



Safety Training for the Focus Four Hazards in the Construction Industry

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What Are the
Focus Four Hazards?

Electrical Hazards



Struck-By Hazards



Caught-In-Between Hazards



Fall Hazards

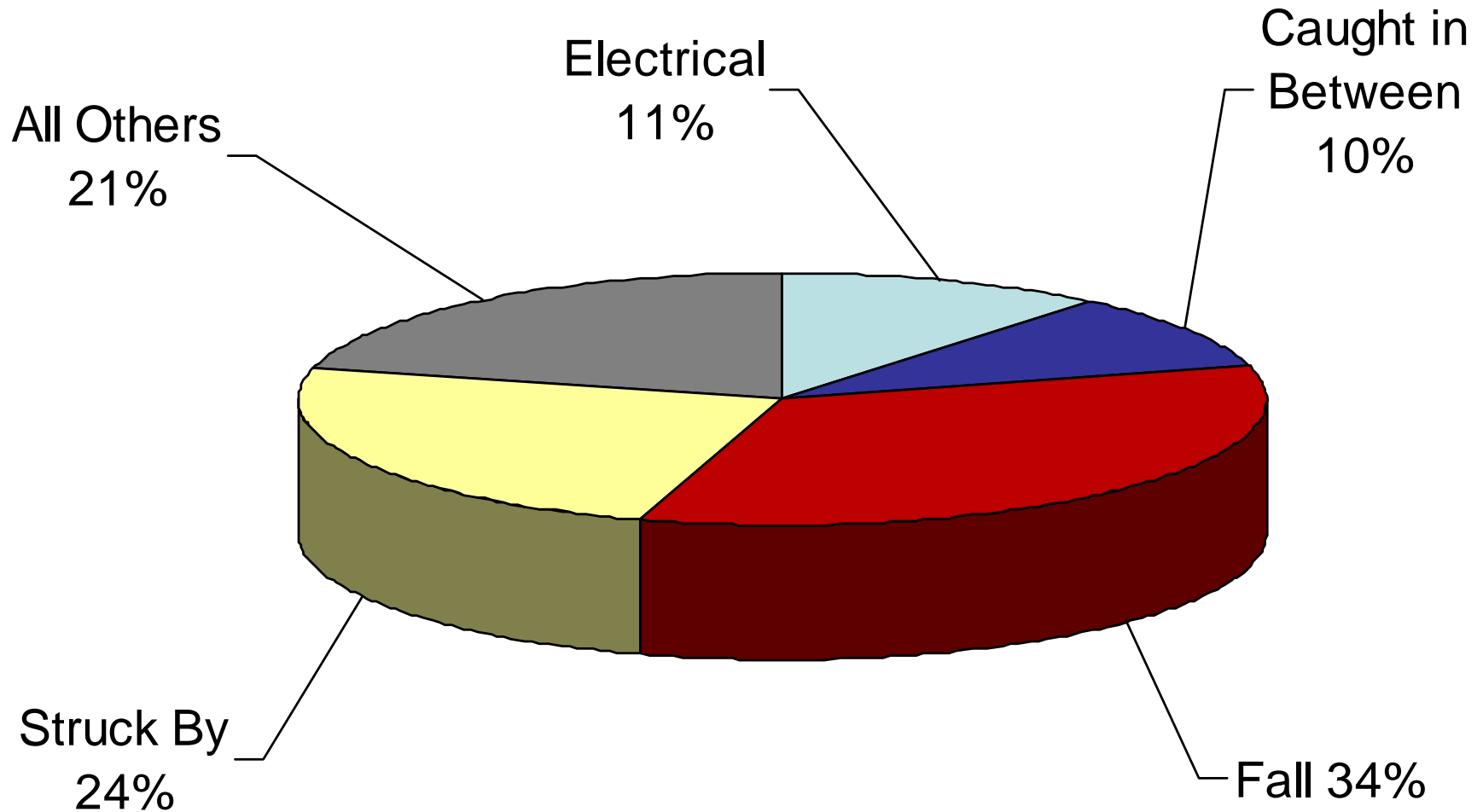




Fatality/Injury Data

Fatality Data 2003 & 2004

2355 Total Fatalities





Primary Causes of Electrocution Fatalities

- Contact with Overhead Powerlines
- Contact with Live Circuits in Panels
- Poorly Maintained Cords and Tools
- Lightning Strikes

