

Point to Point NAC Voltage Drop Calculation 5/2/2016

Project Name: PLEASANT AVE., PORTLAND, ME
 Circuit Number: NAC-1

Nominal System Voltage: 20.4 volts
 Minimum Device Voltage: 16.0 volts
 Distance from source to 1st device: 10 feet
 Wire Gauge for balance of circuit: 14

Resistance Per 1000: 3.07
 Per 1000: 3.07

Max Output Current: 1.50 amps
 Total Circuit Current: 0.958 amps
 End of Line Voltage: 19.80 volts

Circuit is within limits

Device	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.176	10	20.34	0.061	0.30%
Device 2	0.212	18	20.25	0.150	0.74%
Device 3	0.212	39	20.11	0.294	1.44%
Device 4	0.176	120	19.82	0.580	2.84%
Device 5	0.212	12	19.80	0.596	2.92%

Totals: 0.958 199

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 (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).

Point to Point NAC Voltage Drop Calculation 5/2/2016

Project Name: PLEASANT AVE., PORTLAND, ME
 Circuit Number: FPS1-1

Nominal System Voltage: 20.4 volts
 Minimum Device Voltage: 16.0 volts
 Distance from source to 1st device: 25 feet
 Wire Gauge for balance of circuit: 14

Resistance Per 1000: 3.07
 Per 1000: 3.07

Max Output Current: 1.20 amps
 Total Circuit Current: 0.993 amps
 End of Line Voltage: 19.79 volts

Circuit is within limits

Device	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.138	15	20.17	0.26	1.1%
Device 2	0.138	12	20.17	0.26	1.1%
Device 3	0.079	25	20.02	0.336	1.65%
Device 4	0.079	12	20.02	0.333	1.65%
Device 5	0.066	24	19.93	0.465	2.28%
Device 6	0.138	22	19.87	0.532	2.61%
Device 7	0.138	19	19.83	0.573	2.81%
Device 8	0.079	9	19.81	0.585	2.87%
Device 9	0.138	24	19.79	0.606	2.97%

Totals: 0.993 174

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 (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).

Point to Point NAC Voltage Drop Calculation 5/2/2016

Project Name: PLEASANT AVE., PORTLAND, ME
 Circuit Number: FPS1-2

Nominal System Voltage: 20.4 volts
 Minimum Device Voltage: 16.0 volts
 Distance from source to 1st device: 50 feet
 Wire Gauge for balance of circuit: 14

Resistance Per 1000: 3.07
 Per 1000: 3.07

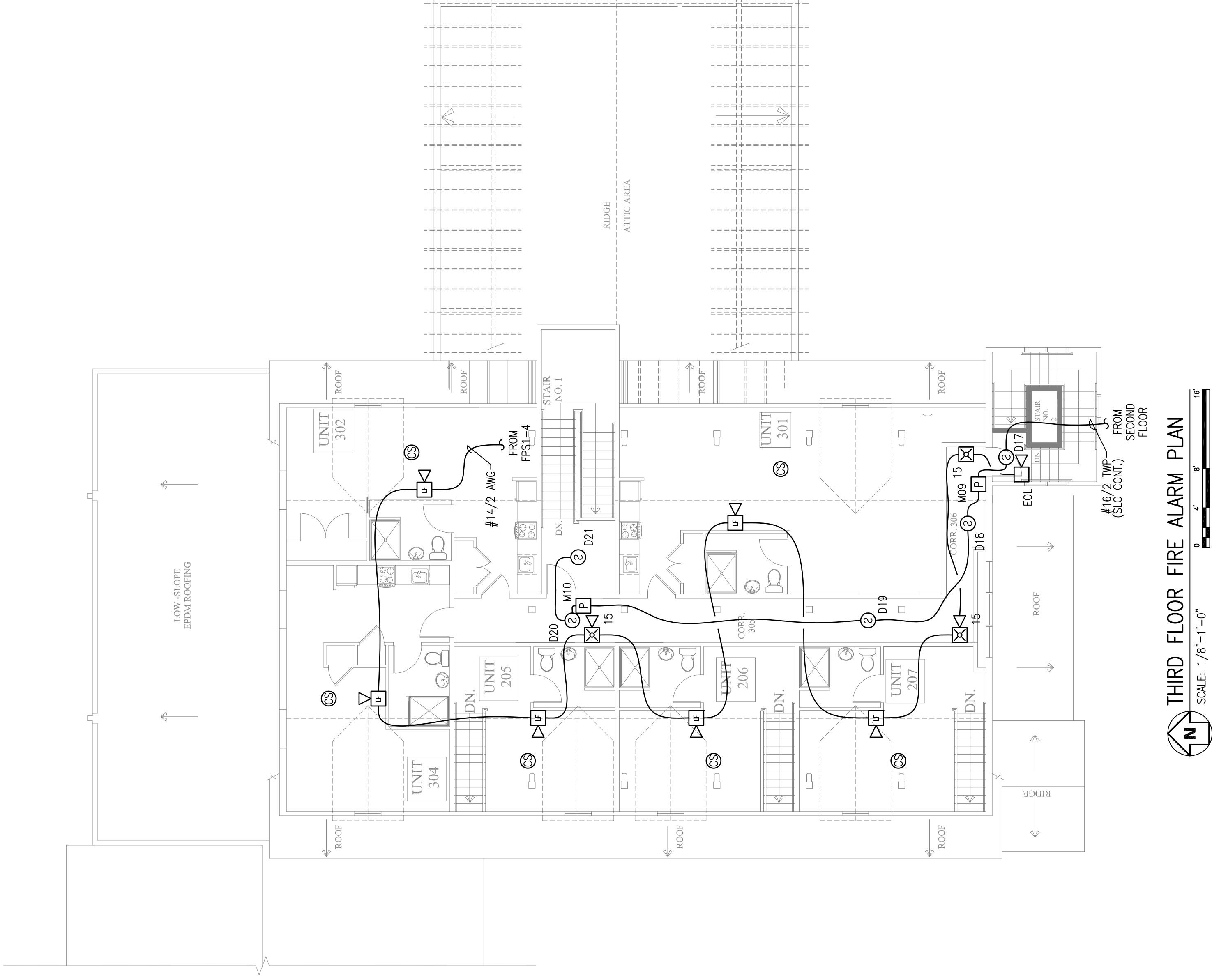
Max Output Current: 1.90 amps
 Total Circuit Current: 1.637 amps
 End of Line Voltage: 18.69 volts

