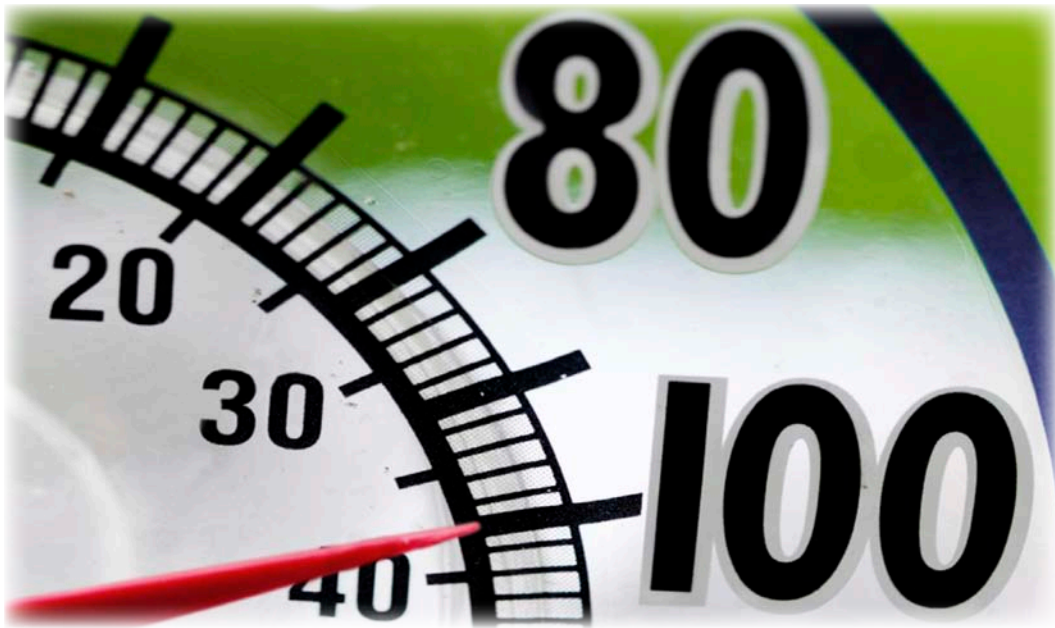


Blueprints

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Heat: The Often-Unseen Danger on Construction Sites

BY JORDAN HOLLINGSWORTH, ASP, CHST, CHSP, CRIS

Construction sites abound with visible hazards. From heavy equipment to powerful hand tools to materials that are inherently hazardous, the average construction site puts workers at risk in many ways.

One of the most insidious hazards on outdoor worksites is heat. Typically, heat becomes a problem on worksites because of hot weather, but it can also become an issue because of the operating tempera-

Heat-related illnesses affect thousands of workers every year.

tures of equipment or processes in the vicinity of the work performed.

Heat-related illnesses affect thousands of workers every year. Some of those workers die as a direct result of the heat or from other severe physical problems brought about by their exposure. For a safety professional, that is a frustrating fact because nearly every heat-related illness or death is completely prevent-

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able. With greater awareness of the potential hazards and the use of simple, common-sense solutions, heat-related illnesses need not happen.

AN ANNOYANCE OR A REAL DANGER?

Most people struggle with heat and humidity but look upon it as little more than an inevitable annoyance of summer weather. We turn to easily available solutions, such as air conditioning, fans, shade and water to cool off.

On worksites, heat and humidity can be annoying, too. They can also be dangerous because the human body can only handle so much heat before it suffers serious damage. The body is a well-engineered machine that normally does an excellent job of maintaining a stable

98.6°F temperature. When the body senses a need to cool itself, it begins to sweat. But if it gets too warm, sweating alone is not enough to cool it sufficiently. That is when a series of heat illnesses can occur, each of them carrying greater dangers.

Heat rash is often the first sign of problems. Triggered by sweating, it results in clusters of what appear to be small pimples or blisters, usually in sweaty areas, such as the

neck, groin, chest and elbow. It is easily treated by moving to a cooler and/or less humid area and by applying powder (wet materials, such as creams, may actually worsen the rash).

Heat cramps are a sign that the body is hot and becoming dehydrated. The cramps usually occur in abdominal muscles or legs and typically appear suddenly. Treatments include moving to a cooler area and drinking fluids, preferably water or sports drinks. Stretching the cramped muscles may also provide some relief.

Heat illnesses become more serious with heat exhaustion, which announces itself through a variety of symptoms that may include thirst, heavy sweating, headache, nausea, dizziness, weakness, irritability and confusion. The body temperature may also climb above 100.4°F. Heat exhaustion is a serious condition, and if action is not taken immediately, it may quickly progress to heatstroke. A worker who appears to be suffering from heat exhaustion should be moved to a cooler, shaded area and should be encouraged to drink water and sports drinks. Wet towels can be used on the face, neck and head to lower body temperature and to provide some relief. As a precaution, it is a good idea to obtain medical atten-

tion, and if symptoms worsen or do not respond to basic treatment, call 911.

