 2-1/8" DEEP
M	NOTIFIER FCM-1 ADDRESSABLE CONTROL MODULE MOUNT WITHIN 3' OF CONTROLLED DEVICE BACK BOX: 4" SQUARE x 2-1/8" DEEP
M	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 FOR MOUNTING HEIGHT SEE FA GENERAL NOTE 9. BACK BOX: SINGLE GANG x 1.875" DEEP MIN.
WP	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

FIRE ALARM WIRE LEGEND

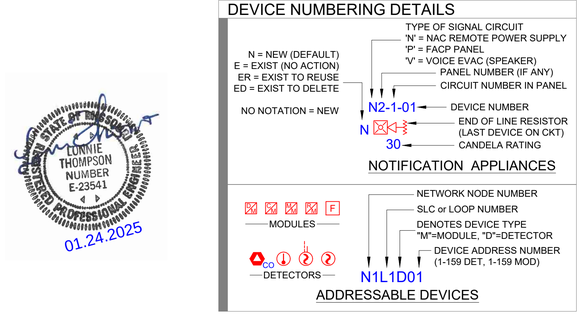
TAG	DESCRIPTION
A	SIGNALING LINE CIRCUIT, CLASS B (2C) 18AWG SOLID, TWSTD, JACKETED CABLE FPLR
B	NOTIFICATION APPLIANCE CIRCUIT (NAC), CLASS B (2C) 14AWG SOLID, TWISTED, JACKETED CABLE. FPLP
P	AUX. POWER FOR ANNUNCIATOR (2C) 14AWG SOLID, TWISTED, JACKETED CABLE. FPLP
R	ANNUNCIATOR DATA CIRCUIT (ANN-BUS), CLASS A (2C) 18AWG SOLID, TWISTED, JACKETED CABLE. FPLP

KEYED NOTES

DWG SHEET # FA-203

KEY #	NOTE TEXT
1	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 SETTINGS.
3	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.
6	COORDINATE LOCATION AND CONNECTION OF ELEVATOR PHASE 1 FIRE SERVICE INTERFACE DEVICES WITH ELEVATOR CONTRACTOR. COORDINATE ELEVATOR POWER SHUNT TRIP INTERFACES WITH ELECTRICAL CONTRACTOR.
7	CONTROL RELAY FOR SMOKE CURTAIN AS CALLED OUT ON CONTRACT DRAWINGS. PROGRAM TO OPERATE AS SHOWN IN I/O MATRIX ON SHEET FA-0

DEVICE NUMBERING DETAILS



MIDWEST ALARM SERVICES
9745 Widmer, Lenexa, KS 66215
(913) 677-5771, FAX (913) 677-5772

NO.	DATE	REVISION DESCRIPTION
1	12.09.24	Revised CO detection per AHJ review

Residences at Blackwell
2840 SE Blue Parkway, Lee's Summit MO 64063

prepared for: Ridgeline Power Group
4700 Roe Parkway, Mission, KS 66205

SEAL:

DRAWN BY: D.LANE	DATE: 05.28.2024
DESIGNED BY: PR	DATE: 05.07.24
APPROVED BY:	DATE:

PROJECT NUMBER: 3303 24050258

SHEET TITLE: FIRE ALARM SYSTEM Apartment Typ. Floor Plans 4th floor

SHEET NUMBER: FA-203

7 of 8

POTTER — The Symbol of Protection

PSN-106
Battery & Voltage Drop Calculations

Project Name: Residences at Blackwell
Lee's Summit MO
Installed By: Midwest Alarm Services
Designed By: David Lane
Date: 07.18.2024

Standby Hours: 24
Alarm Mins: 5
Safety Margin: 20%
NAC Source Voltage: 20.4

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 submittal.

