

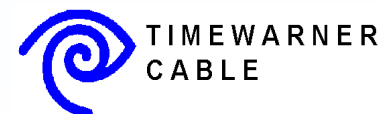
Bonding & Grounding at Point of Entrance for Communications Services

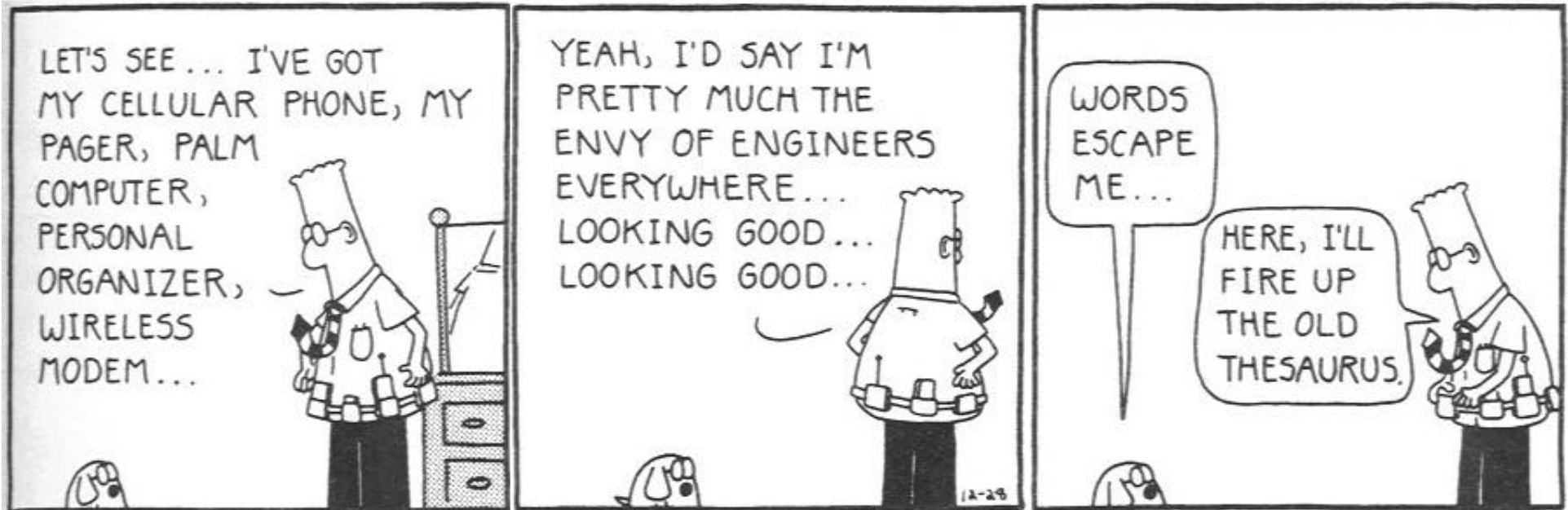
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Services

- **Telephone -- NEC 800**
- **Antennas -- NEC 810**
- **CATV -- NEC 820**
- **Network Powered Broadband --
NEC 830**

Telephone

- **800-40 - Conductor**
- **Insulation listed suitable for purpose**
- **Copper or other corrosion-resistant conductive material, stranded or solid**
- **#14 or larger diameter**
- **Physical protection where necessary**
- **Run in straight line as practicable**

Antennas

- **810-21 - Conductor**
- **Copper, Aluminum, copper-clad steel, bronze, or other corrosion-resistant conductive material, stranded or solid**
- **Insulation not required**
- **Supported/mechanical protection**
- **#10 Copper, #8 Al, #17 copper-clad steel or bronze**
- **Run in straight line as practicable**

CATV

- **820-40 - Conductor**
- **Insulation listed suitable for purpose**
- **Copper or other corrosion-resistant conductive material, stranded or solid**
- **#14 or larger diameter/ Current capacity = drop shield**
- **Physical protection where necessary**
- **Run in straight line as practicable**

