

West Midland Fire Service

Our job is to keep the 2.9 million people of the West Midlands safe. We serve a diverse population across Birmingham, Coventry, Dudley, Sandwell, Solihull, Walsall and Wolverhampton. We're the second largest fire and rescue service in England, covering an area of 902 square kilometres which include areas with the highest risk in England outside of London.

We operate 38 wholetime fire stations across the West Midlands with over 1200 firefighters working to make the West Midlands safer, stronger and healthier.

38

Fire Stations

1,200

Firefighters

WEST MIDLANDS FIRE SERVICE

Making the West Midlands Safer, Stronger and Healthier

www.wmfs.net

@WestMidsFire



"Fire and Rescue Service, due to their status as trusted messengers, and with success in other areas of collaborative CO work, should be enabled to take on a more prominent role by increasing their CO home safety remit. Working closely with NFCC, CORT, Gas Distribution Networks and other partners, WMFS can use local knowledge of an area to tailor CO safety campaigns and target those different demographics within each area. Data collected by FRS should be shared with consideration of co-designing future approaches and opportunities"

Watch Commander Brinley Mills

WMFS CO lead



CO levels within UK homes

- Within UK homes CO levels have been reported to exceed the WHO (1999;2010) guidelines:
- 326 homes monitored
- 19% had CO levels exceeding the 8-hour guideline of 9ppm (Croxford et al, 2005a; Croxford et al, 2005b)

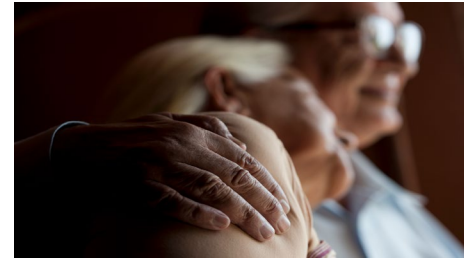


- Frequently associated with gas appliances
- Particular concern in the UK as gas appliances are widely used for heating and cooking
- Behaviours (Hackney Homes study)
- A percentage of the population may be at risk from low-level CO exposure at levels above those considered safe
- Maybe having a detrimental impact on health
- Individuals unaware leading to chronic exposure

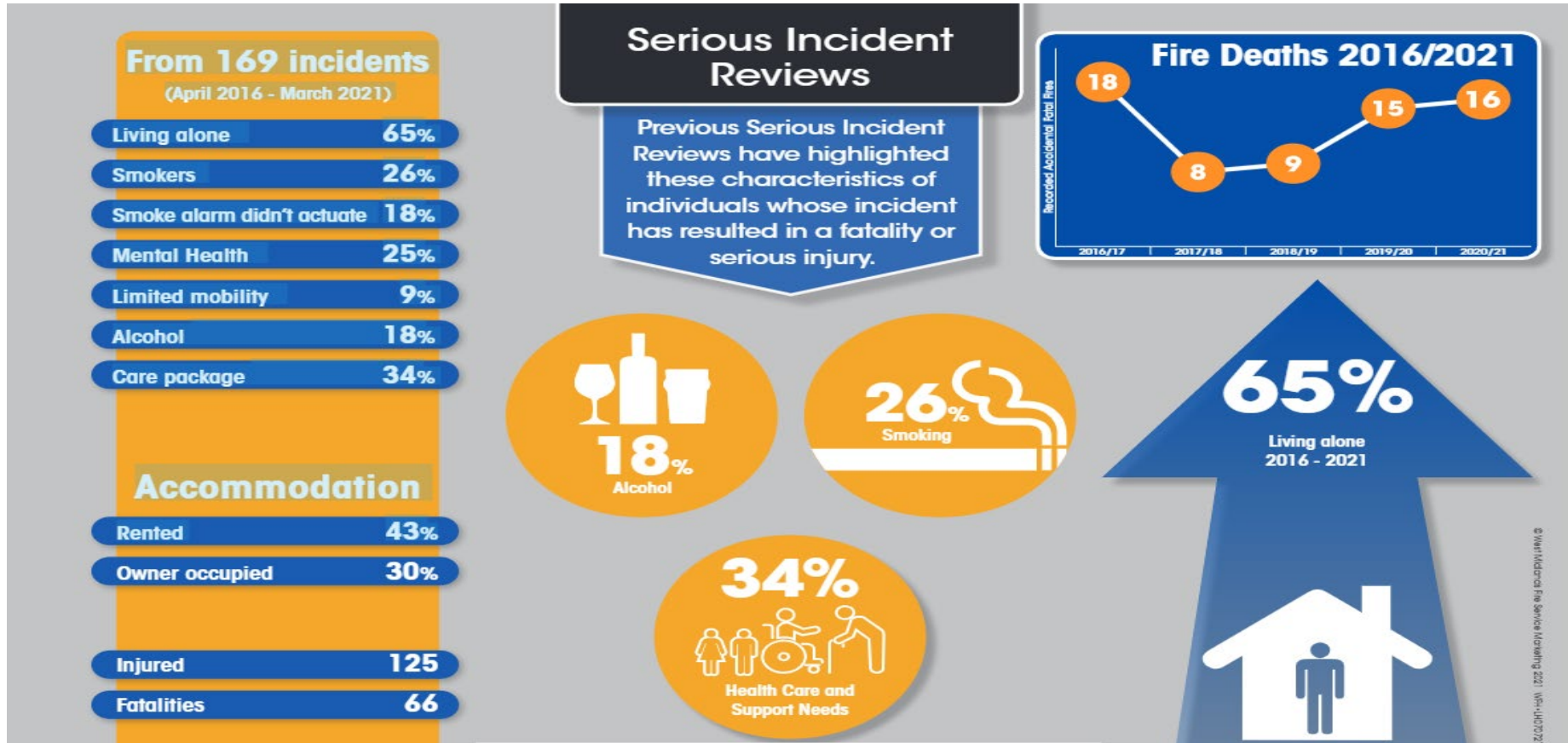


Common vulnerabilities CO

Understanding Vulnerable Groups / Co-Morbidities - It is generally thought that the elderly, children, pregnant women, people living in fuel poverty, and people with underlying health conditions are more susceptible to CO exposure – *CO Research Trust strategy 2021-2025*

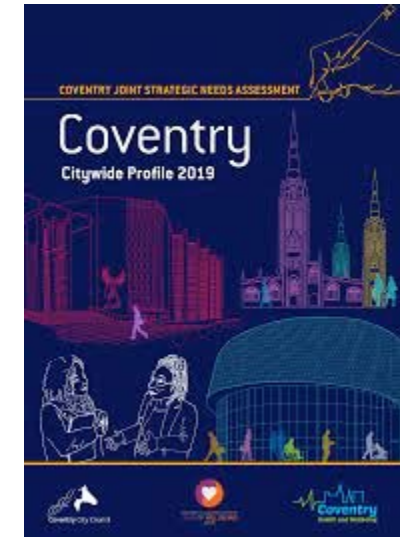


Common Vulnerabilities WMFS



Targeting those most Vulnerable

- Data Led approach
 - ❖ Vulnerable Localities index / Mosaic profile – Serious incident reviews
 - ❖ Joint strategic need assessment - Coventry city council
- Collaboration
- Partnerships
- Sharing best practice
- Education



WMFS Collaborative Projects

- 2012 Achieving Marmot
- 2018 Neuropsychological effects of chronic low-level carbon monoxide exposure
- 2021 Identifying and Protecting Pregnant women from exposure to Carbon Monoxide



Release of Marmot review 2010



Achieving Marmot



Project Overview



“Marmott” Review

6 Identified Beacon authorities were divided into 3 programmes;

Programme 1 – Greenwich & Sheffield.....Improving health and leadership

Programme 2 – Durham & SunderlandFront line staff and health

Programme 3 – Coventry & Merseyside FRS....Reducing preventative deaths

Coventry Fire stations to monitor CO reading as part of their Safe and wells visit



Neuropsychological effects of chronic low -level carbon monoxide exposure



Aims:

- Examine the extent of to which low level-levels of CO are present within a sample of homes in Coventry
- Determine the associated neuropsychological and physical health effects of chronic low level exposure.
- Determine the associated impacts of such exposure on outcomes such as quality of life, falls risk and healthcare use.
- Determine the extent to which intervention by the fire and rescue service reducing levels of CO in the home results in measurable changes in functioning over time.



High Risk Groups

Poisoning severity depends on human and environmental factors:

