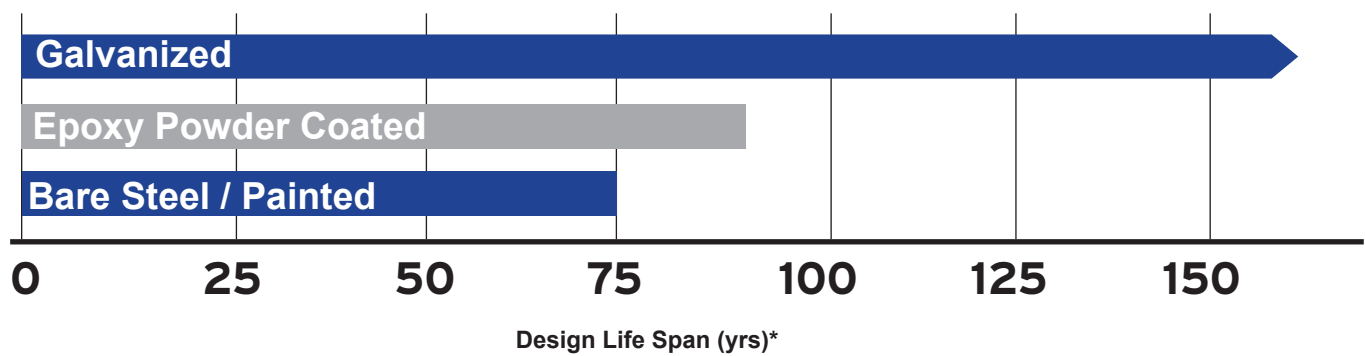
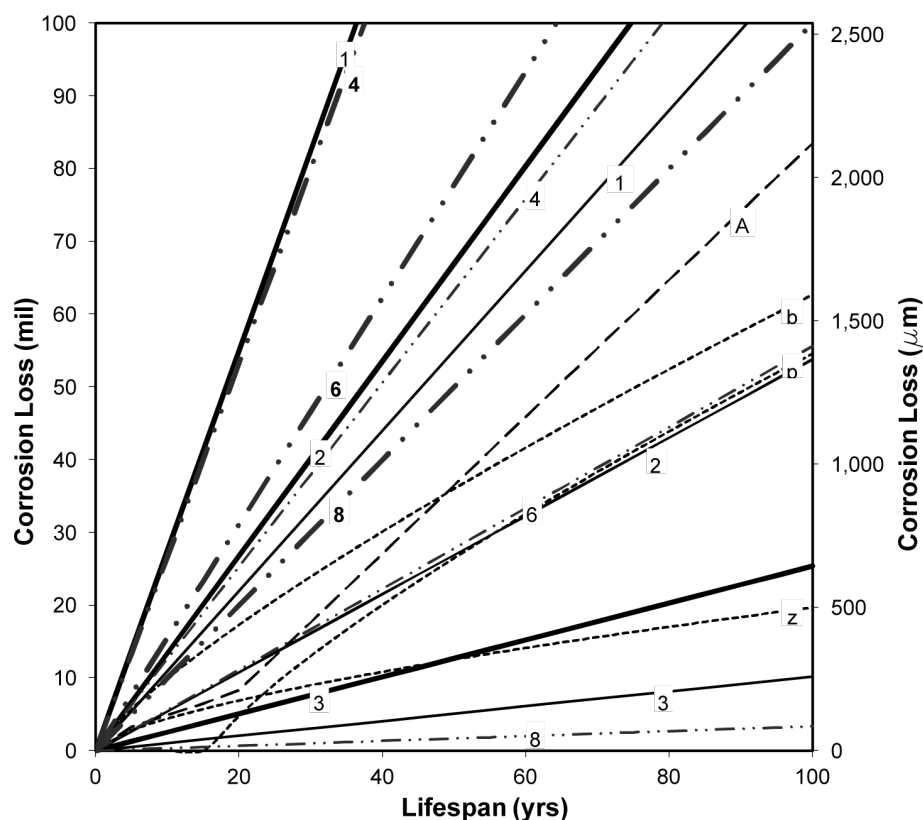


Foundation Products Corrosion and Life Expectancy



Structural capacities and section properties shown in this catalog are based on a design lifespan of 75 years in most soil conditions for bare steel or painted surfaces unless noted otherwise. Design lifespan can be extended 16 years by epoxy powder coating or more than doubled by hot-dip zinc galvanizing to ASTM A123/A153.

*Design lifespan is determined by back calculating the time required for a corrosion loss thickness of 50 mils using the rates of corrosion per ICC-ES Document AC308 Guidelines for Design of Helical Foundation Systems and Devices for moderate to highly corrosive soil conditions. Design lifespan is considerably shorter in conditions indicative of severe pile corrosion. Severe pile corrosion conditions are defined by soil resistivity less than 1,000 ohm-cm, soil pH less than 5.5, soils with high organic content, soils located in landfills, or soil containing mine waste. Design life also may be shortened for piles, anchors, caps and brackets exposed to atmosphere or in direct electrical contact with reinforcing steel or structural steel.



Alternative methods of corrosion loss calculation are available for varying soil conditions and with different building code authorities as shown in the table to the left from Perko (2009) Helical Piles: A Practical Guide to Design and Installation. Florida DOT and Canadian Building Codes provide other useful references.

MAGNUM® technical support personnel can provide assistance with regard to alternative corrosion loss calculation methods. MAGNUM® corrosion engineers should be consulted for severe corrosion conditions, for products exposed to atmosphere, and when product applications require direct contact with reinforcing bars or structural steel.

Perko (2004a), Bare Steel	—1— Severe	—2— Mod-High	—3— Low
Perko (2004a), Galvanized Steel	—1— Severe	—2— Mod-High	—3— Low
ICC-ES(2007)	---z--- Zinc	---b--- Bare	---p--- Powder
AASHTO (2004)	---A--- Zinc+Bras		
King (1977), 4,00 ohm-cm	—4— pH4	—6— pH6	—8— pH8
	—4— pH4	—6— pH6	—8— pH8

