

# Howard Talks Tech

## What Does this Sign Mean?



## What is Your Response?

There is no universally accepted definition of “*High Voltage*”, although some industry standards do specify minimum voltages, above which is considered high voltage. These definitions are generally based on the voltage where arcing will occur. There are additional definitions:

- Any voltage greater than 40 volts.
- High voltage is defined by the DOE Electrical Safety Guidelines as over 600 volts.
- An electrical system designed to operate between 46 kV and 230 kV

It is not an exact measurement of voltage as it is a warning that advises people to maintain their distance. What makes a voltage high enough to warrant these precautions is usually as much about its presentation as its actual value. It is essentially the combination of voltage and (available) amperage that are dangerous. Shock danger generally begins around 30-40 volts and escalates proportionally as voltage increases.

Well insulated sources may carry extreme voltages but may not require a warning if there is no appreciable risk to people. A warning may only be mandated in situations where humans can encounter unshielded conductors unexpectedly.

**ANSI Z535.1-6**, republished in 2011/12 defines the criteria for using the signal word, **DANGER**: when an imminently hazardous situation which, if not avoided, will result in death or serious injury. The standard cautions, that signs using the word **DANGER** should be used sparingly and only for those locations presenting the most serious hazards.

**29 CFR 1910.303(h)(5)(iii)(B)** states that: Permanent and conspicuous warning signs shall be provided, reading substantially: “*DANGER - HIGH VOLTAGE - KEEP OUT.*”

The Hazard is real, enough amperage can kill you! We are left to presume that high voltage translates into high current. But and here’s where confusion can begin, Activities, i.e., touching the conductor makes the activity “*Dangerous*”. The **DANGER** signal word says, hey this can be lethal, potentially adds to the confusion.

The sign shown in the title in my opinion lacks credibility in that it provides no indication of the proper response. OSHA does better with keep out! It however, assumes there is a recognizable boundary such as a fence.

These talks are distributed with the hope that they spark some dialog. Feel free to use them as the basis for a toolbox talk with your colleagues, clients, safety committee members or employees. HTT #: 106