Note; System not yet approved by AHJ. Existing Fire System includes tenant spaces which will be part of new fire system.

BOSCH D9412GV3 Standby Battery Calculations

Regulated Load in Standby

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
D9412GV3 PANEL	1	X	.225	=	.225
D928	1	X	.020	=	.020
D192G	4	X	.035	=	.140
D1256	1	X	.106	=	.106
ICP-SDI-9114	1	X	.030	=	.030
D8125	2	X	.060	=	.120
DX4020	1	X	.080	=	.080
D8129	1	X	.020	=	.020
D8130	3	X	.007	=	.021
D113	2	X	.031	=	.062
D9127U	54	X	.0008	=	.044
FMM-462	28	X	.0008	=	.023
TS-500	1	X	.0025	=	.0025
D1257	1	X	.106	=	.106
PAM-4	2	X	.015	=	.030
			Regulated Load in Standby		1.029

Regulated Load in ALARM

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
D9412GV3 PANEL	1	X	.300	=	.300
D928	1	X	.020	=	.020
D192G	4	X	.105	=	.420
D1256	1	X	.212	=	.212
ICP-SDI-9114	1	X	.030	=	.030
D8125	2	X	.060	=	.120
DX4020	1	X	.084	=	.084
D8129	3	X	.020	=	.060
D8130	1	X	.007	=	.007
D113	2	X	.031	=	.062
D9127U	54	X	.0008	=	.044
FMM-462	28	X	.0008	=	.023
TS-500	1	X	.0025	=	.0025
D1257	1	X	.212	=	.212
PAM-4	2	X	.015	=	.030
			Regulated Load in Alarm		1.583

Battery Calculation Total

Standby Current Load (Amps)	1.029	X	24 (Hours)	=	24.69 Ah
Alarm Current Load (Amps)	1.583	X	0.084 (5 Min)	=	0.133 Ah
			Total Current Load		24.82 Ah
Multiply by Derating Factor			1.2	=	x1.2
Total Ampere Hours Required					29.79Ah

Altronix N.A.C. Power Supply Standby Battery Calculations

N.A.C. P.S. #1 at FACP

Device Type	Standby Current (In milliamps) Each				Total	Alarm Current (In milliamps) Each				Total	
AL1002ULADA	90	X Qty.	1	=	90	175	X Qty.	1	=	.175	
D341P DUCT SMK	15	X Qty.	16	=	240	65	X Qty.	16	=	1.040	
D285 SMOKE	0	X Qty.	0	=	0	18	X Qty.	0	=	0	
NAC 1	N/A										.462
NAC 2	N/A										.916
NAC 3	N/A										.893
NAC 4	N/A										.706

Totals — Standby Current = 330 mA — Alarm Current = 4192 mA

Battery Amp/Hour Calculation

Standby Current @ .330 A x 24 Hours = 7.92 Ah
Alarm Current @ 4.19 A x 10 Mins. = .70 Ah
Subtotal = 8.62 Ah

Altronix N.A.C. Power Supply Standby Battery Calculations

N.A.C. P.S. #2 at FACP

Device Type	Standby Current (In milliamps) Each				Total	Alarm Current (In milliamps) Each				Total	
AL1002ULADA	90	X Qty.	1	=	90	175	X Qty.	1	=	.175	
D341P DUCT SMK	0	X Qty.	16	=	240	65	X Qty.	0	=	0	
D285 SMOKE	0	X Qty.	1	=	0	18	X Qty.	0	=	0	
NAC 5	N/A										.683
NAC 6	N/A										.706
NAC 7	N/A										.683
NAC 8	N/A										.706
NAC 9	N/A										.683

Totals — Standby Current = 90 mA — Alarm Current = 3636 mA

Battery Amp/Hour Calculation

Standby Current @ .090 A x 24 Hours = 2.16 Ah
Alarm Current @ 3.64 A x 10 Mins. = .61 Ah
Subtotal = 2.77 Ah
Plus 20% = .55 Ah
TotalBattery Requirement = 3.32 Ah