Primary Causes of Struck-by Fatalities

- Falling Objects
 - Rigging Failure
 - Loose or Shifting Materials
 - Equipment Tipover or Malfunction
 - Lack of Overhead Protection
- Vehicle and Equipment Strikes
 - Backing Incidents
 - Workers on Foot
- Flying Objects



Primary Causes of Caught-in-Between Fatalities

- Trench/Excavation Collapse
- Rotating Equipment
- Unguarded Parts
- Equipment Rollovers
- Equipment Maintenance



Primary Causes of Fall-Related Fatalities

- Unprotected sides, edges and holes
- Improperly constructed walking/working surfaces
- Improper use of access equipment
- Failure to properly use PFAS
- Slips and Trips (housekeeping)

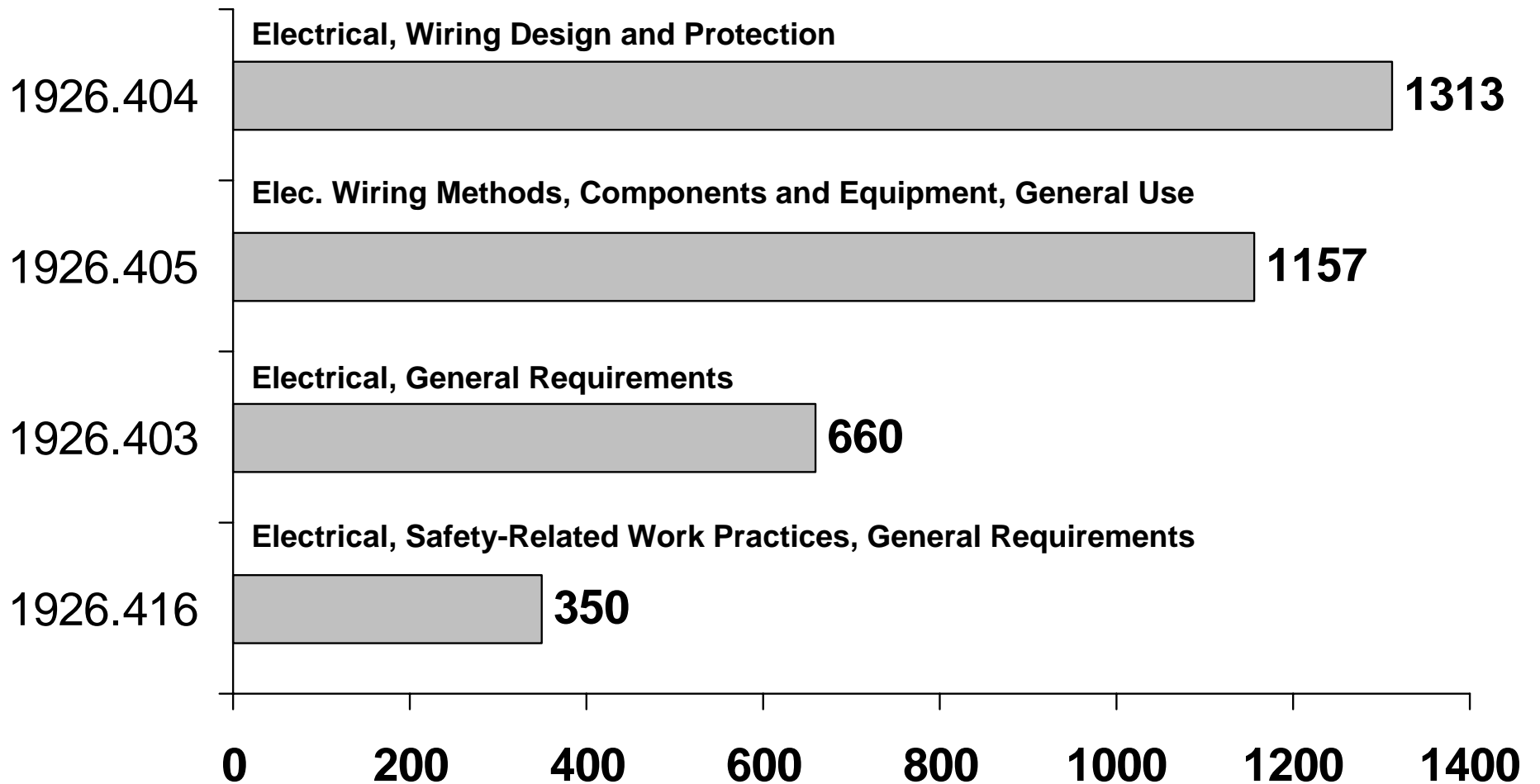


Citations

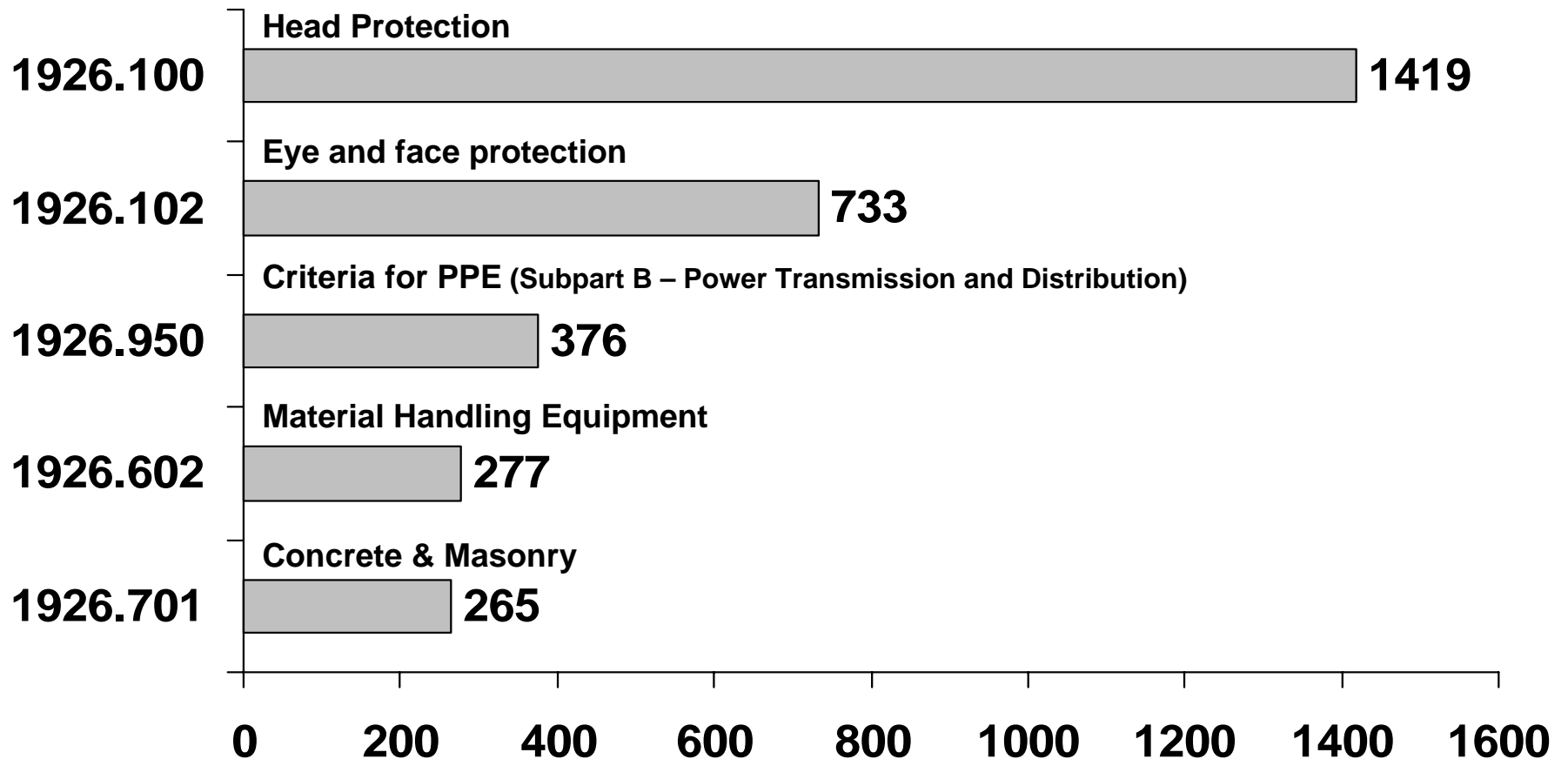
Top 10 Focus Four Citations (FY 2005)

