

FACP Battery Calculation

PROJECT NAME: 608-610 CONGRESS STREET
 Required Standby Time: 24 Hours
 Required Alarm Time: 5 Minutes

Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
FACP - MS-9200DULS MAIN CIRCUIT BOARD	1	0.14500	0.14500
ANN-60W WITH FACP	1	0.01500	0.01500
ANN-60 REMOTE ANNUNCIATOR	1	0.01500	0.01500
SD355 SMOKE DETECTOR	19	0.00030	0.00570
H3555/H355R HEAT DETECTOR	30	0.00030	0.00900
MAF-301 MINI MONITOR MODULE	10	0.00038	0.00375
MAX ALARM DRAW - ALL ADDRESS DEVICES	1	0.00000	0.00000
TOTAL STANDBY LOAD			0.19345

Device Type	Number of Devices	Current (Amps)	Total Current (Amps)
FACP - MS-9200DULS MAIN CIRCUIT BOARD	1	0.27500	0.27500
ANN-60W WITH FACP	1	0.04000	0.04000
ANN-60 REMOTE ANNUNCIATOR	1	0.00000	0.00000
SD355 SMOKE DETECTOR	19	0.00000	0.00000
H3555/H355R HEAT DETECTOR	30	0.00000	0.00000
MAF-301 MINI MONITOR MODULE	10	0.00000	0.00000
MAX ALARM DRAW - ALL ADDRESS DEVICES	1	0.49500	0.49500
NAC-1 (See Voltage Drop Calculations)	1	0.90600	0.90600
NAC-2 (See Voltage Drop Calculations)	1	0.71400	0.71400
NAC-3 (See Voltage Drop Calculations)	1	0.71400	0.71400
NAC-4 (See Voltage Drop Calculations)	1	0.71400	0.71400
TOTAL ALARM LOAD			3.58400

Standby Load	Required Standby Time in Hours
Current (Amps)	0.19345 X 24.0000 = 4.64280
Alarm Load	Current (Amps) X Required Time in Hours = 0.9867
Total Amperes Hours (before derating factor)	0.68333 = 4.94147
Derating Factor	TOTAL AMPERE HOURS REQUIRED X = 5.92976
BATTERIES TO BE PROVIDED (2 - 12v)	7 AH

Point to Point NAC Voltage Drop Calculation

Project Name: 608-610 CONGRESS STREET
 Circuit Number: NAC-1

Device	Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop	Resistance Per 1000 Feet
Device 1	0.054	10	20.28	0.121	0.59%	
Device 2	0.074	10	20.24	0.164	0.80%	
Device 3	0.043	10	20.20	0.200	0.98%	
Device 4	0.043	5	20.18	0.216	1.06%	
Device 5	0.043	5	20.17	0.230	1.13%	
Device 6	0.074	15	20.14	0.265	1.30%	
Device 7	0.121	35	20.08	0.321	1.57%	
Device 8	0.043	30	20.07	0.333	1.63%	
Totals	0.495	135				

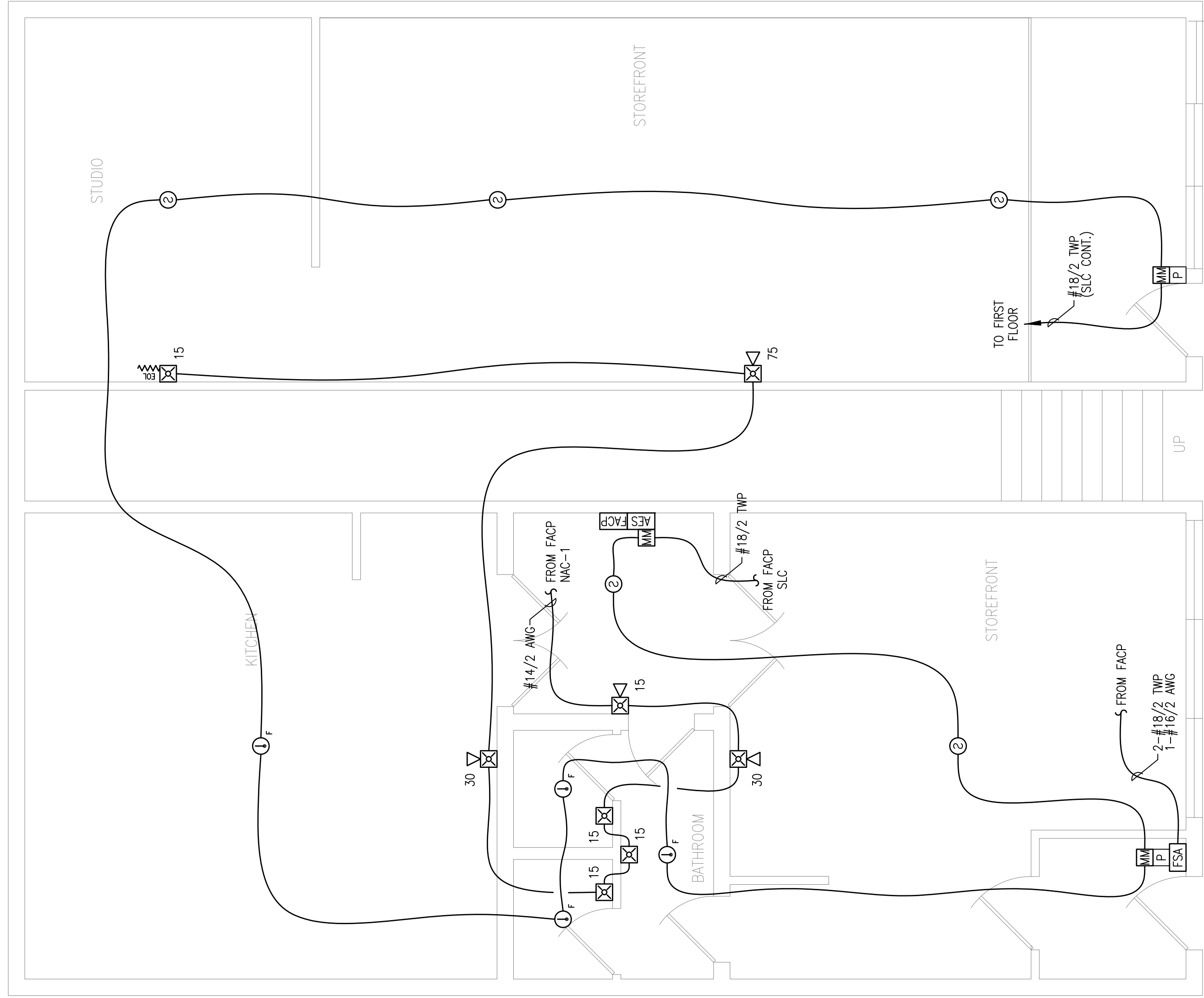
Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (E: rated operating voltage 16-33 VDC (24 VDC nominal)).

