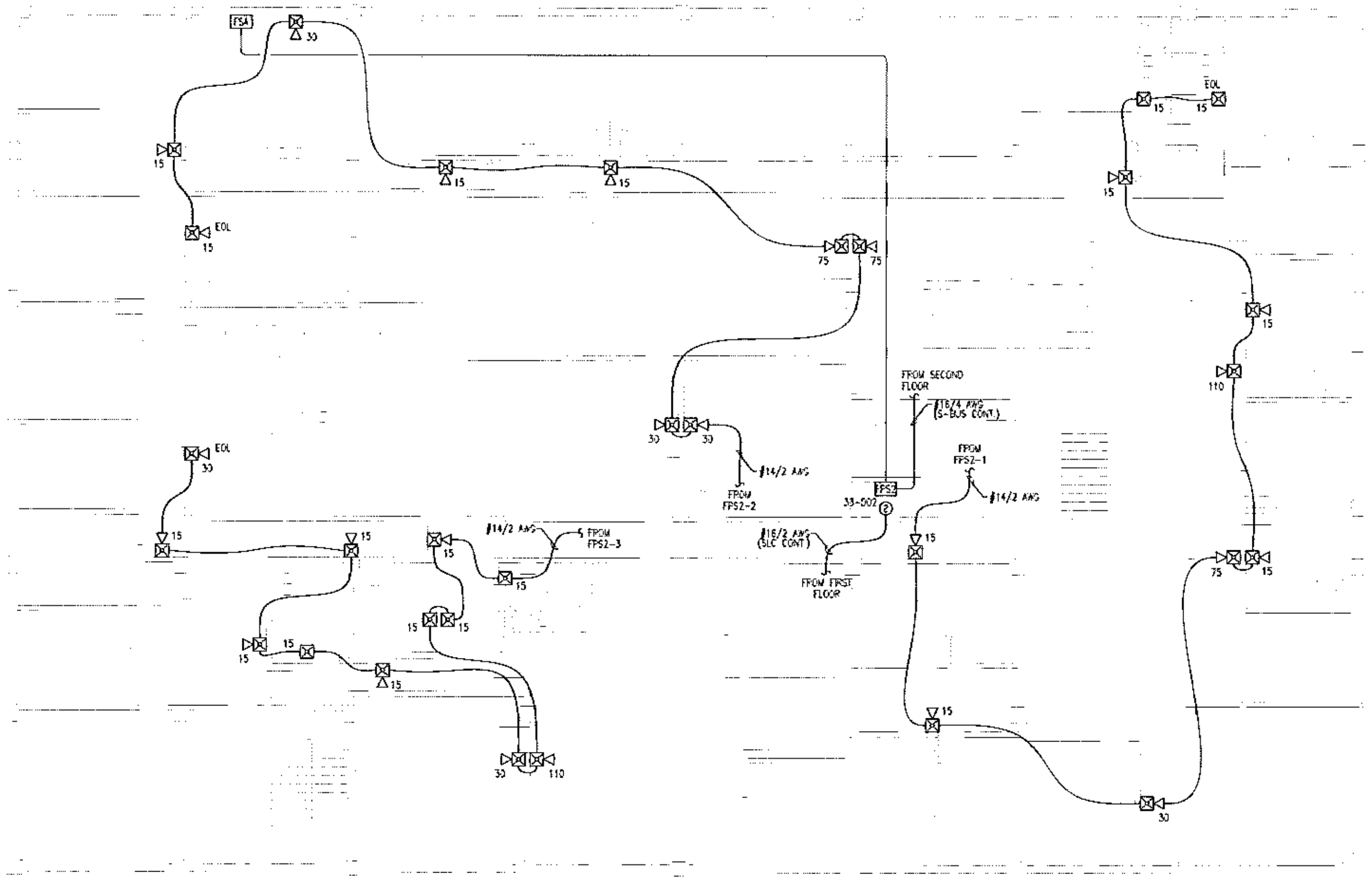

THIRD FLOOR FIRE ALARM PLAN
SCALE: 1/8"=1'-0"