Subpart	Citations	Total Dollar Value	Description
1926.451	8,410	\$7,682,185	Scaffolding
1926.501	5,728	\$7,176,729	Fall Protection Scope/Applications/Definitions
1926.1053	2,122	\$964,811	Ladders
1926.651	1,794	\$2,104,067	Excavations, General Requirements
1926.503	1,581	\$823,501	Fall Protection Training Requirements
1926.20	1,560	\$868,881	Construction, General Safety and Health Provisions
1926.100	1,519	\$792,414	Head Protection
1926.453	1,379	\$1,285,758	Manually Propelled Mobile Ladder Stands and Scaffolds
1926.404	1,313	\$644,886	Electrical, Wiring Design and Protection
1926.652	1,264	\$3,117,087	Excavations, Requirements for Protective Systems
1926.405	1,157	\$344,814	Elec. Wiring Methods, Components and Equip, Gen'l Use

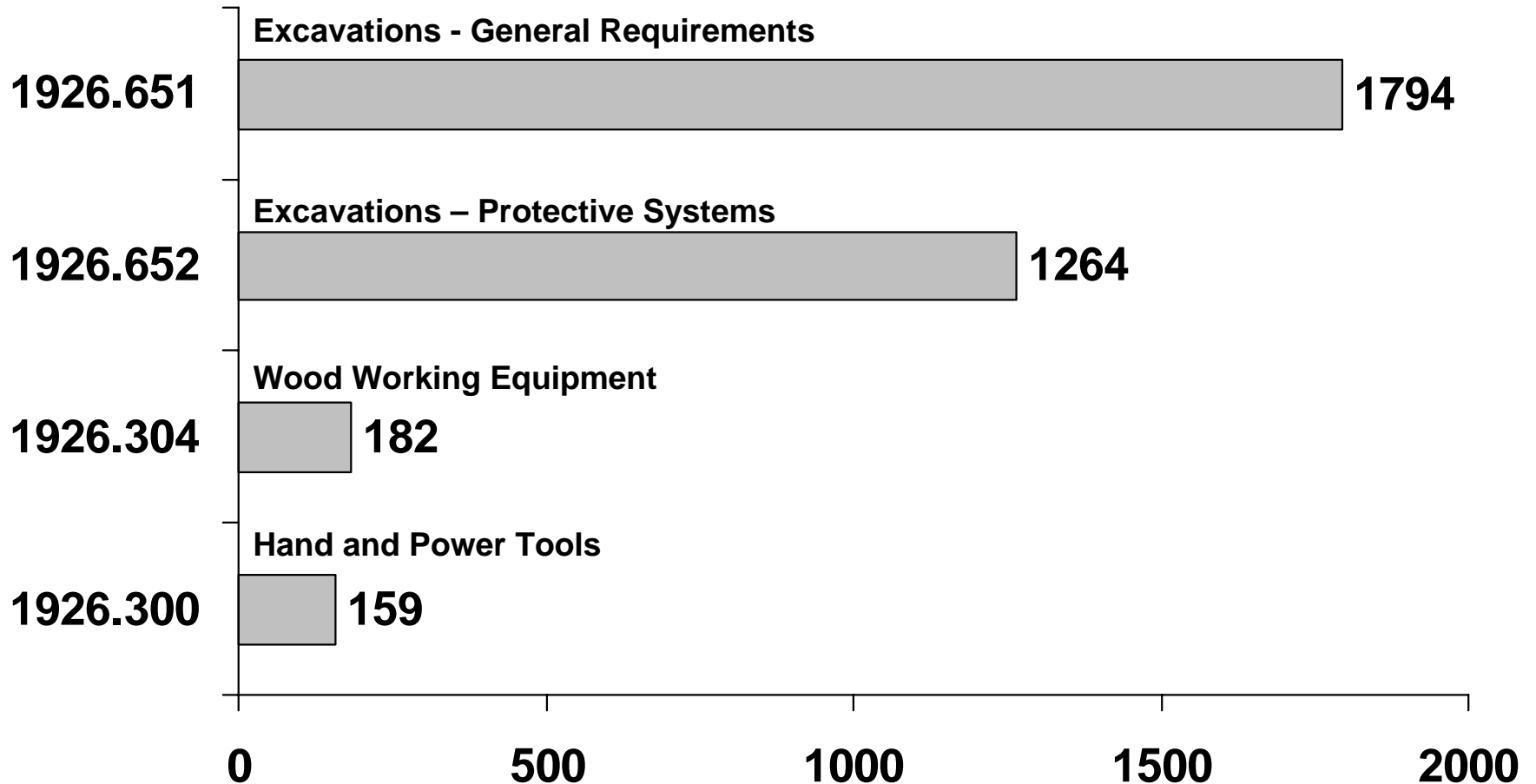
Top Electrical Citations (FY 2005)



