

Cable Size

What does the size of wire have to do with 12 Volt Lighting?

Ohms law will show that higher amperage is found in Low Voltage runs. N.E.C. Article 411 limits runs to 25 amps or 300 watts in a single 12 Volt system ($12V \times 25A = 300W$).

A 50 foot run of 300 W using #12 wire has a Volt Drop of 2.0V, even with # 10 the Drop is 1.25. Voltage drop is caused by the resistance in the wire to the flow of electricity. This is why we list and stock wire as large as # 8.

Some Contractors have had excess Voltage drop because they were using some non UL stranded electrical wire. Depending on size 19 or 21 strands. This wire is stiffer and normally cheaper. Voltage drop is dramatically increased when "skinning" by cutting off only one strand the result is a loss of 14% of the rated amperage. This loss amounts to 34 Watts of current carrying capacity. End result, you are trying to push 20 Amps through wire that can only carry 17 Amps.

Every once in a while it is a good idea to check your cable supplier for accuracy. This is the requirements for N.E.C. cable specs.

Wire Size	# Strands	Size of each Strand
# 18	16	.010cm # 30 awg
# 16	26	.010cm
# 14	41	.010cm
# 12	65	.010cm
# 10	104	.010 cm
# 8	168	.010cm