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## Safety Discussion – Fire Prevention



This quarter's safety discussion focuses on fire prevention and control on the job site. Accidental fires frequently occur on construction sites. Fires are typically caused by improper electrical installations, improper use and storage of flammable liquids, poor housekeeping, lack of smoking controls, and construction tasks that generate heat and sparks, such as welding and torch cutting. Often, small smoldering hot spots flare up after construction workers have gone home for the day.

This results in fires going undetected for longer periods and causing more damage. Fire watches and hot work permits are controls that help reduce the frequency and severity of accidental fires.

Many new commercial and habitational buildings have automatic sprinkler systems, but they are often not functional until the bulk of the construction is completed. This leaves buildings under construction susceptible to fire for extended periods of time. Prompt installation of fire suppression and detection systems in buildings under construction should be a priority. The OSHA standards that discuss fire prevention and control can be found online at [www.osha.gov](http://www.osha.gov)

## Large Loss Review – Two Million Dollar Home Burns

Richards Floor and Tile Company was contracted by a large custom home builder in Washington to install flooring in a 4,500 square foot custom home. The project called for the installation of ceramic tile and tongue and groove wood floors in various locations throughout the home. Richards began flooring installations in the fall when the new home was about 95% complete. They began with the ceramic tile in the bathrooms, hallways, and family room. About 3 weeks after the ceramic tile was installed, all the wood floors were installed, sanded, and ready for staining and a high-gloss polyurethane finish. Because the weather had turned cold, and to help control dust, all the windows and doors were closed as the stain and polyurethane were being applied. While applying the polyurethane finish in the kitchen area, the vapors from the polyurethane were ignited by a spark from the refrigerator motor. A flash fire resulted. Within seconds, the wet polyurethane covering the wood flooring was fully engulfed in fire. The worker applying the finish was severely burned and required numerous operations and skin grafts. The fire in this new luxury home resulted in over 2 million dollars worth of damage. The new home owners, who planned on moving in within days, now had to find a temporary place to live. What went wrong? The polyurethane finish that was applied to the floor was giving off vapors that are 4 times heavier than air and has a flash point of around 101 degrees Fahrenheit. The label on the can stated it was flammable and should not be used without proper ventilation and that all ignition sources in the area should be eliminated. With the doors and windows closed the heavier than air vapors accumulated at floor level and were ignited when the refrigerator compressor started.

### Tool Box Meeting – Fire Safety on the Job Site

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Ask your crew the following questions to review their awareness of fire hazards and controls (answers are on the last page).



1. Gasoline can be stored in plastic gas cans as long as they are labeled and kept tightly closed. True or false?
2. A Type B fire extinguisher would be your best choice for fighting an electrical fire in the temporary electrical service on your job site. True or false?
3. Portable fire extinguishers on the job site should be kept toward the center of the building so they are accessible to everyone. True or false?
4. When using temporary LPG heaters in a building under construction, the extra LPG tanks should be stored at least 25 feet from the heater. True or false?
5. Welding and cutting is one of the major causes of fires on a construction site. True or false?
6. When working with flammable liquids and solvents you should be aware of their flash points. Liquids with a lower flash point are generally safer than those with a higher flash point. True or false?
7. Keeping warm when working out of doors in the winter is important to help prevent hypothermia. Building a small ground fire or using a burn barrel is an acceptable practice as long as they are a safe distance away from combustible materials. True or false?
8. If there is a leak in a LPG heater hose the LPG will ventilate itself since the gas is lighter than air. True or false?
9. Vapors given off by flammable and combustible liquids can be ignited by a lit cigarette butt or even a static spark. True or false?
10. Circuit breakers and ground fault circuit interrupters will help reduce the chances of an electrical fire in the temporary wiring on the job site. True or false?

Looking for some free safety meeting topics?