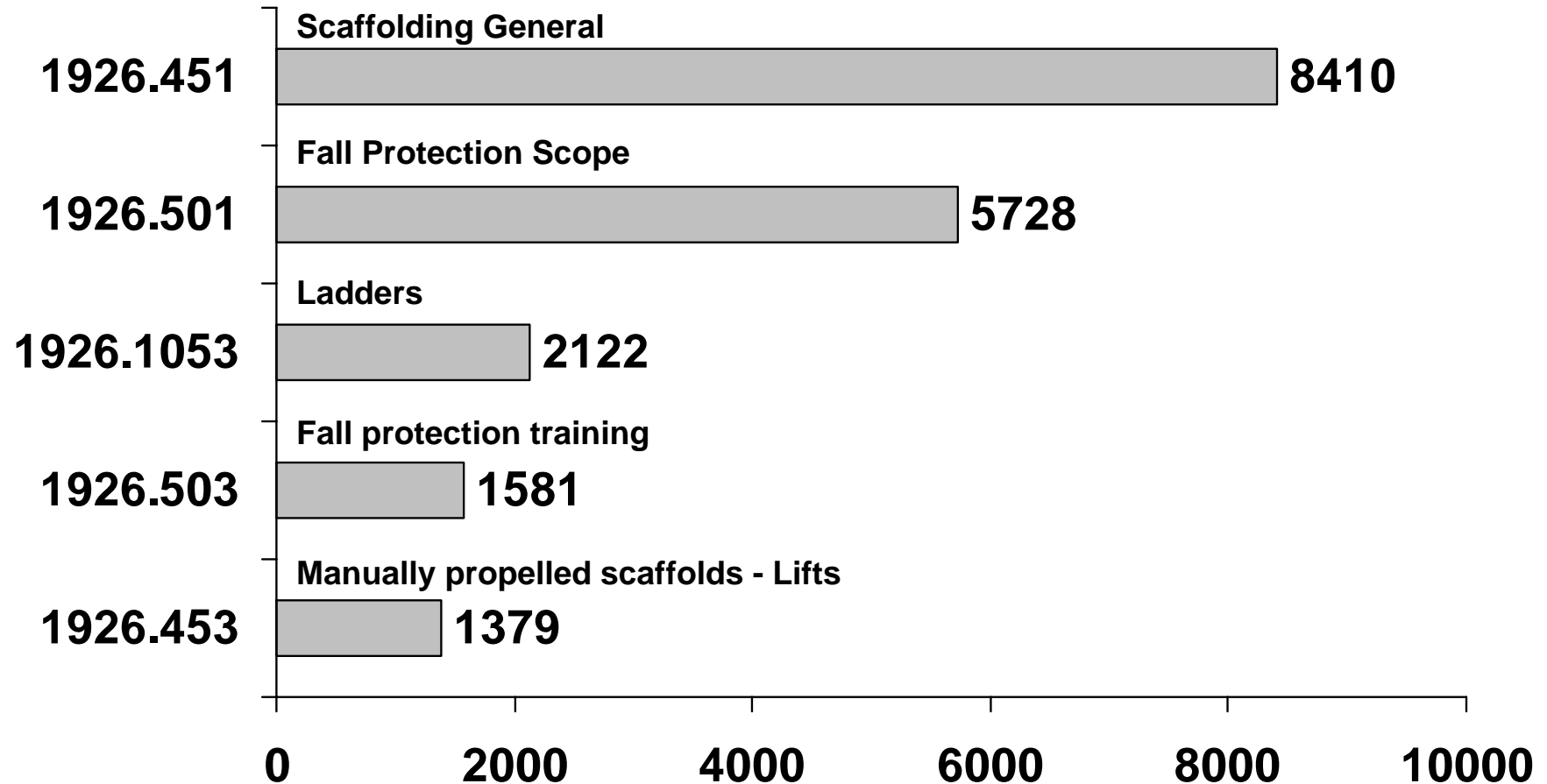
Top Struck-By Citations (FY 2005)



Top Caught-in-Between Citations (FY 2005)



Top Fall Protection Citations (FY 2005)



Fatality & Statistical Analysis

- 85% of all citations and 90% of dollars applied as fines are related to the Focus Four Hazards
- 79% of all fatalities are related to the Focus Four Hazards





