

Figure 6-5. Concrete-encased electrode

## PUBLIC NOTICE

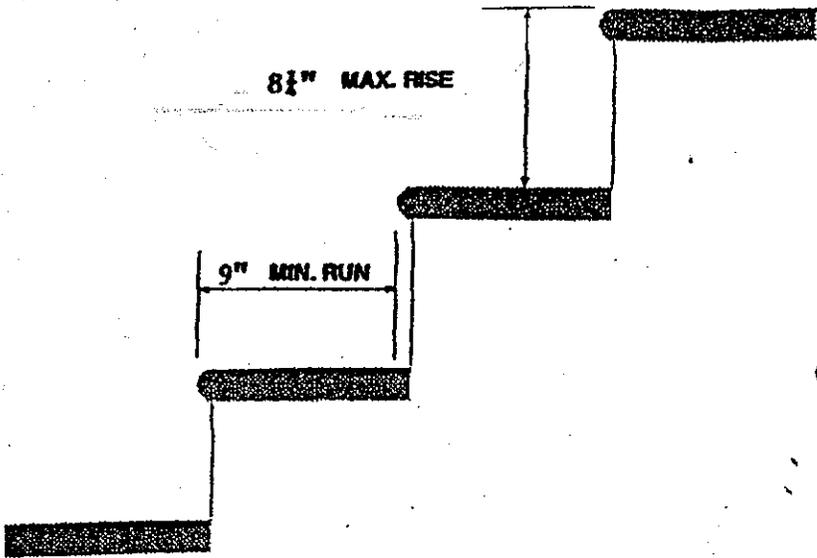
### ATTENTION: All Building and Electrical Contractors

There is a major change in the interpretation of the National Electric Code 2005 NEC article 250.50 and 250.52 describes elements required to be used as part of the Grounding Electrode System where "PRESENT". This will require all new buildings and structures that use reinforcing steel encased in concrete footing/foundation utilize this steel as part of the electrode system. This can be accomplished by a couple of different methods. One method is to connect a piece of #4 bare copper wire to the rebar with an "acorn" style ground rod clamp. Another method is to attach a piece of rebar long enough to be available for the electrician at a future point to the concrete encase portion of the rebar by means of the usual steel tie wires. The electrical contractor can then later connect the ground wire from this steel bar to the electrical service at time of rough-in. In either case, this connection must be inspected prior to pouring concrete. This code is scheduled for adoption when the next USBC becomes effective this spring. One reason behind this change is that this electrode system has long been regarded as one of the most effective grounds known, resulting from an 18 year test period.

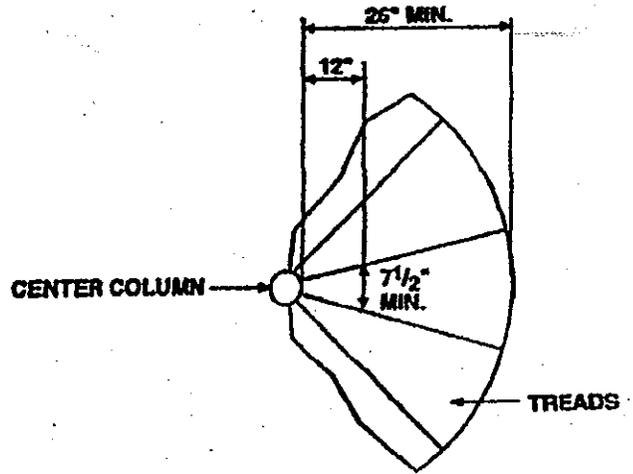
### Concrete-Encased Electrodes

Section 250.52(A)(3) defines this grounding electrode as one or more steel reinforcing bars or rods that are not less than 20 feet in length and 1/2 inch in diameter or 20 feet or more of bare copper conductor not smaller than 4 AWG (see figure 6-5). These electrodes are required to be located within or near the bottom of the foundation or footing and be encased by at least 50 mm (2 in.) of concrete. A single 6.0 m (20 ft.) length of reinforcing bar is not required. Reinforcing bars are permitted to be bonded together by the usual steel tie wires or other effective means like welding. Where subjected to high currents such as lightning strikes welding might be preferred.

