FACP

Note 1: You are **fully responsible for verifying these calculations**.
Note 2: Use the dropdowns in the **yellow** cells to enter values.

FIRE-LITE ALARMS by Honeywell

ES-50X Battery Calculation

Secondary Power Source Requirements

Device	Standby Current (amps) Qty		Current Draw		Total	Secondary Alarm Current (amps) Qty		Current Draw		Total
Main Circuit Board	1	x	0.141000	=	0.141000	1	x	0.257000	=	0.257000
IPOTS-COM Communicator	1	x	0.040000	=	0.040000	1	x	0.041000	=	0.04100
4XTMF	0	x	0.005000	=		0	x	0.011000	=	
EQLR-1	0	x	0.020000	=		0	x	0.020000	=	
CELL-MOD-FL / CELL-CAB	1	x	0.055000	=	0.055000	1	x	0.100000	=	0.100000
ANN-BUS Devices										
ANN-SEC Card	0	x	0.003000	=		0	x	0.003000	=	
ANN-80(-W)	1	x	0.015000	=	0.015000	1	x	0.040000	=	0.040000
ANN-100	0	x	0.020000	=		0	x	0.025000	=	
ANN-(R)LED	0	x	0.028000	=		0	x	0.068000	=	
ANN-RLY	0	x	0.015000	=		0	x	0.075000	=	
ANN-I/O	0	x	0.035000	=		0	x	0.200000	=	
ANN-I/O LED	0	x	0.000000	=		0	x	0.010000	=	
ANN-S/PG	0	x	0.045000	=		0	x	0.045000	=	
Addressable Devices										
BEAM355	0	x	0.002000	=						
BEAM355S	0	x	0.002000	=						
CP355	0	x	0.000300	=						
SD365CO	0	x	0.002000							
SD355CO	0	x	0.000300	=						
SD355	0	x	0.000300	=						
SD365	8	x	0.000200	=	0.001600					
SD355T	0	x	0.000300	=						
SD365T	0	x	0.000200	=						
H355	0	x	0.000300	=						
H365	6	x	0.000200	=	0.001200					
H355HT	0	x	0.000300	=						
H365HT	0	x	0.000200	=						
H350R	0	x	0.000300	=						
H355R	0	x	0.000300	=						
H365R	0	x	0.000200	=						
D350RPL	0	x	0.000300	=						
D355PL	3	x	0.000300	=	0.000900					
MMF-300	0	x	0.000375	=						
MMF-300-10	0	x	0.003500	=						
MDF-300	0	x	0.000750	=						
MMF-301	4	x	0.000350	=	0.001400					
MMF-302	0	x	0.000270	=						
MMF-302-6	0	x	0.002000	=						
BG-12LX	2	x	0.000375	=	0.000750					
CMF-300	0	x	0.000390	=						
CMF-300-6	0	x	0.002250	=						
CRF-300	3	x	0.000255	=	0.000765					
CRF-300-6	0	x	0.001450	=						
CDRM-300	0	x	0.001300	=						
I300	0	x	0.000400	=						
ISO-6	0	x	0.002700	=						
B501BH-2	0	x	0.001000	=						
B501BHT-2	0	x	0.001000	=						
B224RB	0	x	0.000500	=						
B224BI	0	x	0.000450	=						
W-GATE	0	x	0.024000	=						
Maximum alarm draw for all Addressable devices ---------->										0.20000
Resettable Power										
4-Wire Smoke Detectors	0	x	0.000000	=		0	x	0.000000	=	
SWIFT Wireless										
W-GATE	0	x	0.040000	=		0	x	0.040000	=	
Auxiliary Power										
CMF-300 (Aux. Power)	0	x	0.001700	=		0	x	0.007000	=	
CMF-300-6 (Aux. Power)	0	x	0.008000	=		0	x	0.020000	=	
MMF-302 (Aux. Power)	0	x	0.012000	=		0	x	0.090000	=	
MMF-302-6 (Aux. Power)	0	x	0.050000	=		0	x	0.270000	=	
B200SR (Aux. Power)	0	x	0.000500	=		0	x	0.035000	=	
B200SR-LF (Aux. Power)	0	x	0.001000	=		0	x	0.125000	=	
Miscellaneous Devices										
RA-100Z	3	x	0.000000	=	0.000000	3	x	0.012000	=	0.036000
	0	x	0.000000	=		0	x	0.000000	=	
	0	x	0.000000	=		0	x	0.000000	=	
	0	x	0.000000	=		0	x	0.000000	=	
	0	x	0.000000	=		0	x	0.000000	=	
Output Circuits										
NAC/Output #1			0.000000	=				0.944000	=	0.944000
NAC/Output #2			0.000000	=				0.901000	=	0.901000
FCPS (remote Sync)	0	x	0.000000	=		0	x	0.021700	=	
			Total Standby Load		**0.257615**			**Total Alarm Load**		**2.519000**

