

CO Roundtable 'Putting safer heating at the heart of building renovations'

16 March 2021, 10h30-12h CET

SUMMARY REPORT

Ms Isabella Myers, the moderator, welcomed the speakers and attendees, and thanked in particular MEP Maria Spyraiki (EPP, Greece) and MEP Sean Kelly (EPP, Ireland) for their support and for co-hosting this new edition of the CO Roundtable.

Introductory session

Maria Spyraiki started by pointing out that indoor air pollutants do not get enough attention from policymakers, and that bad indoor air quality is causing significant damage to people's health - all the more so in the context of the COVID-19 pandemic, where people are spending even more time at home. Carbon monoxide (CO) is amongst those air pollutants. Ms Spyraiki, who drafted the ENVI Committee Opinion¹ on 'maximising the energy efficiency potential of the building stock' in the European Parliament, suggested that using smart safety devices is one of the best available ways to prevent and "*the multiple deaths across Europe that are caused by CO*".

Mr Sean Kelly highlighted in his introductory remarks that CO poisonings are easily preventable, but that they still happen - often with very dramatic consequences. He stressed the importance of CO awareness, referring to TV adverts by Gas Networks Ireland urging people to take the issue seriously, use EN-certified CO detectors/alarms and get those properly maintained. Referring to the Renovation Wave strategy², he highlighted that the building sector is responsible for a very significant share of the EU's total energy consumption (and greenhouse gas emissions), arguing that decarbonising the building stock must be a top priority. "*It is vital that the safety of heating systems is given sufficient attention in the Renovation Wave strategy*", Mr Kelly further argued.

In his introductory remarks, Mr Shane Lyons (Ei Electronics / CoGDEM) pointed out that CoGDEM EU is the only EU group focused on CO awareness. The CO roundtable has existed since 2009 and has covered topics such as effective national awareness campaigns, data collection, CO safety in tourism accommodation, the safe installation and maintenance of gas appliances, and the medical dimension of CO. CoGDEM's objective in organising this event each year is to

¹ https://www.europarl.europa.eu/doceo/document/ENVI-AD-650506_EN.pdf

² https://ec.europa.eu/energy/sites/ener/files/eu_renovation_wave_strategy.pdf

raise awareness of the risks of CO poisonings among EU policymakers, the industry, and the wider civil society, he said.

Mr Lyons further further underlined that over the last 30-40 years, awareness has increased and the risks have declined as improvements in appliances and the fuels used have somewhat reduced the incidence of CO poisoning. However, the threat has not gone away and there are still far too many CO poisonings and deaths each year, he regretted, pointing to some worrying trends in France, Belgium, the Netherlands and Poland. After mentioning the main causes of CO leaks³, he explained that better maintenance guidelines, training and certification of maintenance personnel, heating system service history, and the use of EN-certified CO alarms and flue gas analysers, all contribute to better performance and reducing the risk of CO poisoning. Mr Lyons finally stressed that some EU countries do have CO safety regulations in place, and that others are considering them. Yet, CoGDEM recommends an EU-wide approach to communicating the risks and the precautions.

Adrian McConnell (Gas Safety Trust) explained that the GST is the UK's leading gas safety research charity, and that its aim is essentially to improve safety for consumers and prevent deaths and serious injuries from CO exposure - primarily through funding research and data collection. He mentioned some ongoing projects that the GST is carrying out, including on chromodynamic pupillometry as a sensitive indicator of CO exposure (with the University of Hertfordshire), on developing a neuroprotective strategy to improve treatment outcomes (with the University College London), and on the protection of pregnant women from CO exposure. He further shed light on the link between fuel poverty and CO risk, as low-income households are more likely to use gas appliances that are old and not properly maintained. Mr McConnell finally indicated that the GST will become the 'CO Research Trust' in June this year, and adopt a new strategy, notably aiming at zero accidental CO deaths by 2030, and better detection where the risk of CO exposure cannot be eliminated.

Wrapping up the introductory session of the Roundtable, Isabella Myers recalled the importance of adopting a holistic approach to tackling CO.

