

Carbon Monoxide Awareness

According to HETAS (Heating Equipment Testing & Approvals Scheme):

“Carbon monoxide (CO) is a toxic gas produced by poor combustion. Faulty combustion appliances including gas, oil, & solid fuel can emit CO, usually accompanied by smoke in a solid fuel appliance. In some conditions this can be tasteless & odourless.”

The NHS website (www.nhs.uk) states that ‘every year there are around 60 deaths from accidental carbon monoxide poisoning in England and Wales.’

How to Act

The Health and Safety Executive (HSE) advises that a person take the following actions if they suspect an appliance is leaking carbon monoxide:

- Call the National Gas Emergency Service on 0800 111 999
- Switch off the appliance and shut off the gas supply at the meter control valve
- Open all doors and windows to ventilate the room
- Visit your GP and tell him/her that you believe you may have been exposed to carbon monoxide

Further information on Carbon Monoxide Awareness

- HETAS has also produced a consumer advice leaflet entitled ‘Protect Yourself from Carbon Monoxide’, which is available to download and print from: [COconsumer220118DIGITAL.pdf \(hetas.co.uk\)](http://COconsumer220118DIGITAL.pdf)
- The Gas Safety Register run an annual Gas Safety Week: [About Gas Safety Week - Gas Safety Week \(gassaferegister.co.uk\)](http://About Gas Safety Week - Gas Safety Week (gassaferegister.co.uk))
- Carbon Monoxide Awareness Week also takes place annually in November

Carbon Monoxide Poisoning – Information from NHS.UK

Carbon monoxide is a poisonous gas that has no smell or taste. Breathing it in can make a person unwell, and it can kill if an individual is exposed to high levels.

Symptoms of carbon monoxide poisoning

The symptoms of carbon monoxide poisoning are not always obvious, particularly during low-level exposure.

A tension-type headache is the most common symptom of mild carbon monoxide poisoning.

Other symptoms include:

- dizziness
- feeling and being sick
- tiredness and confusion
- stomach pain

- shortness of breath and difficulty breathing

The symptoms of exposure to low levels of carbon monoxide can be similar to those of food poisoning and flu.

But unlike flu, carbon monoxide poisoning does not cause a high temperature.

The symptoms can gradually get worse with prolonged exposure to carbon monoxide, leading to a delay in diagnosis.

Symptoms may be less severe when away from the source of the carbon monoxide.

If this is the case, the individual should investigate the possibility of a carbon monoxide leak and ask a suitably qualified professional to check any appliances they think may be faulty and leaking gas.

The longer a person inhales the gas, the worse their symptoms will be. They may lose balance, vision and memory and, eventually, they may lose consciousness.

This can happen within two hours if there's a lot of carbon monoxide in the air.

Long-term exposure to low levels of carbon monoxide can also lead to neurological symptoms, such as:

- difficulty thinking or concentrating
- frequent emotional changes – for example, becoming easily irritated, depressed, or
- making impulsive or irrational decisions

Breathing in high levels of carbon monoxide gas can cause more severe symptoms. These may include:

- impaired mental state and personality changes (intoxication)
- the feeling that you or the environment around you is spinning (vertigo)
- loss of physical co-ordination caused by underlying damage to the brain and nervous system (ataxia)
- breathlessness and a heart rate of more than 100 beats per minute (tachycardia)
- chest pain caused by angina or a heart attack
- an uncontrollable burst of electrical activity in the brain that causes muscle spasms (seizures)
- loss of consciousness – in cases where there are very high levels of carbon monoxide, death may occur within minutes

What causes carbon monoxide to leak?

Carbon monoxide is produced when fuels such as gas, oil, coal and wood do not burn fully.

Burning charcoal, running cars and the smoke from cigarettes also produce carbon monoxide gas.

- Gas, oil, coal and wood are sources of fuel used in many household appliances, including:

- boilers
- gas fires
- central heating systems
- water heaters
- cookers
- open fires

Incorrectly installed, poorly maintained or poorly ventilated household appliances, such as cookers, heaters and central heating boilers, are the most common causes of accidental exposure to carbon monoxide.

The risk of exposure to carbon monoxide from portable devices may also be higher in caravans, boats and mobile homes.

