Bonding and Grounding – Preventing Small Arcs from Becoming Big Dangers

Electricity is vital on most any job, be it in a refinery or out in the oil fields. Anywhere you have electricity though, you also have the potential for electrical hazards. Electrical hazards can present serious dangers to workers if they are not properly addressed. Metallic or wet surfaces, for example, can become energized and electrocute unsuspecting workers. Damaged wiring and exposed outlets, meanwhile, can create the potential for electrical arcs that can set off fires or ignite flammable and combustible gases in the area. Fortunately, there are steps that can be taken to minimize these risks. Some are simple, such as ensuring that extension cords used correctly, undamaged, and not run through pools of water. Others though, are a bit more involved, which brings us to Grounding and Bonding. Although these two terms are sometimes used interchangeably, they really describe entirely different processes.

Grounding is defined as any process that is used to create an electrical pathway to a ground, such as the earth itself. Doing so allows for electrical charges to be safely dissipated, as well as enables detection and control of dangerous voltages or potential shorts. Grounding is important because electricity will always follow the path of least resistance as it seeks the “system neutral”. By having properly grounded and insulated electrical...

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March 15, 2018


Speaker: James M. Morris, President & Hearing Specialist, HearInc.

CareWorks is Ohio’s largest workers’ compensation Managed Care Organization (MCO), serving more than 115,000 Ohio employer customers. We have been serving the Ohio Bureau of Workers’ Compensation (BWC) since 1997, the year Ohio’s public/private partnership was established to effectively manage Ohio workplace injuries. We help injured Ohio workers recover from workplace injuries and quickly and safely restore healthy, productive lifestyles, while delivering cost control for our employer customers. For more information, please contact Shawn Combs, Director of Business Development (614) 760-3555 or via email at shawn.combs@careworks.com.

Stark County Safety Council Mission Statement: To provide a forum for safety and health information, education and networking in Stark County, through leadership, innovation, facilitation, program, and support, in partnership with other public and private organizations.
systems, you prevent that path from going through surfaces or materials that should not carry electricity, like hand rails or worse, a worker. Proper grounding also helps to prevent excessively high voltages and short circuits from damaging equipment. For example, proper grounding allows for the use of a GFCI, or Ground Fault Circuit Interrupter, to disconnect electrical power automatically should a dangerous condition be detected.

Bonding is how you accomplish a properly grounded system. Bonding is defined as the process of interconnecting ground electrode systems for the purpose of providing a ground to an electrical system. In other words, bonding is how you build an electrical system so that it is properly grounded. One of the most important points of bonding is that the completed systems must provide a nearly zero voltage difference during a ground potential rise, or more simply put, the bonded conductors cannot cause substantially more electrical resistance. As we said before, electricity follows the path of least resistance, so if your ground offers more resistance than it should, then this can interfere with the ability of that ground to protect your electrical system. Because of this, molecular bonds, such as those formed by welding or soldering, are preferred because they guarantee the highest conductivity across the bond, whereas a mechanical connection will only be conductive where the materials physically meet on a microscopic level.

**ROBIN’S CORNER**

*By Robin Watson, Ohio BWC Representative*

**Q: Is First Aid / CPR Training a requirement of OSHA? What should I do if I cannot get anyone to volunteer to become trained in First Aid / CPR as a First Responder?**

**A: Per the OSHA standard: 1910.151(b)**

In the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, a person or persons shall be adequately trained to render first aid. OSHA goes on and defines near proximity as 3-4 minutes and then if you depend on an outside group to provide service, you will need to obtain documentation from them that they will provide it. This link is a letter of interpretation explaining the details: [http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=25627](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=25627)

This letter of interpretation link muddies the water even further, basically you should train, but can’t require them to use the skills. [http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=24890](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=24890)

Sometimes folks are afraid of the legal liability if they perform First Aid / CPR incorrectly. Typically, a conversation about the Good Samaritan law can help. If nothing else, the employer may need to train the supervisors.
Hearing Conservation and Hearing Protection is achieved through preventative measures. To reduce occupational hearing loss, all employees, who work in potentially noisy areas, are provided hearing protection, training and annual hearing tests. OSHA hearing conservation standard is covered in 29 CFR 1910.95. Engineering controls are applied to reduce noise from equipment and operations.