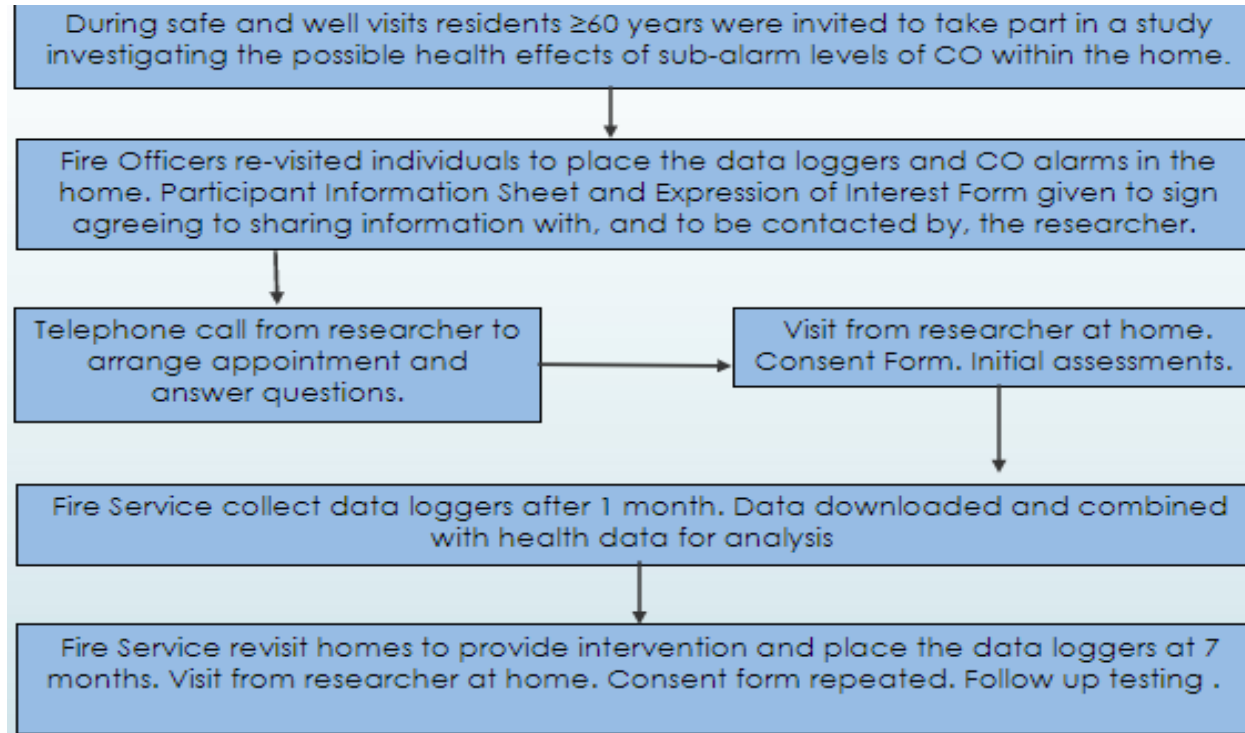
- Duration of exposure
- Concentration of CO in the air
- Pre-existing disease

Older adults may be:

- More Susceptible to the effects of CO
- Reduce physiological reserve
- Pre-existing disease
- At a higher risk of accidental CO exposure
- Likely to spend more time in the home

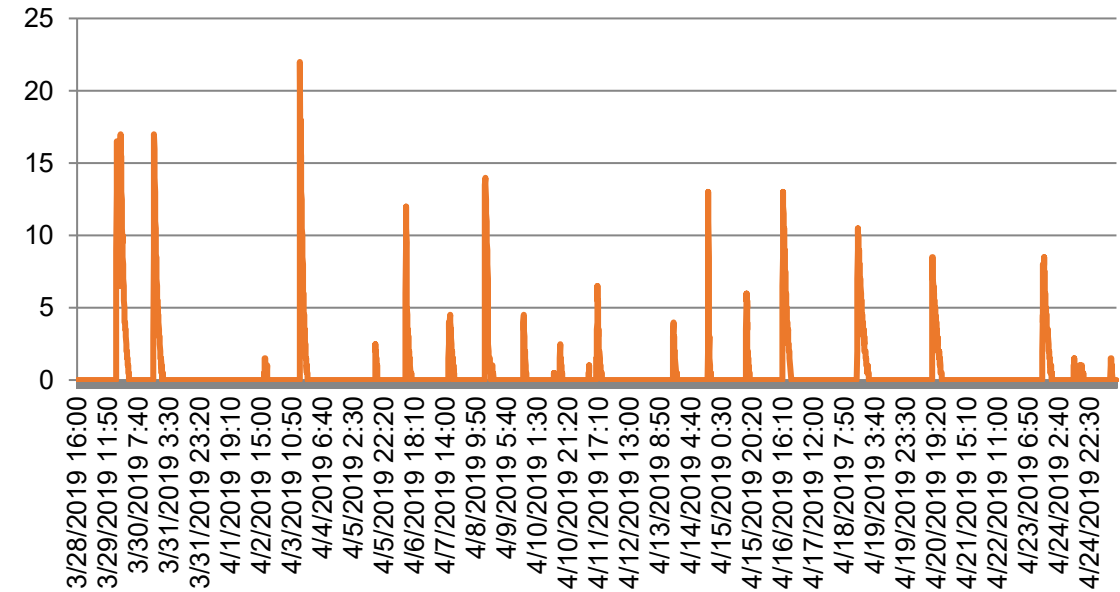
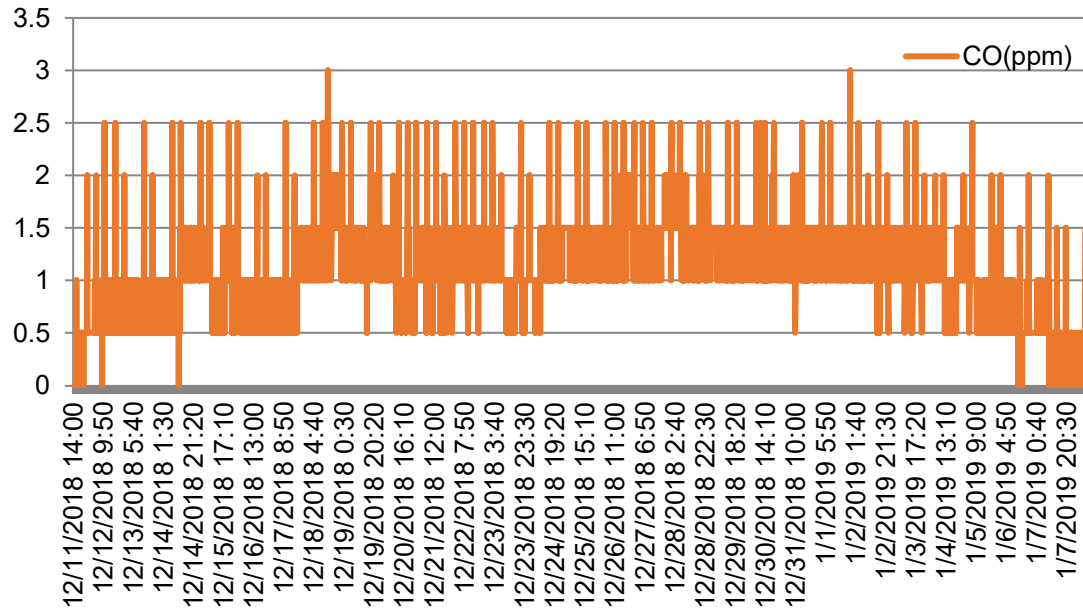


Method – A sample of 106 older adults (≥ 60 Years) residing in Coventry were recruited by WMFS via safe and well visits



CO levels within the home

- First data collection: 70/106 (66%) homes had some CO readings over the month
- Exposure patterns observed in the data:



- Continuous extremely low-level CO exposure with the majority of readings between 0.5-2.5ppm (Figure 1)
- A majority of zero CO readings with higher short lasting CO peaks up to around 22ppm (Figure 2)



Research Impact



This new knowledge will:

- Valuable contribution to scientific knowledge in this research area
- Impact on policy
- Inform the design of CO alarms
- Influence the work of the FRS and NFCC in preventing risk to older adults
- Produce information for charities such as Age UK and gas engineers to educate, improve awareness and protect individuals.
- Identify whether CO is a potential risk factor associated with risk development.
 - ♦ *Potential preventative measures, more effective treatment, reducing risk and cost.*



CO Exposure in Pregnant women



Aims:

- **Establish what levels of CO are present** in the home of pregnant women by monitoring for CO over a two-week period.
- **Establish whether breath testing at time of booking can be used as an indicator** of exposure to CO in the home based on any positive breath readings, information collected at time of booking and by the Fire and Rescue Services (FRS) safe and well visits plus CO monitoring.
- **Obtain household data** (housing type and status; appliance and fuel-type) and personal CO exposure data amongst pregnant women through these methods.
- **Assess any change in CO** levels in the home and personal exposure levels after the safe and well FRS visit.
- Understand the levels of CO that pregnant women are exposed to in their homes and evaluate this against the **potential for such levels to cause harm**.



CO Exposure in Pregnant Women



Research Impact

- A better understanding of the scale of environmental CO poisoning in pregnancy.
- The barriers and facilitators to identification.
- How to better protect women and their unborn child.
- Protocols / Pathways for identification, treatment and removal of harm.



WMFS Community Risk Management Plan

Reducing health inequalities

The aim of this objective is to enhance the “UP Steam” approach to firefighting through the development of a co-ordinated suite of activities that reduce health inequalities, therefore reducing the risk and vulnerability to fire and other emergencies. These activities will be across the life course with an aim of creating more resilient communities.