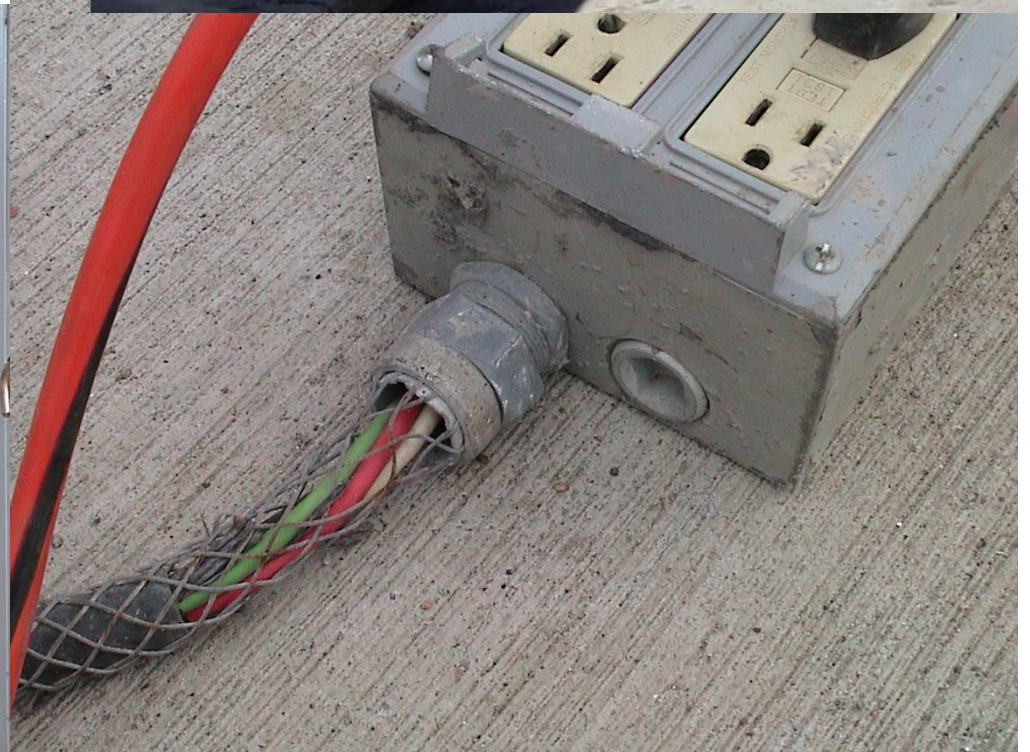
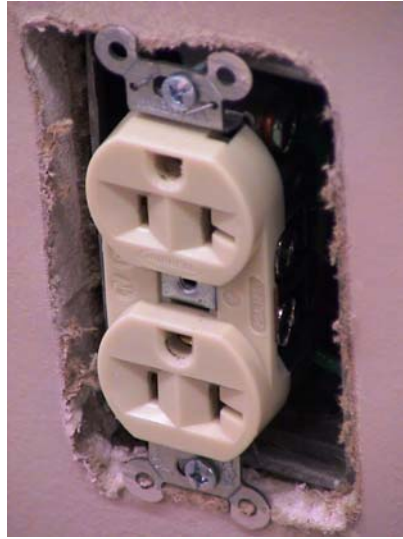
FACE


Fatality Assessment and Control Evaluation Program

Division of Safety Research • 1095 Willowdale Road • Morgantown, West Virginia 26505 • Phone:(304)285-5916

- NIOSH Fatality Assessment and Control Evaluation program (FACE) examples of fatalities caused by the Focus Four hazards
 - Electrocution
 - Struck-by
 - Caught-in
 - Fall

