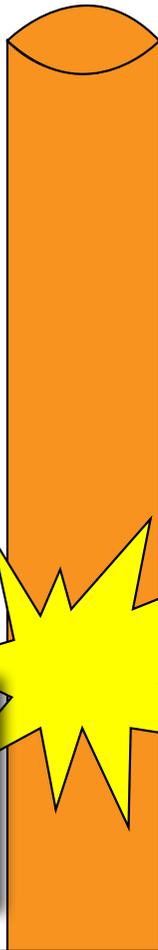


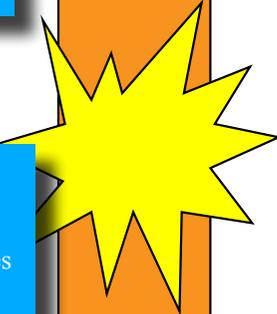
**Solid to Vapor** - The intense heat from an arc flash can cause solids to change to liquid then vapor almost instantly. When Copper vaporizes, it expands at 67,000 times its original size, leading to a very large explosion.



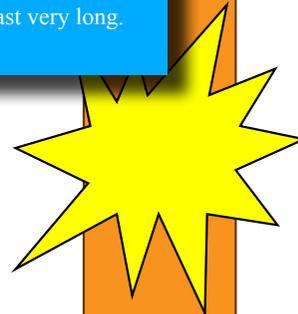
**Heat** - When an arc flash occurs, some of the highest temperatures known to man occur. A welding arc is 3000 F, the Sun is 9000 F; an arc flash can reach 35,000 F. It is difficult to really understand how hot that is and how destructive it can be, but luckily arc flashes don't last very long.



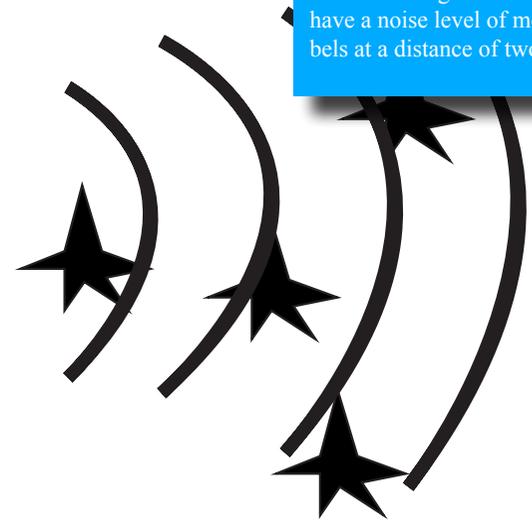
**Shrapnel** - The explosion of energy creates a pressure wave that sends out shrapnel (Such as equipment parts flying like an exploding grenade) hurling at high speeds (over 700 miles per hour).



**Intense Light** - The bright light from an arc flash can cause severe skin damage. Even worse, even if wearing protective glasses, your eyes can receive enough blinding light in that short instant, that the loss of eye sight could occur.



**Sound** - Since the explosion happens so fast, the quickly moving air can damage your ear drums, causing a worker near the blast to become deaf, never being able to hear again. Severe arc blasts will have a noise level of more than 140 decibels at a distance of two feet away.



**Arc Flash** - You don't always need wires to make a complete circuit. For example, there is a circuit formed between a storm cloud and the Earth when lightning strikes. The air is acting as a conductor in the circuit in this circumstance. The same thing happens in an arc flash. An arc flash is where electricity leaves its intended path and travels through the air, with little resistance, from one conductor to another, or to ground. The results are often violent and when a human is in close proximity; serious injury or even death can occur. An arc flash can be caused by many things: dust, dropping tools, accidental touching, condensation, material failure, corrosion and faulty installation to name a few.

**Arc Flash/Arc Blast** - You will often hear the terms *arc flash* and *arc blast* used together because they always happen together. The bright light and high temperature is the *arc flash*, while the explosion and the loud sound is the *arc blast*. Personal Protective Equipment (PPE) can help reduce the risk of injury from an arc flash or arc blast. This is one of the reasons why PPE is so important; If something is going to get burned and destroyed, you want it to be your clothing and not your skin.