Carbon monoxide: A silent killer

The Federal government's carbon tax isn't the only t opic involving carbon to have been discussed in parliament recently. Carbon monoxide poisoning, often referred to as the silent killer, is the target of government and industry action following the deaths of two young children last year. Sean McGowan reports.

In late May 2010, the rural Victorian town of Mooroopna was rocked by the deaths of two young children, aged eight and six, who died from carbon monoxide poisoning as they slept in their beds.

Investigations found Tyler and Chase Robinson died after carbon monoxide (CO) leaked from a faulty gas heater located in a bedroom of their family's rented home. The children's mother, Vanessa, survived but sustained long-term health problems from the leak.

She was also wrongly suspected of being involved before authorities discovered the cause of the boys' deaths.

This tragedy brought the number of fatalities caused by CO poisoning in Victoria to nine in a little over a decade, and has prompted overdue action by both the Victorian and Federal governments to address the issue.

Federal member for Murray, Dr Sharman Stone, has been calling for federal action on the issue since the tragedy occurred in her electorate. In late February, she presented a private member's motion to Federal parliament, which called for new legislation to improve detection, safety and awareness about the deadly gas.

"Currently there are no laws mandating regular safety checks for gas appliances fitted in homes, nor for gas detectors to be fitted," said Dr Stone as she presented the motion to parliament. "Detectors can cost as little as $40 but we have no Australian Standards agreed for these detectors."

In a rare show of cooperation and unity in the House of Representatives, the motion was unanimously supported by both sides of government.

Dr Stone says the new legislation needs to be nationally consistent, and the change needs to come via the Australian Building Codes Board, which maintains and updates the Building Code of Australia.

She cited the introduction of mandatory smoke alarms as an example of how such change can be implemented successfully.

"Minister for Resources and Energy, Martin Ferguson, has taken up the cause and will task the Ministerial Council on Energy, a part of the Council of Australian Governments (COAG), to come up with a strategy which will require all residential properties with gas appliances to be fitted with an approved carbon monoxide detector," says Stone.

She says landlords will also be required to have gas appliances inspected by qualified contractors, with training and workforce requirements for extra qualified gas fitters and inspectors to be identified.

What is carbon monoxide?

Carbon monoxide (CO) is a by-product of hydrocarbon combustion and can be produced in large quantities when combustion is incomplete due to obstruction of the flame, incorrect gas operating pressure, poor air/gas ratio control or simply a bad burner.

When hydrocarbons such as liquefied petroleum gas (LPG) and natural gas (NG) are burnt, the carbon and hydrogen react with the oxygen in the air to form CO and water.

When combustion is incomplete, however, large quantities of CO can be produced. CO can build up in a small room such as a bathroom or toilet very quickly if the spillage is excessive and there's no ventilation. For a larger room such as a living room, it would take longer for the CO to build up.

What are the dangers of carbon monoxide?

As mentioned, CO has claimed the lives of a number of people over the years. If the products of combustion from a gas appliance installed inside a building are dispersed to the outside atmosphere as they should be via a suitable, sound flue, there is not a problem.

The danger arises when large quantities of CO are being produced during combustion and the flue products are not being dispersed to the outside atmosphere.

Flue products may not be dispersed to the outside atmosphere if:

1. **The flue does not terminate outside the building;**
2. **The appliance heat exchanger is split;**
3. **The flue terminal of an open flued appliance is blocked;**
4. **The flue is broken or blocked**

The danger is highly accelerated when the CO is spilling into a bedroom or caravan where all the door and window openings are tightly sealed, or in a confined space such as a toilet or bathroom where people spend some amount of time.

What are the symptoms of carbon monoxide poisoning?

Early CO poisoning symptoms include tiredness, shortness of breath, mild headaches and nausea. When poisoning gets worse, people may experience:

- **severe headaches;**
- **dizziness;**
- **weakness and sleepiness;**
- **nausea and vomiting.**

If the poisoning is extreme, it may lead to confusion, loss of consciousness and death.

Loss of consciousness can occur quickly.

Some people are especially sensitive to CO. This includes young children, unborn babies and the elderly, as well as those suffering from heart disease and anaemia.

It is very important to note that small children are more susceptible to CO poisoning than adults.

Source: Energy Safe Victoria www.esv.vic.gov.au

"Finally, there will need to be the promotion of greater awareness of the dangers of faulty gas appliances and the symptoms of carbon monoxide poisoning."

Although it should not have taken the deaths of two healthy young boys and the serious injury of their mother to highlight the problem of CO poisoning, Stone believes such action will ensure that more people are aware of the dangers of malfunctioning appliances, and tenants will have greater protection.

"It may take up to a year to have all states and territories come into line with effective regulations," says Stone, "but the directions are now set."

The silent killer

The Victorian government and key industry stakeholders have already taken the issue to the public. Last month it launched a campaign calling on all Victorian families to have their gas heaters and appliances regularly serviced and checked by qualified gas fitters.

Gas safety regulator Energy Safe Victoria (ESV) and the Plumbing Industry Commission (PIC) have joined forces to roll out the advertising and public awareness campaign to both families and gas fitters in time for the onset of cooler weather, when gas heaters will likely be turned on for the first time in months.

Adding credibility to the campaign, Vanessa Robinson and her husband Scott asked authorities to be involved, and feature in a commercial screening on Victorian television.

Launching the campaign last month, state Minister for Energy and Resources Michael O'Brien says the risks of leaving gas appliances, such as heaters, unchecked were not worth taking.

"Vanessa and Scott Robinson very bravely asked to be involved in this campaign because they do not want the same thing to happen to other families," O'Brien says.

"Carbon monoxide is a silent killer – you can't smell it, taste it or see it – and all Victorians should regularly ensure their gas appliances are regularly checked and serviced at least every two years by a qualified gas fitter or service technician."

Along with calling on families to take action, ESV has also put out a "call to arms" to gas fitters, gas appliance service organisations and gas appliance manufacturers, warning that many domestic gas consumers are not having their gas appliances serviced – either regularly or at all.

"This lack of servicing has contributed to a number of CO related fatalities, and an even greater number of related incidents, resulting in the need for medical attention and in some cases hospitalisation," ESV explains.

It has advised gas fitters that during the seven-week campaign and for a period up to and including winter, it expects the number of calls for gas appliance servicing to increase significantly.

"This may require all sectors of the gas industry and gas fitting trades to increase the number of qualified service personnel available to meet the spike in demand."

With the campaign emphasising the need for service technicians to use combustion analysers to fully assess that gas appliances are operating safely, gas fitters attending call-outs are also urged to ensure they have the necessary tools to carry out effective servicing.

This includes a CO analyser/detector that has been calibrated correctly in the required time frame to detect CO. The CO reading must be less than 10 parts per million (ppm) to pass any test.

Other tell-tale signs of faulty gas heaters include a yellow or sooty flame (apart from appliances where yellow flames are deliberately used for decorative effect); soot or discolouration around the gas appliance; the heater goes out after a short period for no apparent reason; debris falling down the flue pipe; and a missing or damaged cowl on the top of the flue pipe. ■