Electrical Hazards

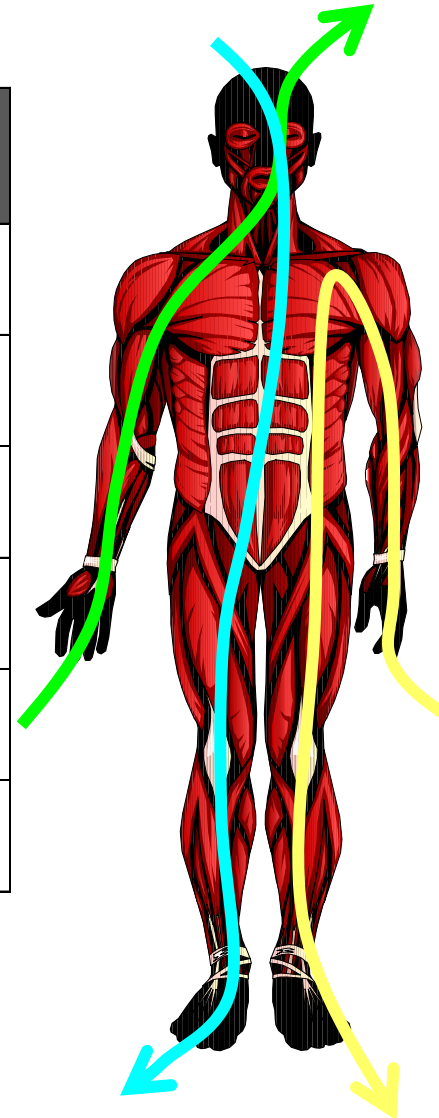




Temporary Wiring and Lighting Systems

Electrical Harm

Estimated Effects of AC Currents (U.S. Standard 60 Hz)	
1 milliamp (mA)	Barely perceptible
16 mA	Maximum current an average man can grasp and “let go”
20 – 30 mA	Paralysis of respiratory muscles
100 mA	Ventricular fibrillation threshold
2 Amps	Cardiac standstill and internal organ damage
15/20/30 Amps	Common U.S. household breakers



PATH:
Harm is related to the path by which current passes through the body.

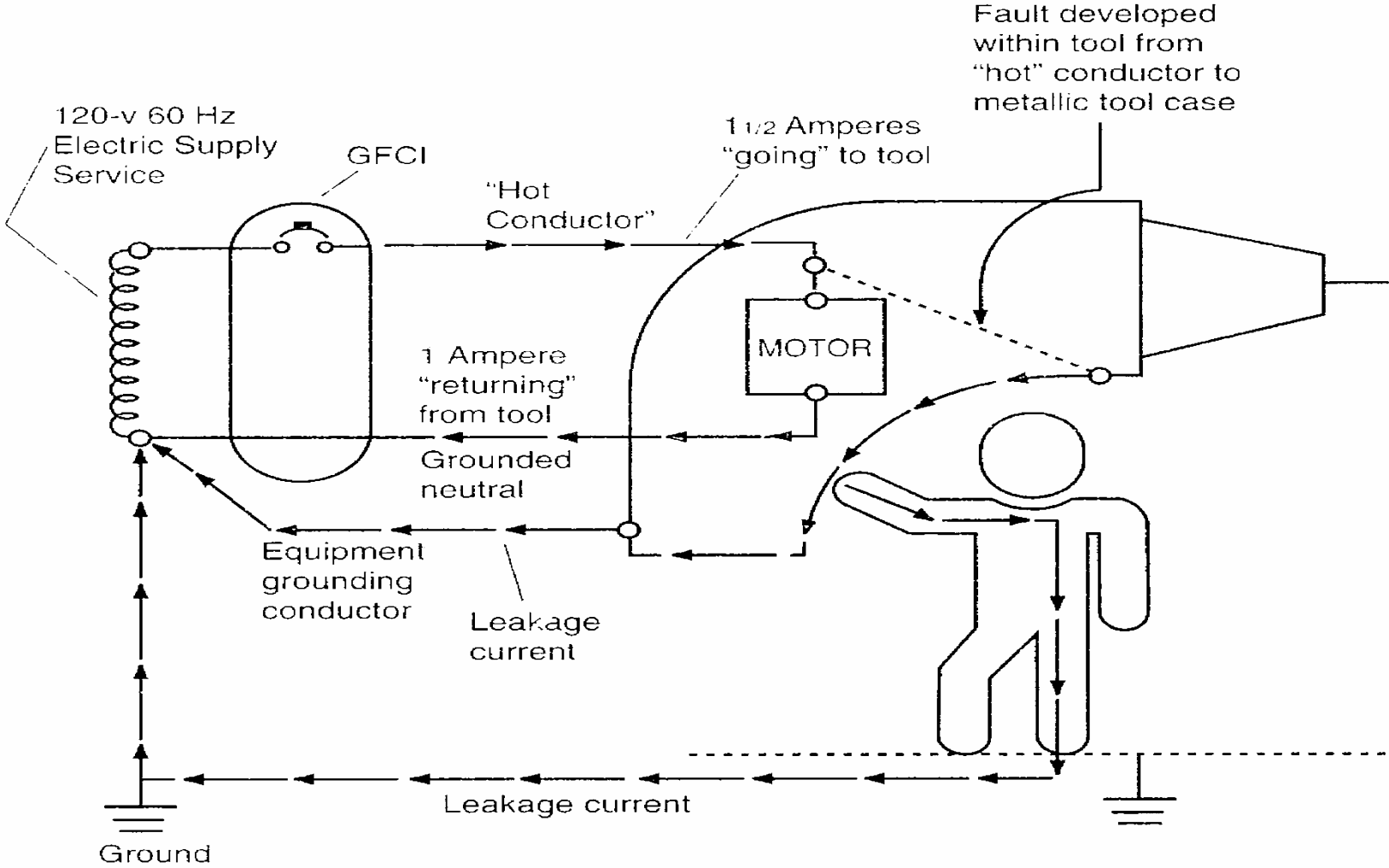
Ground Fault Circuit Interrupters (GFCI)