After engineering controls are evaluated for effectiveness or feasibility, administrative controls should be considered to reduce noise exposure. Administrative controls include restricting exposure time or using personal protective equipment.

Personal Protective Equipment, such as ear plugs or muffs, may be used to reduce the amount of noise exposure. Each plug or muff has a noise reductions factor (NR) as evaluated by ANSI Standards (S3.19 - 1974 or Z24.22 - 1957). For example, if a work area has an ambient noise exposure of 96 dB(A), the hearing protectors should be rated 6 NR or better to be effective.

According to OSHA Regulations, each location with noise exposures of 85 to 89 dB(A) will provide hearing protectors for the Employee's optional use. Noise exposures at 90 dB(A) or above require the mandatory use of hearing protection. Further, OSHA requires that a variety of hearing protectors be available for Employees to choose (both a variety of plug and muff type hearing protectors).

Types of Hearing Protection

Hearing protection devices are the first line of defense against noise in environments where engineering controls have not reduced employee exposure to safe levels. Hearing protective devices can prevent significant hearing loss, but only if they are used properly. The most popular hearing protection devices are earplugs which are inserted into the ear canal to provide a seal against the canal walls. Earmuffs enclose the entire external ears inside rigid cups. The inside of the muff cup is lined with acoustic foam and the perimeter of the cup is fitted with a cushion that seals against the head around the ear by the force of the headband.

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Use of Hearing Protectors

Management, Supervision and Employees shall properly wear the prescribed hearing protectors while working in or traveling through any section of a Location that is designated a High Noise Area. (excluding offices, break rooms, and rest facilities). The following rules will be enforced:

• Personal stereos, such as Walkmans, etc., will not be permitted in any operating area of company property.
• Hearing protectors, at least two types of plugs and one type of muffs, will be provided and maintained by Company
• Hearing protectors and replacements will be provided free of charge
• Hearing protectors will be properly worn at all times, except in offices, break rooms, rest facilities.

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Upcoming Events

March 7-9—Ohio Safety Congress & Expo—Greater Columbus Convention Center—For reservations: https://bwc.expoplanner.com/index.cfm?do=reg.content&event_id=19&content_id=382&page_id=1&entity_id=55&regs_id=0

March 28—CEO Breakfast—8:00 a.m.; Skyland Pines; fee $20.00 details coming soon.

Mark Your Calendars! April 17—Stark County Safety Council Annual Awards Banquet; Skyland Pines, more info to follow.

Have a Safe St. Patrick’s Day from the Stark County Safety Council!
Class Schedule (North Canton)
339 E. Maple St. Suite 200
North Canton, OH 44720
Register at: bwclelearningcenter.com

Controlled Workers’ Compensation Costs—March 1—8:30-4:30
Restaurant and Food Service Safety Workshop—March 12—8:30-noon
Tree Work Essentials Chainsaws, Chippers & Other Safety Concerns—March 15—8:30-4:30
Hazardous Waste Operations & Emergency Response Awareness—March 20—1-4:30
Thermal Stress—March 20—8:30-4:30
Measuring Safety Performance—March 22—8:30-4:30
Hazard Communication—March 27—8:30-4:30
First Aid in The Workplace—March 29—1-4:30
Safety Series Workshop Module 5—April 9—1-4:30
Electrical Safety Audits—April 18-19—8:30-4:30 each day
Train The Trainer Techniques for Safety—April 23 8:30-4:30 and April 24—8:30-noon
Construction Safety Elements (OSHA 10) - April 25-26—8:30-4:30 each day
Hazardous Waste Operations and Emergency Response Refresher—April 30—

April 12, 2018
“Special Investigations Department Overview”

Speaker: Douglas Risley,
Assistant Special Agent in Charge Northeast Regional Special Investigations Unit, Ohio Bureau of Workers’ Compensation

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How to Avoid Slips, Trips and Falls

**What's at Stake:** Slips happen when there’s not enough friction or traction between your feet (shoes) and the surface you’re walking or working on. Trips happen when your foot or lower leg hits an object and your upper body keeps on going, causing you to lose balance. Falls happen when you slip, or trip and you’re thrown too far off balance. The danger is amped up because slip, trip, and fall hazards are found in just about every work environment you can think of.