Circuit is within limits

Device	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.138	50	19.90	0.503	2.46%
Device 2	0.079	12	19.79	0.613	3.00%
Device 3	0.138	13	19.67	0.726	3.56%
Device 4	0.079	20	19.52	0.884	4.33%
Device 5	0.079	10	19.44	0.958	4.69%
Device 6	0.138	27	19.26	1.144	5.61%
Device 7	0.138	26	19.10	1.301	6.38%
Device 8	0.079	27	18.90	1.390	6.81%
Device 9	0.138	20	18.74	1.444	7.19%
Device 10	0.138	29	18.86	1.519	7.45%
Device 11	0.138	34	18.78	1.622	7.95%
Device 12	0.079	11	18.75	1.646	8.07%
Device 13	0.138	30	18.70	1.697	8.32%
Device 14	0.138	12	18.69	1.707	8.37%

Totals: 1.637 291

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 (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).



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

RESERVED FOR CITY STAMP

5/2/2016

Point to Point NAC Voltage Drop Calculation 5/2/2016

Project Name: PLEASANT AVE., PORTLAND, ME
 Circuit Number: FPS1-3

Nominal System Voltage: 20.4 volts
 Minimum Device Voltage: 16.0 volts
 Distance from source to 1st device: 45 feet
 Wire Gauge for balance of circuit: 14

Resistance Per 1000: 3.07
 Per 1000: 3.07

Max Output Current: 1.65 amps
 Total Circuit Current: 1.476 amps
 End of Line Voltage: 18.99 volts

Circuit is within limits

Device	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.138	45	19.89	0.446	2.10%
Device 2	0.138	18	19.83	0.474	2.30%
Device 3	0.138	16	19.80	0.597	2.93%
Device 4	0.138	26	19.62	0.776	3.80%
Device 5	0.066	22	19.49	0.909	4.46%
Device 6	0.066	12	19.42	0.977	4.79%
Device 7	0.079	25	19.29	1.107	5.42%
Device 8	0.138	9	19.25	1.149	5.63%
Device 9	0.138	21	19.17	1.231	6.03%
Device 10	0.079	25	19.09	1.306	6.40%
Device 11	0.079	19	19.05	1.355	6.64%
Device 12	0.138	12	19.03	1.375	6.74%
Device 13	0.138	36	18.99	1.405	6.89%

Totals: 1.476 276

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 (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).

Point to Point NAC Voltage Drop Calculation 5/2/2016

Project Name: PLEASANT AVE., PORTLAND, ME
 Circuit Number: FPS1-4

Nominal System Voltage: 20.4 volts
 Minimum Device Voltage: 16.0 volts
 Distance from source to 1st device: 70 feet
 Wire Gauge for balance of circuit: 14

Resistance Per 1000: 3.07
 Per 1000: 3.07

Max Output Current: 1.25 amps
 Total Circuit Current: 1.121 amps
 End of Line Voltage: 19.36 volts

Circuit is within limits

Device	Device Current	Distance previous device	Voltage at Device	Drop from source	Percent Drop
Device 1	0.138	70	19.92	0.482	2.36%
Device 2	0.138	25	19.77	0.633	3.10%
Device 3	0.138	18	19.67	0.726	3.56%
Device 4	0.079	13	19.62	0.783	3.84%
Device 5	0.138	19	19.58	0.852	4.15%
Device 6	0.138	34	19.41	0.995	4.88%
Device 7	0.079	16	19.38	1.016	4.98%
Device 8	0.066	21	19.37	1.033	5.06%
Device 9	0.066	10	19.36	1.037	5.08%

Totals: 1.121 248

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 (IE: rated operating voltage 16-33 VDC (24 VDC nominal)).