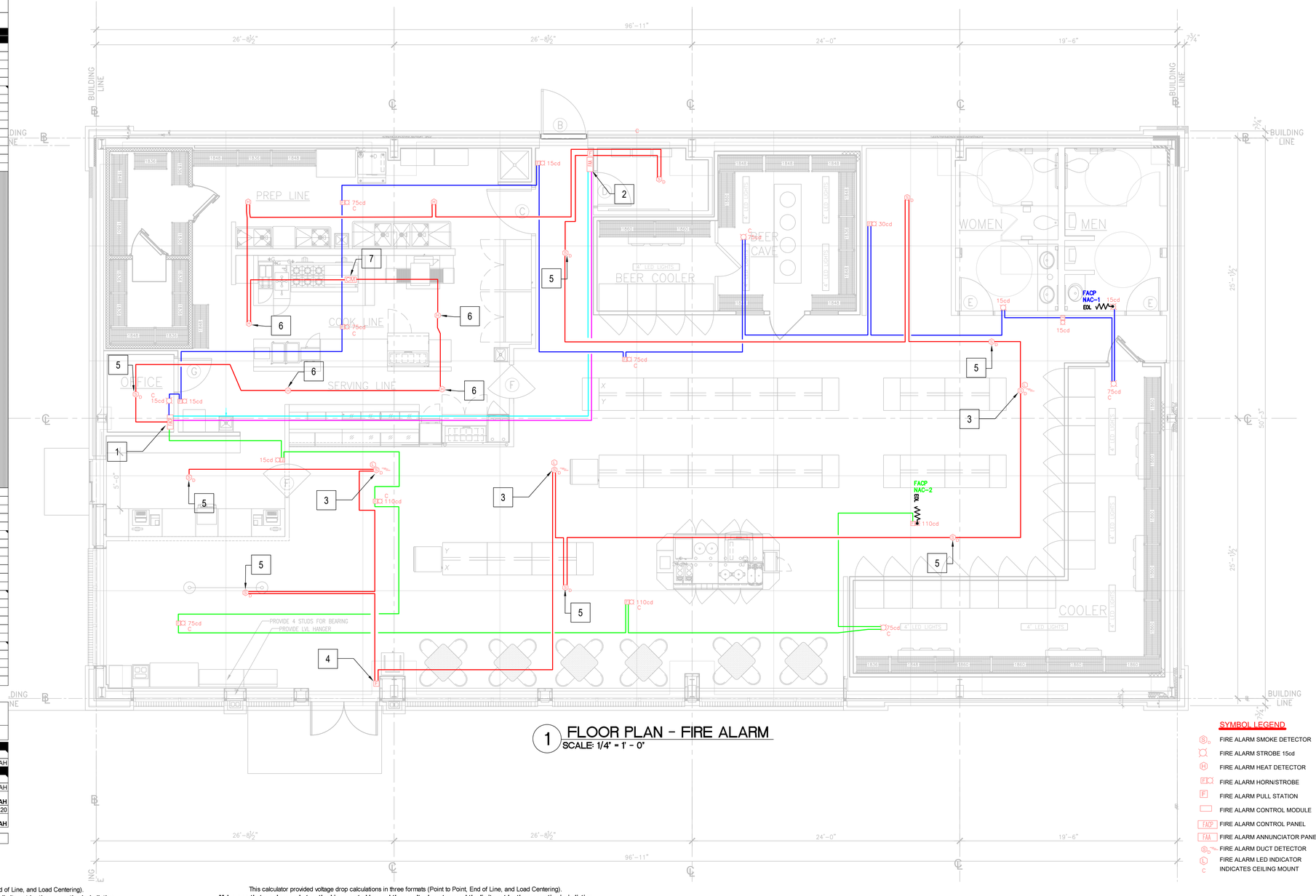
FIRE-LITE ALARMS by Honeywell

ES-50X Battery Calculation

Calculation in Total Sheet

			Required Standby Time in Hours 24 Hours		
Total Standby Current	**0.2576 Amps**	x	24	=	6.183 AH
			Required Alarm Time in Minutes 5 Minutes		
Total Alarm Load	**2.5190 Amps**	x	0.084	=	0.212 AH
			Total Current Load		**6.394 AH**
Multiply by the Derating Factor			1.2	=	x 1.20
			Total Ampere Hours Required		**7.67 AH**

Recommended Batteries:	**BAT-12120 - 12AH Batteries**



1 FLOOR PLAN - FIRE ALARM
SCALE: 1/4" = 1' - 0"

SYMBOL LEGEND

- FIRE ALARM SMOKE DETECTOR
- FIRE ALARM STROBE 15cd
- FIRE ALARM HEAT DETECTOR
- FIRE ALARM HORN/STROBE
- FIRE ALARM PULL STATION
- FIRE ALARM CONTROL MODULE
- FIRE ALARM CONTROL PANEL
- FIRE ALARM ANNUNCIATOR PANEL
- FIRE ALARM DUCT DETECTOR
- FIRE ALARM LED INDICATOR
- INDICATES CEILING MOUNT

This calculator provided voltage drop calculations in three formats (Point to Point, End of Line, and Load Centering).
Make sure that you know what method is accepted by, and the results do not exceed the limits set by the respective jurisdiction

		Point to Point Method CIRCUIT IS WITHIN LIMITS			End of Line Method CIRCUIT IS WITHIN LIMITS			Load Centering Method CIRCUIT IS WITHIN LIMITS		
Project Name	FOOD MARKET	Totals		Voltage	Totals		Voltage	Totals		Voltage
Date	6.1.20	Current	Distance	Drop	Current	Distance	Drop	Current	Distance	Drop
Circuit Number	FACP NAC-1	0.944	370	**0.97**	0.944	370	**2.145**	0.944	370	**1.072**
