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Gas information sheet No. 3

What is negative pressure?

This fact sheet helps to explain what negative pressure is, and the potential it has for drawing carbon monoxide into a home under certain conditions.

Understanding negative pressure

Negative pressure refers to a condition where the air pressure in a space is lower than the surrounding areas. Negative pressure can occur when there isn't enough ventilation in the home and an extraction fan is operating.



This includes fans such as a rangehood or extractor fan above a stove and controlled ventilation systems such as HRV or DVS or heat transfer units installed in rooms using solid fuel fires.

Essentially, the extraction fan can draw air from any external opening in a house like windows and doors but this can also include gas appliance flues and chimneys. This creates a problem with the operation of an open flued gas appliance, and particularly a faulty one - because dangerous gasses, such as carbon monoxide, can be drawn into living spaces from the gas appliance flue or chimney.

Carbon monoxide (CO) can be hard to detect as it is a tasteless, odourless and colourless gas. CO can be particularly harmful if inhaled as it can cause fatal poisoning.

Gasfitters must ensure that any gas installations do not create a negative pressure environment when extraction fans are operating. This should be checked with all extraction fans running simultaneously. If negative pressure is detected, the gasfitter must either resolve the ventilation issue or refrain from connecting the gas appliance(s) until the problem is corrected.

Simple steps you can take to resolve negative pressure

If you have open-flued gas appliances, space heater(s) or a hot water heater there are some simple steps you can take that will keep you and those in your home safe:

- Get your gas appliance serviced once every two years, or annually if the appliance is used regularly. Having gas appliances serviced helps to ensure your they run safely and efficiently.

While the gasfitter is on site ask them to also check for negative pressure.

- Don't operate exhaust fans at the same time as a gas heater. A rangehood or bathroom fan can create a negative pressure, drawing carbon monoxide into living areas if the gas appliance is being used at the same time.
- Ensure adequate ventilation is provided. While it's not necessary to keep windows and doors wide open on a cold day, proper ventilation is essential to prevent carbon monoxide from being drawn into living spaces. Make sure any permanent ventilation openings are not blocked. Good ventilation also helps gas appliances operate safely and efficiently.
- Don't leave gas heaters on all night or leave the heater on for extended periods when it's not needed.
- Consider installing a carbon monoxide alarm as a back-up measure. Carbon monoxide alarms can be a useful back-up precaution but should not be considered a substitute for the proper installation and maintenance of gas heating appliances.
- Never use outdoor heating appliances indoors. Outdoor heaters, such as patio heaters, barbecues, coal heaters and fire pits release carbon monoxide into the surrounding atmosphere. Carbon monoxide is lighter than air and can disperse more readily outdoors but can be fatal if used indoors.

Carbon monoxide alarms

When purchasing carbon monoxide alarms we recommended you choose an alarm that meets US or EU carbon monoxide standards. The alarm will indicate compliance with one of the following standards:

- UL2034 (North American Standard)
- EN50291 (European Standard)

Choose a model that provides visual and audible alarms indicating when the electrochemical sensor or battery has expired. While these alarms may provide some indication of the presence of carbon monoxide, their operation is dependent upon the location where the alarms are placed, as levels elsewhere in the room may vary. Don't install them near cooking appliances, as this may result in nuisance alarms.

When purchasing a hard-wired alarm, it should only be installed by a licenced electrician.

Negative pressure is a hidden risk that can draw dangerous gases into your home. By ensuring proper ventilation, safe appliance use, and regular servicing, you can protect your household from carbon monoxide exposure and keep your gas appliances operating safely

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