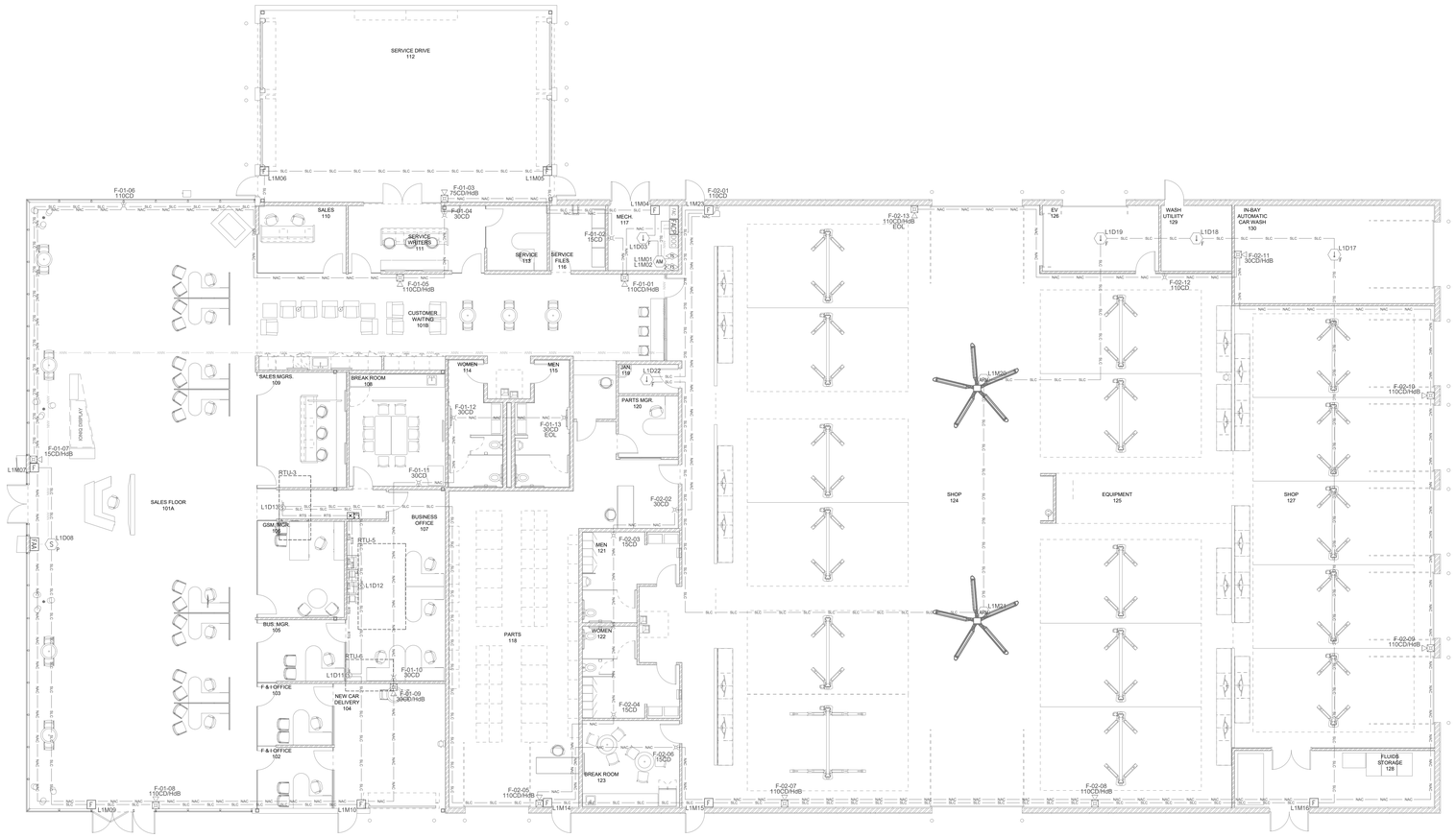


FIRE ALARM SYSTEM PLAN

Scale: 1/8" = 1'-0" 0' 2' 4' 8' 16'