Altronix N.A.C. Power Supply Standby Battery Calculations

N.A.C. P.S. #3 Receiving

Device Type	Standby Current (In milliamps) Each				Total	Alarm Current (In milliamps) Each				Total	
AL1002ULADA	90	X Qty.	1	=	90	175	X Qty.	1	=	.175	
D341P DUCT SMK	0	X Qty.	0	=	0	65	X Qty.	0	=	0	
D285 SMOKE	0	X Qty.	0	=	0	18	X Qty.	0	=	0	
NAC 10	N/A										.980
NAC 11	N/A										.576
NAC 12	N/A										.498

Totals — Standby Current = 90 mA — Alarm Current = 2229 mA

Battery Amp/Hour Calculation

Standby Current @ .090 A x 24 Hours = 2.16 Ah
Alarm Current @ 2.23 A x 10 Mins. = .37 Ah
Subtotal = 2.53 Ah
Plus 20% = .51 Ah
TotalBattery Requirement = 3.04 Ah

Altronix N.A.C. Power Supply Standby Battery Calculations

N.A.C. P.S. #4 Tenant

Device Type	Standby Current (In milliamps) Each				Total	Alarm Current (In milliamps) Each				Total	
AL1002ULADA	90	X Qty.	1	=	90	175	X Qty.	1	=	.175	
D341P DUCT SMK	0	X Qty.	0	=	0	65	X Qty.	0	=	0	
D285 SMOKE	1	X Qty.	4	=	4	23	X Qty.	4	=	92	
NAC 10	N/A										.879
NAC 11	N/A										.079
NAC 12	N/A										1.644

Totals — Standby Current = 94 mA — Alarm Current = 2869 mA

Battery Amp/Hour Calculation

Standby Current @ .094 A x 24 Hours = 2.26 Ah
Alarm Current @ 2.87 A x 10 Mins. = .48 Ah
Subtotal = 2.74 Ah
Plus 20% = .55 Ah
TotalBattery Requirement = 3.28 Ah

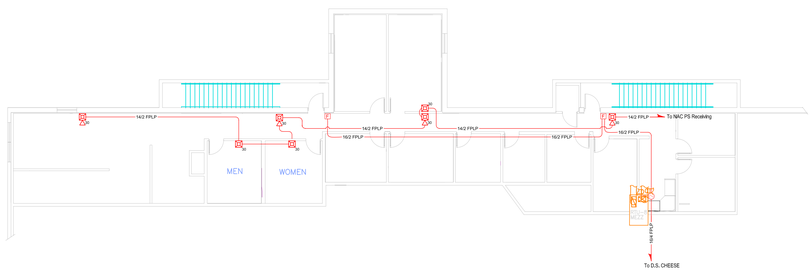
Circuit Devices and Current Draw

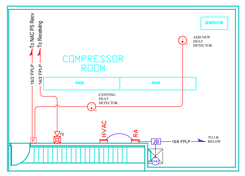
Ckt. No.	Device Type	Candela Setting	Device Current	Circuit Current
1	Gentex GES-3	30	.058	
	Gentex GES-3	30	.058	
	Gentex WGEC24-75	75	.144	
	Gentex WGEC24-75	75	.144	
	Gentex GES-3	30	.058	
				.462
2	Gentex GCC-24	115	.313	
	Gentex GCS-24	115	.290	
	Gentex GCC-24	115	.313	
				.916
3	Gentex GCS-24	115	.290	
	Gentex GCC-24	115	.313	
	Gentex GCS-24	115	.290	
				.893
4	Gentex GCC-24	95	.243	
	Gentex GCS-24	95	.220	
	Gentex GCC-24	95	.243	
				.706
5	Gentex GCS-24	95	.220	
	Gentex GCC-24	95	.243	
	Gentex GCS-24	95	.220	
				.683
6	Gentex GCC-24	95	.243	
	Gentex GCS-24	95	.220	
	Gentex GCC-24	95	.243	
				.706
7	Gentex GCS-24	95	.220	
	Gentex GCC-24	95	.243	
	Gentex GCS-24	95	.220	
				.683
8	Gentex GCC-24	95	.243	
	Gentex GCS-24	95	.220	
	Gentex GCC-24	95	.243	
				.706
9	Gentex GCS-24	95	.220	
	Gentex GCC-24	95	.243	
	Gentex GCS-24	95	.220	
				.683
10	Gentex WGEC24-75	75	.144	
	Gentex WGEC24-75	75	.144	
	Gentex GEC-3	75	.144	
	Gentex WGEC24-75	75	.144	
	Gentex WGEC24-75	75	.144	
	Gentex GES-3	30	.058	
	Gentex GES-3	30	.058	
	Gentex GEC-3	75	.144	
				.980
11	Gentex WGEC24-75	75	.144	
	Gentex GEC-3	75	.144	
	Gentex GEC-3	75	.144	
	Gentex GEC-3	75	.144	
				.576
12	Gentex GEC-3	30	.081	
	Gentex GES-3	30	.058	
	Gentex GEC-3	30	.081	
	Gentex GEC-3	30	.081	
	Gentex GES-3	30	.058	
	Gentex GES-3	30	.058	
	Gentex GEC-3	30	.081	
				.498