Putting health & safety at the heart of building renovations

Opening the second session of the event, Ms Serena Pontoglio, Team Leader in charge of the Renovation Wave at the European Commission's DG Energy, presented the strategy published in October 2020. She highlighted that buildings are responsible for about 40% of Europe's energy consumption, mostly through heating and cooling. One of the main reasons behind the need for accelerating the rate, depth and quality of building renovations is to contribute to the EU's increased climate goals by 2030 and 2050 (carbon neutrality objective). Renovations need to be carried out in an integrated way, and they represent an opportunity to also increase residents' safety and improve indoor air quality, Ms Pontoglio pointed out. She also referred to important upcoming changes to the EU's regulatory framework in this context - in particular the

³ Poor boiler maintenance, leaks in chimney flues, using barbecues or generators indoors, and inadequate ventilation all commonly result in CO incidents. Most poisonings happen in the home and most poisonings are linked to a heating system.

new review of the Energy Performance of Buildings Directive (EPBD)⁴ in June 2021 - and pointed to several EU funding instruments that can help accelerate building renovations, such as the EU Recovery and Resilience Facility, InvestEU and Cohesion Funds. Finally, Ms Pontoglio stressed that the Renovation Wave's key priority areas include tackling energy poverty and worst-performing buildings, and decarbonising heating and cooling.

Mr Francisco Mendes-Palma indicated that the Portuguese Presidency of the Council was working with all the other EU Member States towards the adoption of Council Conclusions on the Renovation Wave alongside a holistic approach based on a social, an economic and an energy pillar. He stressed that the overall objective of the Renovation Wave - and Portugal's top priority - is to achieve better buildings, i.e. buildings that are not only more efficient and resilient, but also with improved indoor air quality and overall safety.

Ms Perrine Ethuin introduced the Modern Building Alliance, which is an alliance of companies and trade associations representing the plastic industry in the construction sector, working in particular on fire safety as these products are combustible. According to the Modern Building Alliance, the Renovation Wave is an opportunity to address fire safety, following 7 key steps - prevention, detection, early suppression, evacuation, compartmentation, structural safety, and firefighting. The first two steps are also absolutely critical when it comes to carbon monoxide safety, and are -together with awareness of the symptoms of CO intoxications- critical in order to prevent deadly CO incidents. Ms Ethuin also stressed the importance of the regular maintenance of electrical and heating systems by qualified, competent professionals - an issue that is also critical to CO safety.

Prof. Agis Papadopoulos, from the Process Equipment Design Laboratory, Dept. of Mechanical Engineering at the Aristotle University of Thessaloniki, delivered a presentation on health and safety in smart buildings. He pointed out that heating and air conditioning systems in buildings have become much more efficient, smarter and safer over the past few decades. In his view, smart/responsive buildings are buildings that are able to incorporate energy management, safety, space management, and operations and maintenance. Building renovations do not only aim at increasing energy efficiency, but also have indoor air quality, thermal comfort, and health and safety as central considerations. Mr Papadopoulos emphasised that CO-related mortality in Europe can be compared to the mortality rates related to HIV/AIDS, skin cancer or alcohol abuse - so it is a very serious public health challenge that must be recognised as such. Moreover, acceptable CO concentration levels have been clearly defined by the World Health Organisation (WHO), and CO detectors/alarms and flue gas analysers (for the regular inspection of gas appliances) are also clearly regulated by relevant EN standards. In other words, CO safety standards and solutions are available, and can help prevent poisonings and CO-related fatalities. Yet, while some progress can be observed, there is still a lot of work to be done in terms of further reducing CO risks and related fatalities across Europe.

⁴ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L0844&from=EN>

Mr Thomas Issac from Progressive Energy then delivered a presentation on HyDeploy⁵, the UK's first programme focusing on blending hydrogen into the natural network. The project aims at demonstrating that a blend of hydrogen and natural gas can be distributed and utilised safely and efficiently in the UK distribution network without disruptive changes for consumers. Looking at gas appliances more specifically, the project has already shown that UK domestic appliances are no less safe with a hydrogen blend; a 20% blend even leads to a dramatic (70%) reduction in CO production, and, thus, in risk of CO intoxication.