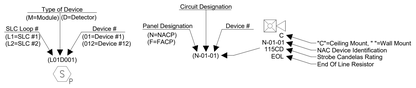
Fire Alarm Device Legend

Symbol	Qty	Description	Manufacturer/Part Number	Mounting Requirements
FACP	01	Fire Alarm Control Panel	Kidde VS1-R	Surface mounted enclosure provided Top 72" AFF conduit to ceiling
FAC	01	Commercial Fire Alarm Communicator	Honeywell HWF2-COM	Surface mounted enclosure provided Within 3' of FACP
FAA	01	Fire Alarm Annunciator Alpha Keypad	Kidde K-RLCD-C	Single or double Gang, 4" square box 60" AFF conduit to ceiling
	01	Document Cabinet Required per NFPA 72	Space Age Electronics FDB-ACE-11	Surface mounted enclosure provided Top 72" AFF
AM	01	Dual Monitor Module	Kidde GSA-CT2	Surface mounted enclosure provided Within 3' of Device
ARM	02	Relay Module	Kidde GSA-CR	Surface mounted enclosure provided Within 3' of Device
F	10	Manual Pull Station	Kidde GSA-M278	Single Gang, 4" Octagon or Square Wall Mounted 48" L of Backbox
S P	01	Smoke Detector Photo Electric	Kidde KI-OSD w/ KI-SB Base	Single Gang, 4" Octagon or Square in the ceiling
H F	05	Fix Temp Heat	Kidde KI-HRD w/ KI-SB Base	Single Gang, 4" Octagon or Square in the ceiling
S D	03	Duct Smoke Detector Photo Electric	Kidde GSA-SD	Duct Mounted
RS	03	Remote indicator Test/Reset	Kidde SD-TRK	Wall or Column Mtd. 60" AFF or below the Ceiling of the connected device.
FS	01	Water Flow Switch	Supplied by Sprinkler Contractor	Connection Only
TS	01	Sprinkler Valve Tamper Switch	Supplied by Sprinkler Contractor	Connection Only
H/S	13	Horn/Strobe, Wall Candela Indicated	Kidde EGAVRF	Mount Device Top 90" of the finished floor 4" Octagon or Square
V	13	ADA/Strobe Wall Candela Indicated	Kidde EGAVRF	Mount Device Top 90" of the finished floor 4" Octagon or Square

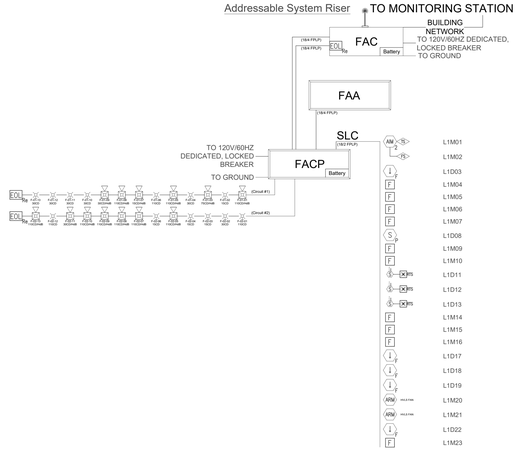
Fire Alarm Wire Legend

Wire Designations	Wire Types
SLC SLC SLC	Signal Line Circuit - 18/2 FPLP
NAC NAC NAC	Notification Appliance Circuit - 14/2 FPLP
RTS RTS RTS	Annunciator Circuit - 18/4 FPLP
	Remote Test Switch Circuit - 18/4 FPLP

Device Designation Legend



Addressable System Riser



CODE INFORMATION

OCCUPANCY CLASS	B/S-1 - Auto Dealership/Service
OCCUPANCY LOAD	192 OCCUPANTS
CONSTRUCTION TYPE	II-B
CODE SUMMARY	International Building Code, 2018 Edition International Fire Code, 2018 Edition NFPA 72, 2016 Edition
SPRINKLER	FULLY SPRINKLED
SCOPE OF WORK	Manual Fire Alarm System with Sprinkler Monitoring and Occupant Notification throughout.
BUILDING HEIGHT	26' - 0"
NUMBER OF FLOORS	1 FLOORS
TOTAL BUILDING AREA (SQ. FT.)	21,670 SQ. FT.