Referral Appointment Assessment Risks Equipment **Current Themes** Conclusion

Carbon Monoxide

Carbon Monoxide reading

Primary heating method

Primary cooking method

Were there any cooking or heating appliances on at the time of visit

Gas Certificate

Gas Appliances; have the occupiers got a gas safety certificate

SAW / 8678328

[https://apps.wmfs.net/see/mobile/Workbook/index?contentid=1411042026&view=CategoryTable&category=MSC&referralName=Safe and Well workbook category#](https://apps.wmfs.net/see/mobile/Workbook/index?contentid=1411042026&view=CategoryTable&category=MSC&referralName=Safe%20and%20Well%20workbook%20category#)





LONDON FIRE BRIGADE

Carbon monoxide and residential boat project

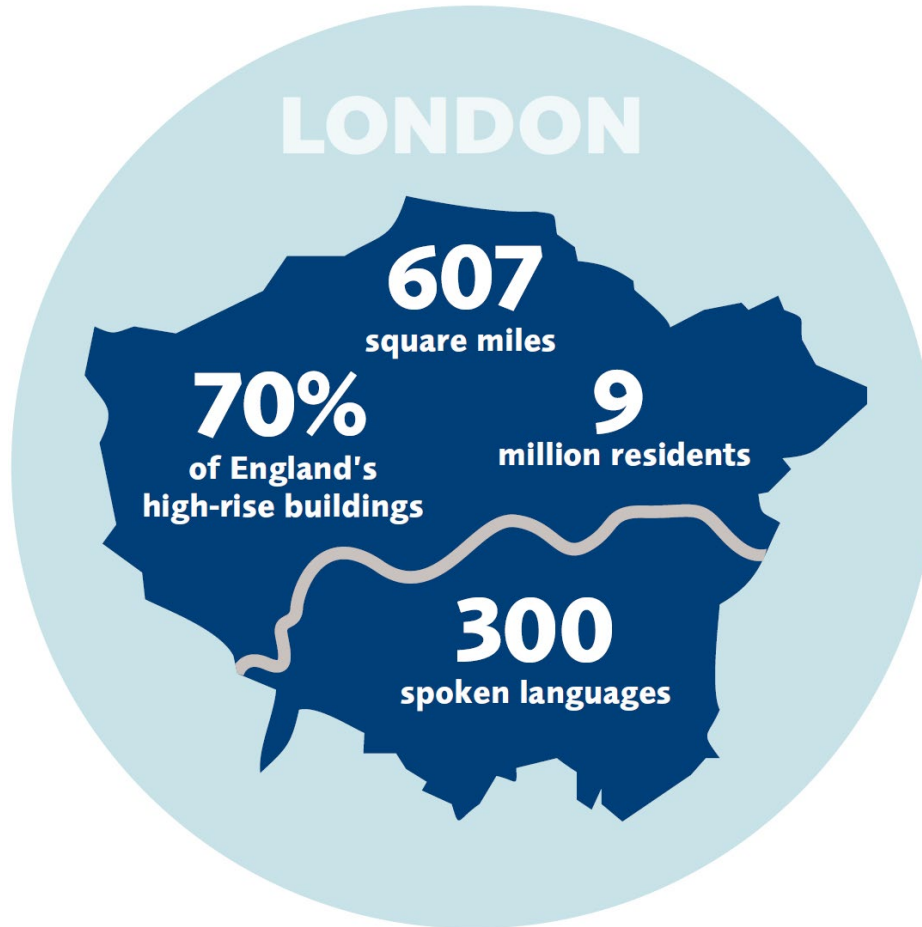
Emma Fraser

1st August 2023

What I am going to cover today...

- London Fire Brigade
- Home Fire Safety Visits
- **The Project**

Our London






To keep London safe we have:


142 Fire engines strategically placed across all London's boroughs, some of which will be electric-hybrid in the future




5,850 Dedicated and professional staff serving more than 9 million Londoners




102 Land-based fire stations, spread across London's communities



11 High-reach aerial appliances, for firefighting and rescue operations




14 Fire rescue units for technical rescue operations



2 Dedicated **chemical, biological, radiological nuclear** response teams for high threat response




2 Fire boats, with one immediately available at a dedicated river station for rescues and firefighting on the Thames




10 Inflatable boats for rescues on our waterways



1 Control Room answering all your 999 calls and coordinating our response




4 Community and fire safety dedicated teams



1 Operations Support Centre, 2 breathing apparatus satellite charging hubs, 6 operational support vehicles, 3 bulk foam vehicles and 3 hose layers



London Fire Brigade also has a range of national capabilities which include powerboats, urban search and rescue teams, and high-volume pumps



Fire dogs and drones...



Prevention, Protection and Response



Prevention

Our prevention services include:

- Home fire safety visits
- Youth services (school visits, fire-setters, cadets etc.)
- Community safety (road safety, water safety etc.)
- Safety campaigns and events



Protection

Our protection activities include:

- Fire safety advice and support for businesses
- Regulation of premises that are protected under the Regulatory Reform Order (RRO)
- Fire safety licensing
- Fire investigation
- Fire engineering



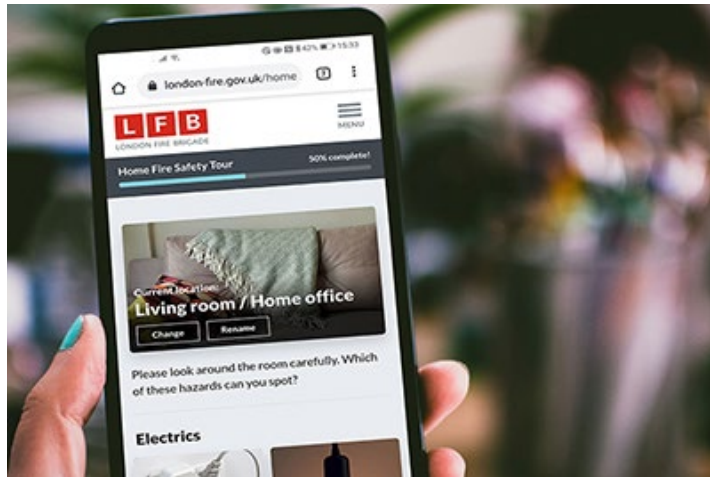
Response

We respond to a range of risks including:

- Fires and rescues
- Hazardous materials
- Road traffic collisions
- Complex incidents which require a multi-agency response
- Other emergencies

Home Fire Safety Visits

New Process – more risk based approach



Very High Risk	Within 4 hrs
High Risk	Within 1 week
Medium Risk	Within 1 month
Low Risk	Online checker

What *are* the effects of CO exposure on lived-on boats?



We don't
know.....

YET!

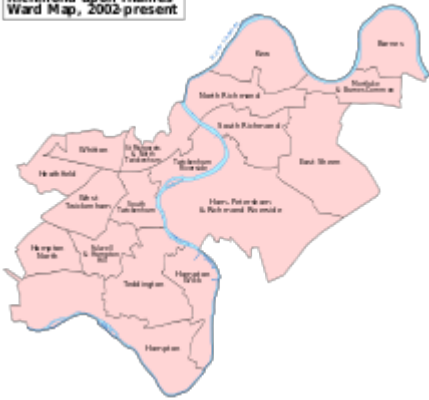
Background





- £153,429 Grant plus LFB contribution
- 1758 tailored HFSVs





Richmond


- Targeting residents from boat communities – need a good cross section of community.
- 125 a month over a year. This will help get a picture for seasonal variation.



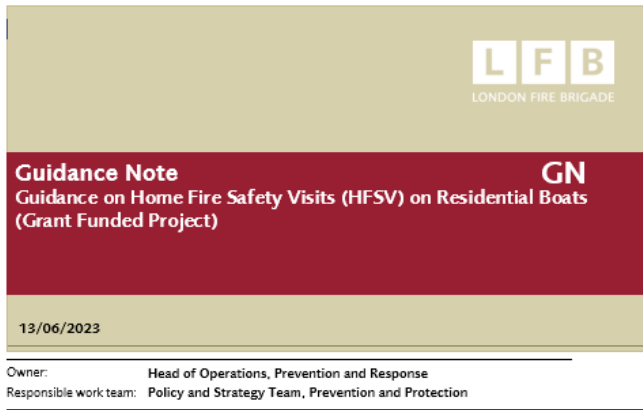
Key questions posed

- What are the demographics of those living on residential boats in London?
- Are they at a greater risk of fire due to factors that are currently unknown?
- Are they at a greater risk of Carbon Monoxide poisoning?
- Is the risk of Carbon Monoxide poisoning for houseboat residents seasonal?

HFSV includes:

- 
- Tailored Fire, CO, Water Safety Advice
 - Logger
 - CO alarm and smoke alarm
 - Literature

Policies and guidance



HFSV Carrying out the visit

HFSV management & Planning

Smoke alarm and equipment guidance

HFSV

Lone Worker

Hoarding

Water rescue and safety when working near, on or in water

Safeguarding Adults at Risk

Data protection and privacy policy

Safeguarding children



Promotion

DO YOU LIVE ON A BOAT?

London Fire Brigade are conducting a carbon monoxide (CO) research project and we need your help!



Booklets



Residential boat safety



-Booklets to be handed out regardless of whether residents opt for logger or not.

-It will also give support with anything you are advising on. E.g. Warning signs for CO poisoning.



Water Safety



HFSV Form – for use in residential boat project

Key for Data input:

HFSV Database Both MS Forms

Section 1- Property Details

Name		Referral ID																																																																																																																																																																																					
Address of mooring (if applicable)																																																																																																																																																																																							
Houseboat Name		Boat Number																																																																																																																																																																																					
Visit Date																																																																																																																																																																																							
Visit time	Time entering property (hh:mm)	Time exiting property (hh:mm)																																																																																																																																																																																					
Owner Status																																																																																																																																																																																							
<input type="checkbox"/> Owned <input type="checkbox"/> Rented (Private landlord) <input type="checkbox"/> Rented (Social Landlord / Local authority) <input type="checkbox"/> Not disclosed																																																																																																																																																																																							
How long do you spend on the London waterways each year?																																																																																																																																																																																							
<input type="checkbox"/> 0-2 weeks <input type="checkbox"/> 3-6 months <input type="checkbox"/> 2-4 weeks <input type="checkbox"/> More than 6 months																																																																																																																																																																																							
Type of moorings used																																																																																																																																																																																							
<input type="checkbox"/> Short term <input type="checkbox"/> Winter mooring <input type="checkbox"/> Long term <input type="checkbox"/> Permanent																																																																																																																																																																																							
Length of boat																																																																																																																																																																																							
<input type="checkbox"/> <6m <input type="checkbox"/> 13-20m <input type="checkbox"/> 5-6m <input type="checkbox"/> >20m <input type="checkbox"/> 9-12m <input type="checkbox"/> Not known																																																																																																																																																																																							
Number of berths																																																																																																																																																																																							
<input type="checkbox"/> 1 <input type="checkbox"/> 4+ <input type="checkbox"/> 2 <input type="checkbox"/> Not known <input type="checkbox"/> 3																																																																																																																																																																																							
Number of floors (include decks)																																																																																																																																																																																							
<input type="checkbox"/> 0-4 <input type="checkbox"/> 5-9 <input type="checkbox"/> 10-14 <input type="checkbox"/> 15-19 <input type="checkbox"/> 20-39 <input type="checkbox"/> 40-59 <input type="checkbox"/> 60-79 <input type="checkbox"/> 80+																																																																																																																																																																																							
Number of residents living in property by age																																																																																																																																																																																							
<table border="1"> <tr> <th>Ethnicity</th> <th>0-4</th> <th>5-9</th> <th>10-14</th> <th>15-19</th> <th>20-39</th> <th>40-59</th> <th>60-79</th> <th>80+</th> </tr> <tr> <td>Mixed/ Multiethnic</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Black / Black British/Caribbean or African</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Caribbean</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>African</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Any other Black, Black British, or Caribbean background</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>White</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>British</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Irish</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other White</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Asian or Asian British</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Indian</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Pakistani</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Bangladeshi</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Chinese</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Any other Asian background</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other ethnic group</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Arab</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Latin American</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Any other ethnic group</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				Ethnicity	0-4	5-9	10-14	15-19	20-39	40-59	60-79	80+	Mixed/ Multiethnic									Black / Black British/Caribbean or African									Caribbean									African									Any other Black, Black British, or Caribbean background									White									British									Irish									Other White									Asian or Asian British									Indian									Pakistani									Bangladeshi									Chinese									Any other Asian background									Other ethnic group									Arab									Latin American									Any other ethnic group								
Ethnicity	0-4	5-9	10-14	15-19	20-39	40-59	60-79	80+																																																																																																																																																																															
Mixed/ Multiethnic																																																																																																																																																																																							
Black / Black British/Caribbean or African																																																																																																																																																																																							
Caribbean																																																																																																																																																																																							
African																																																																																																																																																																																							
Any other Black, Black British, or Caribbean background																																																																																																																																																																																							
White																																																																																																																																																																																							
British																																																																																																																																																																																							
Irish																																																																																																																																																																																							
Other White																																																																																																																																																																																							
Asian or Asian British																																																																																																																																																																																							
Indian																																																																																																																																																																																							
Pakistani																																																																																																																																																																																							
Bangladeshi																																																																																																																																																																																							
Chinese																																																																																																																																																																																							
Any other Asian background																																																																																																																																																																																							
Other ethnic group																																																																																																																																																																																							
Arab																																																																																																																																																																																							
Latin American																																																																																																																																																																																							
Any other ethnic group																																																																																																																																																																																							

Home Fire Safety Visit Indemnity Form for Carbon Monoxide on Residential Boats Project

For resident:
 The London Fire Brigade has offered to carry out a home fire safety visit to help you reduce the chances of a fire occurring there. This will involve looking at various aspects in your home and advising you on safe habits. You will also be given advice on what to do if a fire does occur, so that you and any other people can escape quickly and safely. You will also benefit from the additional advice specifically tailored to residential boats on carbon monoxide safety.

PLEASE READ THIS FORM AND ENSURE THAT YOU UNDERSTAND IT BEFORE YOU SIGN IT

Agreement
 What are you agreeing to?

- By signing this form you are agreeing that:
- The Brigade can enter your home and carry out a home fire safety visit.
- The Brigade can provide you with fire safety, water safety and carbon monoxide advice, safety lighting information and install smoke and carbon monoxide alarms where we think they will be best placed to keep you safe.
- The Brigade are not liable for any expense, cost, liability, loss, claim, damage or demand of any kind as a result of carrying out this visit, unless this results from negligence, breach of contract, misrepresentation or offences by the Brigade.
- The Brigade are not responsible for any accident happening, injuries, refused, or for any damage to the property or for any loss or damage to any personal property as a direct or indirect result of the home safety visit and/or the installation of any alarm or data logger.
- Any risk reduction measures carried out by the Brigade does not imply that the property is safe for occupation.
- This visit does not affect the Brigade's or local authority's rights to take future enforcement action in respect of the property if required.

Indemnity and personal data protection
 The Brigade is committed to using personal data in a responsible and transparent way. We will ensure that we protect your privacy and comply with data protection law. In most cases we collect, process and store personal information because we have a legal duty to do so (which may be explicit or implied) or because it forms part of a contract with you. We will also share personal information with other trusted organisations if they can help to keep you safe, or if they process information on our behalf, or if we are required to by law.

To find out more about data protection and privacy
 We make detailed information about data protection and privacy available to you through 'Privacy Notices' which we publish in full on our website. Each notice has information about your privacy rights, which include how you can access the data we hold, and how, in some situations, you can stop us from processing the data or have it corrected or deleted. If you want to know more about data protection in the LFB or if you would like a full copy of any of our Privacy Notices you can:

- Visit www.london-fire.gov.uk/privacy
- Telephone: 020 8555 1200 ext 30300 and talk to a member of our Information Access Team
- Email: dataprotectionofficer@londonfire.gov.uk
- Write to: Data Protection Officer, London Fire Brigade, 169 Union Street, London SE1 0LL

Home Fire Safety Visit Indemnity Form for Carbon Monoxide on Residential Boats Project

For LFB:

HFSV CO

I have read the agreement set out above and agree to LFB to conduct a Home Fire Safety Visit

Signature (Resident) _____ Date _____

I agree to the placement of a Data Logger in my residence.

I agree for my data to be used for research purposes as part of the CO research project.

I understand that the data from the logger will be anonymous to third party partners of the project.

Signature (Resident) _____ Date _____

Please return the logger one month after the visit has taken place in the envelope provided to Liverpool John Moores University for analysis. The data collected will be anonymous.

Data Logger number _____ (For LFB staff)

Are you happy for London Fire Brigade to contact you following the visit? (Please circle)

Yes No



Carbon Monoxide and Residential Boat Project

Project Information Sheet

You have been invited to take part in this project conducted by London Fire Brigade (LFB), in partnership with the CO Research Trust (CORT) and Liverpool John Moores University (LJMU).

The purpose of the study

LFB want live-aboard boaters to take part in a study which will be the first of its kind. It aims to improve residents' knowledge and levels of awareness of the issues around CO and to identify whether boat residents are at a greater risk experiencing CO poisoning/or of fire.

Carbon monoxide (CO) is a highly poisonous gas which is very difficult to detect because you cannot taste it, see it or smell it. CO can kill quickly and without warning, whether you are awake or asleep. A number of potential sources of fire and CO can be found on boats and these risks differ to homes on land.

The data logger (a small device that records the levels of CO) will be left in your home for a period of one month. It does not have GPS and it is not a tracking device. At the end of this period, you will need to return the device using the prepaid envelope provided. Combined with the logger results and the questions answered, LFB are hoping that the information gathered will improve the Brigade's wider understanding of the living practices and different risks posed to boat owners. This will be used locally and also to influence national advice given to boat residents.

What will happen if you take part?

You don't have to take part in the study but it would be hugely beneficial if you do. Firefighters will visit you on your boat and conduct a tailored home fire safety visit. You will receive:

- Safety advice from firefighters
- Boat safety literature
- Smoke alarms, CO alarms and a data logger.

Are there any benefits or risks?

Having a tailored Home Fire Safety Visit will reduce your chances of experiencing a fire or CO poisoning by improving your awareness. By taking part you will be helping to give a clearer picture of variation in CO levels, seasonal and daily.



If you are concerned about any gas or CO issues, contact details of organisations that may be able to assist you can be found in the 'Residential Boat Safety' booklet provided.

Protecting your personal data and privacy

The data collected from the logger provided to LJMU is **anonymous**. The Brigade is committed to using personal data in a responsible and transparent way. We will ensure that we protect your privacy and comply with data protection law. In most cases we collect, process and store personal information because we have a legal duty to do so (which may be explicit or implied) or because it forms part of a contract with you. We will also share personal information with other trusted organisations if they can help to keep you safe, or if they process information on our behalf, or if we are required to by law.

To find out more about data protection and privacy

We make detailed information about data protection and privacy available to you through 'Privacy Notices' which we publish in full on our website. Each notice has information about your privacy rights, which include how you can access the data we hold, and how, in some situations, you can stop us from processing the data or have it corrected or deleted. If you want to know more about data protection in the LFB or if you would like a full copy of any of our Privacy Notices you can:

- Visit www.london-fire.gov.uk/privacy
- Email to: dataprotectionofficer@londonfire.gov.uk
- Telephone: 020 8555 1200 ext 30300 and talk to a member of our Information Access Team.
- Write to: Data Protection Officer, London Fire Brigade, 169 Union Street, London SE1 0LL

Data Logger fitted:

Date to be returned (one month following the visit):

Forms



LONDON FIRE BRIGADE

Physical resources

- CO alarms - BS -50292-02 – specific for boats / caravans
- Smoke alarms
- Loggers



Training



Things to note

Not boat engineers

Fire extinguishers

LFB do not recommend fire extinguishers and fire blankets in a standard domestic setting.

However, to comply with the (BSS) licensing safety requirement for boats, it is mandatory that residential boats carry firefighting equipment

The advice in the event of a fire is to get out, stay out, call 999 and place yourself in a safe location and away from risk. Fire extinguishers and fire blankets should only be used on boats to aid escape past flames or put out small fires.