Qty	Panel Part #	Description	Standby (amps) Each	Standby (amps) Total	Alarm (amps) Each	Alarm (amps) Total
1	PSN-106	NAC Power Expander	0.075	0.075	0.075	0.075
		Panel Standby:		**0.075**	**Panel Alarm:**	**0.075**

Ckt	NAC Circuits (See NAC Configuration below) Use	Description	Class	Standby (amps) Total	Alarm (amps) Total
1	Notification	2nd floor corridor	Class B	0.00000	0.17500
2	Notification	3rd floor corridor	Class B	0.00000	0.17500
3	Notification	4th floor corridor	Class B	0.00000	0.17500
4	Notification	(FUTURE) 3rd flr units #3	Class B	0.00000	1.09200
5	Notification	(FUTURE) 4th flr units #1	Class B	0.00000	1.63800
6	Notification	(FUTURE) 4th flr units #2	Class B	0.00000	1.27400
AUX	Aux Power			0.00000	0.00000
			NAC Standby:	**0.00000**	**NAC Alarm:** **4.52900**

Battery Calculation Summary

	Standby (amps)		Alarm (amps)
Panel Current:	0.07500		0.07500
NAC Circuit Current:	0.00000		4.52900
Total Standby:	0.075000	Total Alarm:	4.60400
Standby Hours:	24	Alarm Mins:	5
AH Required:	1.80	AH Required:	0.39
Total Combined Standby & Alarm AmpHours Required:			2.19
Efficiency Factor:			20%
Required Battery AmpHours:			2.63
Battery AmpHours Provided:			7

POTTER — The Symbol of Protection

PSN-106
Battery & Voltage Drop Calculations

Project Name: Residences at Blackwell
Lee's Summit MO
Installed By: Midwest Alarm Services
Designed By: David Lane
Date: 07.18.2024

Standby Hours: 24
Alarm Mins: 5
Safety Margin: 20%
NAC Source Voltage: 20.4

Model #: PSN-106
Panel ID: NAC #2 (apartment bldg typical)
Location: 3rd floor storage room (FUTURE)

Max Panel Current (amps): 10

User assumes all responsibility to ensure the quantities and current draw values in this worksheet are accurate prior to submittal.

Qty	Panel Part #	Description	Standby (amps) Each	Standby (amps) Total	Alarm (amps) Each	Alarm (amps) Total
1	PSN-106	NAC Power Expander	0.075	0.075	0.075	0.075
		Panel Standby:		**0.075**	**Panel Alarm:**	**0.075**

Ckt	NAC Circuits (See NAC Configuration below) Use	Description	Class	Standby (amps) Total	Alarm (amps) Total
1	Notification	(FUTURE) 2nd flr units #1	Class B	0.00000	2.00200
2	Notification	(FUTURE) 2nd flr units #2	Class B	0.00000	2.00200
3	Notification	(FUTURE) 2nd flr units #3	Class B	0.00000	1.09200
4	Notification	(FUTURE) 3rd flr units #1	Class B	0.00000	2.00200
5	Notification	(FUTURE) 3rd flr units #2	Class B	0.00000	2.00200
6	Unused		Class B	0.00000	0.00000
AUX	Aux Power			0.00000	0.00000
			NAC Standby:	**0.00000**	**NAC Alarm:** **9.10000**

Battery Calculation Summary

	Standby (amps)		Alarm (amps)
Panel Current:	0.07500		0.07500
NAC Circuit Current:	0.00000		9.10000
Total Standby:	0.075000	Total Alarm:	9.17500
Standby Hours:	24	Alarm Mins:	5
AH Required:	1.80	AH Required:	0.77
Total Combined Standby & Alarm AmpHours Required:			2.57
Efficiency Factor:			20%
Required Battery AmpHours:			3.08
Battery AmpHours Provided:			7

POTTER — The Symbol of Protection

PSN-106
Battery & Voltage Drop Calculations

Project Name: Residences at Blackwell
Lee's Summit MO
Installed By: Midwest Alarm Services
Designed By: David Lane
Date: 07.18.2024

Standby Hours: 24
Alarm Mins: 5
Safety Margin: 20%
NAC Source Voltage: 20.4

Model #: PSN-106
Panel ID: NAC #3 (apartment bldg typical)
Location: 1st floor mech room (FUTURE)

Max Panel Current (amps): 10

User assumes all responsibility to ensure the quantities and current draw values in this worksheet are accurate prior to submittal.