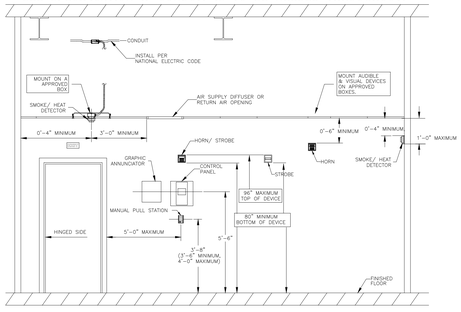
- TO PROVIDE EQUIPMENT & INSTALL IT AS SHOWN ON THE SHOP DRAWINGS.
- INSTALLATION SHALL BE IN STRICT COMPLIANCE WITH: THE NATIONAL FIRE ALARM & SIGNALING CODE , THE NATIONAL ELECTRICAL CODE , APPLICABLE LOCAL CODES (LISTED IN THE CODE INFORMATION SECTION), MANUFACTURER'S DOCUMENTATION AND THE AUTHORITY HAVING JURISDICTION.
- ALL WIRING SHALL BE TESTED WITH APPROPRIATE TEST EQUIPMENT FOR OPENS, SHORTS, AND GROUNDS PRIOR TO CONNECTING TO ANY EQUIPMENT.
- ALL AUDIBLE AND VISUAL ALARM SIGNALS SHALL BE SYNCHRONIZED WITHIN THE NOTIFICATION ZONE.
- ALL NAC HORN-STROBES ARE TO BE SET TO THREE PULSE TEMPORAL "HIGH" IN ORDER PROVIDE A DECIBEL (dBA) LEVEL MIN. 15 dBA ABOVE AMBIENT SOUND LEVEL.
- ALL WORK SHOULD BE IN A NEAT AND PROFESSIONAL MANNER.
- A DEDICATED BRANCH CIRCUIT OF THE LIGHT AND POWER SERVICE SHALL SUPPLY THE PRIMARY POWER SOURCE TO THE FIRE ALARM CONTROL PANEL AND POWER SUPPLY (IF REQUIRED). CIRCUIT DISCONNECTING MEANS SHALL HAVE A RED MARKING, SHALL BE ACCESSIBLE ONLY TO AUTHORIZED PERSONNEL, AND SHALL BE IDENTIFIED AS "FIRE ALARM CIRCUIT."
- DO NOT LOCATE SMOKE DETECTORS IN A DIRECT AIRFLOW OR WITHIN 3 FEET OF SUPPLY AND/OR RETURN VENTS.
- 120VAC IS NOT PERMITTED IN SAME CONDUIT WITH LOW VOLTAGE WIRE.
- ANY DEVIATIONS FROM THE APPROVED SHOP DRAWINGS SHOULD BE CLEARLY MARKED FOR AS-BUILT PURPOSES.
- LOCAL FIRE AUTHORITY SHALL WITNESS FINAL SYSTEM TEST.

FIRE ALARM MATRIX WITH OCCUPANT NOTIFICATION

	ANNUNCIATES ALARM SIGNAL TO CONTROL STATION AND/OR REMOTE ANNUNCIATOR	ANNUNCIATES SUPERVISORY SIGNAL TO CONTROL STATION AND/OR REMOTE ANNUNCIATOR	ANNUNCIATES TROUBLE SIGNAL TO CONTROL STATION AND/OR REMOTE ANNUNCIATOR	INITIATES ALARM SIGNAL TO CENTRAL STATION	INITIATES SUPERVISORY SIGNAL TO CENTRAL STATION	INITIATES TROUBLE SIGNAL TO CENTRAL STATION	ACTIVATES INTERIOR HORNS/STROBES	ACTIVATES EXTERIOR HORNS/STROBES	SHUTDOWN AHU	FAN MUST CONTINUE
SPRINKLER SYSTEM										
- WATERFLOW SWITCH	●			●			●	●		●
- VALVE TAMPER SWITCH		●			●					
SMOKE DETECTOR	●			●			●			●
HEAT DETECTOR	●			●			●			●
MANUAL PULL STATION	●			●			●			●
DUCT DETECTOR		●			●				●	
POWER SUPPLY - TROUBLE			●			●				
COMMUNICATOR - COMMUNICATION FAIL			●							
COMMUNICATOR - TROUBLE			●			●				
ABNORMAL CONTROL, CIRCUIT OR DEVICE			●			●				
LOSS OF POWER			●			●				

NFPA 72 AND ADA DEVICE INSTALLATION REQUIREMENTS

THIS IS FOR REFERENCE ONLY, NOT ALL DEVICES MAY BE USED, SEE SPECIFICATION IF CONDUIT IS TO BE NEEDED THROUGHOUT.



