

Electrical Wiring Based on the 2017 Wiring Methods & Materials Laminated Quick Card

ELECTRICAL WIRING
BOOK OF THE NATIONAL ELECTRICAL CODE
 WIRING METHODS & MATERIALS

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GENERAL REQUIREMENTS FOR ALL WIRING - SIZES & CLEARANCES

PROTECTION AGAINST PHYSICAL DAMAGE NEC 300.45

Cables, wires and cables, exposed and concealed, must be protected against physical damage.

Cable or raceway edge running through holes in walls, partitions, or steel members

- Edge must be rounded so that the hole is not less than 1/8" from the nearest edge of the cable or cable tray.
- Cable or raceway must be supported, clear of sharp protrusions, 1/2" from the hole.

Cable or raceway permitted to be laid in voids in steel walls, partitions, or other steel members

- Must be protected by steel fasteners or steel protection covering of metal.

Nonmetallic sheathed cables passing through factory or field-purchased, cast or drilled walls or joists in steel

- Must be protected by steel fasteners or steel protection covering of metal.

Nonmetallic sheathed cables and Electrical Nonmetallic Tubing that is likely to be punctured by nails or screws

- Must be protected by steel cover, steel plate or steel plate 1/8" thick.

Cable or raceway run wiring installed parallel to existing overhead wiring

- Cable or raceway must be installed and supported so that the nearest support is 1/2" from the edge of the cable or raceway to not less than 1/2" from the nearest edge of the existing overhead wiring.

Cable, tubing, or raceway under suspended ceiling

- Must be supported and protected as follows:

CONDUCTORS IN VERTICAL RACEWAYS - SUPPORT METHODS NEC 300.37

One of the following methods of support must be used:

- The vertical electric conductor is supported by a cable or cable tray at the ends of the run.
- The vertical electric conductor is supported by a cable or cable tray at the ends of the run and by a support member in between for the length of the conductor.
- The vertical electric conductor is supported by a cable or cable tray at the ends of the run and by a support member in between for the length of the run.

