

NAC Circuit Voltage Drop Calculation

Project Name	Safelite Glass		
Date	5/15/16		
Circuit Number	NAC #1		
Area Covered	Office		
NAC Source Alarm Voltage	20.4	Wire Gauge 14	Resistance Per MFt Cable 5.84
Minimum Device Voltage	16		
Distance to first appliance	50		
Total Circuit Current	0.337		

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 1	0.195		20.30	0.10	0.5%
Appliance 2	0.064	40	20.27	0.13	0.6%
Appliance 3	0.078	35	20.25	0.15	0.7%
END			20.25	0.15	0.7%
END			20.25	0.15	0.7%
END			20.25	0.15	0.7%
END			20.25	0.15	0.7%
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END			20.25	0.15	0.7%
END			20.25	0.15	0.7%
END			20.25	0.15	0.7%
END			20.25	0.15	0.7%
END			20.25	0.15	0.7%
Totals	0.337	125			

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	Safelite Glass		
Date	5/15/16		
Circuit Number	NAC #2		
Area Covered	Office		
NAC Source Alarm Voltage	20.4	Wire Gauge 14	Resistance Per MFt Cable 5.84
Minimum Device Voltage	16		
Distance to first appliance	50		
Total Circuit Current	0.563		

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 1	0.064		20.24	0.16	0.8%
Appliance 2	0.064	25	20.16	0.24	1.2%
Appliance 3	0.064	40	20.06	0.34	1.7%
Appliance 4	0.098	25	20.01	0.39	1.9%
Appliance 5	0.078	35	19.95	0.45	2.2%
Appliance 6	0.195	25	19.92	0.48	2.3%
END			19.92	0.48	2.3%
END			19.92	0.48	2.3%
END			19.92	0.48	2.3%
END			19.92	0.48	2.3%
END			19.92	0.48	2.3%
END			19.92	0.48	2.3%
END			19.92	0.48	2.3%
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END			19.92	0.48	2.3%
END			19.92	0.48	2.3%
END			19.92	0.48	2.3%
END			19.92	0.48	2.3%
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END			19.92	0.48	2.3%
END			19.92	0.48	2.3%
END			19.92	0.48	2.3%
END			19.92	0.48	2.3%
END			19.92	0.48	2.3%
Totals	0.563	200			

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	Safelite Glass		
Date	5/15/16		
Circuit Number	NAC #3		
Area Covered	Warehouse		
NAC Source Alarm Voltage	20.4	Wire Gauge	Resistance Per MFt Cable
Minimum Device Voltage	16		
Distance to first appliance	100		
Total Circuit Current	1.323		
		14	5.84

Wire Gauge for balance of circuit	14	5.84
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	Device Current	Distance from previous device	Voltage at Device	Drop from source	Percent Drop
Circuit is within limits					
Appliance 1	0.200		19.63	0.77	3.8%
Appliance 2	0.200	125	18.81	1.59	7.8%
Appliance 3	0.200	125	18.13	2.27	11.1%
Appliance 4	0.264	125	17.61	2.79	13.7%
Appliance 5	0.264	125	17.27	3.13	15.3%
Appliance 6	0.195	125	17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
END			17.13	3.27	16.0%
Totals	1.323	725			

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	Safelite Glass		
Date	5/15/16		
Circuit Number	NAC #4		
Area Covered	Warehouse		
NAC Source Alarm Voltage	20.4	Wire Gauge 14	Resistance Per MFt Cable 5.84
Minimum Device Voltage	16		
Distance to first appliance	150		
Total Circuit Current	1.323		

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 1	0.200		19.24	1.16	5.7%
Appliance 2	0.200	125	18.42	1.98	9.7%
Appliance 3	0.200	125	17.75	2.65	13.0%
Appliance 4	0.264	125	17.22	3.18	15.6%
Appliance 5	0.264	125	16.88	3.52	17.2%
Appliance 6	0.195	125	16.74	3.66	17.9%
END			16.74	3.66	17.9%
END			16.74	3.66	17.9%
END			16.74	3.66	17.9%
END			16.74	3.66	17.9%
END			16.74	3.66	17.9%
END			16.74	3.66	17.9%
END			16.74	3.66	17.9%
END			16.74	3.66	17.9%
END			16.74	3.66	17.9%
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END			16.74	3.66	17.9%
END			16.74	3.66	17.9%
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END			16.74	3.66	17.9%
END			16.74	3.66	17.9%
END			16.74	3.66	17.9%
Totals	1.323	775			

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.