

### 4.5.3 Thermal protection of steel raceways

The NEC and local or state code requirements for fire protection of emergency systems and fire-pump circuits shall be reviewed prior to installing these circuits. Local codes sometimes vary from the NEC. Steel raceways withstand fire; however, ordinary conductor insulation melts when exposed to elevated temperatures and a short circuit can be created. This is the reason for special protection of emergency and fire-pump circuits.

Methods of thermal protection include putting the raceways in a fire-rated enclosure (horizontal or vertical), embedding in concrete, using a listed wrap system for protection from fire (sometimes called Electrical Circuit Protection System or Thermal Barrier Protection for Electrical components), and using conductors specifically rated to maintain the circuit.

*(NOTE: Fire wraps can affect the temperature of the conductors and the need for ampacity derating must be determined. It is also important to determine that the support system is protected and will withstand the fire exposure.)*

The NEC does not require these thermal protection methods where conduit is installed in a fully sprinklered building. Local codes shall be consulted and the requirements of the applicable code and or project specification must be followed.

## 4.6 Corrosion Protection

RMC, IMC and EMT sometimes require supplementary corrosion protection when installed in environments generally called “severely corrosive.” Information on some indoor wet locations considered severely corrosive can be found in the NEC. See Section 4.6.1 of this article for information on determining soil corrosivity. Specifics on installing conduit with a supplementary PVC coating applied at the factory are contained in Section 6. Other supplementary coatings are covered in Section 4.6.4.

### 4.6.1 Installed in soil

Where installed in contact with soil, RMC and IMC and associated fittings require supplementary corrosion protection if:

- a) Soil resistivity is less than 2000 ohm-centimeter.
- b) Local experience has confirmed that the soil is extremely corrosive.

*(NOTE: Soils producing severe corrosive effects have low electrical resistivity, expressed in ohm-centimeters. Local electric utilities commonly measure the resistivity of soils. The authority having jurisdiction has the authority to determine the necessity for additional protection.)*

EMT in direct contact with the soil generally requires supplementary corrosion protection. However, local experience in some areas of the country has shown this to be unnecessary.

### 4.6.2 Transition from concrete to soil

Where RMC, IMC, and EMT emerge from concrete into soil, it is recommended that protection be provided a minimum of 4 inches on each side of the point where the raceway emerges. In areas such as coastal regions, use the same method of protection for EMT emerging from concrete into salt air to lengthen the service life. Examples of protection include paint, tape, and shrink-tubing.

### 4.6.3 Installed in concrete slab

Where installed in a concrete slab *below grade*, determine if EMT requires supplementary protection for that location. RMC and IMC do not require supplementary corrosion protection in this application.