Qty	Panel Part #	Description	Standby (amps) Each	Standby (amps) Total	Alarm (amps) Each	Alarm (amps) Total
1	PSN-106	NAC Power Expander	0.075	0.075	0.075	0.075
		Panel Standby:		**0.075**	**Panel Alarm:**	**0.075**

Ckt	NAC Circuits (See NAC Configuration below) Use	Description	Class	Standby (amps) Total	Alarm (amps) Total
1	Notification	(FUTURE) 1st flr units #1	Class B	0.00000	1.27400
2	Notification	(FUTURE) 1st flr units #2	Class B	0.00000	1.63800
3	Unused		Class B	0.00000	0.00000
4	Unused		Class B	0.00000	0.00000
5	Unused		Class B	0.00000	0.00000
6	Unused		Class B	0.00000	0.00000
AUX	Aux Power			0.00000	0.00000
			NAC Standby:	**0.00000**	**NAC Alarm:** **2.91200**

Battery Calculation Summary

	Standby (amps)		Alarm (amps)
Panel Current:	0.07500		0.07500
NAC Circuit Current:	0.00000		2.91200
Total Standby:	0.075000	Total Alarm:	2.98700
Standby Hours:	24	Alarm Mins:	5
AH Required:	1.80	AH Required:	0.25
Total Combined Standby & Alarm AmpHours Required:			2.05
Efficiency Factor:			20%
Required Battery AmpHours:			2.46
Battery AmpHours Provided:			7

NOTIFICATION POWER SUMMARY - HORN/STROBE CIRCUITS

FACP	Ckt Desig	Qty Dev	Alarm Load	Max. Load	Percent of Max	Circuit Length	wire type	Start Volts	Line Ω	Load Ω	e Drop	End 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	16.97
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	16.55
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	20.29
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	20.32
N/A	P	0	0.000 A	0.00 A	#DIV/0!	0 Ft	14ga solid Cu	20.4	0.00		0.00 V	20.40
N/A	P	0	0.000 A	0.00 A	#DIV/0!	0 Ft	14ga solid Cu	20.4	0.00		0.00 V	20.40
TOTALS		27	2.891 A	7.4 A	39.07%							

NAC pnl #1	Circuit	Qty	Alm Load	Max.	% Loaded	Length	wire type	Volts	Line Ω	Load Ω	Vdrop	endV
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	20.35
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	20.35
4th floor corridor	Na3	5	0.175 A	3.00 A	5.83%	220 Ft	14ga solid Cu	20.4	1.35	116.6	0.05 V	20.35
Future 3rd floor #3	Na4	6	1.092 A	3.00 A	36.40%	140 Ft	14ga solid Cu	20.4	0.86	18.7	0.59 V	19.81
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	19.09
Future 4th floor #2	Na6	7	1.274 A	3.00 A	42.47%	215 Ft	14ga solid Cu	20.4	1.32	16.0	0.98 V	19.42
TOTALS		37	4.529 A	10.0 A	45.29%							

NAC pnl #2 (future)	Circuit	Qty	Alm Load	Max.	% Loaded	Length	wire type	Volts	Line Ω	Load Ω	Vdrop	endV
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	18.37
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	17.98
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	19.75
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	18.49
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	18.10
spare	ckt 6	0	0.000 A	3.00 A	0.00%	0 Ft	14ga solid Cu	20.4	0.00		0.00 V	20.40
TOTALS		50	9.100 A	10.0 A	91.00%							