Network Powered Broadband

- **830-40 - Conductor**
- **Insulation listed suitable for purpose**
- **Copper or other corrosion-resistant conductive material, stranded or solid**
- **#14 or larger diameter/ Current capacity = drop shield, not > #6**
- **Physical protection where necessary**
- **Run in straight line as practicable**

Telephone

- **800-40 - Electrode**
- **Building electrode -- 250-50**
- **Metal water pipe -- 250-104(a)**
- **Power service means ext to enclosure -- 250-92(b)**
- **Metallic power service raceway**
- **Service Equipment enclosure**
- **Grounding electrode conductor**
- **5 foot ground rod -- 800-40(b)(3)**

Antennas

- **810-21 - Electrode**
- **Building electrode -- 250-50**
- **Metal water pipe -- 250-104(a)**
- **Power service means ext to enclosure -- 250-92(b)**
- **Metallic power service raceway**
- **Service Equipment enclosure**
- **Grounding electrode conductor**
- **8 foot ground rod -- 250-52(c)(3)**

CATV

- **820-40 - Electrode**
- **Building electrode -- 250-50**
- **Metal water pipe -- 250-104(a)**
- **Power service means ext to enclosure -- 250-92(b)**
- **Metallic power service raceway**
- **Service Equipment enclosure**
- **Grounding electrode conductor**
- **8 foot ground rod -- 250-52(c)(3)**

Network Powered Broadband

- **830-40 - Electrode**
- **Building electrode -- 250-50**
- **Metal water pipe -- 250-104(a)**
- **Power service means ext to enclosure -- 250-92(b)**
- **Metallic power service raceway**
- **Service Equipment enclosure**
- **Grounding electrode conductor**
- **5 foot ground rod -- 830-40(b)(3)**

Telephone

- **800-40 Bonding of Electrodes**
- **Not smaller than #6**

Antennas

- **810-21 Bonding of Electrodes**
- **Not smaller than #6**

CATV

- **820-40 Bonding of Electrodes**
- **Not smaller than #6**

Network Powered Broadband

- **830-40 Bonding of Electrodes**
- **Not smaller than #6**

Telephone

- **800-30 Protection**
- **Accidental exposure to lightning or power conductors over 300 V**
- **Fuseless or Fused**

Antennas

- Protection
- **810-20 & 810-57 Antenna Discharge Systems**
- **Required on unshielded conductors entering buildings**

CATV

- **820-33 Protection**
- **Outer Conductor grounded at point of entrance**
- **Where shield is grounded no other protection devices are required**
- **A protective device that does not interrupt the grounding system within the building is permitted**

Network Powered Broadband

- **830-30 Protection**
- **Primary Protection required on conductors that are not grounded or interrupted**
- **Fuseless - where $I_{\text{protector}} > I_{\text{conductor}}$**
- **Fused - all other cases**
- **Location**
 - External on network side
 - Internal
 - External on an output

Telephone

- **NEC 800 2002 Proposals**
- **Grounding conductor < 20 feet**
 - 1 & 2 family homes -- 5 ft ground rod & #6 bond
- **Water pipe bond within 5 ft of POE**
- **Attach to electrical masts for grounding but not for clearance**

Antennas

- **NEC 810 2002 Proposals**
- **Water pipe bond within 5 ft of POE**

CATV

- **NEC 820 2000 Proposals**
- **Grounding conductor < 20 feet**
 - 1 & 2 family homes -- **8** ft ground rod & #6 bond
- **Grounding conductor not required to exceed #6**
- **Water pipe bond within 5 ft of POE**
- **Attach to electrical masts for grounding but not for clearance**

Network Powered Broadband

- **NEC 830 2000 Proposals**
- **Grounding conductor < 20 feet**
 - 1 & 2 family homes -- **5** ft ground rod & #6 bond
- **Water pipe bond within 5 ft of POE**
- **Attach to electrical masts for grounding but not for clearance**