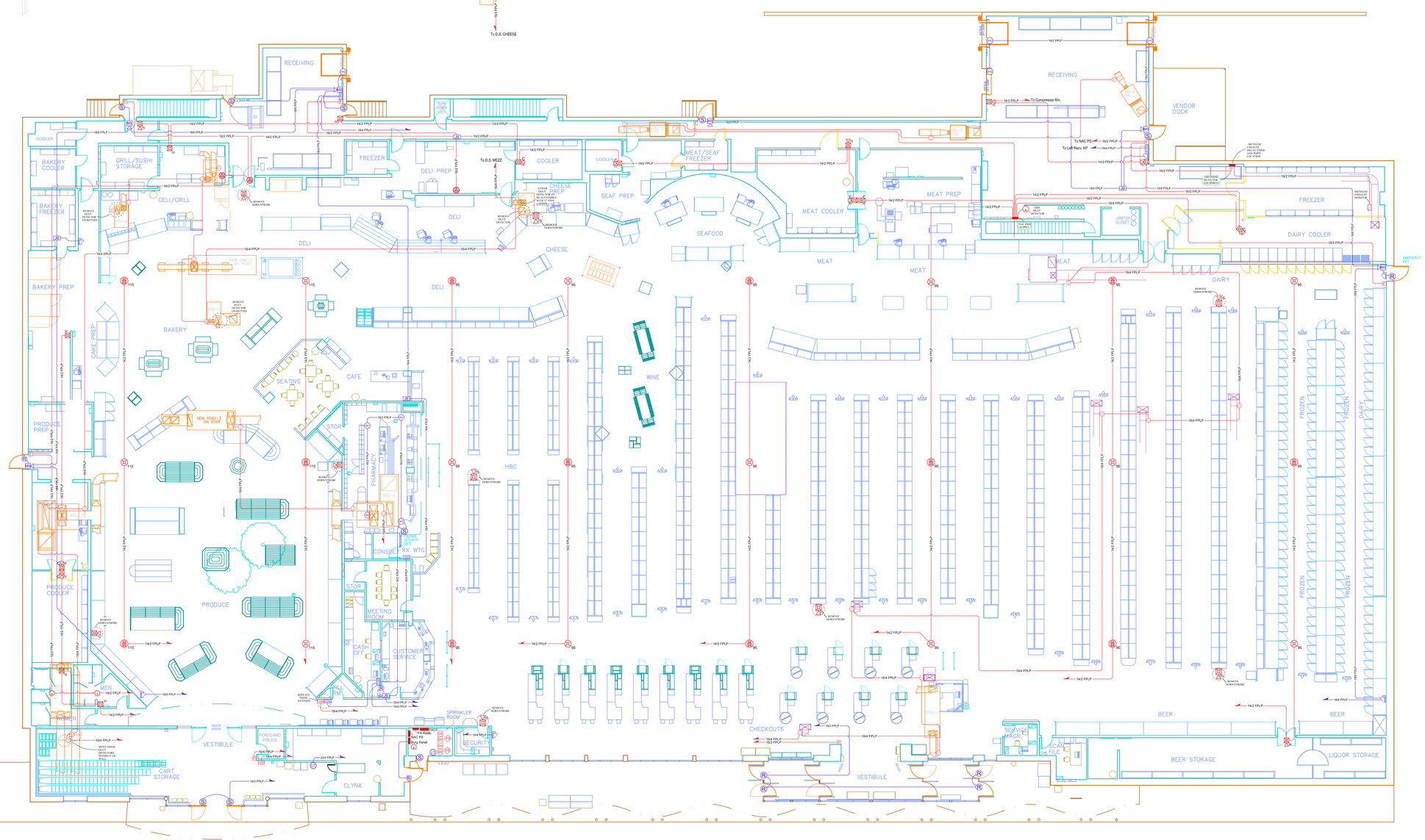
NOTE; All NAC Calcs based on worst case 20.4 Vdc. Nominal NAC is 26.6 Vdc

