

HVAC&R Nation

AN AIRAH PUBLICATION



True brew

Coopers'
\$65 million
upgrade



Skills
WORKSHOP
Testing for
electrical
faults

Beating the heat

**How to stay safe
when the temperature soars.**

BEATING THE HEAT



During Australia's scorching summer the public depends on air conditioning and refrigeration equipment – and HVAC technicians often confront dangerously high temperatures to keep that equipment running. **Sean McGowan** explains the dangers of working in the heat.

You might consider yourself too tough to admit it, but the conditions experienced on a hot summer's day while servicing equipment on a building rooftop can be brutal.

It doesn't take long before a rooftop reaches 70°C or more.

Yet for almost half of the year in southern states, and perhaps longer in Queensland, the Northern Territory and Western Australia, these are common workplace conditions confronting HVAC technicians.

Working in these situations can cause all kinds of health problems, from discomfort and heat rash to headache, nausea and dehydration, right through

to serious heat-related illnesses such as heat stress and heat stroke, both of which can be fatal.

Safe Work Australia says working on roofs can also expose workers to very high levels of ultraviolet radiation through direct sunlight and via reflective surfaces such as concrete, metal and glass in roofing materials. So even if exposure to the sun doesn't burn you, reflection from the materials exposed to the sun can.

Although some people might just tell you to put another spoonful of cement in your cuppa and harden up, working in the heat is more dangerous than you think.

“

It doesn't take long before a rooftop reaches 70°C or more

”

HOW HOT IS TOO HOT?

According to Brisbane-based air quality and meteorological experts Katestone, there are no regulations in Australia that set a limit on temperature in the work environment.

Instead, it is the employer's responsibility to identify hazards and put control measures in place to reduce the risk. And Katestone points out that temperature is not the only important factor contributing to the risk of heat stress.

“What you are wearing, what you are doing, your health, hydration and acclimatisation status need to be considered as well as temperature, radiation, humidity and wind speed,” says the firm's website.

“Heat stroke can occur at surprisingly low temperatures, provided the evaporative power of the air is sufficiently reduced.”

MANAGING THE RISKS

According to Safe Work Australia, the following steps should be taken, so far as reasonably practicable, to ensure that workers and other people are not exposed to harm from working in the heat.

1 Identify the hazard

Take into consideration the air temperature, air flow, humidity, radiant heat sources, work requirements and the workplace itself.

2 Assess the risk

Conduct a risk assessment and consider the impact of the hazard and how likely the hazard is to cause harm. Take into consideration the worker, the work and the working environment.

3 Control the risk

Eliminate risks associated with working in the heat. This may include cancelling certain work tasks, rescheduling tasks to cooler parts of the day, or waiting for hot conditions to pass. If the risk cannot be eliminated, it must be minimised.

4 Review the control measures

Review the control measures to ensure they are working as planned and that they do not introduce new uncontrolled risks. For example, removing personal protective equipment (PPE) to cool a worker down may introduce new hazards such as exposure to chemicals or solar ultraviolet radiation.

Although employers have a responsibility to protect their workers, as a worker you also have a responsibility to look after yourself. This includes knowing your limits and state of health, keeping hydrated, taking frequent breaks, dressing appropriately (slip, slop, slap) and looking after fellow workers, including apprentices.

A good rule of thumb may also be to use the guide (above right), for work and rest cycles, sent to us by a long-time HVAC&R Nation reader.

Apparent temperature	Work/rest cycle	Hydration
27–31°C	50 mins work : 10 rest	250ml every 20 mins
32–39°C	40 mins work : 10 rest	250ml every 20 mins
40°C–49°C	30 mins work : 10 rest	250ml every 15 mins
50°C–53°C	20 mins work : 10 rest	250ml every 10 mins
≥54°C	10 mins work : 40 rest Critical/emergency work only	250ml every 10 mins



Jenny Smith, Affil.AIRAH

A CAUTIONARY TALE

As owner of About Airconditioning in Darwin, Jenny Smith, Affil.AIRAH, knows a thing or two about working in the heat. She notes that soaring temperatures aren't the only danger – glare from rooftops can be very dangerous and cause both short- and long-term eye damage. She warns that equipment can also be damaged in such conditions.

“One hot summer in Adelaide during heatwave conditions I worked on the roof of a service station,” says Smith. “It was so hot that the R22 cylinder blew its safety valve and tried to leave on its own. I worked all day up there until sundown, to get the system going, and when I got home that night I weighed myself and found I'd lost 5kg.”

Smith says technicians working in such conditions need to keep hydrated and use electrolytes, and make sure they eat well.

“Wear sunscreen, long sleeves, a hat and proper, high-quality sunglasses,” she says. “And take breaks in the shade.”

She recommends keeping your tools covered with a towel, so they don't become too hot to work with.

“And protect your electrical meters!”

WE DON'T NEED ANOTHER HERO

Although summer is officially over in February, you can bet there will be more sweltering days before winter arrives. And as the above information shows, the risks associated with working in the heat can be extreme.

The traditional approach might be to “tough it out”, but it's not about being tough, it's about being smart. Just as you look after your tools, you need to look after your body – it's the most valuable tool you've got. ■

Common heat-related illnesses

Safe Work Australia offers a free guide to managing the risks of working in heat. In it, a number of the common effects of working in heat are explained. These include:

Heat rash	Skin can become irritated and cause discomfort when working in heat.
Heat cramps	Muscles can cramp as a result of heavy sweating without replacing salt and electrolytes.
Fainting	Can occur when you stand or rise from a sitting or squatting position.
Dehydration	Increased sweating can lead to dehydration if you are not drinking enough water.
Heat exhaustion	Occurs when the body is working too hard to stay cool.
Heat stroke	Occurs when the body can no longer cool itself. This can be fatal.
Burns	Can occur if you come into contact with hot surfaces or tools.
Slips	You sweat more in hot conditions, which can increase the risk of slips (i.e. you might slip when using sharp tools if your hands are damp).
Reduced concentration	When working in heat it is more difficult to concentrate and you might become confused. You may be more likely to make mistakes.
Increased chemical uptake into the body	Heat can cause the body to absorb chemicals differently and can increase the side effects of some medications.

Source: www.safeworkaustralia.gov.au

WHAT TO DO IF SOMEONE DEVELOPS A HEAT-RELATED ILLNESS

Heat-related illness is a progressive condition and if left untreated it can be fatal.

If you think you or someone else has severe heat exhaustion, or heat stroke, you should call an ambulance immediately and perform first aid until the ambulance arrives.

For the early stages of heat-related illness, first aid can often be effective, but you should always seek medical assistance if in doubt, or if the person's symptoms are severe.

Source: www.safeworkaustralia.gov.au

For more information about heat stress management in the workplace, check out the Katestone website and articles on the subject at www.katestone.com.au