**7 Ways to Prevent Slips, Trips and Falls**

1. Slow down - It's not a race, there is no prize for being first.
2. Watch out - Watch for hazards and report issues immediately.
3. Clothing is not optional - Wear well fitting clothing.
4. Keep your hands free - Keep your hands free when you walk, to help you catch your balance if you start to fall.
5. Move it - Don't leave equipment, tools or material out.
6. Keep it shut - Close drawers, cans, bottles and other containers to prevent contents from spilling creating hazards.
7. Stay alert - The chances for a accident are greater if you're distracted.

**Final Word:** Slips, Trips and Falls are a leading causes of workplace injury and death. They also cause a great deal of pain and suffering. Take slip, trip and fall hazards seriously, and don't let them trip you up.

**Campaign:** Instructor-Led Training Buyer's Guide - If you are evaluating the effectiveness of your safety training program, or if you are looking to make an investment in a better type of safety training – make sure you are making the best decision for your employees and your organization. Download the Instructor-Led Training Buyer's Guide and learn how instructor-led training can increase the effectiveness of your safety program today!  [https://offers.safetysmart.com/ilt-buyers-guide/](https://offers.safetysmart.com/ilt-buyers-guide/)
Stark County Safety Council
February 2018 Photos

February Spotlight Company
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BWC Health and Wellness Program
Taking Care of Ohio’s Workforce

BWC’s mission is to protect Ohio’s workers and employers through the prevention, care and management of workplace injuries and illnesses at fair rates. BWC is ready to lead a sustained, scalable effort to address the quality of life and health challenges for Ohio’s workforce. Our unique position enables us to positively impact the quality of life and health for Ohio’s workforce and improve the efficiency of Ohio’s businesses.

Having a healthy workforce gives employers the ability to focus on their businesses and manage their workers’ compensation and health-care costs. A Health and Wellness Program that benefits Ohio’s workforce can:

- Prevent injuries because of improved workforce health;
- Reduce the severity of an injury;
- Increase the speed of recovery from an injury;
- Reduce time away from work due to an injury.

A key element for a successful Health and Wellness Program is offering appropriate services by a qualified, provider network. Once built, our network and available services will offer a one-stop shop for all to find and use health-prevention resources. A sample of services includes:

- Health and wellness awareness, education and training;
- Health-risk assessments and biometric screenings;
- Personalized health coaching, nurse advice line;
- Lifestyle management programs;
- Disease-management programs.

While all Ohioans could benefit from this initiative, BWC will focus initially on a smaller participant group and based on feedback - expand the program. BWC will offer program funding on a first come, first serve basis to Ohio’s workforce and injured workers whose employers do not have such a program until the $6 million are utilized.

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<th>Workforce eligibility criteria</th>
<th>Injured worker eligibility criteria</th>
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| Ohio employers with 50 employees or less in the following industries:  
  - Agriculture;  
  - Automotive repair and service;  
  - Construction;  
  - Firefighters;  
  - Health care;  
  - Manufacturing;  
  - Police and public safety;  
  - Public employers;  
  - Restaurant and food service;  
  - Transportation and trucking;  
  - Trash collection;  
  - Wholesale and retail. | BWC will invite an injured worker to participate after consulting with their employer and managed care organization.  
Additional eligibility criteria could include:  
  - Comorbid conditions;  
  - Injury diagnosis (ICD-10);  
  - Occupation and industry;  
  - Time away from work. |