

# NAC Circuit Voltage Drop Calculation

Project Name	Carlton Court		
Date	1/2/2013		
Circuit Number	1		
Area Covered	Front of Building		
NAC Source Alarm Voltage	20.4	Wire Gauge	Resistance
Minimum Device Voltage	16	14	Per MFt Cable
Distance to first appliance	25		5.84
Total Circuit Current	0.908		

Wire Gauge for balance of circuit	14	5.84
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Circuit is within limits	Device Current	Distance from previous device	Voltage at Device	Drop from source	Percent Drop
Appliance	0.044		20.27	0.13	0.6%
Appliance	0.078	15	20.19	0.21	1.0%
Appliance	0.078	15	20.12	0.28	1.4%
Appliance	0.064	15	20.06	0.34	1.7%
Appliance	0.044	15	20.00	0.40	1.9%
Appliance	0.044	25	19.92	0.48	2.4%
Appliance	0.078	15	19.87	0.53	2.6%
Appliance	0.078	15	19.83	0.57	2.8%
Appliance	0.044	15	19.79	0.61	3.0%
Appliance	0.078	15	19.76	0.64	3.1%
Appliance	0.078	25	19.72	0.68	3.3%
Appliance	0.044	15	19.70	0.70	3.4%
Appliance	0.078	15	19.69	0.71	3.5%
Appliance	0.078	15	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
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END	0.000	0	19.68	0.72	3.5%
END	0.000	0	19.68	0.72	3.5%
Totals	0.908	240			

Appliance circuit voltage drop calculations start at "end of battery life" as NAC Source Alarm Voltage and use 20% below nameplate rating for Minimum Appliance Voltage.

Note. Wire resistance is based on the 1996 NEC Table 8 Uncoated DC resistance. Solid conductors except gauges 10 and 12 which are for stranded.

# NAC Circuit Voltage Drop Calculation

Project Name	Carlton Court		
Date	1/2/2013		
Circuit Number	2		
Area Covered	Left Basement & Left Rear Stair		
NAC Source Alarm Voltage	20.4	Wire Gauge	Resistance
Minimum Device Voltage	16	14	Per Mft Cable
Distance to first appliance	40		5.84
Total Circuit Current	0.625		

Wire Gauge for balance of circuit	14	5.84
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Circuit is within limits	Device Current	Distance from previous device	Voltage at Device	Drop from source	Percent Drop
Appliance	0.259		20.25	0.15	0.7%
Appliance	0.078	50	20.15	0.25	1.2%
Appliance	0.044	15	20.12	0.28	1.4%
Appliance	0.078	25	20.09	0.31	1.5%
Appliance	0.044	15	20.07	0.33	1.6%
Appliance	0.078	25	20.05	0.35	1.7%
Appliance	0.044	15	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
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END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
Totals	0.625	185			

Appliance circuit voltage drop calculations start at "end of battery life" as NAC Source Alarm Voltage and use 20% below nameplate rating for Minimum Appliance Voltage.

Note. Wire resistance is based on the 1996 NEC Table 8 Uncoated DC resistance. Solid conductors except gauges 10 and 12 which are for stranded.

## NAC Circuit Voltage Drop Calculation

Project Name	Carlton Court		
Date	1/2/2013		
Circuit Number	3		
Area Covered	Right Basement & Right Rear Stair		
NAC Source Alarm Voltage	20.4	Wire Gauge	Resistance
Minimum Device Voltage	16	14	Per MFt Cable
Distance to first appliance	40		5.84
Total Circuit Current	0.625		

Wire Gauge for balance of circuit	14	5.84
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Circuit is within limits	Device Current	Distance from previous device	Voltage at Device	Drop from source	Percent Drop
Appliance	0.259		20.25	0.15	0.7%
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Appliance	0.044	15	20.07	0.33	1.6%
Appliance	0.078	25	20.05	0.35	1.7%
Appliance	0.044	15	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
END	0.000	0	20.05	0.35	1.7%
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END	0.000	0	20.05	0.35	1.7%
Totals	0.625	185			

Appliance circuit voltage drop calculations start at "end of battery life" as NAC Source Alarm Voltage and use 20% below nameplate rating for Minimum Appliance Voltage.

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# Siemens FACP Battery Calculations

Job Name: Carlton Court

Date: 1/2/2013

	STANDBY	ALARM
<b>TOTAL SYSTEM CURRENT</b>	<b>0.376</b>	<b>1.728</b>

TOTAL FACP BATTERY CALCULATIONS			
<b>TOTAL STANDBY CURRENT</b>	<b>A/H REQ'D</b>		<b>A/H STANDBY</b>
0.376 Amps X	24	HRS.	<b>9.034</b>
<b>TOTAL ALARM CURRENT</b>	<b>A/H REQ'D</b>		<b>A/H ALARM</b>
1.728 Amps X	5	MIN.	<b>0.180</b>

<b>Required Battery Capacity</b>	<b>9.214</b>
Always use a battery with higher AH rating than required.	

**BATTERY SUPPLIED: 2x12 AH**