DEVICE LEGEND

SYMBOL	QTY	MANUFACTURER	PART NO	DESCRIPTION	BOX TYPE	LOCATION
FACP	1	SILENT KNIGHT	6700 (SK)	FIRE ALARM CONTROL PANEL, ADDRESSABLE, SK PROTOCOL	PROVIDED	WALL
	1	SILENT KNIGHT	6700 MAIN BOARD (SK)	FIRE ALARM CONTROL PANEL MAIN BOARD SK PROTOCOL	–	–
NAC	1	ALTRONIX	AL602ULADA	6–AMP, 24–VOLT POWER SUPPLY	PROVIDED	WALL
	1	ALTRONIX	AL602ULADA MAIN BOARD	FIRE ALARM POWER SUPPLY MAIN BOARD	–	–
DACT	1	AES	7707P–88–ULP–M	INTELLINET 2.0 FIRE SUBSCRIBER, 8 ZONE WITH 7794A AES–INTELLIPRO, AND INTEGRATED ONBOARD LOCAL ANNUNCIATOR PLUS MCT, RED ENCLOSURE	PROVIDED	WALL
FAA	1	SILENT KNIGHT	5860R	ANNUNCIATOR	PROVIDED	WALL
F	1	SILENT KNIGHT	SK–PULL–DA	ADDRESSABLE MANUAL PULL STATION, DOUBLE–ACTION	4" SQ. DEEP	WALL
AIM	5	SILENT KNIGHT	SK–MONITOR	ADDRESSABLE MONITOR MODULE	4" SQ. DEEP	ACCESSIBLE
AIM D	2	SILENT KNIGHT	SK–MONITOR–2	ADDRESSABLE DUAL MONITOR MODULE	4" SQ. DEEP	ACCESSIBLE
AOM	5	SILENT KNIGHT	SK–RELAY	ADDRESSABLE RELAY MODULE	4" SQ. DEEP	ACCESSIBLE
S	1	SILENT KNIGHT	SK–PHOTO–W	ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR	4" SQ. DEEP	CEILING
WP	3	SYSTEM SENSOR	P2RK	2–WIRE HORN STROBE, STANDARD CD, OUTDOOR	4" SQ. DEEP	WALL
	4	SYSTEM SENSOR	P2RL	2–WIRE, HORN STROBE, RED	4" SQ. DEEP	WALL
C	3	SYSTEM SENSOR	PC2RL	2–WIRE, HORN STROBE, RED	4" SQ. DEEP	CEILING
C	7	SYSTEM SENSOR	SCRL	STROBE, RED	4" SQ. DEEP	CEILING
WP	1	SYSTEM SENSOR	SRK	STROBE, STANDARD CD, OUTDOOR	4" SQ. DEEP	CEILING
	3	SYSTEM SENSOR	SRL	STROBE, RED	4" SQ. DEEP	CEILING

REFERENCE SPECIFICATION BOOK FOR ADDITIONAL INSTALLATION INFORMATION

CABLE AND WIRE LEGEND

LABEL	PART NO	AWG	MANUFACTURER	DESCRIPTION
V	45132104	14	GENESIS	2 COND. SOLID COPPER FPLP ANALOG UNSHIELDED
A	45071104	18	GENESIS	4 COND. SOLID COPPER FPLP ANALOG UNSHIELDED
485	45071104	18	GENESIS	4 COND. SOLID COPPER FPLP ANALOG UNSHIELDED