Other possible causes of carbon monoxide poisoning include:

- blocked flues and chimneys – this can stop carbon monoxide escaping, allowing it to reach dangerous levels
- burning fuel in an enclosed or unventilated space – for example, running a car engine, petrol-powered generator or barbecue inside a garage, or a faulty boiler in an enclosed kitchen
- faulty or blocked car exhausts – a leak or blockage in the exhaust pipe, such as after heavy snowfall, could lead to a build-up of carbon monoxide
- paint fumes – some cleaning fluids and paint removers contain methylene chloride (dichloromethane); this substance is broken down by the body into carbon monoxide
- smoking shisha pipes indoors – shisha pipes burn charcoal and tobacco, which can lead to a build-up of carbon monoxide in enclosed or unventilated rooms

Treating carbon monoxide poisoning

Any individual should go to the local A&E straight away if they think they have been exposed to high levels. Symptoms will often indicate whether the person has carbon monoxide poisoning, but a blood test will confirm the amount of carboxyhaemoglobin in their blood. A level of 30% indicates severe exposure.

People who smoke can often have higher than normal levels of carboxyhaemoglobin in their blood, which can sometimes make it difficult to interpret the results.

Mild carbon monoxide poisoning does not usually need hospital treatment, but it's still important that medical advice is sought.

The individual's house will also need to be checked for safety before anyone returns.

Recovery

The length of time it takes to recover from carbon monoxide poisoning will depend on how much carbon monoxide a person has been exposed to and how long they have been exposed to it.

Complications of carbon monoxide poisoning

Prolonged significant exposure to carbon monoxide can cause serious complications, including brain damage and heart problems.

In very severe cases, it can result in death.

Effects of severe carbon monoxide poisoning include:

- breathlessness
- chest pains
- fits (seizures)
- loss of consciousness

Around 10 to 15% of people who have severe carbon monoxide poisoning develop long-term complications.

Brain damage

Prolonged exposure to carbon monoxide can cause memory problems and difficulty concentrating.

It can also cause vision loss and hearing loss.

In rare cases, severe carbon monoxide poisoning can cause Parkinsonism, which is characterised by tremors, stiffness and slow movement.

Parkinsonism is not the same as Parkinson's disease, which is a degenerative neurological condition linked to ageing.

Heart Disease

Coronary heart disease is another serious condition that can develop as a result of long-term carbon monoxide exposure.

Coronary heart disease is where the heart's blood supply is blocked or interrupted by a build-up of fatty substances (atheroma) in the coronary arteries.

If the blood supply is restricted, it can cause angina (chest pains).

If the coronary arteries become completely blocked, it can cause a heart attack.

Harm to unborn babies

Long-term exposure to carbon monoxide gas can also damage an unborn baby. Babies exposed to carbon monoxide during pregnancy are at risk of:

- a low birth weight
- perinatal death (stillbirth) and death that occurs within the first 4 weeks of birth)
- behavioural problems

At-risk groups

Carbon monoxide is a danger to everyone, but certain groups are more vulnerable than others.

These include:

- babies and young children
- pregnant women
- people with chronic heart disease
- people with respiratory problems, such as asthma

Pets are often the first to show signs of carbon monoxide poisoning. The smaller an animal or a person is, the faster they'll be affected.

People are advised to investigate the possibility of a carbon monoxide leak if a pet suddenly becomes ill or dies unexpectedly and their death is not related to old age or an existing health condition.

Maintaining and servicing appliances

Boilers, cookers, heating systems and appliances should be installed and regularly serviced by a reputable, registered engineer.

People are advised not to attempt to install or service appliances themselves.

Anyone carrying out work on installations and appliances in a person's home must be registered with a relevant association, such as the:

- Gas Safe Register (for gas appliances)
- Heating Equipment Testing and Approval Scheme (HETAS) (for solid fuel appliances)
- Oil Firing Technical Association (OFTEC) (for oil appliances)

Maintaining chimneys and flues

People are advised to make sure all chimneys and flues are swept regularly by a qualified sweep who's a member of the:

- National Association of Chimney Sweeps (NACS)
- Guild of Master Chimney Sweeps
- Association of Professional Independent Chimney Sweeps (APICS)

Engine exhaust fumes

People can protect themselves from carbon monoxide poisoning caused by exhaust fumes in the following ways:

- do not leave petrol-fuelled lawnmowers or cars running in the garage
- make sure the car's exhaust is checked every year for leaks
- make sure the exhaust is not blocked before turning the engine on (for example, after heavy snowfall)

Carbon monoxide alarms

Installing a carbon monoxide alarm in a home will alert individuals if there's a carbon monoxide leak. But an alarm is not a substitute for maintaining and regularly servicing household appliances.

Carbon monoxide alarms can be purchased from a DIY or hardware store. People are advised to ensure that the alarm is approved to the latest British or European Standard (BS Kitemark or EN50291).

