



Heat, Fans, and Cords

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What's the connection? Most shops aren't air-conditioned. Employees don't take the summer off. So they heat up. And then they go to the local big box retailer and buy a cheap box fan to help cool down. Then we come in and tell them it's not okay. Why not? Because it isn't grounded.

Any electrical equipment or extension cords used in your shop has to be grounded. If the equipment is hard-wired, the electrician saw to that when the equipment was installed. If it's portable, the plug will have that third prong, the grounding prong. The exception: power tools that are double-insulated. Those have a plastic case, polarized plugs, and are marked with the words "double-insulated" or a square-within-a-square symbol.

Your entire electrical system is grounded. Current flows from the power company through wires into your shop, through electrical devices, and then to ground. The usual route to ground is through the neutral wire (the wide blade on a plug). But if something goes wrong – for instance, if there's a short circuit or a wire breaks loose of its connection – electricity will find another path to ground. That can happen in the office area or the shop. But things are nice and quiet in the office area. You don't have cars running over cords, or people using abrasive tools, or occasional wet floors.

Electricity isn't picky about what path it takes to ground. Just like water flowing downhill, it will take any path available, with preference given to paths through good conductors. Humans are very good conductors. That grounding prong provides a backup path to ground, one that is better than the human body.

The cheap box fans are listed for household use only. They're designed to be used in dry locations, where they won't be knocked around, where dust won't accumulate, and where there's little risk of damage. Use them in the office areas, if you must, but not in the shop.

So if you can't use a standard box fan to cool workers, what can you do?

Provide grounded fans. Installing overhead fans may be a long term solution. For short term, get industrial grade pedestal fans, which people can move around as they choose. You can use extension cords with these, provided you use a grounded, round cord rated for the fan. Round cords are hard-service cords. They're the only type you should be using in the shop. Flat cords just aren't heavy-duty enough for your work environment.

Provide beverages to your employees. The best choice in a hot environment: cool water. Electrolyte replacement drinks are okay in limited amounts, but usually provide more salt and sugar than people need. Caffeinated drinks can act as diuretics. Carbonated ones can make people feel sated too quickly, so they don't drink enough. Flavored waters might be a good option.

Give workers a chance and a location to cool off. Put an air conditioner in their break area.

Be alert to the signs of heat stress, and alert your employees to those signs. If someone starts feeling queasy or tired or gets a headache, encourage that person to take a break in a cool area. If a worker becomes hot and flushed, suspect heat stroke – that's a medical emergency, requiring immediate action.

Employees will work better if they're not overheating. As long as the relative humidity and the temperature aren't both obscenely high, moving air will help cool them down. But you don't want to risk electrocuting them as you cool them. So make sure all the fans in your shop are properly grounded (along with any extension cords used with them).

If you have questions about electrical safety, heat stress, OSHA grants, or other safety or environmental issues, contact CHESS at 651-481-9787; toll free at 877-482-4377, or carkey@chess-safety.com. CHESS specializes in helping small to medium sized business with occupational health and safety issues. We have been providing services to the automotive industry for almost 20 years.

<p>This article is intended to provide general information (not advice) about current safety topics. To discuss your specific concerns and how CHESS may help, please contact CHESS at 651-481-9787 or chess@chess-safety.com</p>

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