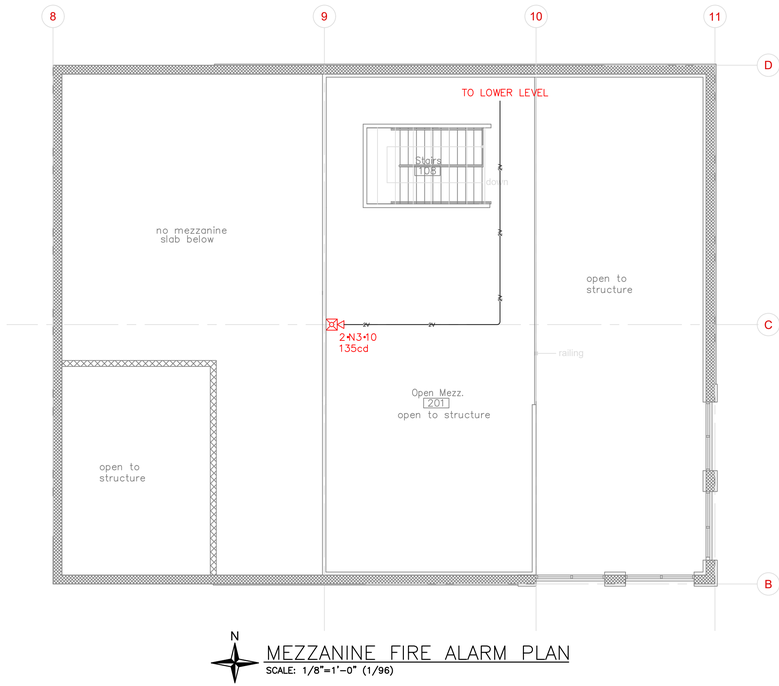
SCOPE OF WORK

1. NEW BUILDING TO BE FULLY SPRINKLED.
2. PROVIDE FACP (SK–6700) AND UL FIRE RADIO FOR COMMUNICATION.
3. PROVIDE SMOKE DETECTOR AND PULL STATION AT PANEL LOCATION.
4. PROVIDE POWER SUPPLY FOR LOCAL NAC CIRCUITS.
5. PROVIDE AUDIO/VISUAL DEVICES AS REQUIRED.
6. PROVIDE MONITOR AND RELAY MODULES AS REQUIRED FOR RTU's.
7. PROVIDE DUAL INPUT MONITOR MODULES FOR FLOW AND TAMPER SWITCHES, PROVIDED BY OTHERS.
8. PROVIDE BACK BOXES AS REQUIRED, PROVIDE CONDUIT AS REQUIRED IN OPEN STRUCTURE AREA'S.
9. FIELD ADDRESS DEVICES TO PREVENT DUPLICATES.
10. TEST AND INSPECT ENTIRE SYSTEM ON COMPLETION OF WORK.

CODE INFORMATION

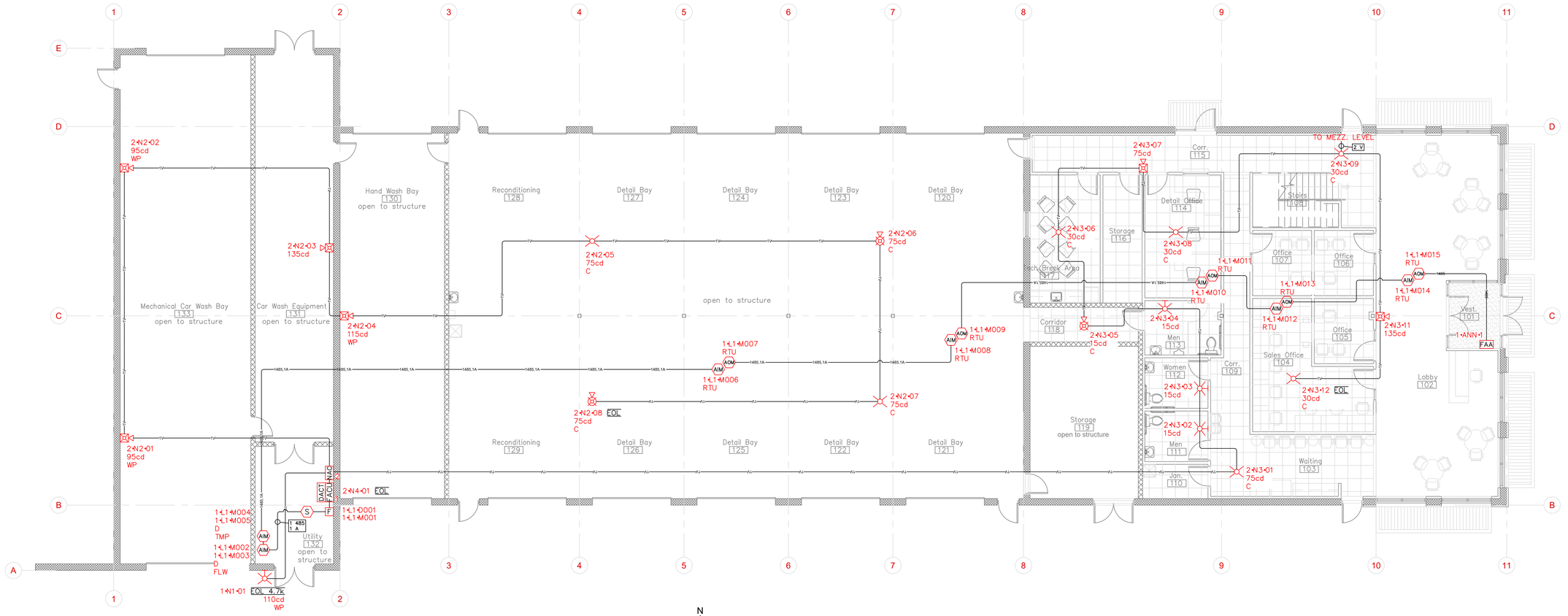
OCCUPANCY TYPE: B
CONSTRUCTION TYPE: TYPE II–B
TENANT SQUARE FOOT: 12,475s.f.