Heatstroke, the most severe heat illness, can be deadly. As the heat raises the body's temperature to dangerous levels, the brain and other organs can be damaged. If treatment is not obtained promptly, heatstroke can lead to a coma. How can you tell if heat exhaustion is becoming heatstroke? One sign is that the skin becomes hot to the touch, although the worker may have stopped sweating. Another is confusion and disorientation. In severe cases, workers can become aggressive or can suffer seizures.

If you even suspect the possibility of heatstroke, do not delay. Call 911, and while you are waiting for the medical response, move the worker to a shady area. Use cold, wet towels, ice or cool water to reduce the worker's temperature. Every minute and every degree counts.

WHICH WORKERS ARE AT RISK?

While you would expect that people who work outdoors in hot, humid weather would be at risk of heat-related illnesses, they are not the only ones. Workers performing physical tasks while wearing heavy protective equipment or special clothing may also be at risk.

Heat-related illnesses can happen during the chilliest winter weather. The biggest issue is heat exhaustion caused by dehydration.





People who have heart problems or circulatory disorders may fall prey to heat more easily, as will those who are taking medications that interfere with sweat or other normal body functions. Workers who are substance abusers may also have a lower threshold for heat problems.

One problem on many worksites is the “macho” culture in which admitting discomfort is seen as a sign of weakness. Many workers will refuse to admit to their supervisors that the heat is getting to them until the symptoms are severe. That means the supervisors must take the responsibility to monitor workers and to watch for signs that employees may be suffering. Supervisors should also work to make sure employees remember to remain hydrated.

PREVENTION: THE BEST STRATEGY

As with so many other aspects of workplace safety, the best way to avoid heat-related illnesses is to take steps to prevent them from happening. Three primary strategies for prevention are 1) provide plenty of water, 2) allow time for rest 3) and use shade whenever possible.

All workers should have access to an abundance of water (ideally cooled to between 50°F and 60°F) in convenient locations. Simply providing water is not enough. Supervisors should make an effort to encourage workers to drink water throughout the day. Water is the best beverage to prevent hydration, followed by sports drinks. Caffeinated beverages, such as soft drinks, may actually contribute to dehydration. If a worker is properly hydrated, his or her urine will generally be clear or lightly colored.

Rest breaks should be scheduled throughout the workday, and workers should have a place that provides shade and ventilation for those breaks. An air-conditioned trailer is an excellent option.

Another effective strategy for hot-weather work is helping workers build up a tolerance to heat. The human

body is adaptable, and workers’ bodies can become accustomed to working in hot and humid conditions, but it takes time. Allowing workers to gradually become acclimated to those conditions will reduce the potential for problems. For example, workers can build up the number of hours they spend outside each day over a 5-day period.

REDUCING THE HAZARDS

Safety professionals know that one of the best ways to address any problem is to engineer the hazard out of the workplace. There are ways to do that with heat-related issues.

Proper scheduling is one of the most effective solutions. Supervisors can make arrangements so that heavy work is not performed when the sun is at the highest point in the sky, typically from about 10:00 am to 2:00 pm. In addition, schedules can be arranged so workers start earlier in the morning on the hottest days.

I recall one project that involved digging river rock on an August day. A laborer who failed to eat and drink properly collapsed of heat exhaustion in the early afternoon. The supervisor could have avoided the situation by having the worker come in earlier and stop the heavy work in the midmorning hours. He could have also switched to less-strenuous tasks until the midday heat passed.

Other engineering approaches can include providing ventilation or portable air conditioning, using shields to reflect radiant heat sources and making sure that no inadvertent sources of heat (such as leaky steam lines) are adding to the problem.

PPE can also contribute to heat-related illnesses. Special clothing, such as that worn to protect against arc flash in electrical settings, may impair the body’s normal cooling activities. In these situations, the safety benefits provided by the PPE outweigh the risks, but supervisors

must be especially alert to the potential for heat exhaustion. More frequent breaks for water and cool-down periods may be advisable.

Supervisors also need to monitor workers to ensure that they are not reducing safety protection in an effort to improve personal comfort. A common example of this is workers loosening the straps on fall protection harnesses to reduce discomfort caused by sweating and chafing.

HEAT-RELATED ILLNESS IN THE WINTER

Heat-related illnesses can happen during the chilliest winter weather. The biggest issue is heat exhaustion caused by dehydration.

Outdoor workers wear extra layers of clothing to stay warm, and those layers trap body heat, which leads to perspiration. If workers do not drink water to replace the lost fluid, they can become dehydrated. In addition, many workers will choose not to drink because they

want to limit the number of trips they will need to make to the facilities (typically, a freezing portable toilet).

However, if they become severely dehydrated, they will exhibit the same symptoms you will see in summer heat exhaustion. By the time they notice the cramping, they will probably be unable to keep working and may need medical attention.

Supervisors can prevent these problems by making sure workers are aware of the dangers and by monitoring their activities. It is just as important to provide drinking water during cold weather and even more important to encourage workers to drink it. ☺

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Social Media & Crisis Communications, July 24, 2013

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