CO-Gas Safety Unintentional Carbon Monoxide Poisoning Case Study

BEN KUCHTA, Witness to incidents 2009-2012

Age: 19
Fuel: Mains gas
Appliance & Location: Central heating boiler in customer's home
Notes by CO-Gas Safety: Ben is not only a Gas Safe Registered engineer but also an entrepreneur and inventor of the award-winning Project SOTER cutoff device. Here he tells of the unintentional carbon monoxide poisoning incidents he has been witness to, including a fatal one when he was a young apprentice.

Ben Kuchta

At the age of 18 I joined a local Gas Safe Registered firm as a support engineer and became an apprentice with them. By Spring 2010 I had qualified sufficiently to join the Gas Safe Register under my own individual registration.

Emergency work

Initially, the company I worked for were usually called out by a property maintenance company to carry out emergency work. This evolved into work for insurance companies, although that type of callout didn't happen very often, maybe one job a week maximum. For these particular jobs, we wouldn't have ever met the customer or been to the property, let alone be told what the appliance is. At best we would be told there's been an alarm activation, installation made safe, paperwork done and told to either write the appliance off or quote to fix it. We never had the details for the customer either; just a partial address, work/job number and telephone of the 'responsible' person.

My first serious CO incident

One of these insurance-related callouts was for an investigation into a possible carbon monoxide poisoning incident. My boss was warned that it was in fact a fatality, but I wasn't. This was up North from our usual patch, somewhere around Derbyshire/Notts/Loughborough.

There were many vehicles parked around the property and it was treated very much like a crime scene. I was told not to touch anything and to put overalls, gloves, overshoes etc on. Inside the property there was a chair knocked over, a broken door handle, glass on the floor. At first, I made assumptions it was a break-in and I thought in the struggle things had been knocked over.

My boss said at the time that he saw the 'aftermath', as he called it. That was when I realised it had to have been a fatality. I think it was a single person, a male, but I think the body had already been taken away. He was found in another room off the side of the kitchen. I didn't have to go in there myself as the boiler was in the kitchen itself. I only realised a few months later what my boss had meant, and that he was referring to the blood and bodily fluids he had seen.

The gas boiler was obviously emitting noxious fumes

I glanced at the gas boiler and it was very obvious it was spilling, that products of combustion were being emitted by the boiler into the living space. There was heat damage to the casing but only slightly, a few cracks in the paint around the front top and minor discolouration on it. The wall around the side of the appliance was very slightly discoloured too. There were very small wisps of heat damage around the top corners. All of these are signs of an appliance not burning as it should, and that CO will be leaking out of it.

Multiple experts documented the scene
The senior engineer from a local firm, (about 6 engineers or so and 4 apprentices) gave a statement via Dictaphone. I don't know the qualifications that this engineer had or who had called them in. Another engineer also gave a statement via Dictaphone. There were several people at the scene investigating - I'm not sure who they were. They were probably from the police, possibly some were medical, someone from the Coroner and from the HSE, but everyone was wearing the same overalls. There was no time for chatting. It was very much get in/get out. The local senior engineer simply described the visual condition of the boiler and gave a nod toward a video showing a spillage test.

We weren't at the property very long at all. No more than an hour; probably less than that. The property was on a small road, so lots of traffic built up from everyone trying to see what was going on. I think it was mainly friends/family/public/other services. There was lots of panic and confusion outside. I remember a lady at the property, I believe she was family. I remember how angry and upset she was at the same time. I was still young at the time; I'd never seen anyone like that before. It's really hard to describe the facial expressions involved. I found it deeply disturbing and upsetting.

Concern about the safety of customers
Following this incident I was worried about the customers I had started to build up. I therefore started promoting the use of CO alarms to EN 50291 bought from a reputable supplier. I also began fitting them for my customers to make sure they were activated and installed in the right place.

Another incident followed, alerted by an alarm
Not long after leaving the firm and going independent, I attended an alarm activation at a property in Coventry not far off the A46. This was not one of my regular clients; I had been recommended to them by word of mouth.