Other safety tips at home and in the workplace

Members of the public are advised to:

- Follow the safety tips below to help protect themselves at home and in the workplace:
- Never use ovens or gas ranges to heat homes.
- Never use oversized pots on gas stoves or place foil around the burners.
- Make sure rooms are well ventilated and do not block air vents. If a home is double glazed or draught proofed, people are advised to make sure there's still enough air circulating for any heaters that are in the room.
- Do not use gas-powered equipment and tools inside a home if it can be avoided. Only use them in a well-ventilated area and put the engine unit and exhaust outside.
- Always wear a safety mask when using chemicals that contain methylene chloride.
- Do not burn charcoal in an enclosed space, such as on an indoor barbecue.
- Do not sleep in a room that has an unflued gas fire or paraffin heater.
- Fit an extractor fan in a kitchen (if it does not already have one).

Being aware of the signs

It's very important to be aware of the risk of carbon monoxide poisoning and to look out for warning signs.

Carbon monoxide poisoning should be suspected if:

- other people in the house, flat or workplace fall ill with similar symptoms
- symptoms disappear when a person goes away (for example, on holiday) and return when they come back
- symptoms tend to be seasonal – for example, if an individual get headaches more often during the winter, when the central heating is used more frequently
- pets also become ill

Other possible clues of a carbon monoxide leak include:

- black, sooty marks on the front covers of gas fires
- sooty or yellow/brown stains on or around boilers, stoves or fires
- smoke building up in rooms because of a faulty flue
- yellow instead of blue flames coming from gas appliances
- pilot lights frequently blowing out

North East Ambulance Service (NEAS)

Training for operational staff in carbon monoxide awareness is included in training around poisons and overdose and would include:

- The death rates compared to other toxins
- Accidental vs suicide
- Affects and physiology
- Diagnosis and difficulties around this
- What to look for
- Symptoms
- Management
- Treatment

Cleveland Fire Service

Cleveland Fire Brigade provide advice and support on Fire Safety in the home. The Community Safety Hub staff have general knowledge of carbon monoxide and the advice hub staff give is targeted as part of the safer homes visit within people's homes. Free smoke alarms are provided at part of a safer home visit, if needed, but free carbon monoxide detectors are not provided.

Operational crews carry out home fire safety visits, which are completely free. The visits focus on three key areas:

1. Identify and be aware of the potential fire risks within your home
2. Know what to do in order to reduce or prevent these risks
3. Put together an escape plan in case a fire does break out and ensure you have working smoke alarms

Although Carbon Monoxide alarms are not provided, crews or advocates advise on the dangers of carbon monoxide and what the effects are to the occupant.

Occupants are always advised of these dangers and urged to purchase a Carbon monoxide alarm from places such as Tesco, B+Q, Asda. An ideal location is also suggested to place these alarms in their homes.

Residents who wish to book one of these visits can call 01429 874063 or complete the form below:

[Home Fire Safety Referral Form \(pdf\)](#)

The Smoke and Carbon Monoxide Alarm (England) Regulations 2015

From 1 October 2015, new regulations require private sector landlords to have at least one working smoke alarm installed on every storey of their rental property. Where there's a solid fuel appliance, they are also required to have a carbon monoxide alarm installed in the room in which it is used.

Landlords must make sure that there are adequate working alarms at the start of each new tenancy.

Stockton-on-Tees Borough Council's (SBC) Private Sector Housing Team and Environmental Health Team raise awareness of carbon monoxide poisoning including working with local landlords and enforcing legal requirements in privately rented properties.

SBC's Private Sector Housing Team staff are responsible for enforcing these regulations and are required to issue a notice to a landlord where they believe that a property does not have the required smoke and carbon monoxide alarms or unfit appliances present an imminent danger or are not repaired or replaced, within specific timeframes.

Contact details:

Website: <https://www.stockton.gov.uk/our-places/housing-services/private-rented-housing/>

E-mail: privatesectorhousing@stocktion.gov.uk

Tel: 01642 527797

If the landlord fails to comply with this notice, with the occupier's consent, appropriate alarms can be fitted in default of the notice. A fixed penalty notice of up to **£5000** can also be issued where a notice has not been complied with.

