

Chapter E 346

RIGID METAL CONDUIT

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Note: Where conduit is threaded in the field, it is assumed that a standard conduit cutting die providing $\frac{3}{4}$ inch taper per foot will be employed.

E 346.01 Use. (1) Rigid metal conduit may be used under all atmospheric conditions and occupancies, except that ferrous raceways and fittings protected from corrosion solely by enamel may be used only indoors and in occupancies not subject to severe corrosive influences. Where practicable dissimilar metals in contact anywhere in the system shall be avoided to eliminate the possibility of galvanic action.

(2) Unless made of a material judged suitable for the condition, or unless corrosion protection approved for the condition is provided, ferrous or non-ferrous metallic conduit, elbows, couplings, and fittings shall not be installed in concrete or in direct contact with the earth, or in areas subject to severe corrosive influences.

Note: See section E 300.05 for limitation in the use of ferrous raceways and fittings protected from corrosion solely by enamel.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 346.02 Other chapters. Installations of rigid metal conduit shall comply with the provisions of the applicable rules of chapter E 300.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

A. INSTALLATION

E 346.03 Cinder fill. Conduit, unless of corrosion-resistant material suitable for the purpose shall not be used in or under cinder fill where subject to permanent moisture unless protected on all sides by a layer of non-cinder concrete at least 2 inches thick or unless the conduit is at least 18 inches under the fill.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 346.04 Wet locations. All supports, bolts, straps, screws, etc., shall be of corrosion-resistant materials or protected against corrosion by approved corrosion-resistant materials.

Note: See section E 300.05.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 346.05 Minimum size. No conduit smaller than ½ inch, electrical trade size, shall be used, except as provided for underplaster extensions in chapter E 344, and for enclosing the leads of motors as permitted in section E 430.145 (2).

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 346.06 Number of conductors in conduit. The number of conductors permitted in a single conduit shall be as follows:

(1) **NEW WORK.** (a) Where conductors are all of the same size, use tables 1 and 2 of Wis. Adm. Code chapter E 900.

(b) Where conductors are of various sizes to be used in combination, use tables 3 and 4 of chapter E 900 and the dimensions of column 3 of table 5 of chapter E 900. Where bare conductors are permitted by other sections of this code, the dimensions for bare conductors in table 8 of chapter E 900 may be used.

(2) **REWIRING EXISTING CONDUITS.** (a) For rewiring existing conduits where conductors are all of the same size use tables 1, 1A and 1B of chapter E 900.

(b) Where conductors are of various sizes to be used in combination use tables 3 and 4 of chapter E 900 and the dimensions of column 3, 5, or 7 of table 5, chapter E 900.

(3) **BARE CONDUCTORS.** Where bare conductors are permitted by other sections of this code, the dimensions for bare conductors in table 8 of chapter E 900 may be used.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 346.07 Reaming. All cut ends of conduits shall be reamed to remove rough edges.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 346.08 Bushings. Where a conduit enters a box or other fitting, a bushing shall be provided to protect the wire from abrasion unless the design of the box or fitting is such as to afford equivalent protection. See section E 373.06 (2) for the protection of conductors at bushings.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 346.09 Couplings. (1) Threadless couplings and connectors used with conduit shall be made tight. Where installed in wet places or where buried in masonry, concrete or fill shall be of a type to prevent water from entering the conduit.

(2) Running threads shall not be used on conduit for connection at couplings.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 346.10 Bends; how made. Bends of rigid conduit shall be so made that the conduit will not be injured, and that the internal diameter

of the conduit will not be effectively reduced. The radius of the curve of the inner edge of any field bend shall not be less than shown in table E 346.10.

TABLE E 346.10
RADIUS OF CONDUIT BENDS

Size of Conduit	Conductors Without Lead Sheath	Conductors With Lead Sheath
1/2 in.-----	4 in.	6 in.
3/4 in.-----	5 in.	8 in.
1 in.-----	6 in.	11 in.
1 1/4 in.-----	8 in.	14 in.
1 1/2 in.-----	10 in.	16 in.
2 in.-----	12 in.	21 in.
2 1/2 in.-----	15 in.	25 in.
3 in.-----	18 in.	31 in.
3 1/2 in.-----	21 in.	36 in.
4 in.-----	24 in.	40 in.
5 in.-----	30 in.	50 in.
6 in.-----	36 in.	61 in.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 346.11 Bends; number in one run. A run of conduit between outlet and outlet, between fitting and fitting, or between outlet and fitting shall not contain more than the equivalent of 4 quarter bends (360 degrees, total), including those bends located immediately at the outlet or fitting.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 346.12 Supports. See section E 300.11.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

E 346.13 Boxes and fittings. See chapter E 370.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.

B. CONSTRUCTION SPECIFICATIONS

E 346.14 General. Rigid metal conduit shall conform to the following:

(1) Rigid conduit as shipped shall be in standard lengths of 10 feet including coupling, one coupling to be furnished with each length. Each length shall be reamed and threaded on each end. For specific applications or uses, lengths shorter or longer than 10 feet, with or without couplings, may be shipped.

(2) Steel conduit shall have an interior coating of a character and appearance so as to readily distinguish it from ordinary pipe commonly used for other than electrical purposes.

(3) Nonferrous conduit of corrosion-resistant material shall have suitable markings.

(4) Each length shall be clearly and durably identified in every 10 feet with the manufacturer's name or trademark and type of material.

History: Cr. Register, January, 1968, No. 145, eff. 2-1-68.