



PLAN NORTH  
**FIRE ALARM PLAN**  
 SCALE: 1/8"=1'-0" 0 4' 8' 16'

Existing FCP Battery Calculation					7/15/2013
PROJECT NAME: 27 PEARL STREET					
Required Standby Time: 24 Hours					
Required Alarm Time: 5 Minutes					
Regulated Load in Standby					
Device Type	Number of Devices	Current (Amps)		Total Current (Amps)	
Existing Simplex 2001 System	2	X	0.00005	= 0.00010	
New Smoke Detectors	2	X	0.00000	= 0.00000	
New Pull Stations	2	X	0.00000	= 0.00000	
TOTAL STANDBY LOAD				0.00010	
Regulated Load in ALARM					
Device Type	Number of Devices	Current (Amps)		Total Current (Amps)	
Existing Simplex 2001 System	2	X	0.13000	= 0.26000	
New Smoke Detectors	2	X	0.00000	= 0.00000	
New Pull Stations	2	X	0.00000	= 0.00000	
TOTAL ALARM LOAD				0.26000	
Battery Requirements					
Standby Load			Required Standby Time in Hours		
Current (Amps)	0.00010	X	24.00000	= 0.00240	
Alarm Load			Required Alarm Time in Hours		
Current (Amps)	0.26000	X	0.08333	= 0.02167	
Total Ampere Hours (before derating factor)				0.02407	
Derating Factor				X 1.2	
TOTAL AMPERE HOURS REQUIRED				0.02888	
BATTERIES TO BE PROVIDED (2 - 12v)				FIELD VERIFY	

FPS1 Battery Calculation					7/16/2013
PROJECT NAME: 27 PEARL STREET					
Required Standby Time: 24 Hours					
Required Alarm Time: 5 Minutes					
Regulated Load in Standby					
Device Type	Number of Devices	Current (Amps)		Total Current (Amps)	
Altronix AL802ULADA	1	X	0.09000	= 0.09000	
TOTAL STANDBY LOAD				0.09000	
Regulated Load in ALARM					
Device Type	Number of Devices	Current (Amps)		Total Current (Amps)	
Altronix AL802ULADA	1	X	0.17500	= 0.17500	
FPS1-1	1	X	0.82700	= 0.82700	
FPS1-2	1	X	0.97100	= 0.97100	
TOTAL ALARM LOAD				1.97300	
Battery Requirements					
Standby Load			Required Standby Time in Hours		
Current (Amps)	0.09000	X	24.00000	= 2.16000	
Alarm Load			Required Alarm Time in Hours		
Current (Amps)	1.97300	X	0.08333	= 0.16442	
Total Ampere Hours (before derating factor)				2.32442	
Derating Factor				X 1.2	
TOTAL AMPERE HOURS REQUIRED				2.78930	
BATTERIES TO BE PROVIDED (2 - 12v)				7 AH	

NAC Circuit Voltage Drop Calculation					7/16/2013
Project Name: 27 PEARL STREET					
Circuit Number: FPS1-1					
Nominal System Voltage	20.4 volts	Wire Gauge	Resistance Per 1000		
Minimum Device Voltage	16 volts	14	6.14		
Distance from source to 1st device	10	14	6.14		
Wire Gauge for balance of circuit		14	6.14		
Max Output Current	2.0 amps				
Total Circuit Current	0.827 amps				

Circuit is within limits					
Device	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.066		20.35	0.05	0%
Device 2	0.066	11	20.30	0.10	1%
Device 3	0.176	16	20.23	0.17	1%
Device 4	0.066	40	20.10	0.30	1%
Device 5	0.176	4	20.09	0.31	2%
Device 6	0.066	53	20.00	0.40	2%
Device 7	0.066	22	19.97	0.43	2%
Device 8	0.079	8	19.97	0.43	2%
Device 9	0.066	7	19.96	0.44	2%
Totals	0.827	171			

NAC Circuit Voltage Drop Calculation					7/16/2013
Project Name: 27 PEARL STREET					
Circuit Number: FPS1-2					
Nominal System Voltage	20.4 volts	Wire Gauge	Resistance Per 1000		
Minimum Device Voltage	16 volts	45	6.14		
Distance from source to 1st device	45	14	6.14		
Wire Gauge for balance of circuit		14	6.14		
Max Output Current	2.0 amps				
Total Circuit Current	0.971 amps				

Circuit is within limits					
Device	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.176		20.13	0.27	1%
Device 2	0.066	21	20.03	0.37	2%
Device 3	0.066	27	19.91	0.49	2%
Device 4	0.079	20	19.83	0.57	3%
Device 5	0.212	29	19.72	0.68	3%
Device 6	0.094	12	19.70	0.70	3%
Device 7	0.212	13	19.67	0.73	4%
Device 8	0.066	7	19.67	0.73	4%
Totals	0.971	174			

RESERVED FOR CITY STAMP

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27 PEARL STREET  
 PORTLAND, MAINE 04101  
 CALCULATIONS & FIRE ALARM PLAN

DRAWN	JPB UNICAD JOB #13372
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SCALE	1/8"=1'-0"

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