GROUNDING CONCEPTS & PRACTICES: USING ARTICLE 250

PROPER GROUNDING IS ALL ABOUT ESTABLISHING A PATH. For an electrician, that path always leads to the specific location where the power originates. It could be a service, a transformer, or some other source of voltage. Understanding this concept will clarify the practical guidelines of Article 250 of the NEC. All the rules found in this article are written to help you build a path, from every outlet point, back to the place where the power originates in a structure.

THE KEY IS TO VISUALIZE THIS PATH!

Almost all electrical systems are "grounded", meaning that one of the current-carrying conductors is electrically connected to the earth. This practice helps to dissipate lightning and other surges, and stabilizes the voltage-to-ground on the system. If one system conductor is connected to the earth from generation, through transmission, through distribution, and finally at a structure, then all the "hot" conductors that share that grounded conductor (to create a circuit) will maintain a consistent voltage to ground. In simple terms, the earth is a huge conductor that becomes a reference point for electrical system voltage.

The earth, and anything conductive connected to it (including people), then becomes part of the circuit. But there's a big difference between being *part* of a circuit and being *in the path* of the circuit. When you wire a building, you have to account for this fact by building in an *effective ground fault current path*. Your job is to establish this singular path on every electrical installation!

Here are some of the more useful sections of Article 250:

250.4	BUILDING AN INTENTIONAL GROUND FAULT CURRENT PATH
250.8	MAKING GROUNDING & BONDING TERMINATIONS
250.20	SYSTEMS TO BE GROUNDED
250.24	GROUNDING SERVICE-SUPPLIED SYSTEMS
250.30	GROUNDIING SEPARATELY DERIVED SYSTEMS
250.32	GROUNDING REMOTE BUILDINGS
250.50 & 52	REQUIRED GROUNDING ELECTRODES
250.53 – 70	INSTALLING GROUNDING ELECTRODE SYSTEMS
TABLE 250.66:	GROUNDING ELECTRODE CONDUCTOR MINIMUM SIZE
250.92	BONDING SERVICE EQUIPMENT
250.97	BONDING SYSTEMS OVER 250V
TABLE 250.102 (C) (1)	GROUNDED CONDUCTORS, MAIN/SYSTEM BONDING JUMPERS, SUPPLY-SIDE BONDING JUMPERS
250.110 & 112	EQUIPMENT TO BE GROUNDED
250.118	TYPES OF EQUIPMENT GROUNDING CONDUCTORS
TABLE 250.122	EQUIPMENT GROUNDING CONDUCTOR MINIMUM SIZE