Area Covered	GROUND FLOOR	End of Line Voltage		**19.43**	End of Line Voltage		**18.26**	End of Line Voltage		**19.33**
Nominal System Voltage	20.4	Percent Drop		4.78%	Percent Drop		10.51%	Percent Drop		5.26%
Minimum Device Voltage	16									
Total Circuit Current	0.944									

		Wire Gauge	Ohm's Per 1000
Distance from source to 1st device	10	14	3.07
Wire Gauge for balance of circuit		14	3.07

End of Line and Load Centering Methods use only the wire guage for the first device to source
Standard Wire Resistance in Ohms per 1000 feet.
18=7.77 16=4.89 14=3.07 12=1.98 10=1.24
18-14 Awg = Solid Conductors 12-10 Awg = Stranded Conductors

Enter current in amps. .150 = 150 ma

Device Number	Device Current	Distance from previous device	At Device	Voltage Drop from source	Percent Drop
Device 1	0.041	10	20.34	0.058	0.28%
Device 2	0.054	15	20.26	0.141	0.69%
Device 3	0.143	40	20.05	0.350	1.71%
Device 4	0.143	30	19.92	0.480	2.35%
Device 5	0.054	40	19.78	0.618	3.03%
Device 6	0.143	40	19.66	0.743	3.64%
Device 7	0.111	40	19.57	0.833	4.08%
Device 8	0.074	40	19.50	0.895	4.39%
Device 9	0.043	35	19.47	0.934	4.58%
Device 10	0.054	20	19.45	0.951	4.66%
Device 11	0.041	30	19.43	0.967	4.74%
Device 12	0.043	30	19.43	0.975	4.78%
END			19.43	0.975	4.78%
END			19.43	0.975	4.78%
END			19.43	0.975	4.78%
END			19.43	0.975	4.78%
END			19.43	0.975	4.78%
END			19.43	0.975	4.78%
END			19.43	0.975	4.78%
END			19.43	0.975	4.78%
Totals	0.944	370	End of Line Voltage		**19.43**