Circuit Current and Voltage Drop Calculations

Circuit Number	Circuit Name	Supply Voltage	Circuit Current	Wire Type	Ohms per 1000 Ft.	Circuit Length (one way)	Total Resistance	Voltage Last Device
1	Restrooms, Produce Cooler - Prep, Cake Prep	20.4	.462	14 AWG Str	3.26	300'	1.96 Ohm	19.49
2	Produce Left	20.4	.916	14 AWG Str	3.26	250'	1.63 Ohm	18.90
3	Produce Right	20.4	.893	14 AWG Str	3.26	225'	1.47Ohm	19.08
4	Customer Service, Pharmacy, Deli	20.4	.706	14 AWG Str	3.26	175'	1.41 Ohm	19.40
5	Aisle 4	20.4	.683	14 AWG Str	3.26	225'	1.47Ohm	19.39
6	Aisle 8	20.4	.706	14 AWG Str	3.26	275'	1.79 Ohm	19.13
7	Aisle 12	20.4	.683	14 AWG Str	3.26	325'	2.12 Ohm	18.95
8	Aisle 16	20.4	.706	14 AWG Str	3.26	375'	2.45 Ohm	18.67
9	Aisle 20	20.4	.683	14 AWG Str	3.26	475'	3.10 Ohm	18.28
10	Meat Prep + Cooler, Rear Hall, Seafood Cooler, Deli Cooler, Left Rear Receiving, Deli/Grill, and Rear Hall	20.4	.980	14 AWG Str	3.26	425'	2.77 Ohm	17.68
11	Dairy Cooler, Receiving, and Compressor Room	20.4	.576	14 AWG Str	3.26	325'	2.12 Ohm	19.17
12	Left Rear Mezzanine	20.4	.498	14 AWG Str	3.26	425'	2.77 Ohm	19.02







LEGEND

- DUCT SMOKE (POLE NUMBER)
- SMOKE DETECTOR
- HEAT DETECTOR (POLE NUMBER)
- PULL STATION (POLE NUMBER)
- GATE VALVE TAMPER (POLE NUMBER)
- WATER FLOW (POLE NUMBER)
- FIRE COMMAND CENTER
- ANNUNCIATOR PANEL
- ANSUL SYSTEM CONTACT (POLE NUMBER)
- COOLER HORN/STROBE (POLE NUMBER)
- STROBE (POLE NUMBER)
- HORN/STROBE (POLE NUMBER)
- CEILING HORN/STROBE (POLE NUMBER)
- CEILING STROBE (POLE NUMBER)
- LOW ROOM TEMPERATURE
- DUCT SMK REMOTE PLATE

LEGEND

- RECESSED DOOR CONTACT
- SURFACE DOOR CONTACT
- OVERHEAD DOOR CONTACT
- 360° MOTION DETECTOR
- LONG RANGE MOTION DETECTOR
- TRI TECH MOTION DETECTOR
- MASTER KEY PAD
- MINI SOUNDER
- REFRIDGERATION ALARM INPUT
- LOW TEMPERATURE

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PROJECT TITLE
HANNAFORD SUPERMARKET & PHARMACY #8351
FORIST AVENUE
PORTLAND, MAINE

HANNAFORD BROS. CO.
ENGINEERING DEPARTMENT
STORE PLANNING

SCALE	NTS
DRAWN	SURV-JK
DATE	11-18-11

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SHEET TITLE
COMBINED SYSTEM PLAN

SHEET NUMBER
FS-3