Shocker... Not everyone will want to take part



	Physical resources				Booklets		Forms		
	Logger	CO alarm	Smoke alarm	Pre-paid envelope	Residential Boat Safety Booklet	Water safety booklet	HFSV form (tailored)	Indemnity form	Project participation form
1. Full Involvement	X	X	X	X	X	X	X	X	X
2. CO alarm – no logger		X			X	X	X	X	X (but not signing logger section)
3. HFSV (no logger or CO alarm)			X		X	X	X	X	X
4. No visit					X	X			

Fig 1: Different levels of participation

IT issues – HFSV database

Section 1: PROPERTY DETAILS

Name

Address

Houseboat Name Number

Visit Date

Visit Time 12:30 Time entering property (hh:mm) 12:50 Time exiting property (hh:mm)

Property Type Purpose Built Flat

Owner Status Owned

Number of Floors 1

Number of residents living in property by age 0-4 5-9 10-14 15-19 20-39 40-59 60-79

Ethnicity 11 Black or Black British - Caribbean

Hoarding Level [See guidance](#)

Consider welfare concern				Hoarding behaviour falls under self-neglect and should be considered as a safeguarding risk				
1	2	3	4	5	6	7	8	9
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

General Fire doors or self dosers missing / faulty Blocked due to hoarding Property not intended as sleeping accommodation

Section 2: INCREASED RISK OF FIRE (High fire risk factors)

Smoking 1 Number of smokers in property Evidence of smoking as a sleeping risk Evidence of unsafe disposal and/or handling

Cooking Evidence of cooking often left unattended Evidence of unsafe cooking practices Previous kitchen fire

Candles, incense and naked flames Items close to furnishings or on unsafe surfaces Within easy reach of children/pets Previous signs of unsafe candle use or previous burn marks

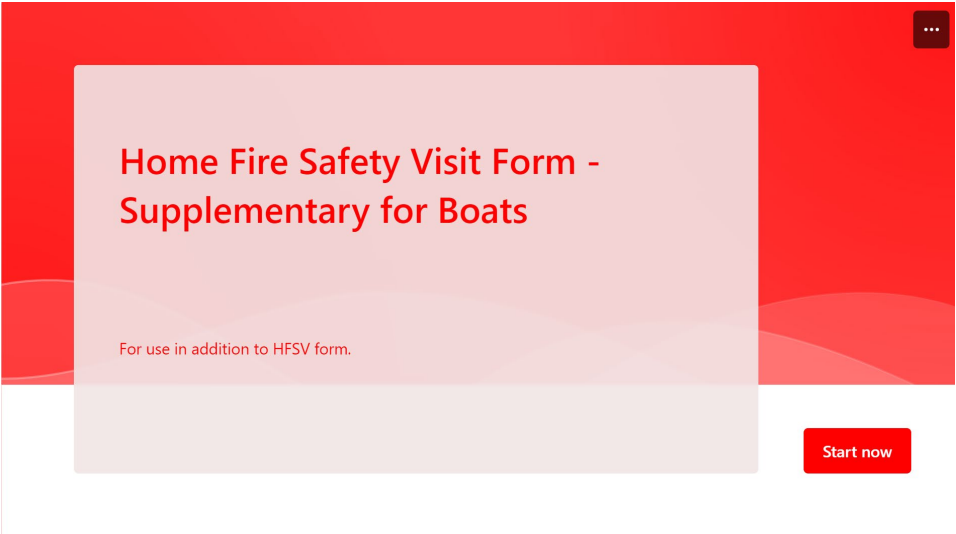
HFSV Triage

Area Teams - Direct Allocation form

Only use this form if it's a direct allocation. All you need to do is submit the HFSV ID number

- HFSV ID
- Reason for direct allocation
 - No contact details
 - Other contact methods have been unsuccessful
 - Residential Boat Project (Richmond Borough only)**
 - Other

Microsoft Form



3. Owner Status

[More Details](#)

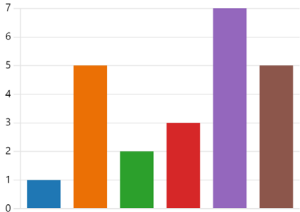
Owned	4
Rented (Private Landlord)	1
Rented (Social / local authority L...	0
Not disclosed	0
Other	1



4. How long do you spend on the London waterways each year?

[More Details](#)

>2 weeks	1
2-4 weeks	5
1-3 months	2
3-6 Months	3
6 months+	7
Other	5



Key questions we hope to answer

- What are the demographics of those living on residential boats in London?
- Are they at a greater risk of fire due to factors that are currently unknown?
- Are they at a greater risk of Carbon Monoxide poisoning?
- Is the risk of Carbon Monoxide poisoning for houseboat residents seasonal?





emma.fraser@london-fire.gov.uk

 @Londonfire



Carbon Monoxide & NFPA Resources

National Carbon Monoxide Awareness Association Conference

Kelly Ransdell, Regional Director, NFPA

August 1, 2023



100 YEARS

1922-2022



FIRE PREVENTION WEEK™



IT'S A BIG WORLD.
LET'S PROTECT IT TOGETHER.™

Fire & Life Safety Ecosystem



Carbon Monoxide Report

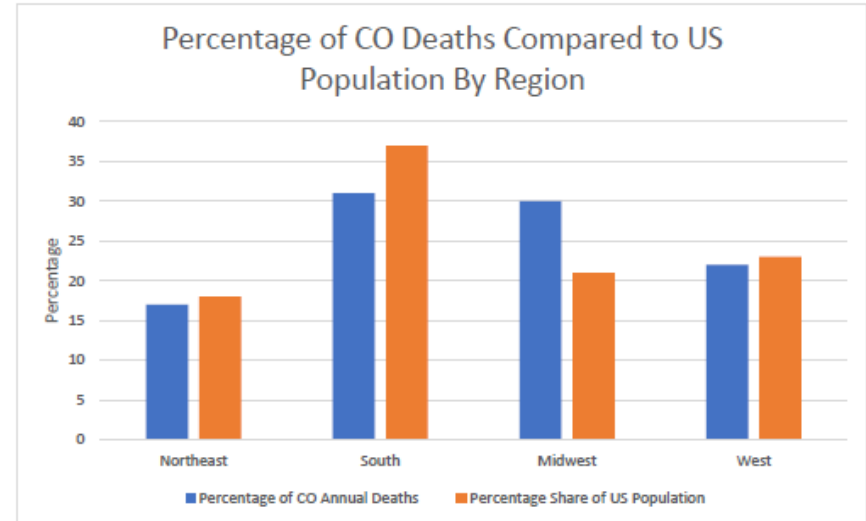
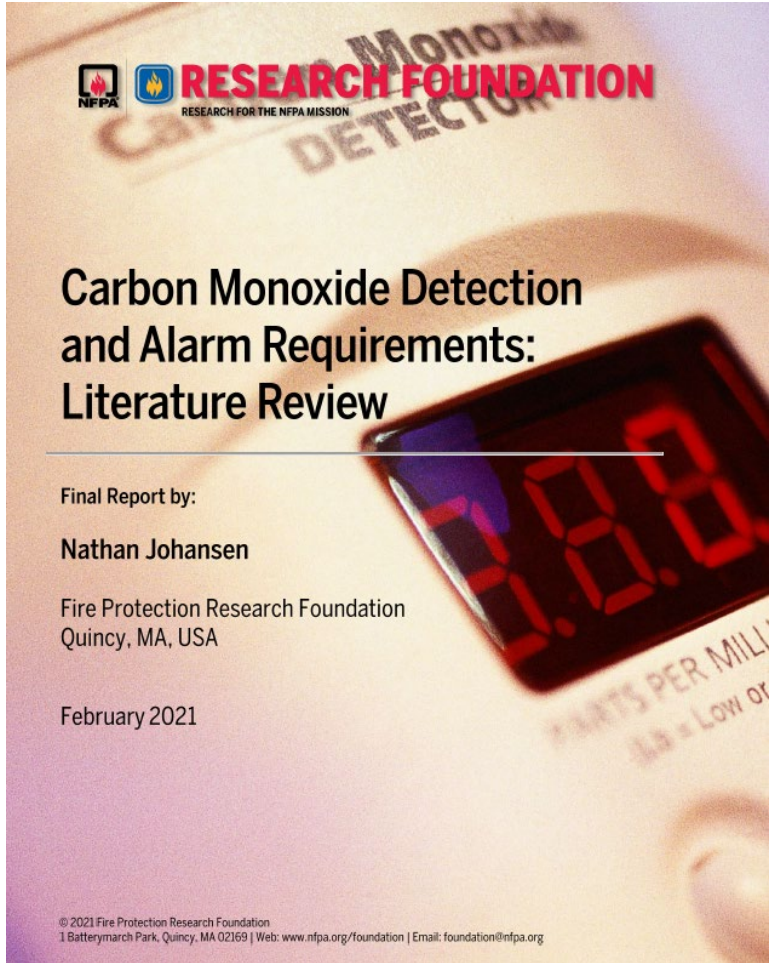
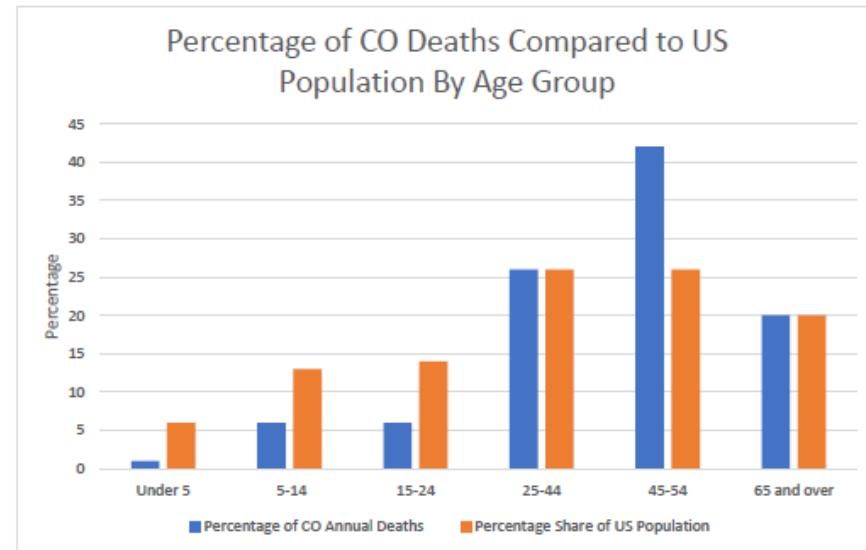
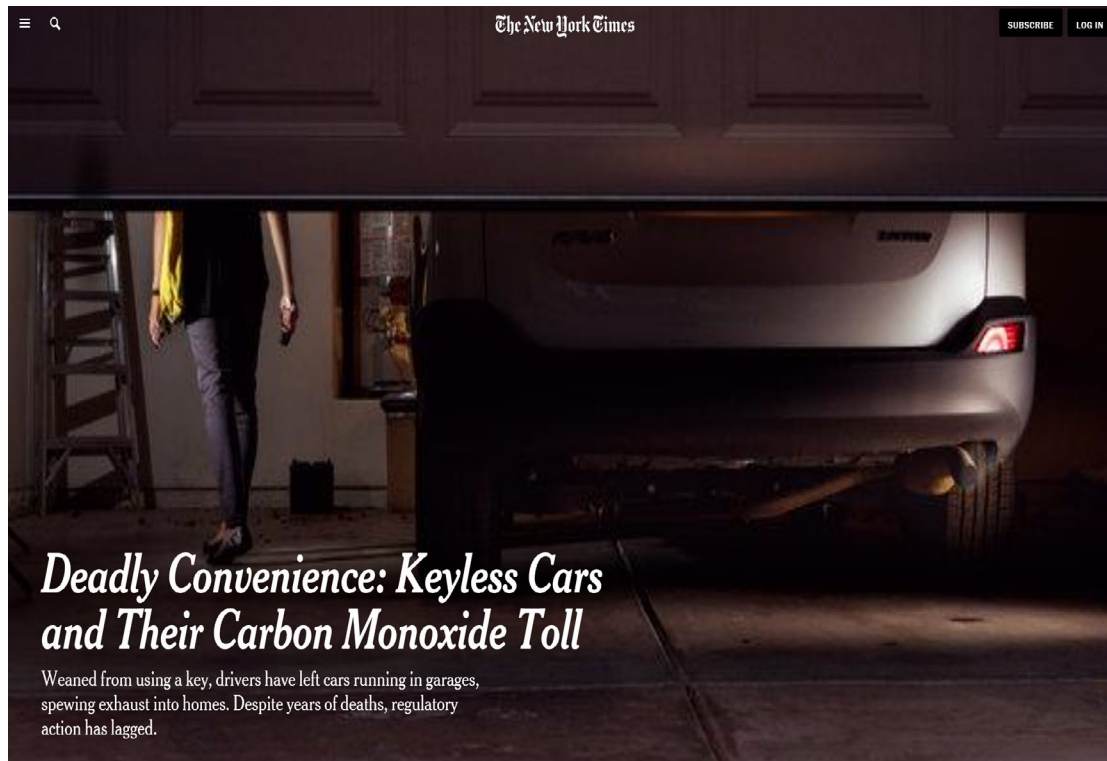