FIRE ALARM SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CITY, COUNTY AND STATE STANDARDS, INCLUDING THE 2018 INTERNATIONAL BUILDING CODE, THE 2016 NFPA 72, THE 2017 NFPA 70 AND THE 2018 INTERNATIONAL FIRE CODE.



N

MEZZANINE FIRE ALARM PLAN
SCALE: 1/8"=1'-0" (1/96)



N

FIRST FLOOR FIRE ALARM PLAN
SCALE: 1/8"=1'-0" (1/96)

CUSTOMER:

PROJECT: AUTOMOTIVE SALES AND DETAIL CENTER
2150 NE INDEPENDENCE AVE.
LEE'S SUMMIT, MISSOURI 64064

FIRE ALARM SYSTEM DEVICE LAYOUT

8220 MELROSE
LENEXA, KS 66214
913-362-0000
AtronicAlarms.com

BE SURE BE SECURE
Atronic Alarms Inc.®
ESTABLISHED 1982

DRAWING APPROVALS

PROJECT NO.

REVISIONS

NOTE:

SCALE:	AS SHOWN	
DRAWN BY:	JDH	01/31/22
ENGINEER:		
CHECK BY:	SAJ	01/31/22
DATE:		01/31/2022

DRAWING TITLE:

AUTOMOTIVE SALES AND DETAIL CENTER
2150 NE INDEPENDENCE AVE
LEE'S SUMMIT, MO 64064

FIRE ALARM SYSTEM DEVICE LAYOUT

DRAWING SHEET NO.

FA-1

1 N1 LUMP SUM REPORT

				CIRCUIT SETTINGS		TOTALS	
				Starting Calculation Voltage:	20.4	Max. Voltage Drop:	0.03
				Min. Operational Voltage:	16	End Of Line Voltage:	20.37
				Max. Circuit Current (A):	1	Voltage Drop Percent:	0.15 %
				Wire Resistance (Ω/kFt):	3.07	Total Circuit Current (A):	0.202
Circuit Wiring Properties: 'V' 14/2 FPLP/R (NAC) 14 AWG, 2 Cond. Solid Copper FPLP/R Analog Unshielded				Total Circuit Length (Ft):	25	Spare Current (A):	0.798
Distance measured using drawn segment lengths with 10.00 % additional length calculated				Total Circuit Resistance (Ω):	0.15201	Spare Current (A) Percent:	79.80 %
	Symbol	Part No.	Description	Qty.	Device Current (A)	Total Current (A)	
DEVICE TOTALS	WP	SRK	Strobe, Standard cd, Outdoor 110cd	1	0.202	0.202	
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)							