SILENT KNIGHT — BATTERY CALCULATIONS MODEL 5820XL

Standby Hours: 24
Alarm Mins: 5
Derating Factor: 1.2

Panel ID: FCP — 5820XL
Model: 5820XL Add. Fire Alarm Control Panel
Volts: 24 VDC
Max NAC Current: 3.0 Amps
Max Panel Current: 6.0 Amps

Ckt.#	Circuit Name	Qty	Current Draw Standby	Current Draw Alarm	
5820XL	5820XL CTRL Panel	1	0.215	0.385	
SK	Photo, Photo-T	2	0.001	0.001	
SK	Monitor, Minimon	5	0.002	0.002	
SK	Pull-SA, Pull-DA	1	0.000	0.000	
5860	LCD Remote Annunciator	3	0.060	0.075	
5495	Power Expander	2	0.020	0.020	
NAC-1	Notification Appl Circuit 1.062		0.000	1.062	
NAC-2	Notification Appl Circuit 1.694		0.000	1.694	
NAC-3	Notification Appl Circuit 0.635		0.000	0.635	
NAC-4	Notification Appl Circuit 1.161		0.000	1.161	
PGM-I/O #5	Notification Appl Circuit 0.000		0.000	0.000	
PGM-I/O #5	Notification Appl Circuit 0.000		0.000	0.000	
	Total Standby Current (Amps)		0.298	5.035	Total Alarm Current (Amps)
	Standby Time In Hours		24	0.083	Alarm Time In Minutes / 60 (5 Mins)
	Total Standby AH Required		7.147	0.420	Total Alarm AH Required
	Total Combined AH Required		7.57		
	Multiply By The Derating Factor		1.20		
	Minimum Battery AmpHours Required		9.08		
	Minimum Battery Size to be Supplied		12 AH		

SILENT KNIGHT — BATTERY CALCULATIONS MODEL 5496

Standby Hours: 24
Alarm Mins: 5
Derating Factor: 1.2

Panel ID: FPS1 — 5496
Model: Silent Knight 5496 Power Expander
Volts: 24 VDC
Max Circuit Current: 3.0 Amps
Max Panel Current: 6.0 Amps

Ckt.#	Circuit Name	Current Draw Standby	Current Draw Alarm	
5496	5496 Power Expander	0.040	0.150	
FPS1-1	5496(1) Circuit 1	0.000	1.300	
FPS1-2	5496(1) Circuit 2	0.000	1.205	
FPS1-3	5496(1) Circuit 3	0.000	0.456	
FPS1-4	5496(1) Circuit 4	0.000	0.856	
	Total Standby Current (Amps)	0.040	4.027	Total Alarm Current (Amps)
	Standby Time In Hours	24	0.083	Alarm Time In Minutes / 60 (5 Mins)
	Total Standby AH Required	0.960	0.336	Total Alarm AH Required
	Total Combined AH Required	1.30		
	Multiply By The Derating Factor	1.20		
	Minimum Battery AmpHours Required	1.55		
	Minimum Battery Size to be Supplied	7 AH		

SILENT KNIGHT — BATTERY CALCULATIONS MODEL 5496

Standby Hours: 24
Alarm Mins: 5
Derating Factor: 1.2

Panel ID: FPS2 — 5496
Model: Silent Knight 5496 Power Expander
Volts: 24 VDC
Max Circuit Current: 3.0 Amps
Max Panel Current: 6.0 Amps

Ckt.#	Circuit Name	Current Draw Standby	Current Draw Alarm	
5496	5496 Power Expander	0.040	0.150	
FPS2-1	5496(1) Circuit 1	0.000	1.022	
FPS2-2	5496(1) Circuit 2	0.000	0.959	
FPS2-3	5496(1) Circuit 3	0.000	1.065	
FPS2-4	5496(1) Circuit 4	0.000	0.000	
	Total Standby Current (Amps)	0.040	3.256	Total Alarm Current (Amps)
	Standby Time In Hours	24	0.083	Alarm Time In Minutes / 60 (5 Mins)
	Total Standby AH Required	0.960	0.271	Total Alarm AH Required
	Total Combined AH Required	1.23		
	Multiply By The Derating Factor	1.20		
	Minimum Battery AmpHours Required	1.48		
	Minimum Battery Size to be Supplied	7 AH		