Figure 20: Percentage of CO Deaths Compared to US Population by Region¹⁹ - Data Courtesy: Hnatov 2019



Carbon Monoxide

Actress Anna Faris among 13 treated for carbon monoxide poisoning at Tahoe vacation home



Bodies of American family of 4 killed by gas poisoning in Mexico coming home for funeral: Relatives

Relatives said the bodies of the Sharp family are coming home on Wednesday.

By Bill Hutchinson
March 25, 2018, 5:11 PM • 8 min read



American family of four dies of toxic gas in Mexico



A mission to save lives

The screenshot shows the NFPA Journal website interface. At the top, the logo 'NFPA JOURNAL' is displayed with the tagline 'The magazine of the National Fire Protection Association'. A search bar is visible on the right. The main content area features a large photograph of a man and a woman, with the article title 'Room 225' and a sub-headline: 'Since her parents were found dead in a North Carolina hotel room, Kris Hauschildt has worked to expose the hidden dangers of carbon monoxide'. Below the title, it states 'INTERVIEW CONDUCTED AND EDITED BY JESSE ROMAN • 13 MINUTE READ'. A SoundCloud audio player is embedded at the bottom of the article preview, showing the title 'Room 225 - By Jesse Roman - NFPA Journal - May June 2019' and a duration of 16:48. A sidebar on the left contains navigation links such as 'JOURNAL HOME', 'ARCHIVED ISSUES', and 'ADVERTISING'. A red banner on the left side of the page promotes 'GRADUATE ENGINEERING AT UNIVERSITY OF MARYLAND' and 'MASTERS IN FIRE PROTECTION ENGINEERING 100% ONLINE'.



Other Emerging Issues

Fire department warns dangers when charging

Latest Videos
 WWAY LiveStream
 ABC & CBS LiveStreams
 Frying Pan Tower LiveCams
 SkyView Camera Network
 Buy Video



Golf cart use on highways raising serious safety concerns. (Photo: ABC News)



! DANGER

H₂S

**Poisonous gas
may be present.
No open flames.**

PORTABLE GENERATOR-RELATED CARBON MONOXIDE DEATHS

You don't run your car indoors; don't run your generator inside, either.
 Most deaths occur in homes during cold months. Data Years: 2004-2013

Deaths Related to Engine-Driven Tools

Generators:	81% (887)
Generator + Another Consumer Product:	6% (48)
Lawn Mowers:	7% (64)
Power Washer:	1% (11)
Snow Blower:	1% (10)
ATV:	1% (8)
Other:	3% (22)

Where the Generator Was When Deaths Occurred in Fixed Structure Homes

Non-basement living space:	180
Basement:	127
Garage:	136
Other:	33
Other:	11

Total Number of Deaths: 808

Total Number of Deaths: 526

How the Generator Was Used When the Deaths Occurred

Power outage:	206
Other:	23
Powering home/ building, shed or garage during that time and have generator connected with no power:	45
New home or business installation with no power:	83
Providing power to space heat, fan, dryer, food warmer, table or computer:	88
Unknown reason that the electricity was off:	117
Electricity turned on too soon:	141

Generator-Related, Non-Fire CO Deaths by Race

Asian:	2%
Hispanic (any race):	11%
Black/African-American*:	24%
White:	58%
Native American:	1%
Other/Unknown:	4%

*In relation to the proportion of the general population, this is nearly double.

Carbon Monoxide Safety Tips

- Run portable generators away from the house, garage or any enclosed space.
- Keep generators at least 20 feet away from windows, doors and vents.*
- Install a battery-operated or battery-backup CO detector in the hallway outside bedrooms.
- NEVER ignore a beeping CO alarm. Go outside and call 911 if the alarm sounds.

* Minimum distance recommended by the U.S. Centers for Disease Control and Prevention.

<https://orders.gpo.gov/formOrders.aspx?Appid=70&login=0>



Outdoor Patio Heaters



FACT SHEET



OUTDOOR HEATER SAFETY

Many restaurants, schools, offices, and other businesses have been using outdoor spaces to stay open and running amidst the COVID-19 pandemic. As temperatures begin to drop, portable outdoor appliances are increasingly being used to heat outdoor areas, particularly those where it is too cool to comfortably sit or stand. Restaurants with outdoor seating areas, in particular, are relying on heaters to extend the outdoor dining season as long as possible. This fact sheet includes information to help ensure that propane heaters and electric heaters for outdoor heating are used safely and in accordance with NFPA® 1, *Fire Code* (2018 edition).

Propane Patio Heaters For More: See NFPA 1, Subsection 69.3.13

For patio heaters that use integral LP-Gas containers with a capacity greater than 1.08 lb (0.49 kg), NFPA 1 requires that the heaters be listed by an organization acceptable to the authority having jurisdiction (AHJ).

Propane heaters need to be used in accordance with their listing and manufacturer instructions. Prior to using a propane heater, refer to the manufacturer's instructions for information such as the following:

- Necessary clearances from the heating element
- Proper ventilation required
- Proper inspection, cleaning, and maintenance procedures
- Lighting and shutdown procedures
- Where the heater can and cannot be used (for example, heaters cannot be used in enclosed locations)
- Procedures for properly storing heaters

The restrictions for using propane heaters are also based on the occupancy in which they are used. For example, in assembly occupancies, such as restaurants with 50 or more occupants, heaters cannot be located within 5 ft (1.5 m) of the exits.

Regardless of where they are used, if a heater uses propane hoses, they must be as short as possible, visible, and protected from damage.

GENERAL SAFETY TIPS

- Keep anything that can burn at least 3 ft (1 m) away from heating equipment.
- Turn off all portable heaters when the area in which they are used is not occupied.

In addition, the installation, modification, and maintenance of a fixed liquid propane system needs to be performed by a qualified person in accordance with NFPA® 58, *Liquefied Petroleum Gas Code*.

Storage of Propane Cylinders For More: See NFPA 1, Section 69.5

Where propane heaters are used, special attention must be paid to ensure that the cylinders are stored properly when not in use. NFPA 1 requires the following:

- Cylinders must not be stored inside a building.
- Cylinders in storage must be placed in a location with minimal potential for physical damage, tampering, or exposure to excessive temperature increases.
- Cylinders must not be stored on the roof.

Additionally, cylinders that are stored outside must be located a minimum of:

- 5 ft (1.5 m) away from any doorway or opening in a building frequented by the public where occupants have at least two means of egress



FACT SHEET

OUTDOOR HEATER SAFETY CONTINUED

- 10 ft (3 m) away from any doorway or opening in a building or section of a building that has only one means of egress
- 20 ft (6.1 m) away from any automotive service station fuel dispenser

Electric Patio Heaters

For More: See NFPA 1, Section 11.1, & Subsection 11.5.3

Portable electric heaters must be placed in locations where they cannot be easily overturned. The heaters must also be listed by a qualified electrical testing laboratory.