2 N2 LUMP SUM REPORT

				CIRCUIT SETTINGS		TOTALS	
				Starting Calculation Voltage:	20.4	Max. Voltage Drop:	2.7
				Min. Operational Voltage:	16	End Of Line Voltage:	17.7
				Max. Circuit Current (A):	2.5	Voltage Drop Percent:	13.25 %
				Wire Resistance (Ω/kFt):	3.07	Total Circuit Current (A):	1.408
Circuit Wiring Properties: 'V' 14/2 FPLP/R (NAC) 14 AWG, 2 Cond. Solid Copper FPLP/R Analog Unshielded				Total Circuit Length (Ft):	313	Spare Current (A):	1.092
Distance measured using drawn segment lengths with 10.00 % additional length calculated				Total Circuit Resistance (Ω):	1.919966	Spare Current (A) Percent:	43.68 %
	Symbol	Part No.	Description	Qty.	Device Current (A)	Total Current (A)	
DEVICE TOTALS	C	SCRL	Strobe, Red 75cd	2	0.142	0.284	
	C	PC2RL	2-Wire, Horn Strobe, Red 75cd	1	0.143	0.143	
	C	PC2RL	2-Wire, Horn Strobe, Red 75cd	1	0.179	0.179	
	WP	P2RK	2-Wire Horn Strobe, Standard cd, Outdoor 95cd	2	0.194	0.388	
		P2RL	2-Wire, Horn Strobe, Red 135cd	1	0.196	0.196	
	WP	P2RK	2-Wire Horn Strobe, Standard cd, Outdoor 115cd	1	0.218	0.218	
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)							

2 N3 LUMP SUM REPORT

				CIRCUIT SETTINGS		TOTALS	
				Starting Calculation Voltage:	20.4	Max. Voltage Drop:	3.74
				Min. Operational Voltage:	16	End Of Line Voltage:	16.66
				Max. Circuit Current (A):	2.5	Voltage Drop Percent:	18.35 %
				Wire Resistance (Ω/kFt):	3.07	Total Circuit Current (A):	1.219
Circuit Wiring Properties: 'V' 14/2 FPLP/R (NAC) 14 AWG, 2 Cond. Solid Copper FPLP/R Analog Unshielded				Total Circuit Length (Ft):	500	Spare Current (A):	1.281
Distance measured using drawn segment lengths with 10.00 % additional length calculated				Total Circuit Resistance (Ω):	3.071088	Spare Current (A) Percent:	51.24 %
	Symbol	Part No.	Description	Qty.	Device Current (A)	Total Current (A)	
DEVICE TOTALS		SRL	Strobe, Red 15cd	3	0.043	0.129	
	C	SCRL	Strobe, Red 30cd	1	0.063	0.063	
	C	SCRL	Strobe, Red 30cd	3	0.086	0.258	
	C	PC2RL	2-Wire, Horn Strobe, Red 15cd	1	0.107	0.107	
	C	SCRL	Strobe, Red 75cd	1	0.111	0.111	
		P2RL	2-Wire, Horn Strobe, Red 75cd	1	0.121	0.121	
		P2RL	2-Wire, Horn Strobe, Red 135cd	1	0.196	0.196	
		P2RL	2-Wire, Horn Strobe, Red 135cd	1	0.234	0.234	
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)							

2 N4 LUMP SUM REPORT

				CIRCUIT SETTINGS		TOTALS	
				Starting Calculation Voltage:	20.4	Max. Voltage Drop:	0.01
				Min. Operational Voltage:	16	End Of Line Voltage:	20.39
				Max. Circuit Current (A):	2.5	Voltage Drop Percent:	0.07 %
				Wire Resistance (Ω/kFt):	3.07	Total Circuit Current (A):	0.5
Circuit Wiring Properties: 'V' 14/2 FPLP/R (NAC) 14 AWG, 2 Cond. Solid Copper FPLP/R Analog Unshielded				Total Circuit Length (Ft):	5	Spare Current (A):	2
Distance measured using drawn segment lengths with 10.00 % additional length calculated				Total Circuit Resistance (Ω):	0.028504	Spare Current (A) Percent:	80.00 %
	Symbol	Part No.	Description	Qty.	Device Current (A)	Total Current (A)	
DEVICE TOTALS	DACT	7707P-88-ULP-M	IntelliNet 2.0 Fire Subscriber, 8 Zone with 7794A AES-IntelliPro, and integrated onboard Local Annunciator plus MCT, Red Enclosure	1	0.5	0.5	
Calculation Methods:							
Total Resistance (Ω) = Wire Resistance (Ω/Ft) x 2 x Total Circuit Length (Ft)							
Total Voltage Drop = Total Resistance (Ω) x Total Circuit Current (A)							