<https://www.gov.uk/government/publications/smoke-and-carbon-monoxide-alarms-explanatory-booklet-for-landlords/the-smoke-and-carbon-monoxide-alarm-england-regulations-2015-qa-booklet-for-the-private-rented-sector-landlords-and-tenants>

Best Practice for Fuel-burning Appliances

A result of incomplete combustion, CO can be produced from any appliance that burns fuel, e.g. faulty boilers, gas fires, cookers, or blocked chimneys. In order to safeguard tenants, best practice therefore includes to:

- (1) Educate tenants about CO
- (2) Have all fuel-burning appliances regularly serviced by a gas safe engineer
- (3) Install carbon monoxide alarms
- (4) Inform tenants on what to do in the event of a carbon monoxide event

Gas Safety (Installation and Use) Regulations 1998

Under this legislation social landlords must:

- *Ensure that gas fittings and flues are maintained in a safe condition*
- *A gas safety check is carried out annually on each appliance/flue*

However, it is important to note that this annual inspection is essentially a “gas safe MOT”, and it will not guarantee tenant protection from carbon monoxide between these timeframes. Only carbon monoxide alarms can provide this.¹

Smoke and Carbon Monoxide Alarm (England) Regulations 2015

What this stipulates:

- *Private landlords must install a carbon monoxide alarm in every room where there is a solid fuel burning appliance*

This legislation, however, appears to have a few shortcomings. For instance, as outlined in Rob Lyon’s interview, it only applies to “solid” fuel-burning appliances, yet oil and gas based boilers – which have been known to produce the toxic gas – are excluded. The legislation also excludes social housing, thereby creating an odd situation where local authorities will be enforcing legislation on private rental properties that local authority and Housing Association housing is not required to meet. However, despite these legislative discrepancies, many social landlords have already taken action and installed CO alarms in rooms with both solid fuel burning and gas appliances.²

Building Regulations Part J

What this stipulates:

- *Carbon monoxide alarms must be installed in the room where a new or replacement fixed solid fuel appliance is installed in a dwelling*

However, this does exclude social housing premises that already have a fuel-burning appliance installed, which is somewhat alarming as older appliances are likely to pose a greater risk to tenants. In recognition of this, the 2015 report by the All-Party Parliamentary

Carbon Monoxide Group (APPCOG) recommended that “Building Regulations should be amended to require social housing providers to fit and maintain standard compliant carbon monoxide alarms wherever a fuel burning appliance is installed.”³

¹ Information sourced from [Social Housing CO Legislation \(England\) | FireAngel](#).

² Information sourced from [Social Housing CO Legislation \(England\) | FireAngel](#).

³ Information sourced from [Social Housing CO Legislation \(England\) | FireAngel](#).

Information from Registered Providers

	(1) How does your organisation Educate tenants about CO?	(2) Have all fuel-burning applies been regularly serviced by a gas safe engineer?	(3) When and where are carbon monoxide alarms installed?	(4)How are tenants informed on what to do in the event of a carbon monoxide event?
Accent Housing	<p>Extract from Accent Housing Website: “Unsafe gas appliances can leak lethal carbon monoxide gas. The gas can’t be seen and it has no smell. We supply carbon monoxide detectors. If they detect the poisonous gas, they sound an alarm. If you don’t have a detector, let us know and we will fit one with our next safety check. Even if you have a carbon monoxide detector, and your appliances are serviced regularly, if you feel ill, or you can smell gas, get fresh air immediately and call your doctor just to be on the safe side. Don’t use the appliance you think is faulty and call us immediately if it is our appliance (or a Gas Safe registered engineer if the appliance is your own).”</p> <p>We also support the annual gas safety week campaign run by the Gas Safe Register which we promote on our website and newsletters. Our first letter to customers requesting access for the annual gas safety check includes the following wording “Your Annual Gas Safety Check to include testing of smoke</p>	<p>All properties with a gas supply are checked and serviced annually and/or on a change of tenancy.</p>	<p>All properties with a gas supply have a carbon monoxide detector installed in any room where there is a fuel burning appliance.</p>	<p>We have a process that is followed on any report of a gas leak or smoke/carbon monoxide detector activation.</p> <p>Extract from Accent Housing website: “We must make sure any gas, oil and solid fuel appliances we provide in your home are safe and in good working order. By law, we must safety check these appliances every year. Our Gas Safe registered contractors will contact you when your safety check is due and make an appointment to call. You can change an appointment if it is not convenient, but you must allow access for the safety check. If you don't, you could be putting yourself and everyone around you in danger. We can't take that risk so, if we can't gain access to</p>

