



RAM NORTH  
**FIRST FLOOR FIRE ALARM PLAN**  
 SCALE: 1/8"=1'-0"

RESERVED FOR CITY STAMP

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	1/24/2014
1	HUGO'S EXPANSION	9/8/2014

**CUNNINGHAM**  
**Security Systems**  
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**COMMERCIAL PROPERTIES, INC.**  
**80-90 MIDDLE STREET**  
**PORTLAND, MAINE 04101**  
**CALCS & FIRST FLOOR FIRE ALARM PLAN**

Drawn by: JPB  
 Checked by: WYNNE B. HANS  
 Date: 1/23/2014

**UNIGAD**  
 Fire Alarm Design & Drafting Services  
 574 W. 40th St.  
 Portland, ME 04102  
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**Existing FCP Battery Calculation** 9/5/2014

PROJECT NAME: 80 MIDDLE STREET  
 Required Standby Time: 24 Hours  
 Required Alarm Time: 5 Minutes

Device Type	Number of Devices	Current (amps)	Total Current (amps)
Existing MS-9050UD System	1	0.00030	0.00030
Existing SSS3 Smoke Detector	3	0.00023	0.00069
BC-12X Pull Station			0.00099
TOTAL STANDBY LOAD			
Regulated Load in Standby			
Number of Devices	Current (amps)	Total Current (amps)	
1	0.00030	0.00030	
3	0.00023	0.00069	
Regulated Load in ALARM			
Number of Devices	Current (amps)	Total Current (amps)	
1	0.00650	0.00650	
3	0.00530	0.01590	
TOTAL ALARM LOAD			
Battery Requirements			
Standby Load	0.00099	Required Standby Time in Hours	0.02376
Alarm Load	24.00000	Required Alarm Time in Hours	0.00179
Current (amps)	0.02150	Required Alarm Time in Hours	0.02355
Total Ampere Hours (before derating factor)			X
Derating Factor			1.2
TOTAL AMPERE HOURS REQUIRED			
			0.03066

**FPS1 Battery Calculation** 9/5/2014

PROJECT NAME: 80 MIDDLE STREET HUGO'S EXPANSION  
 Required Standby Time: 24 Hours  
 Required Alarm Time: 5 Minutes

AC Branch Current: 3.23 Amps @ 120V

Device Type	Number of Devices	Current (amps)	Total Current (amps)
FPS-24FS Main Circuit Board	1	0.06500	0.06500
TOTAL STANDBY LOAD			
Regulated Load in ALARM			
Number of Devices	Current (amps)	Total Current (amps)	
1	0.14500	0.14500	
1	1.02000	1.02000	
1	1.49700	1.49700	
TOTAL ALARM LOAD			
Battery Requirements			
Standby Load	0.06500	Required Standby Time in Hours	1.58000
Alarm Load	24.00000	Required Alarm Time in Hours	0.22200
Current (amps)	2.66400	Required Alarm Time in Hours	1.78200
Total Ampere Hours (before derating factor)			X
Derating Factor			1.2
TOTAL AMPERE HOURS REQUIRED			
			2.13840

**NAC Circuit Voltage Drop Calculation** 9/5/2014

Project Name: 80 MIDDLE STREET HUGO'S EXPANSION  
 Circuit Number: FPS1-1

Normal System Voltage: 20.4 volts  
 Maximum Device Voltage: 151 volts  
 Distance from source to 1st device: 10  
 Wire Gauge for balance of circuit: 14  
 Max Output Current: 2.0 amps  
 Total Circuit Current: 1.022 amps

Device	Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.2172	3	20.34	0.06	0%
Device 2	0.0665	40	20.32	0.08	0%
Device 3	0.0665	3	20.14	0.26	1%
Device 4	0.107	3	20.13	0.27	1%
Device 5	0.107	44	19.97	0.43	2%
Device 6	0.079	4	19.96	0.44	2%
Device 7	0.085	20	19.89	0.50	2%
Device 8	0.107	30	19.88	0.54	3%
Device 9	0.2172	180	19.82	0.58	3%

**NAC Circuit Voltage Drop Calculation** 1/24/2014

Project Name: 80 MIDDLE STREET  
 Circuit Number: FPS1-2

Normal System Voltage: 20.4 volts  
 Maximum Device Voltage: 151 volts  
 Distance from source to 1st device: 25  
 Wire Gauge for balance of circuit: 14  
 Max Output Current: 2.0 amps  
 Total Circuit Current: 1.497 amps

Device	Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.176	21	20.17	0.23	1%
Device 2	0.079	2	20.00	0.40	2%
Device 3	0.065	17	19.86	0.54	3%
Device 4	0.065	13	19.78	0.62	3%
Device 5	0.079	7	19.73	0.67	3%
Device 6	0.079	24	19.59	0.81	4%
Device 7	0.079	21	19.46	0.92	4%
Device 8	0.079	21	19.45	0.92	4%
Device 9	0.079	21	19.32	1.03	5%
Device 10	0.065	18	19.25	1.15	6%
Device 11	0.079	26	19.16	1.24	6%
Device 12	0.065	14	19.12	1.28	6%
Device 13	0.107	30	19.05	1.35	7%
Device 14	0.065	4	19.03	1.37	7%
Device 15	0.065	4	19.02	1.38	7%
Device 16	0.079	11	19.01	1.39	7%
Device 17	0.079	12	19.00	1.40	7%
Device 18	1.497	310			