Q&As

A participant asked whether the European Commission would kindly include indoor air quality assessments (including assessments of indoor emissions) when determining buildings' efficiency, before and after improvements, using a "logbook" example to record results.

Ms Pontoglio pointed out that the existing EPBD already includes, both in its recitals and in Annex I, guidance to Member States explaining how energy performance assessments are to be carried out, and indicating that safety and indoor air quality issues have to be duly taken into account. So while it is not prescribed, it is highly encouraged. The EPBD leaves flexibility to the Member States on how these assessments are to be performed, technically speaking. Ms Pontoglio further indicated that the Commission might consider, in the upcoming review of the EPBD, proposing amendments to Art. 14 and 15 (on inspections), in order to further integrate health and safety considerations in this legislative framework. She further suggested that the EU ecodesign framework⁶ (which regulates, among other things, the exhaust CO emissions of heating appliances) would also be worth looking into in order to further address the risk of CO leaks due to possible appliance dysfunctions.

Addressing a comment regarding the EN-50291 standard for CO alarms and its alleged non-alignment with the WHO's maximum CO concentration levels, Shane Lyons explained that this EU standard is for critical incident alarms, meaning that there has to be a major dysfunction of a gas boiler/appliance for such an alarm to go off. The comment received seems more relevant for air quality monitors, monitoring in real time levels of various air pollutants (incl. CO) in a property. Mr Lyons also highlighted the cost aspect, indicating that air quality monitors that would function at these low WHO-recommended thresholds would be much more expensive than consumer safety alarms available on the market. Responding to another comment regarding the fact that in line with the EN-50291 standard, CO alarms do not sound until CO concentration reaches 30 parts per million for two hours, he said the industry was well aware of that, explaining that the standard requires that alarms sound at 50ppm within 90 minutes - which is regarded as an appropriate level for a warning in the event of a critical incident.

Answering another participant's question, Mr Mendes-Palma assured that the Portuguese Presidency of the Council aims for technological neutrality as regards i.a. heating systems, in the Renovation Wave discussions, adding that there is no one-size-fits-all solution to renovations

⁵ <https://hydeploy.co.uk/>

⁶ https://ec.europa.eu/growth/industry/sustainability/product-policy-and-ecodesign_en

and that the Member States' (climate, geographical, economic, etc) specificities have to be taken into account.

In reply to another question regarding dwellings efficiency, reduced air flows and managing CO emissions in this context, Prof. Papadopoulos stressed that energy efficiency buildings should not be less ventilated, they should be subject to controlled ventilation - i.e. hybrid form of ventilation using mechanical extraction in the kitchen, bathroom or boilerhouse. This controlled ventilation will also help prevent dangerous CO concentration in the room/household, while avoiding heating/cooling losses, he underlined. *"We don't want to have air-tight households where people will suffocate"*, he said, adding that what is needed is clear technical guidelines on the design, fitting and maintenance of gas boilers and appliances⁷.

Important next steps:

- Adoption by the Member States' Energy Ministers of Council Conclusions on the Renovation Wave: the Portuguese Presidency of the Council (January-June 2021) is hoping to secure that this spring
- Commission to put forward a proposal to review the Energy Performance of Buildings Directive (EPBD), to put the legislation in line with the EU's increased climate ambition - legislative proposal expected in June 2021
- Discussions on the EPBD review to take place during the second half of 2021, in the European Parliament and the Council (under the Slovenian Presidency - July-December 2021)

CoGDEM is willing to continue its dialogue with key EU policymakers and stakeholders throughout these discussions, in order to further raise awareness on CO risks and available life-saving solutions, and to actively advocate for better consideration of critical CO safety recommendations in the EU regulatory framework for the building and heating and cooling sectors.

⁷ This is regulated at EU level by Regulation (EU) 2016/426 on appliances burning gaseous fuels, a.k.a Gas Appliances Regulation: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0426&from=EN>