[www.toolboxtopics.com/](http://www.toolboxtopics.com/)

### OSHA Speak – Employee Training

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Many standards promulgated by the Occupational Safety and Health Administration (OSHA) explicitly require the employer to train employees in the safety and health aspects of their jobs. Other OSHA standards make it the employer's responsibility to limit certain job assignments to employees who are "certified," "competent," or "qualified"-meaning that they have had special previous training, in or out of the workplace.

It is usually a good idea for the employer to keep a record of all safety and health training. Records can provide evidence of the employer's good faith and compliance with OSHA standards. Documentation can also supply an answer to one of the first questions an accident investigator will ask: "Was the injured employee trained to do the job?"

The Occupational Safety and Health Administration has developed voluntary training guidelines to assist employers in providing the safety and health information and instruction needed for their employees to work at minimal risk to themselves, to fellow employees, and to the public. The guidelines are designed to help employers to: (1) determine whether a worksite problem can be solved by training; (2) determine what training, if any, is needed; (3) identify goals and objectives for the training; (4) design learning activities; (5) conduct training; (6) determine the effectiveness of the training; and (7) revise the training program based on feedback from employees, supervisors, and others.

For details on voluntary training guidelines and a listing of construction standards with specific training requirements follow this link: <http://www.osha.gov/doc/outreachtraining/htmlfiles/osha2254.html>

## 1st Quarter 2011

### Safety Products – Fire Prevention and Control

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Don't risk your life or your business by ignoring the fire hazards on your job site or in your place of business. There are products to help protect you from some of the hazards associated with fires on the job site.

Safety gas cans - [www.eagle-mfg.com](http://www.eagle-mfg.com)

Flammable liquids storage cabinets- [www.justritemfg.com](http://www.justritemfg.com)

Temporary job site heat – [www.temp-air.com](http://www.temp-air.com)

Most construction fires have simple causes and can be avoided by taking simple precautions. The following are particularly important:

- Make sure that LPG cylinders and other flammable materials are properly stored. LPG should be stored outside buildings in well-ventilated and secure areas.
- Flammable materials such as solvents and adhesives should be stored in lockable steel containers.
- LPG supplies should be turned off at the cylinder when not in use.
- Make sure that LPG equipment and fittings are properly maintained. Damaged hoses and fittings or makeshift connections are extremely dangerous because they can easily lead to leaks in tough construction conditions.
- If there is any suspicion that LPG is leaking stop using it and check. Leaks can be identified by hissing, smell, or using soapy water, but never with a naked flame.
- Follow clear rules for hot work such as welding. Formal permit-to-work systems are often appropriate. In particular, make sure extinguishers are at hand and that sparks or heat cannot set fire to surrounding materials. After the work has finished (usually an hour later) check the worksite to make sure that there is no smoldering.
- Keep a tidy site and make sure rubbish is cleared away promptly and regularly.
- Avoid unnecessary stockpiling of combustible materials, e.g. polystyrene, and store what is necessary away from ignition sources. Limit what is taken onto the site from the storage to what is needed for a day's work.
- Consider the need for special precautions in areas where flammable atmospheres may develop, such as the use of volatile solvents or adhesives in enclosed areas.
- Never burn waste materials on site. Never use gasoline or similar accelerants to start or encourage fires.
- Make sure everyone abides by the job site smoking rules.
- Place trash dumpsters a safe distance from buildings or other combustibles.

Site rules for preventing fire are useless unless they are followed. Employers and construction managers should monitor their worksites and take appropriate action when safety and health violations are found.

### The To Do List

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Throughout the year we often have great ideas about how to get organized, how to work more safely, or how to reduce our exposure to loss. We might write a note to ourselves and put it in our in-box or on a Post-it Note on our computer monitor. Here are some loss reduction suggestions for your in-box that will help you manage your exposures.

#### January 2011

- In November of 2010 OSHA released a new crane standard. Among other things, it requires crane operators to be certified and riggers and signal persons to be trained and qualified. If you are not familiar with these new regulations contact your General Casualty loss control specialist for assistance.
- When is the last time you used a portable fire extinguisher? You likely have them in your place of business, but have your employees been trained on how to select and use them? Do they know their limitations? Take time this month to evaluate your portable fire extinguishers. Make sure they are the proper type for your occupancy and that they are readily accessible. Contact your local fire department and ask if they would be willing to train your employees on the safe and proper use of portable fire extinguishers.