Ambulance, fire service and gas emergency service had attended the scene prior to my arrival and all the gas appliances had been capped off and made safe. I saw the paperwork from the First Call Operator (FCO) of the gas emergency service, capping the meter due to a concern about CO. I don't know if there were any other reports at this stage; I didn't know at the time what paperwork should be there. As far as I was concerned, everything was made safe and the right paperwork was issued.

Two injured occupants
I spoke to one of the occupiers and was told there was an ongoing issue with the appliance (a central heating boiler) and that it was becoming increasingly difficult to reset. This was a private, owner-occupied terraced house. The occupiers were both very, very healthy individuals and kept fit.

I didn't know all that I know now about the dangers of CO and how best to inspect and document an incident scene. I just wanted the paperwork from the FCO and the clearance that I could proceed, which I was given. I met one of them, a young woman that I would estimate to be in her late twenties. I remember that she was really into sports and was a Physical Training instructor. She explained what had happened and who was involved but we didn't talk about treatments or the levels of CO they could have been exposed to. She had minor symptoms. I do not know whether either of the occupants had been given oxygen by the emergency services or how many parts per million (PPM) of CO had been found in the house (if levels were indeed measured and/or recorded).

Alarms are a warning, not a prevention
The CO alarm they had was approved to EN 50291 and installed in the correct location.

When the alarm activated, they didn't realise that not acting on it could be fatal. They both felt quite poorly and had therefore tried to head upstairs to bed. They didn't make it that far. I didn't think to

ask the logic behind their decision then but knowing what I know now, they were certainly impaired by the effects of the carbon monoxide.

One of their neighbours had popped round to swap newspapers and, when they didn't get an answer at the door, they peaked through the letterbox and saw the male resident collapsed on the stairs. He was injured, suffered short term memory loss and I think the phrase used was that he exhibited stroke-like symptoms and was in a bad way, far worse than she was. The woman was found on the landing. She described to me that she felt really tired and nauseous, a bit like having a long day coupled with vertigo. These individuals, as I have said, were both very fit before the event.

As a result of this incident I thought that more is needed to safeguard occupants and decided to come up with the CO Interlock. When a CO alarm sounds, as in this case, the interlock device shuts down an appliance that relies on electricity for its operation. This would include mains gas and oil boilers (it will also work with water heaters and gas fires that require a fan for operation).

More CO-related jobs

Since the aforementioned two cases, I've attended a number of CO-related jobs. My work was to simply go out after an event and investigate the gas appliance, then either give a quote to fix it or decommission it and quote to install a new appliance. Most were the result of injuries or checks/diagnosis following the activation of a CO alarm. I spoke to some of the occupiers and they made a compelling enough case for me to chase the development of the CO Interlock.

Thankfully, I have not walked into an ongoing investigation of a fatality since that first one in my early career.

CO-Gas Safety comments

CO-Gas Safety believe that the fatal incident that Ben witnessed as an apprentice was probably the death of Stephen Newton, deceased 27/12/2009, but due to limited information available we cannot confirm this.

The device that Ben has invented as a result of his work as a Gas Safe Registered Engineer, which he describes as a CO Interlock, is called Project SOTER and won Safety Initiative of the Year at the H&V News Awards 2018. It undoubtedly has the potential to save lives. In layman's terms it is a cut-off switch that activates when it 'hears' a CO alarm sounding. It isolates the electricity supply to the appliance, therefore shutting it down automatically if raised CO levels are detected by a CO alarm.

This means that, whether the residents have heard the alarm or not, the appliance will be stopped. Thus, no-one has to risk further poisoning by getting close to it to turn it off manually. If occupants are asleep, absent or incapacitated for any reason, the source of the CO is halted (assuming that it is the one fitted with the interlock and not, say, an open fire in another room). More information about Project SOTER was published on page 42 of our 2020 Press Pack, which can be found on our website at https://www.co-gassafety.co.uk/information/press-pack-2020/.

Project SOTER
CO Interlock