PANEL 1 (6700 (SK)) BATTERY CALCULATION

(SECONDARY POWER SOURCE REQUIREMENTS)

					STANDBY CURRENT (AMPS)		SECONDARY ALARM CURRENT (AMPS)	
PANEL COMPONENTS		QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL
		1	6700 MAIN BOARD (SK)	FIRE ALARM CONTROL PANEL MAIN BOARD SK PROTOCOL	0.165	0.165	0.31	0.31
CIRCUIT	SYMBOL	QTY	PART NO	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
1-ANN	FAA	1	5860R	ANNUNCIATOR	0.02	0.02	0.025	0.025
1-L1	AIM	5	SK-MONITOR	ADDRESSABLE MONITOR MODULE	0.000375	0.001875	0.000375	0.001875
	AIM D	2	SK-MONITOR-2	ADDRESSABLE DUAL MONITOR MODULE	0	0	0	0
	AIM D	2	SK-MONITOR-2	ADDRESSABLE DUAL MONITOR MODULE	0.00075	0.0015	0.00075	0.0015
	S	1	SK-PHOTO-W	ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR	0.0002	0.0002	0.0045	0.0045
	F	1	SK-PULL-DA	ADDRESSABLE MANUAL PULL STATION, DOUBLE-ACTION	0.000375	0.000375	0.000375	0.000375
	AOM	5	SK-RELAY	ADDRESSABLE RELAY MODULE	0.000255	0.001275	0.000255	0.001275
1-N1	WP	1	SRK	Strobe, Standard cd, Outdoor 110cd	0	0	0.202	0.202
					TOTAL STANDBY (A)	0.190225	TOTAL ALARM (A)	0.546525
					REQUIRED STANDBY TIME = 24 HOURS			
					REQUIRED ALARM TIME = 5 MINUTES			
SECONDARY STANDBY LOAD (A)				0.190225	24		4.57	
SECONDARY ALARM LOAD (A)				0.546525	0.08		0.05	
STANDBY AND ALARM SUBTOTAL (AMP HOURS)					4.61			
DERATING FACTOR					1.2			
SECONDARY LOAD REQUIREMENTS (AMP HOURS)					5.53			
PROVIDE (2) 12V 8AH BATTERIES @ 24VDC								

PANEL 2 (AL602ULADA) BATTERY CALCULATION

(SECONDARY POWER SOURCE REQUIREMENTS)

PANEL POWER SUPPLY MAX CURRENT = 6.5A

TOTAL USED CAPACITY (IN ALARM) = 3.302A (50.80 %)

					STANDBY CURRENT (AMPS)		SECONDARY ALARM CURRENT (AMPS)	
PANEL COMPONENTS		QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL
		1	AL602ULADA Main Board	Fire Alarm Power Supply Main Board	0.09	0.09	0.175	0.175
CIRCUIT	SYMBOL	QTY	PART NO	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
2-N2	WP	2	P2RK	2-Wire Horn Strobe, Standard cd, Outdoor 95cd	0	0	0.194	0.388
	WP	1	P2RK	2-Wire Horn Strobe, Standard cd, Outdoor 115cd	0	0	0.218	0.218
		1	P2RL	2-Wire, Horn Strobe, Red 135cd	0	0	0.196	0.196
	C	1	PC2RL	2-Wire, Horn Strobe, Red 75cd	0	0	0.143	0.143
	C	1	PC2RL	2-Wire, Horn Strobe, Red 75cd	0	0	0.179	0.179
	C	2	SCRL	Strobe, Red 75cd	0	0	0.142	0.284
2-N3		1	P2RL	2-Wire, Horn Strobe, Red 75cd	0	0	0.121	0.121
		1	P2RL	2-Wire, Horn Strobe, Red 135cd	0	0	0.196	0.196
		1	P2RL	2-Wire, Horn Strobe, Red 135cd	0	0	0.234	0.234
	C	1	PC2RL	2-Wire, Horn Strobe, Red 15cd	0	0	0.107	0.107
	C	1	SCRL	Strobe, Red 30cd	0	0	0.063	0.063
	C	3	SCRL	Strobe, Red 30cd	0	0	0.086	0.258
	C	1	SCRL	Strobe, Red 75cd	0	0	0.111	0.111
		3	SRL	Strobe, Red 15cd	0	0	0.043	0.129
2-N4	DACT	1	7707P-88-ULP-M	IntelliNet 2.0 Fire Subscriber, 8 Zone with 7794A AES-IntelliPro, and integrated onboard Local Annunciator plus MCT, Red Enclosure	0.5	0.5	0.5	0.5
					TOTAL STANDBY (A)	0.59	TOTAL ALARM (A)	3.302
					REQUIRED STANDBY TIME = 24 HOURS			
					REQUIRED ALARM TIME = 5 MINUTES			
SECONDARY STANDBY LOAD (A)				0.59	24		14.16	
SECONDARY ALARM LOAD (A)				3.302	0.08		0.28	
STANDBY AND ALARM SUBTOTAL (AMP HOURS)					14.44			
DERATING FACTOR					1.2			
SECONDARY LOAD REQUIREMENTS (AMP HOURS)					17.32			
PROVIDE (2) 12V 18AH BATTERIES @ 24VDC								