NAC pnl #3 (future)	Circuit	Qty	Alm Load	Max.	% Loaded	Length	wire type	Volts	Line Ω	Load Ω	Vdrop	endV
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	20.22
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	20.16
spare	Nc-3	0	0.000 A	3.00 A	0.00%	0 Ft	14ga solid Cu	20.4	0.00		0.00 V	20.40
spare	Nc-4	0	0.000 A	3.00 A	0.00%	0 Ft	14ga solid Cu	20.4	0.00		0.00 V	20.40
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
spare	Nc-6	0	0.000 A	3.00 A	0.00%	0 Ft	14ga solid Cu	20.4	0.00		0.00 V	20.40
TOTALS		16	2.912 A	10.0 A	29.12%							

NOTIFIER by Honeywell

System Power Requirements

Notifier NFS-320 Fire Alarm Control Panel

Protected Premises: Residences at Blackwell - Apartment Building typical — Date: 12.09.2024
Address: 2911 SE Shenandoah Pwky / US 50 Hwy at Blackwell
City: Lee's Summit — State: MO — Zip: 64063

Prepared By: Midwest Alarm Services - David Lane — Phone: (913) 677-5771
Address: 9745 Widmer — Email:
City: Lenexa — State: KS — Zip: 66215

Clear Project Information

AC Branch Current Requirements — 5.00 AMPS @ 120 VAC — Check
Current required by source to power the fire alarm system.

Primary Standby Load — 0.67 Amps — Check
Current load on the primary power supply during **non-alarm** conditions.

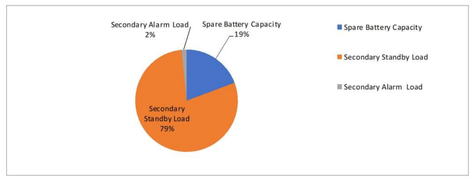
Primary Alarm Load — 4.01 Amps — Check
Current load on the primary power supply during **alarm** conditions.

Secondary Load Requirements — 20.99 Amp Hours — Check
Total Secondary Load from the calculation table below.

Current Draw		Time (hours)	Total (AH)
Secondary Standby Load 0.715 A	x	Required Standby Time 24 hours	17.15
Secondary Alarm Load 4.048 A	x	Required Alarm Time (hours) 0.084 hours	0.34
		Total Secondary Load	17.49
		(•) USA ( ) Canada Derating factor	x 1.2
		Secondary Load Requirements (Amp Hours)	**20.99** AH

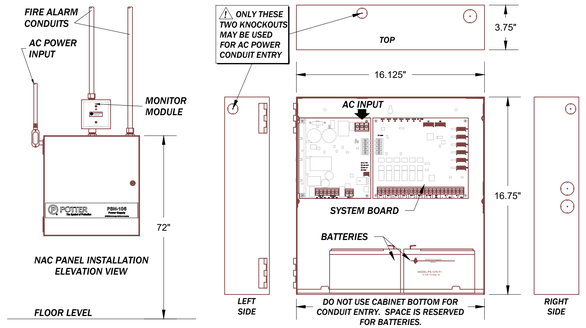
Battery Selection — 26 Amp Hours — Check
Select batteries from the list below.
26 AH BAT-12260 Battery (12 volt)
(•) Two ( ) Four (two 12VDC sets in parallel)

Battery Distribution Chart
Shows amp-hour distribution of your selections.

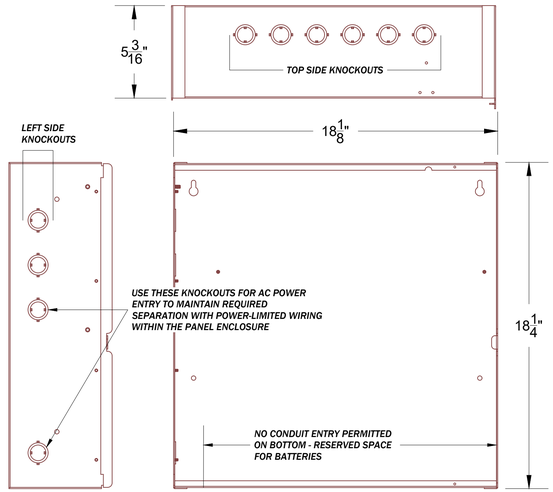


Comments
1. Batteries will fit in the FACP cabinet.
2. Selected battery size meets secondary load requirements.
3. The selected batteries (26AH) are within the charger range of this power supply (18-200AH).