Point to Point NAC Voltage Drop Calculation

Project Name: 608-610 CONGRESS STREET
 Circuit Number: NAC-2

Device	Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop	Resistance Per 1000 Feet
Device 1	0.138	40	20.05	0.354	1.74%	
Device 2	0.054	15	19.93	0.467	2.29%	
Device 3	0.054	20	19.79	0.607	2.97%	
Device 4	0.138	20	19.66	0.736	3.61%	
Device 5	0.138	20	19.64	0.61	3.02%	
Device 6	0.054	20	19.44	0.966	4.74%	
Device 7	0.054	15	19.43	0.985	4.83%	
Device 8	0.138	10	19.41	0.985	4.83%	
Device 9	0.906	200	19.37	1.026	5.03%	
Totals						

Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (E: rated operating voltage 16-33 VDC (24 VDC nominal)).



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

Point to Point NAC Voltage Drop Calculation

Project Name: 608-610 CONGRESS STREET
 Circuit Number: NAC-3

Device	Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop	Resistance Per 1000 Feet
Device 1	0.138	60	19.98	0.419	2.05%	
Device 2	0.138	20	19.87	0.532	2.61%	
Device 3	0.054	25	19.76	0.639	3.13%	
Device 4	0.054	20	19.69	0.714	3.50%	
Device 5	0.054	25	19.61	0.795	3.89%	
Device 6	0.138	10	19.58	0.822	4.03%	
Device 7	0.138	25	19.54	0.855	4.19%	
Totals	0.714	185				

Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (E: rated operating voltage 16-33 VDC (24 VDC nominal)).

Point to Point NAC Voltage Drop Calculation

Project Name: 608-610 CONGRESS STREET
 Circuit Number: NAC-4

Device	Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop	Resistance Per 1000 Feet
Device 1	0.138	75	19.88	0.524	2.57%	
Device 2	0.138	20	19.76	0.636	3.12%	
Device 3	0.054	30	19.64	0.765	3.79%	
Device 4	0.054	20	19.56	0.840	4.12%	
Device 5	0.054	20	19.50	0.905	4.43%	
Device 6	0.138	15	19.45	0.945	4.60%	
Device 7	0.138	25	19.42	0.979	4.80%	
Totals	0.714	205				

Notes: Wire resistance is doubled in the calculations for two wires (Positive and Negative). The voltage calculated to the last device must not be lower than the manufactures listed minimum operating voltage (E: rated operating voltage 16-33 VDC (24 VDC nominal)).

REVISION	DESCRIPTION	DATE
0	ISSUED FOR REVIEW & APPROVAL	12/19/2017

SEACOAST SECURITY
 Office: (207) 706-3369 • Fax: (207) 865-0852
 4 Summer Street • Freeport, Maine 04032

608 & 610 CONGRESS STREET PORTLAND, MAINE 04101 CALCS & GROUND FLOOR FIRE ALARM PLAN

DRAWN	JPB UNICAD JOB #17820
CHECKED	BRADY B. HAWES NICET III 138751
DATE	12/19/2017
REVISION	0
SCALE	1/4"=1'-0"