Notes:
Wire resistance is doubled in the calculations for two wires (Positive and Negative)
The voltage calculated to the last device in any method must not be lower then
the manufactures listed minimum operating voltage (IE: rated operating voltage 20-32 VDC).

Device Manufacturer	System Sensor		
Horn Strobes			Current @Rated Voltage
Model #		Candela	
PC2WL		15	0.071
PC2WL		30	0.09
PC2WL		75	0.143
PC2WL		115	0.187
PC2WL			
WALL			
P2RL		15	0.054
P2RL		30	0.074
P2RL		75	0.121
P2RL		110	0.162

Device Manufacturer	System Sensor		
Strobe Only			Current @Rated Voltage
Model #		Candela	
SWL		15	0.043
SWL		30	0.063
SWL		75	0.107
SWL		110	0.148
CEILING			
SCWL		15	0.041
SCWL		30	0.063
SCWL(K) WP		75	0.111
SCWL		115	0.158

This calculator provided voltage drop calculations in three formats (Point to Point, End of Line, and Load Centering).
Make sure that you know what method is accepted by, and the results do not exceed the limits set by the respective jurisdiction

		Point to Point Method CIRCUIT IS WITHIN LIMITS			End of Line Method CIRCUIT IS WITHIN LIMITS			Load Centering Method CIRCUIT IS WITHIN LIMITS		
Project Name	FOOD MARKET	Totals		Voltage	Totals		Voltage	Totals		Voltage
Date	6.1.20	Current	Distance	Drop	Current	Distance	Drop	Current	Distance	Drop
Circuit Number	FACP NAC-1	0.901	280	**0.97**	0.901	280	**1.549**	0.901	280	**0.774**
Area Covered	GROUND FLOOR	End of Line Voltage		**19.43**	End of Line Voltage		**18.85**	End of Line Voltage		**19.63**
Nominal System Voltage	20.4	Percent Drop		4.75%	Percent Drop		7.59%	Percent Drop		3.80%
Minimum Device Voltage	16									
Total Circuit Current	0.901									

		Wire Gauge	Ohm's Per 1000
Distance from source to 1st device	40	14	3.07
Wire Gauge for balance of circuit		14	3.07

End of Line and Load Centering Methods use only the wire guage for the first device to source
Standard Wire Resistance in Ohms per 1000 feet.
18=7.77 16=4.89 14=3.07 12=1.98 10=1.24
18-14 Awg = Solid Conductors 12-10 Awg = Stranded Conductors

Enter current in amps. .150 = 150 ma

Device Number	Device Current	Distance from previous device	At Device	Voltage Drop from source	Percent Drop
Device 1	0.054	40	20.18	0.221	1.08%
Device 2	0.187	40	19.97	0.429	2.10%
Device 3	0.143	50	19.77	0.632	3.10%
Device 4	0.187	60	19.58	0.822	4.03%
Device 5	0.143	50	19.48	0.924	4.53%
Device 6	0.187	40	19.43	0.970	4.75%
END			19.43	0.970	4.75%
END			19.43	0.970	4.75%
END			19.43	0.970	4.75%
END			19.43	0.970	4.75%
END			19.43	0.970	4.75%
END			19.43	0.970	4.75%
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END			19.43	0.970	4.75%
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END			19.43	0.970	4.75%
END			19.43	0.970	4.75%
END			19.43	0.970	4.75%
END			19.43	0.970	4.75%
END			19.43	0.970	4.75%
Totals	0.901	280	End of Line Voltage		**19.43**

Notes:
Wire resistance is doubled in the calculations for two wires (Positive and Negative)
The voltage calculated to the last device in any method must not be lower then
the manufactures listed minimum operating voltage (IE: rated operating voltage 20-32 VDC).