GENERAL NOTES

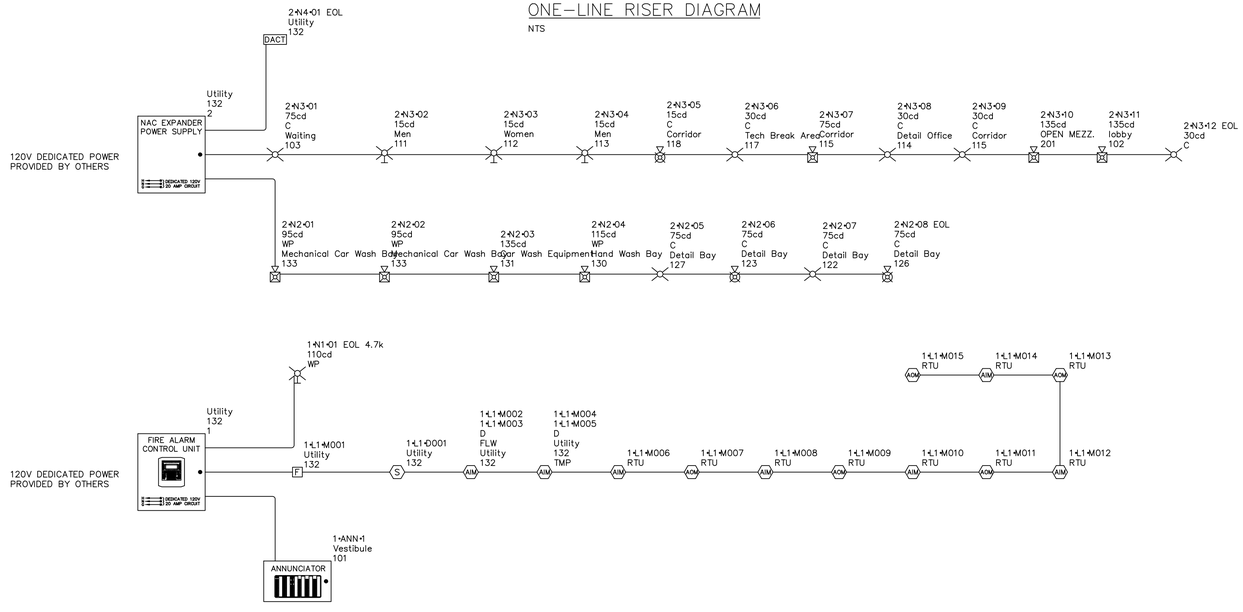
1. MOUNTING HEIGHTS AND LOCATIONS: (OR PER NFPA 72)
   A. PULL STATION – 48" AFF.
   B. STROBE, HORN/STROBE, SPEAKER/STROBE – 80" AFF.
   C. SMOKE DETECTORS – SHALL NOT BE LOCATED CLOSER THAN 3FT. FROM AN AIR SUPPLY DIFFUSER OR AN AIR RETURN VENT.
   D. DUCT DETECTORS SHALL BE INSTALLED AS PER NFPA 90A AND APPROVED BY A.H.J.
2. ALL CONDUIT SHALL BE A MIN. ¾" UNLESS OTHERWISE SPECIFIED AND MAY NOT EXCEED 40% FILL AS PER N.E.C.. ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL ALL CONDUIT AND ELECTRICAL BOXES AS WELL INSURE PROPER CONDUIT FILL.
3. SYSTEM DESIGNED AS PER MANUFACTURES RECOMMENDATIONS. ALL DEVICE LOCATIONS AND QUANTITIES SHALL BE CONFIRMED AT THE JOB SITE BY THE INSTALLING CONTRACTOR.
4. SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CITY, COUNTY AND STATE STANDARDS, INCLUDING THE 2018 INTERNATIONAL BUILDING CODE, THE 2016 NFPA 72, THE 2017 NFPA 70 AND THE 2018 INTERNATIONAL FIRE CODE.
5. ALL WIRING THAT ENTERS AND/OR LEAVES A SPACE SHALL HAVE PROPER SLEEVING AND FIRE CAULKING BY THE ELECTRICAL CONTRACTOR.
6. INSTALLING CONTRACTOR TO FIELD VERIFY ALL DEVICE LOCATIONS FOR THE PURPOSE OF MEETING LOCAL AND NATIONAL CODES AS WELL AS MAINTAIN REQUIREMENTS FOR A FULLY FUNCTIONAL SYSTEM.
7. VERIFY DEVICE LOCATIONS DO NOT CONFLICT WITH MECHANICAL, ELECTRICAL OR OTHER EQUIPMENT.
8. RATED FIRE WALL PENETRATIONS WILL BE IN ACCORDANCE WITH IBC 2018, SECTION 714. PER IFC 2018 INSTRUCTIONS.
9. AN ANALYSIS OF THE EXISTING FIRE PROTECTION SYSTEM HAS BEEN PERFORMED TO ENSURE THE PROPOSED MODIFICATIONS CAN BE PROPERLY INTEGRATED WITH THE EXISTING FIRE DETECTION, ALARM, NOTIFICATION AND SUPPRESSION SYSTEM DEVICES.