- Monitors current flow between the hot and neutral wires
- Trip between 4-6 mA in 1/40th of a second



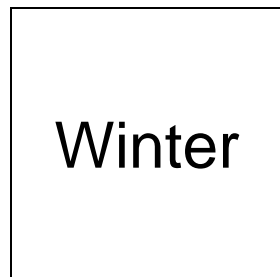
How GFCIs Work

Ground-Fault Circuit Interrupter

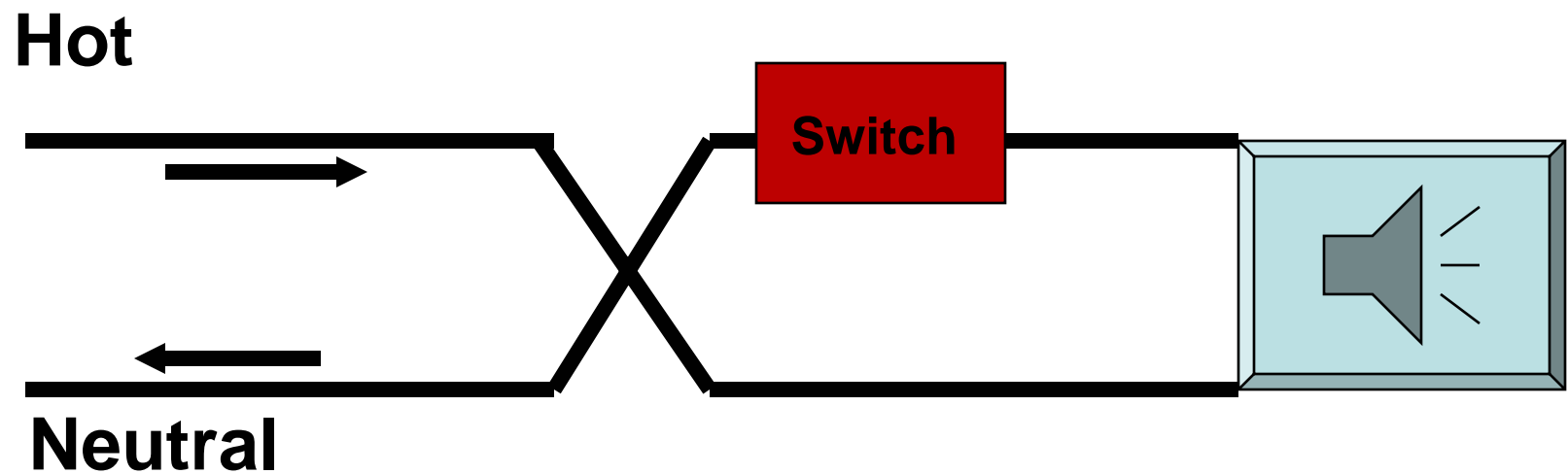


Assured Equipment Grounding Program

- Inspection is your primary protection
- Best practice recommends documented testing every 3 months
- Color coding most common:



Reverse Polarity Diagram



Tool could be hot with the switch off

Reverse Polarity

- Hot wire and neutral wire are reversed
- Even though a switch is off, the circuit could be hot



Electrical Extension Cords

- The primary insulation is cut
- If the insulation was also cut on the conductors, exposing bare wires, they could come in contact with someone
- Damage is often caused by repeated stretching or being run over



Electrical

- Wiring like this must be protected in closed boxes
- There is the potential of electric shock from loose wire nuts or exposed conductors