Spare Battery Capacity	5.01	Battery Selection (AH) - Secondary Load Requirements (AH)
Secondary Standby Load	20.58	Secondary Standby Load (AH) * Derating Factor
Secondary Alarm Load	0.41	Secondary Alarm Load (AH) * Derating Factor



PSN-106 NAC POWER SUPPLY MOUNTING



NFS-320 CABINET CONDUIT ENTRY

NOTIFIER by Honeywell

Device Current Draw

NFS-320 Fire Alarm Control Panel

Quantity x [device current draw] = total current draw per device (in amps)

Part Number	Qty	Primary Non-Alarm	Primary Alarm	Secondary Non-Alarm
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] = 0.04000
# 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
UDACT-2 Communicator	1	x [0.05200] = 0.05200	x [0.08700] = 0.08700	x [0.05200] = 0.05200
NBG-12LX	1	x [0.00038] = 0.00038	x [0.00000] = 0.00000	x [0.00038] = 0.00038
FSP-951	10	x [0.00020] = 0.00200	x [0.00000] = 0.00000	x [0.00020] = 0.00200
FST-951	1	x [0.00020] = 0.00020	x [0.00000] = 0.00000	x [0.00020] = 0.00020
FRM-1	8	x [0.00026] = 0.00204	x [0.00000] = 0.00000	x [0.00026] = 0.00204
FCM-1	2	x [0.00049] = 0.00097	x [0.00000] = 0.00000	x [0.00049] = 0.00097
FMM-101	8	x [0.00035] = 0.00280	x [0.00000] = 0.00000	x [0.00035] = 0.00280
CO1224T	8	x [0.02000] = 0.16000	x [0.00000] = 0.00000	x [0.02000] = 0.16000
SLC Loop Device Activation Current	1	x [0.00000] = 0.00000	x [0.40000] = 0.40000	x [0.00000] = 0.00000
P2RLED-15	12	x [0.00000] = 0.00000	x [0.03500] = 0.42000	x [0.00000] = 0.00000
P2RLED-75	1	x [0.00000] = 0.00000	x [0.08700] = 0.08700	x [0.00000] = 0.00000
SRLED-15	1	x [0.00000] = 0.00000	x [0.01800] = 0.01800	x [0.00000] = 0.00000
P2RL110	13	x [0.00000] = 0.00000	x [0.18200] = 2.36600	x [0.00000] = 0.00000
P2RK75	1	x [0.00000] = 0.00000	x [0.17600] = 0.17600	x [0.00000] = 0.00000
		Total (Amperes):	**0.6747 A**	**0.7147 A**

Part Number	Qty	Secondary Alarm
Total Primary Alarm Load - C2	1	x [4.00830] = 4.00830
CPS-24	1	x [0.04000] = 0.04000
		Total (Amperes): **4.0483 A**

MIDWEST ALARM SERVICES
9745 Widmer, Lenexa, KS 66215
(913) 677-5771, FAX (913) 677-5772

REVISION DESCRIPTION | DATE | NO.

Residences at Blackwell
2840 SE Blue Parkway, Lee's Summit MO 64063

prepared for: Ridgeline Power Group
4700 Roe Parkway, Mission, KS 66205

SEAL:

LONNIE THOMPSON NUMBER E-23541 — REGISTERED PROFESSIONAL ENGINEER — STATE OF MISSOURI
01.24.2025

DRAWN BY: D.LANE	DATE: 05.28.2024
DESIGNED BY: PR	DATE: 05.07.24
APPROVED BY:	DATE:

PROJECT NUMBER: 3303 24050258

SHEET TITLE: FIRE ALARM SYSTEM Apartment Calculations Panel Mounting Details

SHEET NUMBER: FA-204
8 of 8