Standby Battery Calculations
Kidde
VS1-R

Lee's Summit Hyundai,
NW Blue Parkway & NW Ward Road
Lee's Summit, MO 64086

Part Number	Description	Quantity	Standby Per Device	Current All Devices	Alarm Per Device	Current All Devices
VS1-R	One loop system with one 64-point loop installed. 110v,	1	0.155000	0.155000	0.204000	0.204000
K-RLCD-C	LCD text annunciator with common controls. English.	1	0.099000	0.099000	0.115000	0.115000
GSA-CR	Control Relay Module (Standard Mount)	2	0.000090	0.000180	0.000090	0.000180
GSA-M278	Double Action Single Stage Manual Pull Station	10	0.000250	0.002500	0.000399	0.003990
KI-OSD	Optical Smoke Detector	1	0.000320	0.000320	0.000450	0.000450
KI-HRD	Intelligent Fixed Temperature/Rate-Of-Rise Heat Detectc	5	0.000051	0.000255	0.000068	0.000340
KI-SB	Detector Mounting Base	6	0.000000	0.000000	0.000000	0.000000
GSA-SD	Intelligent Super/Duct Detector	3	0.000045	0.000134	0.018000	0.054000
SD-TRK	Remote Test Station, Key	3	0.000000	0.000000	0.030000	0.090000
GSA-CT2	Dual Input Module	1	0.000396	0.000396	0.000680	0.000680
				0.000000		0.000000
				0.000000		0.000000
				0.258	Alarm	0.469
Total Aux current		Maximum Amps	1.0000			

Signal Circuits

Circuit	Device	Quantity	Alarm Per Device	Current All Devices
Circuit 1	EGAVRF (15CD)	1	0.050	0.050
	EGAVRF (30CD)	1	0.050	0.050
	EGAVRF (75CD)	1	0.050	0.050
	EGAVRF (110CD)	3	0.050	0.150
	EGVRF (15CD)	1	0.036	0.036
	EGVRF (30CD)	5	0.036	0.180
	EGVRF (110CD)	1	0.036	0.036
Total 1	Maximum Amps	2.5000		0.552
Circuit 2	EGAVRF (30CD)	1	0.050	0.050
	EGAVRF (110CD)	5	0.050	0.250
	EGAVRF (15CD)	3	0.036	0.108
	EGVRF (30CD)	1	0.036	0.036
	EGVRF (110CD)	2	0.036	0.072
Total 2	Maximum Amps	2.5000		0.516
			Notification Alarm	1.068
Totals	Maximum Amps	6.0000	Total Alarm Amps	1.537

		Circuit 1	Circuit 2
Max Wire Run Distance For AWG	14	1136	1215
Actual Wire run Distance		475	520
Voltage Drop for 14 AWG wire		1.673	1.712

Voltage Drop = 2 * Wire Run Distance * 3.07 Ohms Per 1000 ft 14 AWG * Total Current for Circuit / 1000

Standby Hours	24
Standby Battery Draw	0.258
Standby Amp Hrs	6.187

Alarm Minutes	5
Alarm Current	2.005
Alarm Current by Minutes	0.166

Battery Size Required w ith Alarm Time Minutes and 25% Reserve	7.942

Batteries Size Suppled	12	Amp Hours

Current Draws for Fire Communicator
HWF2-COM

Device	Device Standby Current	Device Alarm Current	Quantity	Total Standby Draw	Total Alarm Draw
HWF2-COM	0.23	0.95	1	0.23	0.95
				0	0
				0	0
				0	0
				0	0

Wire Size	Alarm Min
18	5

Total Battery Calculation Standby	5.520
Alarm Current Min	0.079

Standby Hours	24
Alarm Current	0.950
Battery size Required	6.999
Batteries Supplied (AH)	7

MISSOURI PE COA #2009003629

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PLAN TYPE:

FIRE ALARM SYSTEM DEVICE LOCATIONS

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

ARCHWAY SYSTEMS
17020 E. 40 Hwy. Ste 1
Independence, MO 64055
Office: (816) 709-3358

ARCHWAY TECHNOLOGY
1818 Linn Street
North Kansas City, MO 64116
816-215-3684

Lees Summit Hyundai
NW Blue Parkway & NW Ward Road
Lees Summit, MO 64086

5/9/2025

STATE OF MISSOURI
DARIN T. SEIDEL
NUMBER
PE-2009003629
PROFESSIONAL ENGINEER

NO	REVISION	DATE

DATE: 05/08/2025
LAYOUT BY: DANIEL HEBBLETHWAITE, ET NICET #107102
SCALE: 1/8" = 1'-0"

FA-1 of FA-1