SIZES FOR CONDUCTOR SUPPORTS NEC 300.37

CONDUCTOR SIZE	SUPPORT OR CONDUCTOR IN RACEWAY	MINIMUM CLEARANCE			
		DOWN	UP	DOWN	UP
14 AWG through 12 AWG	Steel plate	1/8"	1/8"	1/8"	1/8"
10 AWG through 6 AWG	Steel plate	1/8"	1/8"	1/8"	1/8"
4 AWG through 2 AWG	Steel plate	1/8"	1/8"	1/8"	1/8"
1/2" through 3/4"	Steel plate	1/8"	1/8"	1/8"	1/8"
1" through 2"	Steel plate	1/8"	1/8"	1/8"	1/8"
3" through 4"	Steel plate	1/8"	1/8"	1/8"	1/8"
6" through 8"	Steel plate	1/8"	1/8"	1/8"	1/8"
10" through 12"	Steel plate	1/8"	1/8"	1/8"	1/8"
14" through 18"	Steel plate	1/8"	1/8"	1/8"	1/8"
24" through 36"	Steel plate	1/8"	1/8"	1/8"	1/8"
48" through 72"	Steel plate	1/8"	1/8"	1/8"	1/8"
96" through 120"	Steel plate	1/8"	1/8"	1/8"	1/8"
144" through 180"	Steel plate	1/8"	1/8"	1/8"	1/8"
240" through 300"	Steel plate	1/8"	1/8"	1/8"	1/8"
360" through 480"	Steel plate	1/8"	1/8"	1/8"	1/8"
720" through 960"	Steel plate	1/8"	1/8"	1/8"	1/8"
1440" through 1800"	Steel plate	1/8"	1/8"	1/8"	1/8"
2880" through 3600"	Steel plate	1/8"	1/8"	1/8"	1/8"
5760" through 7200"	Steel plate	1/8"	1/8"	1/8"	1/8"
11520" through 14400"	Steel plate	1/8"	1/8"	1/8"	1/8"
23040" through 28800"	Steel plate	1/8"	1/8"	1/8"	1/8"
46080" through 57600"	Steel plate	1/8"	1/8"	1/8"	1/8"
92160" through 115200"	Steel plate	1/8"	1/8"	1/8"	1/8"
184320" through 230400"	Steel plate	1/8"	1/8"	1/8"	1/8"
368640" through 460800"	Steel plate	1/8"	1/8"	1/8"	1/8"
737280" through 921600"	Steel plate	1/8"	1/8"	1/8"	1/8"
1474560" through 1843200"	Steel plate	1/8"	1/8"	1/8"	1/8"
2949120" through 3686400"	Steel plate	1/8"	1/8"	1/8"	1/8"
5898240" through 7372800"	Steel plate	1/8"	1/8"	1/8"	1/8"
11796480" through 14745600"	Steel plate	1/8"	1/8"	1/8"	1/8"
23592960" through 29491200"	Steel plate	1/8"	1/8"	1/8"	1/8"
47185920" through 58982400"	Steel plate	1/8"	1/8"	1/8"	1/8"
94371840" through 117964800"	Steel plate	1/8"	1/8"	1/8"	1/8"
188743680" through 235929600"	Steel plate	1/8"	1/8"	1/8"	1/8"
377487360" through 471859200"	Steel plate	1/8"	1/8"	1/8"	1/8"
754974720" through 943718400"	Steel plate	1/8"	1/8"	1/8"	1/8"
1509949440" through 1887436800"	Steel plate	1/8"	1/8"	1/8"	1/8"
3019898880" through 3774873600"	Steel plate	1/8"	1/8"	1/8"	1/8"
6039797760" through 7549747200"	Steel plate	1/8"	1/8"	1/8"	1/8"
12079595520" through 15099494400"	Steel plate	1/8"	1/8"	1/8"	1/8"
24159191040" through 30198988800"	Steel plate	1/8"	1/8"	1/8"	1/8"
48318382080" through 60397977600"	Steel plate	1/8"	1/8"	1/8"	1/8"
96636764160" through 120795955200"	Steel plate	1/8"	1/8"	1/8"	1/8"
193273528320" through 241591910400"	Steel plate	1/8"	1/8"	1/8"	1/8"
386547056640" through 483183820800"	Steel plate	1/8"	1/8"	1/8"	1/8"
773094113280" through 966367641600"	Steel plate	1/8"	1/8"	1/8"	1/8"
1546188226560" through 1932735283200"	Steel plate	1/8"	1/8"	1/8"	1/8"
3092376453120" through 3865470566400"	Steel plate	1/8"	1/8"	1/8"	1/8"
6184752906240" through 7730941132800"	Steel plate	1/8"	1/8"	1/8"	1/8"
12369505812480" through 15461882265600"	Steel plate	1/8"	1/8"	1/8"	1/8"
24739011624960" through 30923764531200"	Steel plate	1/8"	1/8"	1/8"	1/8"
49478023249920" through 61847529062400"	Steel plate	1/8"	1/8"	1/8"	1/8"
98956046499840" through 123695058124800"	Steel plate	1/8"	1/8"	1/8"	1/8"
197912092999680" through 247390116249600"	Steel plate	1/8"	1/8"	1/8"	1/8"
395824185999360" through 494780232499200"	Steel plate	1/8"	1/8"	1/8"	1/8"
791648371998720" through 989560464998400"	Steel plate	1/8"	1/8"	1/8"	1/8"
1583296743997440" through 1979120929993600"	Steel plate	1/8"	1/8"	1/8"	1/8"
3166593487994880" through 3958241859993600"	Steel plate	1/8"	1/8"	1/8"	1/8"
6333186975989760" through 7916483719987200"	Steel plate	1/8"	1/8"	1/8"	1/8"
12666373951979520" through 15832967439948800"	Steel plate	1/8"	1/8"	1/8"	1/8"
25332747903959040" through 31665934879948800"	Steel plate	1/8"	1/8"	1/8"	1/8"
50665495807918080" through 63331869759897600"	Steel plate	1/8"	1/8"	1/8"	1/8"
101330991615836160" through 126663739519795200"	Steel plate	1/8"	1/8"	1/8"	1/8"
202661983231672320" through 253327479039590400"	Steel plate	1/8"	1/8"	1/8"	1/8"
405323966463344640" through 506654958079180800"	Steel plate	1/8"	1/8"	1/8"	1/8"
810647932926689280" through 1013309916158361600"	Steel plate	1/8"	1/8"	1/8"	1/8"
1621295865853378560" through 2026619832316723200"	Steel plate	1/8"	1/8"	1/8"	1/8"
3242591731706757120" through 4053239664633446400"	Steel plate	1/8"	1/8"	1/8"	1/8"
6485183463413514240" through 8106479329266892800"	Steel plate	1/8"	1/8"	1/8"	1/8"
12970366926827028480" through 16212958658533785600"	Steel plate	1/8"	1/8"	1/8"	1/8"
25940733853654056960" through 32425917317067571200"	Steel plate	1/8"	1/8"	1/8"	1/8"
51881467707308113920" through 64851834634135142400"	Steel plate	1/8"	1/8"	1/8"	1/8"
103762935414616227840" through 129703669268270284800"	Steel plate	1/8"	1/8"	1/8"	1/8"
207525870829232455680" through 259407338536540569600"	Steel plate	1/8"	1/8"	1/8"	1/8"
415051741658464911360" through 518814677073081139200"	Steel plate	1/8"	1/8"	1/8"	1/8"
830103483316929822720" through 1037629354146162278400"	Steel plate	1/8"	1/8"	1/8"	1/8"
1660206966633859645440" through 2075258708292324556800"	Steel plate	1/8"	1/8"	1/8"	1/8"
3320413933267719290880" through 4150517416584649113600"	Steel plate	1/8"	1/8"	1/8"	1/8"
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212506517329142034616320" through 265633146661417543270400"	Steel plate	1/8"	1/8"	1/8"	1/8"
425013034658284069232640" through 531266293322835086540800"	Steel plate	1/8"	1/8"	1/8"	1/8"
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2281771354802144468764742199840000" through 28522141937026805859559285248000000"	Steel plate	1/8"	1/8"	1/8"	1/8"
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9127085419208577775058968799360000" through 114088567740107223438237140992000000"	Steel plate	1/8"	1/8"	1/8"	1/8"
18254170838417155550117917599840000" through 228177135480214446876474219984000000"	Steel plate	1/8"	1/8"	1/8"	1/8"
365083416768343111100235831999680000" through 456354270960428893752948439968000000"	Steel plate	1/8"	1/8"	1/8"	1/8"
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