



FROM: Sales Development – Codes and Standards Division

FROM: Paul W Abernathy- Codes and Standards

DATE: 5/19/2020

RE: Bending Radius Information

Encore Wire Corporation is a leader in the production of copper and aluminum building wire and cable utilized in a variety of construction applications. This technical document addresses an inquiry regarding the bending radius requirements on individual single insulated conductors, twisted, plexed, or installed in parallel within raceways.

The *National Electrical Code (NEC)* has specific requirements in various articles addressing raceways and cable assemblies. In raceways, such as, but not limited to, Electrical Metallic Tubing (Article 358), Rigid Metal Conduit (Article 334), Intermediate Metal Conduit (Article 342) the number (sum) of total bends between installed pull points shall not exceed 360 degrees as stated in section 26 of the aforementioned NEC references. Encore Wire supports the raceway and cable assembly bend limitation when it pertains to the conductors being installed in raceways and cable assemblies.

Within cable assemblies, the minimum maintained bending radius is also specified in various code articles, such as but not limited to, Metal-Clad Cable (Article 330), Armored Cable (Article 320) and Non-metallic Sheathed Cable (Article 334) as documented within section 24 of those referenced article.

Outside of raceways and/or cable assemblies; Encore Wire provides recommendations the maintained minimum bending radius values as shown below for single insulated conductors rated 1000V or less. These values apply to Single Insulated Conductors, such as but not limited to THHN/THWN-2 and XHHW-2.

Note: The installation of single insulated conductors on standard production reels, both wooden or plastic, do not violate the recommended values expressed below.

14 AWG through 4/0 AWG: 6 x O.D. of largest individual insulated conductor

250 KCMIL through 500 KCMIL: 7 x O.D. of largest individual insulated conductor

600 KCMIL through 1000 KCMIL: 8 x O.D. of largest individual insulated conductor

Notice: Where installations do not conform to the recommendations provided contact Codes and Standards at Codes@EncoreWire.com for additional manufacturer consultation.

Best regards,

Paul W. Abernathy, CMI®, CMECP®

Manager of Codes and Standards

Encore Wire

1-972-562-9473 ext. 637