NAC Circuit Voltage Drop Calculation — 3/4/2013

Project Name: OXFORD STREET
Circuit Number: NAC-1
Nominal System Voltage: 20.4 volts
Minimum Device Voltage: 16 volts
Distance from source to 1st device: 37 — Wire Gauge 14 — Resistance Per 1000 6.14
Wire Gauge for balance of circuit: 14 — 6.14
Max Output Current: 1.5 amps
Total Circuit Current: 1.062 amps

Circuit is within limits	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.079		20.16	0.24	1%
Device 2	0.079	18	20.05	0.35	2%
Device 3	0.066	12	19.98	0.42	2%
Device 4	0.079	59	19.68	0.72	4%
Device 5	0.066	16	19.61	0.79	4%
Device 6	0.176	7	19.58	0.82	4%
Device 7	0.079	18	19.52	0.88	4%
Device 8	0.066	13	19.48	0.92	4%
Device 9	0.079	19	19.44	0.95	5%
Device 10	0.107	11	19.42	0.98	5%
Device 11	0.107	14	19.40	1.00	5%
Device 12	0.079	38	19.39	1.01	5%
Totals	1.062	262			

NAC Circuit Voltage Drop Calculation — 3/4/2013

Project Name: OXFORD STREET
Circuit Number: NAC-2
Nominal System Voltage: 20.4 volts
Minimum Device Voltage: 16 volts
Distance from source to 1st device: 80 — Wire Gauge 14 — Resistance Per 1000 6.14
Wire Gauge for balance of circuit: 14 — 6.14
Max Output Current: 2.0 amps
Total Circuit Current: 1.694 amps

Circuit is within limits	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.094		19.57	0.83	4%
Device 2	0.066	27	19.36	1.04	5%
Device 3	0.066	6	19.31	1.09	5%
Device 4	0.079	7	19.24	1.16	6%
Device 5	0.079	15	19.11	1.29	6%
Device 6	0.079	41	18.78	1.62	8%
Device 7	0.176	7	18.73	1.67	8%
Device 8	0.079	2	18.72	1.68	8%
Device 9	0.079	31	18.53	1.87	9%
Device 10	0.212	4	18.51	1.89	9%
Device 11	0.079	35	18.36	2.04	10%
Device 12	0.079	50	18.18	2.22	11%
Device 13	0.066	15	18.12	2.28	11%
Device 14	0.079	13	18.08	2.32	11%
Device 15	0.066	19	18.03	2.37	12%
Device 16	0.079	15	18.01	2.39	12%
Device 17	0.079	19	17.98	2.42	12%
Device 18	0.079	59	17.92	2.48	12%
Device 19	0.079	19	17.91	2.49	12%
Totals	1.694	462			

NAC Circuit Voltage Drop Calculation — 3/4/2013

Project Name: OXFORD STREET
Circuit Number: NAC-3
Nominal System Voltage: 20.4 volts
Minimum Device Voltage: 16 volts
Distance from source to 1st device: 155 — Wire Gauge 14 — Resistance Per 1000 6.14
Wire Gauge for balance of circuit: 14 — 6.14
Max Output Current: 1.0 amps
Total Circuit Current: 0.635 amps

Circuit is within limits	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.212		19.80	0.60	3%
Device 2	0.212	47	19.67	0.73	4%
Device 3	0.066	9	19.66	0.74	4%
Device 4	0.079	5	19.66	0.74	4%
Device 5	0.066	10	19.65	0.75	4%
Totals	0.635	226			

NAC Circuit Voltage Drop Calculation — 3/4/2013

Project Name: OXFORD STREET
Circuit Number: NAC-4
Nominal System Voltage: 20.4 volts
Minimum Device Voltage: 16 volts
Distance from source to 1st device: 220 — Wire Gauge 14 — Resistance Per 1000 6.14
Wire Gauge for balance of circuit: 14 — 6.14
Max Output Current: 1.5 amps
Total Circuit Current: 1.161 amps

Circuit is within limits	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.066		18.83	1.57	8%
Device 2	0.066	8	18.78	1.62	8%
Device 3	0.079	24	18.63	1.77	9%
Device 4	0.176	2	18.61	1.79	9%
Device 5	0.176	23	18.51	1.89	9%
Device 6	0.079	28	18.40	2.00	10%
Device 7	0.066	33	18.30	2.10	10%
Device 8	0.079	16	18.25	2.15	11%
Device 9	0.066	14	18.22	2.18	11%
Device 10	0.066	17	18.19	2.21	11%
Device 11	0.066	7	18.18	2.22	11%
Device 12	0.176	25	18.15	2.25	11%
Totals	1.161	417			