Electric heaters need to be used in accordance with their listing and manufacturer instructions. Prior to using an electric heater, refer to the manufacturer's instructions for information such as the following:

- Necessary clearances from the heating element
- Installation and wiring requirements
- Proper inspection, cleaning, and maintenance procedures

The use of electric heaters also requires special attention as to how they are powered. Some of the power restrictions include the following:

- Electric heaters should be used only where they can be plugged directly into the appropriate receptacles or extension cords of adequate current capacity.
- Multiplex adapters and extension cords must not be used in place of permanent wiring.
- Extension cords must be plugged directly into an approved receptacle, power tap, or multiplex adapter and must, with the exception of approved multiplex extension cords, serve only one portable appliance.

- Extension cords must be grounded when servicing grounded portable appliances.
- Extension cords must be maintained in good condition without splices, deterioration, or other damage.
- For installations that are not deemed temporary structures, extension cords and flexible cords cannot be affixed to structures; extended through walls, ceilings, floors, or under doors or floor coverings; or be subjected to environmental or physical damage.

This information is intended to clarify the major requirements for outdoor heaters to help ensure that heating appliances are being used properly. Facility managers and owners must check with the AHJ for specific requirements and final approval.

Learn More

As the world grapples with the COVID-19 pandemic, NFPA continues to provide key resources and information addressing emergency planning, building, and fire and life safety issues. New resources are being added as the crisis evolves and challenges emerge.

- ▶ Visit nfpa.org/coronavirus to access the latest NFPA resources.
- ▶ Get free digital access to NFPA 1 at nfpa.org/1.



IT'S A BIG WORLD.
LET'S PROTECT IT TOGETHER.™

This material contains some basic information of NFPA's *Fire Code*. It identifies some of the requirements in NFPA 1 as of the date of publication. This is not intended to be the official position of any NFPA Technical Committee or any referenced body which is responsible only by the NFPA documents on such topics in their entirety. For the latest and most current version of all NFPA documents, please go to nfpafire.org/products. The NFPA makes no warranty or guarantee of the completeness of the information in this material and assumes liability for personal injury, property, and other damages of any nature whatsoever, from the use of or reliance on this information, including this information, you should rely on your independent judgment and, when appropriate, consult a competent professional.

© 2020 National Fire Protection Association / October 2020



NFPA educational messaging



- Smoke alarms
- Home fire sprinklers
- Carbon monoxide
- Home fire escape
- **Fire Safety Away from Home**
- College and University Housing
- If you are on fire
- Cooking
- Burns
- Heating
- Smoking
- Electrical
- Lightning
- Candles
- Matches and lighters
- Outdoor burning
- Wildfires
- Medical oxygen
- Flammable/combustible liquids
- Battery Safety
- Portable fire extinguishers
- Clothes dryer
- **Pet Fire Safety**
- **Youth Firesetter**
- Messaging for children
 - ✓ Preschool, Gr 1 & 2
- Easy-to-read messages

NEW!



NFPA.org Catalog Electrical Solutions Xchange™ NFCSS™ NFPA Journal® Sparky® Fire Sprinkler Initiative® Firewise USA® NFPA Conference & Expo®

NATIONAL FIRE PROTECTION ASSOCIATION
The leading information and knowledge resource on fire, electrical and related hazards

SAVE 20% ON NEC TOOLKITS MY PROFILE SK... CART (1)

SEARCH

CODES & STANDARDS | ELECTRICAL SOLUTIONS | NEWS & RESEARCH | TRAINING & CERTIFICATION | PUBLIC INFORMATION | MEMBERSHIP

Fire causes & risks	Staying safe	Teaching tools	Connect with us
<ul style="list-style-type: none">Top fire causesRegional risksSeasonal fire causesSpecific groups at riskBehavioral risksWildfire	<ul style="list-style-type: none">Safety equipmentPreparednessSafety in living and entertainment spacesElectrical safety around water	<ul style="list-style-type: none">Safety tip sheetsSparky School House (for teachers)Lesson plansEducational messagingLearn Not to Burn programRemembering When programCommunity tool kitsCanadian fire education materialsSparky the Fire Dog®Video playlist	<ul style="list-style-type: none">Contact usBlogNFPA Network newsletterUsing our content

Live Chat



PUBLIC EDUCATION

Public Education	
Fire causes & risks	+
Staying safe	+
Teaching tools	-
Safety tip sheets	+
Sparky School House (for teachers)	
Lesson plans	
Educational messaging	
Learn Not to Burn program	+
Remembering When program	+
Community tool kits	+

[Public Education](#) / [Teaching tools](#) / Educational messaging

Educational Messaging



The Educational Messages Advisory Committee (EMAC) meets periodically to review NFPA's fire and burn safety education messages and to provide recommendations to NFPA public education staff for updating and revising the messages.

The EMAC public education messages are used throughout NFPA's educational programs, curricula, and handouts, and provide fire and life safety educators with accurate and consistent language for use when offering safety information to the public. Each topic area is self-contained, written so that all the information needed on a certain subject is provided within that category. As a result, some messaging may be repeated throughout topic areas.

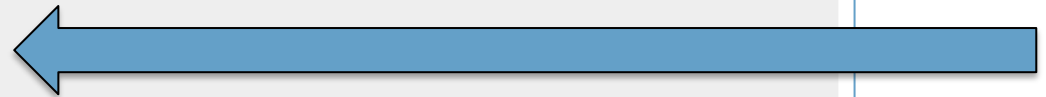
Resources



Educational Messages Advisory Committee (EMAC) Desk Reference 2020 Edition

This document details the messages used in NFPA educational programs, curricula, and handouts, and provides the fire service and fire and life safety educators with consistent language to use with the public.

[Get NFPA's free Desk Reference.](#)



How are NFPA public education messages developed?

The NFPA Educational Messages Desk Reference

The revised NFPA Educational Messages Desk Reference is posted for public use.

1 Every 3 years NFPA asks for public comments & proposals.

2 The Educational Messages Advisory Committee meets at NFPA to review all comments & proposals.

3 NFPA also creates a report of the decisions on all comments & proposals received.

4 Updated messaging is incorporated throughout all NFPA public education materials.

5 Comments & proposals are input using an online form and submitted to NFPA.

6 NFPA updates the Desk Reference with accepted comments & proposals.

THEN

Accurate messaging is the heart of safety education. NFPA and life safety experts in the field work together to build strong messages. As a result, the best fire safety advice can be shared.



NATIONAL FIRE PROTECTION ASSOCIATION

The leading information and knowledge resource on fire, electrical and related hazards

Submissions accepted year-round

How to submit comments

Public Education / Teaching tools / Educational messaging / EMAC Comment Form

EMAC Comment Form

* First Name:

* Last Name:

* Email:

Provide any credentials to support your expertise in the field of fire and life safety education:

Educational Message Number/Chapter Number:

Comment Recommendations:

Provide Comment below:
Proposed new or revised wording or wording to be deleted

Statement of problem and substantiation for Comment:



NFPA.ORG

© National Fire Protection Association. All rights reserved.

Chapter 3 Carbon Monoxide

3.7 Portable Generators

3.7 Portable Generators

NEW! **3.7.1** Use portable generators outdoors in well-ventilated areas at least 20 feet (7 metres) from all doors, windows, and vent openings. Measure the 20-foot (7-metre) distance from the generator to the building.

NEW! **3.7.5** If you are buying or renting a portable generator, choose one that is listed by a qualified testing laboratory.

NEW! **3.7.6** Do not stand or sit downwind of generator exhaust. If you can smell exhaust, you are inhaling it. Exhaust is toxic and deadly.



Downed utility lines, power company blackouts, heavy snow falls or summer storms can all lead to power outages. Many people turn to a portable generator for a temporary solution without knowing the risks.

- Generators should be used in well ventilated locations outside at least 5 feet (1.5 metres) away from all doors, windows, and vent openings. Measure the 5-foot (1.5 metres) distance from the generator exhaust system to the building.
- Never use a generator in an attached garage, even with the door open.
- Place generators so that exhaust fumes can't enter the home through windows, doors or other openings in the building. The exhaust must be directed away from the building.
- Make sure to install carbon monoxide (CO) alarms in your home. Follow manufacturer's instructions for correct placement and mounting height.
- Turn off generators and let them cool down before refueling. Never refuel a generator while it is hot.



- Store fuel for the generator in a container that is intended for the purpose and is correctly labeled as such. Store the containers outside of living areas.

Just Remember...

When plugging in appliances, make sure they are plugged directly into the generator or a heavy duty outdoor-rated extension cord. The cords should be checked for cuts, tears and that the plug has all three prongs, especially a grounding pin.

If you must connect the generator to the house wiring to power appliances, have a qualified electrician install a properly rated transfer switch in accordance with the National Electrical Code® (NEC) and all applicable state and local electrical codes.

FACT

- ! A person can be poisoned by a small amount of CO over a longer period of time or by a large amount of CO over a shorter amount of time.



NATIONAL FIRE PROTECTION ASSOCIATION
The leading information and knowledge resource on fire, electrical and related hazards

nfa.org/education ©NFPA 2017



Chapter 3 Carbon Monoxide

3.8 Boating and Marinas

3.9 If your CO alarm sounds



NEW! 3.8 Boating and Marinas

3.8.1 Poorly tuned engines produce more carbon monoxide (CO). Keep your engine properly maintained. Follow the manufacturer's instructions for service.

3.8.2 Proper ventilation for engine and generator exhaust vents must be clear and pipes should be inspected for leaks.

3.8.3 Get into fresh air right away and get help if you feel symptoms of carbon monoxide (CO) poisoning. These include headache, fatigue, confusion, dizziness, nausea, or seizures. The symptoms can be similar to seasickness. Assume it is CO exposure until you are sure the boat is safe.