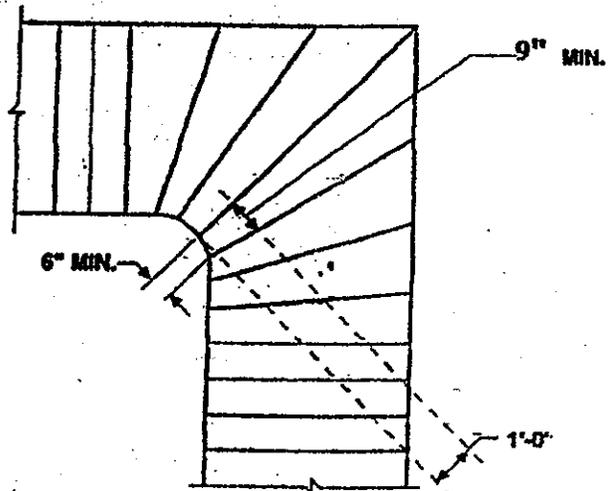
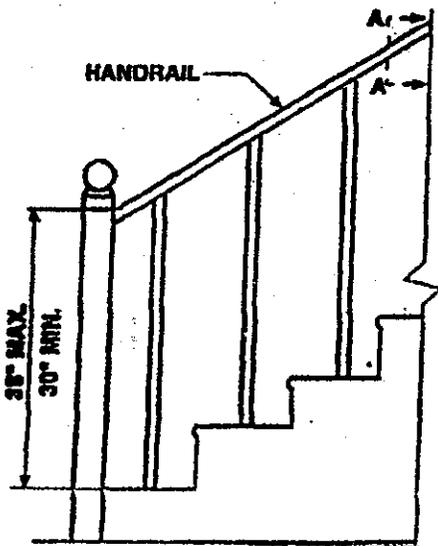
Reinforcing rods are required to be of bare, zinc galvanized or other electrically conductive steel material. Obviously, insulated reinforcement rods would not perform properly as a grounding electrode.



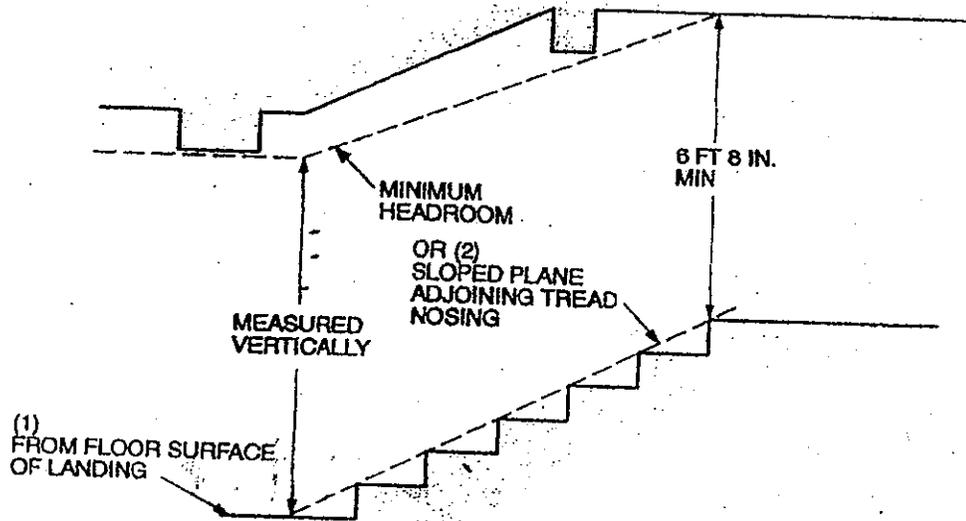
CONVENTIONAL STAIRWAY



SPIRAL STAIRS



WINDERS



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.