NAC Circuit Voltage Drop Calculation — 2/17/2013

Project Name: OXFORD STREET
Circuit Number: FPS1-1
Nominal System Voltage: 20.4 volts
Minimum Device Voltage: 16 volts
Distance from source to 1st device: 51 — Wire Gauge 14 — Resistance Per 1000 6.14
Wire Gauge for balance of circuit: 14 — 6.14
Max Output Current: 1.5 amps
Total Circuit Current: 1.300 amps

Circuit is within limits	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.079		19.99	0.41	2%
Device 2	0.107	21	19.84	0.56	3%
Device 3	0.212	16	19.73	0.67	3%
Device 4	0.079	16	19.64	0.76	4%
Device 5	0.079	29	19.49	0.91	4%
Device 6	0.079	58	19.23	1.17	6%
Device 7	0.079	32	19.10	1.30	6%
Device 8	0.079	25	19.01	1.39	7%
Device 9	0.107	17	18.95	1.45	7%
Device 10	0.079	11	18.93	1.47	7%
Device 11	0.176	12	18.90	1.50	7%
Device 12	0.066	14	18.89	1.51	7%
Device 13	0.079	16	18.88	1.52	7%
Totals	1.300	318			

NAC Circuit Voltage Drop Calculation — 2/17/2013

Project Name: OXFORD STREET
Circuit Number: FPS1-2
Nominal System Voltage: 20.4 volts
Minimum Device Voltage: 16 volts
Distance from source to 1st device: 20 — Wire Gauge 14 — Resistance Per 1000 6.14
Wire Gauge for balance of circuit: 14 — 6.14
Max Output Current: 1.5 amps
Total Circuit Current: 1.205 amps

Circuit is within limits	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.079		20.25	0.15	1%
Device 2	0.079	27	20.07	0.33	2%
Device 3	0.079	2	20.05	0.35	2%
Device 4	0.079	19	19.94	0.46	2%
Device 5	0.079	2	19.93	0.47	2%
Device 6	0.107	9	19.88	0.52	3%
Device 7	0.079	15	19.82	0.58	3%
Device 8	0.066	13	19.77	0.63	3%
Device 9	0.066	21	19.70	0.70	3%
Device 10	0.176	30	19.61	0.79	4%
Device 11	0.079	24	19.56	0.84	4%
Device 12	0.079	26	19.52	0.88	4%
Device 13	0.079	24	19.50	0.90	4%
Device 14	0.079	24	19.49	0.91	4%
Totals	1.205	256			

NAC Circuit Voltage Drop Calculation — 2/17/2013

Project Name: OXFORD STREET
Circuit Number: FPS1-3
Nominal System Voltage: 20.4 volts
Minimum Device Voltage: 16 volts
Distance from source to 1st device: 35 — Wire Gauge 14 — Resistance Per 1000 6.14
Wire Gauge for balance of circuit: 14 — 6.14
Max Output Current: 1.5 amps
Total Circuit Current: 0.456 amps

Circuit is within limits	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.066		20.30	0.10	0%
Device 2	0.107	19	20.25	0.15	1%
Device 3	0.079	24	20.21	0.19	1%
Device 4	0.107	45	20.15	0.25	1%
Device 5	0.107	2	20.15	0.25	1%
Totals	0.456	126			

NAC Circuit Voltage Drop Calculation — 2/17/2013

Project Name: OXFORD STREET
Circuit Number: FPS1-4
Nominal System Voltage: 20.4 volts
Minimum Device Voltage: 16 volts
Distance from source to 1st device: 45 — Wire Gauge 14 — Resistance Per 1000 6.14
Wire Gauge for balance of circuit: 14 — 6.14
Max Output Current: 1.5 amps
Total Circuit Current: 0.856 amps