SEQUENCE OF OPERATION

1. SYSTEM SHALL HAVE 24HRS BACK-UP BATTERIES AND 15 MINUTES OF ALARM TIME.
2. SYSTEM SHALL HAVE TWO MEANS OF INDEPENDENT COMMUNICATION AND BE MONITORED BY AN APPROVED UL CENTRAL STATION.
3. UPON ACTIVATION OF ANY FIRE ALARM INITIATING DEVICE:
   a. ALARM SIGNALS SHALL BE MONITORED
   b. INDICATING DEVICES SHALL BE ACTIVATED
   c. A GENERAL ALARM SHALL BE ACTIVATED
   d. ALL RTU'S AT AND OVER 2000 CFM SHALL SHUTDOWN (IF APPLICABLE)
   e. APPROVED UL CENTRAL STATION SHALL BE NOTIFIED
   f. ONCE HORNS ARE SILENCED, STROBES WILL CONTINUE TO FLASH UNTIL RESET
4. UPON ACTIVATION OF A TROUBLE OR SUPERVISORY SIGNAL:
   a. SIGNALS SHALL BE MONITORED
   b. APPROVED UL CENTRAL STATION AND CUSTOMER SHALL BE NOTIFIED

ONE-LINE RISER DIAGRAM

NTS



CUSTOMER:

PROJECT: AUTOMOTIVE SALES AND DETAIL CENTER
2150 NE INDEPENDENCE AVE.
LEE'S SUMMIT, MISSOURI 64064

FIRE ALARM SYSTEM CALCULATIONS

DRAWING APPROVALS

8220 MELROSE
LENEXA, KS 66214
913-362-0000
AtronicAlarms.com

BE SURE BE SECURE
Atronic Alarms Inc.®
ESTABLISHED 1982

PROJECT NO.	REVISIONS	NOTE:

SCALE:	AS SHOWN	
DRAWN BY:	JDH	01/31/22
ENGINEER:		
CHECK BY:	SAJ	01/31/22
DATE:		01/31/2022

DRAWING TITLE:

AUTOMOTIVE SALES AND DETAIL CENTER
2150 NE INDEPENDENCE AVE
LEE'S SUMMIT, MO 64064

FIRE ALARM SYSTEM CALCULATIONS

DRAWING SHEET NO.

FA-2