## 1st Quarter 2011

### The To Do List - continued

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#### February 2011

- Falls are the number one killer of construction workers. If your workers use a personal fall arrest system (PFAS) to protect themselves from falls, that equipment should be inspected prior to each use. It is also prudent to inventory and inspect all your PFAS equipment yearly. Have your workers bring in all their harnesses, lanyards, lifelines, crossover straps, anchors, positioning equipment, etc. and inspect it closely. While you have everyone together, go over the proper way to wear, store, clean, inspect, and use the equipment.
- While the construction season is still slow take some time to evaluate your current insurance coverage. Sit down with your agent or qualified insurance professional and discuss your scope of operations. Are you working in additional states? Inform him of any changes in your business such as acquisitions, mergers, etc. Make sure he is aware of any properties you acquired or sold. Be sure you fully understand the insurance coverage you have, your deductibles, and what your limits of protection are. Make February “Risk Management Awareness Month”.

#### March 2011

- Time for your annual safety kick-off meeting? Make the most of your time and invite a safety professional to speak for an hour or two. Vendors can be a great resource. Where do you buy your safety supplies from, or rent your lifts? Who do you call for underground locates? Do you use powder actuated tools? Many of these vendors have trained professionals on staff that can discuss the safety aspects of what they sell or rent, or the services they provide. And of course, feel free to contact your General Casualty loss control specialist.
- The winter months can present us with some strong winds. Strong winds on a job site can cause serious problems. Building materials like plywood, corrugated steel, and insulation can be picked up by the wind, striking other objects or workers. Make sure all building materials are securely anchored. Scaffolds covered with plastic for weather protection are susceptible to overturn from strong winds. A qualified person should determine proper anchoring of all scaffolds.

Let's get all these in the out-box before next quarter!

### Construction Safety and Health Training Resources – New resources added this quarter

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Listed below are a few construction safety resources that may assist with your training and compliance needs.

#### Builders Associations

Associated General Contractors (AGC) [www.agc.org](http://www.agc.org)

Associated Builders and Contractors (ABC) [www.abc.org](http://www.abc.org)

#### Codes and Standards

American Society of Mechanical Engineers [www.asme.org](http://www.asme.org)

American National Standards Institute [www.ansi.org](http://www.ansi.org)

National Fire Protection Association [www.nfpa.org](http://www.nfpa.org)

Occupational Safety and Health Administration (OSHA) [www.osha.gov](http://www.osha.gov)

Mine Safety and Health Administration (MSHA) [www.msha.gov](http://www.msha.gov)

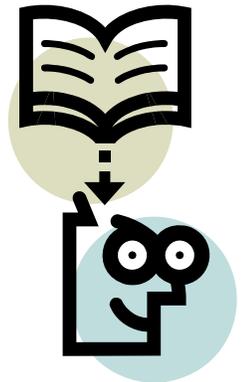
#### Concrete Pumping Resources

American Concrete Pumping Association [www.concretepumpers.com](http://www.concretepumpers.com)

#### Crane Safety Resources

The Crane Institute of America [www.craneinstitute.com](http://www.craneinstitute.com)

The National Commission for the Certification of Crane Operators [www.nccco.org/](http://www.nccco.org/)



### **Construction Safety and Health Training Resources - continued**

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#### **Electrical Safety Resources**

Ericson Safety Products [www.ericson.com](http://www.ericson.com)

Salisbury Personal Safety Supplies & Dielectric Supplies [www.whsalisbury.com](http://www.whsalisbury.com)

Ideal Electrical Tools and Supplies [www.idealindustries.com](http://www.idealindustries.com)

Martin Technical Arc Flash Assessment [www.martinarcflash.com](http://www.martinarcflash.com)