Circuit is within limits	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.066		20.15	0.25	1%
Device 2	0.079	2	20.14	0.26	1%
Device 3	0.066	17	20.06	0.34	2%
Device 4	0.079	5	20.04	0.36	2%
Device 5	0.066	26	19.95	0.45	2%
Device 6	0.079	26	19.86	0.54	3%
Device 7	0.079	35	19.76	0.64	3%
Device 8	0.066	15	19.73	0.67	3%
Device 9	0.079	12	19.70	0.70	3%
Device 10	0.079	7	19.69	0.71	3%
Device 11	0.079	2	19.69	0.71	3%
Device 12	0.079	27	19.68	0.72	4%
Totals	0.856	219			

NAC Circuit Voltage Drop Calculation — 2/17/2013

Project Name: OXFORD STREET
Circuit Number: FPS2-1
Nominal System Voltage: 20.4 volts
Minimum Device Voltage: 16 volts
Distance from source to 1st device: 15 — Wire Gauge 14 — Resistance Per 1000 6.14
Wire Gauge for balance of circuit: 14 — 6.14
Max Output Current: 1.5 amps
Total Circuit Current: 1.022 amps

Circuit is within limits	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.079		20.31	0.09	0%
Device 2	0.079	22	20.18	0.22	1%
Device 3	0.107	34	20.00	0.40	2%
Device 4	0.176	41	19.81	0.59	3%
Device 5	0.079	2	19.80	0.60	3%
Device 6	0.212	23	19.73	0.67	3%
Device 7	0.079	9	19.71	0.69	3%
Device 8	0.079	30	19.67	0.73	4%
Device 9	0.066	10	19.67	0.73	4%
Device 10	0.066	11	19.66	0.74	4%
Totals	1.022	197			

NAC Circuit Voltage Drop Calculation — 2/17/2013

Project Name: OXFORD STREET
Circuit Number: FPS2-2
Nominal System Voltage: 20.4 volts
Minimum Device Voltage: 16 volts
Distance from source to 1st device: 31 — Wire Gauge 14 — Resistance Per 1000 6.14
Wire Gauge for balance of circuit: 14 — 6.14
Max Output Current: 1.5 amps
Total Circuit Current: 0.959 amps

Circuit is within limits	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.107		20.21	0.19	1%
Device 2	0.107	2	20.20	0.20	1%
Device 3	0.176	42	20.00	0.40	2%
Device 4	0.176	2	19.99	0.41	2%
Device 5	0.079	38	19.90	0.50	2%
Device 6	0.079	20	19.85	0.55	3%
Device 7	0.107	35	19.80	0.60	3%
Device 8	0.079	30	19.77	0.63	3%
Device 9	0.079	11	19.76	0.64	3%
Totals	0.959	211			

NAC Circuit Voltage Drop Calculation — 2/17/2013

Project Name: OXFORD STREET
Circuit Number: FPS2-3
Nominal System Voltage: 20.4 volts
Minimum Device Voltage: 16 volts
Distance from source to 1st device: 57 — Wire Gauge 14 — Resistance Per 1000 6.14
Wire Gauge for balance of circuit: 14 — 6.14
Max Output Current: 1.5 amps
Total Circuit Current: 1.065 amps

Circuit is within limits	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.066		20.02	0.38	2%
Device 2	0.079	14	19.93	0.47	2%
Device 3	0.066	12	19.86	0.54	3%
Device 4	0.066	2	19.85	0.55	3%
Device 5	0.212	27	19.72	0.68	3%
Device 6	0.107	2	19.71	0.69	3%
Device 7	0.079	28	19.63	0.77	4%
Device 8	0.066	10	19.60	0.80	4%
Device 9	0.079	7	19.59	0.81	4%
Device 10	0.079	20	19.55	0.85	4%
Device 11	0.079	22	19.53	0.87	4%
Device 12	0.107	15	19.52	0.88	4%
Totals	1.065	216			

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	2/18/2013
1	REVISED PER CLIENT REVIEW	3/5/2013

MAINE STATE SECURITY ALARMS
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OXFORD STREET
PORTLAND, MAINE 04101
THIRD FLOOR FIRE ALARM PLAN

DRAWN	JFB UNICAD JOB #13066
CHECKED	WAYNE B. HAWS NICET IV 95435
DATE	2/13/2013
REVISION	1
SCALE	1/8"=1'-0"

UNICAD Inc.

FA-3