	<p>alarms, heat alarms and carbon monoxide detectors is due before DD/MM/YEAR. Accent Housing Limited have a legal responsibility under the Gas Safety (Installation and Use) Regulations to inspect the gas appliances in your home every 12 months, even if you do not use them. We are also required under BS 5839 to carry out yearly tests to smoke and heat detectors. These safety checks and inspections are free of charge. It makes sure that the gas appliances in your home are safe and that all alarms and detectors are in working order.”</p>			<p>your home to carry out the safety check, we may have to go to court to gain access. We’d rather not do this so help us to help you by letting our contractors in to carry out the safety check when it is due. We are not responsible for the maintenance of any gas appliances you own, but we can’t stress how important it is for you to arrange your own service every year. It could save your life. If you think you have a gas leak, turn off your gas at the meter, don’t smoke, don’t turn any light switches on or off and don’t use any naked flames. Open all your doors and windows and get some fresh air circulating. Call the gas emergency number 0800 111 999. If you’re concerned that you’ve not had your annual gas safety test, and would like to know when your next test is due please <u>contact us</u>”</p>
<p>North Star Housing</p>	<p>As part of the annual gas service and 6 monthly solid fuel service our engineers will explain that a CO detector has been</p>	<p>As of the 31st March 2021 100% of North Star properties which require one have an in-</p>	<p>North Star have installed carbon monoxide alarms in all rooms within</p>	<p>As part of the annual gas service and 6 monthly solid fuel service our engineers will</p>

	<p>installed and what to do in the event that the alarm is activated. The instructions include opening all windows within the property, vacating the room when the alarm has been activated and calling our emergency repairs service so that the incident can be investigated and property made safe.</p>	<p>date (within the previous 12 months) Landlord Gas Safety Record (LGSR) completed by a Gas Safe registered engineer.</p> <p>As part of the LGSR, North Star carry out a five point visual safety check for gas cookers and service any other gas appliances (such as gas fires) within the property.</p> <p>North Star also complete regular services to all solid fuel appliances. This service is completed by a HETAS registered engineer. This service includes the inspection and sweep of all chimney's linked to the solid fuel appliance. As of the 31st March 2021 100% of properties which require on have received a solid fuel service within the last 12 months.</p>	<p>domestic dwellings that contain an appliance which burns, or is capable of burning, a solid fuel. North Star have also installed carbon monoxide alarms in every room in which a gas boiler is located.</p> <p>Carbon monoxide alarms are inspected as part of every gas and solid fuel service. Alarms will be replaced as part of the service if they are found to be faulty or missing.</p>	<p>explain that a CO detector has been installed and what to do in the event that the alarm is activated. The instructions include opening all windows within the property, vacating the room when the alarm has been activated and calling our emergency repairs service so that the incident can be investigated and property made safe.</p>
<p>Thirteen Housing Group</p>	<p>We have gas safe week annually where we highlight the dangers of CO as part of the wider campaign. In addition, we have recently had the 'Test your CO and smoke alarm' campaign. We have</p>	<p>We carry out servicing on all fuel- burning appliance every 10 months. Thirteen group only have 3 properties with solid fuel within our stock and</p>	<p>We are in the process of commencing our annual programme for all stock to install and maintain CO alarms. It is not</p>	<p>Information was included in the recent CO and smoke alarm campaign and we always quote the gas emergency number.</p>

<p>regular updates on social media around the importance of getting your gas appliances checked / serviced to keep them safe and we are also planning on sending the gas leaflet (attached as appendix 1) out with all gas service appointments.</p> <p>Customers are continuously reminded about the importance of keeping their appointment in all follow-up letters to missed gas servicing visits.</p> <p>The link to a Safety campaign we ran to remind customers to press to test button on the CO alarm can be found here. This was covered on social media, website, colleague engagement via touchpoint and Channel (to raise awareness of the importance of reminding customers and knowing the procedure for reporting).</p> <p>A copy of the poster accompanying the campaign is attached (see appendix 2) and here's the video link which was shared too https://youtu.be/RUB1wZMsA4A</p>	<p>10 log burners in our managed stock portfolio.</p>	<p>legislation to have these installed in Social Housing Properties at this moment in time, although there is a consultation out now which may see this become compulsory.</p> <p>Where we do have CO alarms fitted (around 50% of the stock) the expiry date is checked and the test button pushed annually as part of the gas servicing programme. All new build properties will have a CO alarm installed as standard.</p>	<p>Information is also included in the annual gas servicing letters.</p> <p>Thirteen Group have various publications and social media interactions with customers over the course of the year and if needed, the Gas servicing team will conduct a dedicated campaign using these mechanisms.</p>
--	---	---	---