Electrical Safety and Arc Flash Training <http://www.avotraining.com/>

Westex Incorporated FR Arc Flash Clothing [www.westexinc.com](http://www.westexinc.com)

Lewellyn Technology Arc Flash Assessment [www.lewellyn.com](http://www.lewellyn.com)

#### **Excavation Safety Resources**

National Utility Contractors Association [www.nuca.com](http://www.nuca.com)

American Shoring [www.americanshoring.com](http://www.americanshoring.com)

Efficiency Products Inc. [www.epi-shields.com](http://www.epi-shields.com)

Planet Underground [www.underspace.com](http://www.underspace.com)

#### **Safety Associations**

The Construction Safety Council [www.buildsafe.org](http://www.buildsafe.org)

The Construction Safety Association of Ontario [www.csa.org](http://www.csa.org)

National Safety Council [www.nsc.org](http://www.nsc.org)

American Society of Safety Engineers [www.asse.org](http://www.asse.org)

Center for Protection of Workers Rights [www.cpwr.com](http://www.cpwr.com)

American Trainco [www.americantrainco.com](http://www.americantrainco.com)

#### **Scaffolding Safety Resources**

Safeway Scaffolds [www.safeway.com](http://www.safeway.com)

Waco Scaffolds [www.wacoscaf.com](http://www.wacoscaf.com)

Scaffold Industry Association – [www.scaffold.org](http://www.scaffold.org)

American Work Platform Training [www.awpt.org](http://www.awpt.org)

Scaffold, Shoring, and Forming Institute - [www.sffi.org](http://www.sffi.org)

#### **Vehicle Safety Resources**

The National Work Zone Safety Clearinghouse [www.workzonesafety.org](http://www.workzonesafety.org)

Federal Department of Transportation MUTCD [www.mutcd.fhwa.dot.gov](http://www.mutcd.fhwa.dot.gov)

American Trucking Association [www.atabusinesssolutions.com](http://www.atabusinesssolutions.com)

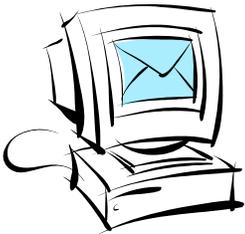
General Casualty Insurance [www.generalcasualty.com](http://www.generalcasualty.com)

### Tool Box Meeting (answers) – Fire Safety on the Job Site

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Answers to tool box meeting on page 2.

1. False. Gasoline must be stored in approved metal safety cans.
2. False. A Type C or ABC fire extinguisher would be your best choice for fighting an electrical fire in the temporary electrical service on your job site.
3. False. Portable fire extinguishers on the job site should be located near the building exits and stairways on each floor. You should always make sure you have a safe means of exit before attempting to extinguish a fire..
4. False. All extra LPG tanks should be stored outside the building. Storing them inside would add fuel to a fire, and leaking tanks could cause a fire or explosion.
5. True. Welding and cutting are two major causes of fires on a construction site. Smoking and electrical fires are a close second.
6. False. Liquids with a lower flash point are generally more dangerous than those with a higher flash point. Flash point is the temperature that flammable liquids begin to give off flammable vapors. Gasoline has a flash point of around -45 degrees Fahrenheit and motor oil has a flash point of around 350 degrees Fahrenheit.
7. False. Open fires and burn barrels should never be used. Only approved temporary heating devices should be used for warming.
8. False. If there is a leak in a LPG heater hose, the LPG will tend to sink to lower levels since LPG gas is heavier than air.
9. True. Vapors given off by flammable and combustible liquids can be ignited by a lit cigarette butt or even a static spark.
10. True. Circuit breakers will help reduce the chance of electrical fires in wiring and devices caused by over loaded circuits. Ground fault circuit interrupters detect stray current which could also result in electrical ignition sources.



Additional construction safety and health resources can be found on the General Casualty loss control services page. [www.generalcasualty.com/productsServices/6lossControl/default.htm](http://www.generalcasualty.com/productsServices/6lossControl/default.htm)

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