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Strobe Only			Current @Rated Voltage
Model #		Candela	
SWL		15	0.043
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SWL		110	0.148
CEILING			
SCWL		15	0.041
SCWL		30	0.063
SCWL(K) WP		75	0.111
SCWL		115	0.158

NOTES

1. ALL FIRE ALARM WIRING SHALL BE PLENUM RATED

PLAN NOTES:

1. NEW FIRE ALARM CONTROL PANEL. CONNECT TO A 120/1 CIRCUIT W/ LOCKED BREAKER.
2. NEW FIRE ALARM ANNUNCIATOR PANEL. CONNECT TO FACP AS REQUIRED.
3. CONNECT DUCT DETECTORS IN SUPPLY AND RETURN AIR DUCTS TO FIRE ALARM SYSTEM AND MOUNT REMOTE LED INDICATORS IN CEILING RIGHT BELOW UNIT BEING SERVED AS REQUIRED. COORDINATE W/ MECH. TYPICAL.
4. PULL STATION. CONNECT AS REQUIRED. COORDINATE EXACT LOCATION PRIOR TO BEGINNING WORK.
5. CONNECT FIRE ALARM SMOKE DETECTOR AS REQUIRED.
6. CONNECT FIRE ALARM HEAT DETECTOR AS REQUIRED.
7. CONNECT FIRE ALARM MONITOR MODULE FOR SUPERVISION OF KITCHEN HOOD. CONNECT AS REQUIRED.

FIRE ALARM SCOPE/SYSTEM NOTE:

THE SCOPE OF FIRE ALARM WORK FOR THIS PROJECT IS TO ADD NEW NOTIFICATION AND/OR INITIATING DEVICES AS NECESSARY TO PROVIDE CODE REQUIRED COVERAGE FOR THE TENANT SPACE INDICATED ON PLANS.

THE EXISTING SYSTEM UTILIZES HORN/STROBE NOTIFICATION.

FIRE ALARM SYNCHRONIZATION NOTE:

ALL FIRE ALARM DEVICES IN COMMON SIGHT LINES MUST BE VISUALLY SYNCHRONIZED AND ALL AUDIBLE FIRE ALARM DEVICES MUST BE AUDIBLY SYNCHRONIZED AND OF A CONSISTENT AUDIBLE SIGNAL THROUGHOUT THE BUILDING. REPLACE DEVICES AND / OR PROVIDE SYNC. MODULES IN BOOSTER PANELS / NAC OUTPUTS AS NECESSARY TO ACHIEVE SYNCHRONIZATION THROUGHOUT. EXISTING DEVICES / BOOSTER PANELS SHOWN TO REMAIN ON THESE DRAWINGS SHOULD BE CONSIDERED EXISTING TO REMAIN ONLY IF THE FIRE ALARM CONTRACTOR VERIFIES THEIR ABILITY TO SYNCHRONIZE, AND SHOULD BE CONSIDERED NEW OTHERWISE. ALL COST ASSOCIATED WITH SYNCHRONIZATION SHOULD BE IDENTIFIED AND INCLUDED IN ANY PRICING OR BIDS.

ProServe
221 Technology Park Ln.,
Fuquay Varina, NC 27526
(888)998-7772
service@proservefire.com
ProServe Fire Protection, Inc.

SEALS

DAVID BENZO
NICET LEVEL III
CERTIN. # 129340

DRAWING TITLE

FIRE ALARM SHOP DRAWINGS

PROJECT

HARNETT CENTRAL CROSSING FOOD MARKET

4585 NC HWY 210 N.
LILLINGTON, NC 27546

CLIENT

REVISIONS

NUMBER	DESCRIPTION	DATE

DRAWN BY 1
CHECKED BY
DATE ISSUED 05.29.20 1 OF 2