3.8.4 Do not swim near the boat's exhaust vents. Carbon monoxide (CO) accumulates there.

3.8.5 Install carbon monoxide (CO) alarms inside your boat. Test CO alarms before each trip.

3.8.6 Choose a carbon monoxide (CO) alarm that is listed by a qualified testing laboratory.

3.8.7 If the carbon monoxide (CO) alarm sounds, move to a fresh air location.



Boats can be a great source of summer fun and leisure. But, boaters, swimmers, and marina staff must be aware of dangers in and around the water. Electrical hazards and carbon monoxide (CO) bring unique risks to the boating world. Learn to protect people and pets from these dangers.

ELECTRICAL SAFETY

- Never allow swimming near the boat, marina, or launching ramp. Residual current could flow into the water from the boat or the marina's wiring. This can put anyone at risk of electrical shock drownings (ESD).
- Be sure your boat is well maintained. Have it inspected each year. Ask a qualified marine electrician to do this job.
- Ground fault circuit interrupters (GFCIs) and equipment leakage circuit interrupters (ELCIs) should be installed and tested monthly. Run tests to find out if electrical current is leaking from the boat.
- Only use cords intended for marine use. Never use household cords near water.
- Know where your main breakers are on both the boat and the shore power source. This will help you respond quickly in an emergency.

CARBON MONOXIDE SAFETY

- Poorly tuned engines produce more CO. Keep your engine properly maintained. Follow manufacturer's instructions for service.
- Proper ventilation for engine and generator exhaust vents must be clear and pipes should be inspected for leaks.
- Get into fresh air right away and get help if you feel symptoms of CO poisoning. These include headache, fatigue, confusion, dizziness, nausea, or seizures. The symptoms can be similar to seasickness. Assume it is CO exposure until you are sure the boat is safe.
- Do not swim near the boat's exhaust vents. CO accumulates there.
- Install CO alarms inside your boat. Test CO alarms before each trip.
- Choose a CO alarm that is listed by a qualified testing laboratory.
- If the CO alarm sounds, move to a fresh air location right away.



KNOW THE RISKS!

Electrical shock drownings can occur when marina electrical systems leak electrical current into the water. Boats can also serve as the source of an electrical leakage. Leakage can cause a shock that can injure, disable, or kill a person.

Carbon Monoxide is a gas you cannot see, taste, or smell. It is often called the "invisible killer." CO is created when fuels such as gasoline, diesel, or propane do not burn fully. CO is also produced when wood or charcoal is burned.

Sources of CO on your boat may include engines, gas generators, and cooking ranges. Space and water heaters can also be sources of CO. CO can collect anywhere in or around a boat. The gas is harmful to both people and to pets.

FACT

CO can remain in or around your boat at unsafe levels even if the engine has been turned off.

Name of Organization Here

Contact Information Here



Your Source for SAFETY Information
NFPA Public Education Division • 1 Batterymarch Park, Quincy, MA 02169

www.nfpa.org/education ©NFPA 2016



Chapter 5



5.1 Hotels and Motels

- Smoke / CO alarms
- Sprinklers
- Fire alarm sounds
- Escape plan
- Count the doors
- Room key handy
- Use the stairs
- Go low under smoke
- Bring a flashlight
- Leave if alarm sounds
- Return to room if escape routes are blocked

Hotel & Motel Safety

Vacations and business travel make hotels and motels our home away from home. It is just as important to be prepared and know what you would do in a hotel/motel emergency as it is in your own home.

BE SAFE WHEN TRAVELING!

- Choose a hotel/motel that is protected by both smoke alarms and a fire sprinkler system.
- When you check in, ask the front desk what the fire alarm sounds like.
- When you enter your room, review the escape plan posted in your room.
- Take the time to find the exits and count the number of doors between your room and the exit. Make sure the exits are unlocked. If they are locked, report it to management right away.
- Keep your room key by your bed and take it with you if there is a fire.
- If the alarm sounds, leave right away, closing all doors behind you. Use the stairs — never use elevators during a fire.
- If you must escape through smoke, get low and go under the smoke to your exit.

If You Can't Escape...

SHUT off fans and air conditioners.

STUFF wet towels in the crack around the doors.

CALL the fire department and let them know your location.

WAIT at the window and signal with a flashlight or light colored cloth.

FACTS

- ! On average, one of every **14 hotels** or motels reported a structure fire each year.
- ! The majority of hotel fire deaths result from fires that started in the **bedroom**.
- ! **Cooking** is the leading cause of hotel/motel fires.

NATIONAL FIRE PROTECTION ASSOCIATION
The leading information and knowledge resource on fire, electrical and related hazards

Your Logo

nfpa.org/education ©NFPA 2019



Chapter 5



5.2 Peer-to-peer Hospitality

- Smoke alarms
- Carbon Monoxide
- Cooking
- Extinguishers
- Floor plan
- Address
- Two ways out
- Meeting place
- Smoking
- Pathways
- Stovetop



Fire Safety at Your Home Away from Home

Peer-to-peer hospitality services, such as Airbnb, Vacation Rentals by Owner and other types of vacation rentals are not regulated in the same way as hotels. Requirements vary widely across jurisdictions. Act as your own safety advocate and know before you go. Be sure the following safety measures are addressed.

SAFETY TIPS

- ✓ Working smoke alarms are in every sleeping room. They are outside each separate sleeping area. They are on every level of the home.
- ✓ Working smoke alarms are interconnected, if possible. When one alarm sounds, they all sound.
- ✓ Portable fire extinguishers are in the home and are easy to reach.
- ✓ Working carbon monoxide alarms are outside each separate sleeping area. They are on every level of the home and in other locations as required by laws, codes, or standards.
- ✓ The owner has posted a floor plan. It notes all escape routes and exits and provides emergency contact information.
- ✓ Everyone knows the address of the home.
- ✓ Everyone staying in the home has identified two ways out of every room and how to escape in an emergency.
- ✓ All doors and windows that lead outside are able to be opened.
- ✓ An outside meeting place has been chosen. It is a safe distance away from the home.
- ✓ Everyone knows how to call 9-1-1 or the local emergency number from a cell phone from outside.
- ✓ If smoking is allowed, a smoking area has been designated and is well away from the structure. Deep, sturdy ashtrays have been provided.
- ✓ All pathways are free and clear of tripping hazards.
- ✓ Electrical outlets are free from multiple cords and adaptors.
- ✓ The stovetop is clear. Anything that can catch fire is not near the stovetop, such as curtains and towels.

WINDOW AND DOOR ALERT!
Be on the lookout for rooms with tiny windows. These are too small to serve as a means of escape. Security bars on doors and windows can trap people in a fire. Make sure any security bars have quick-release devices. Tools, keys, or special efforts should not be needed to open them.

KNOW BEFORE YOU GO
Peer-to-peer hospitality services are not regulated in the same way as hotels. Requirements vary widely across jurisdictions. Do your homework before making a reservation. Check online to see your travel destination's regulations for rental properties. Ask your host if the property meets the regulations. Discuss other safety concerns you may have. Check the forecast in case of storms that could cause power outages; assure the property has equipment (batteries, lanterns, etc.) in the event of a power outage.

 **NATIONAL FIRE PROTECTION ASSOCIATION**
The leading information and knowledge resource on fire, electrical and related hazards

Your Logo

nfpa.org/education ©NFPA 2019

Airbnb is a registered trademark of Airbnb, Inc. Vacation Rentals by Owner is a registered trademark of HomeAway.com, Inc. Neither Airbnb, Inc. nor HomeAway.com has reviewed or approved this material.



Chapter 5



5.3 Motor Home, Camper and Recreational Vehicle Safety

- Smoke alarms
- Carbon Monoxide
- Cooking
- Appliances
- Propane
- Heaters, lanterns, campfires
- Appliance inspection
- Escape plan
- Fire extinguishers
- Vehicle service



Motor home, camper, and recreational vehicle Safety

Motor homes, campers, and recreational vehicles are used for living and traveling. Each year, fires in them cause deaths, injuries, and millions of dollars in damages. Fires can start in the kitchen. They can start in the engine area. Sometimes the fires are electrical. With a few simple safety tips you can help prevent these fires from happening.

SAFETY TIPS

- Install smoke alarms. Make sure they work.
- Stay in the kitchen while you cook. Keep anything that can catch fire away from the stovetop.
- Only use one heat-producing appliance plugged into a receptacle outlet at a time. Major appliances should be plugged directly into a wall receptacle outlet.
- Refrigerators, furnaces, ovens and stovetops use propane. Check them for leaks. Keep an updated gas leak detector on board.
- Have your propane system inspected to make sure it still works properly.
- Know two ways out. Make sure windows open easily.
- Have everyone practice the home fire escape plan.
- Do not keep camping heaters and lanterns on while sleeping.
- Before setting up a campfire, make sure it is allowed.
- If campfires are allowed, they need to be at least 25 feet away from anything that can burn.
- Have your vehicle serviced by a qualified mechanic.
- Keep a portable fire extinguisher on board. Only adults who know how to operate it should use it. Only use it if the fire is small and can be contained. Make sure everyone else is leaving. Make sure someone is calling the fire department.



Carbon Monoxide Awareness

Carbon monoxide (CO) is a gas. You cannot see it. You cannot taste it. You cannot smell it. CO poisoning can result from leaks in the exhaust. It can happen because of improper use of appliances. Sometimes CO comes from another vehicle. Make sure you have a working CO alarm.

FACT

When the vehicle is used as a structure, the most common area for these fires to start is the kitchen or cooking area. This is followed by the engine area, running gear, or wheel area. Check for safety inside and outside of the vehicle.

 **NATIONAL FIRE PROTECTION ASSOCIATION**
The leading information and knowledge resource on fire, electrical and related hazards.

Your Logo

nfpa.org/education ©NFPA 2017

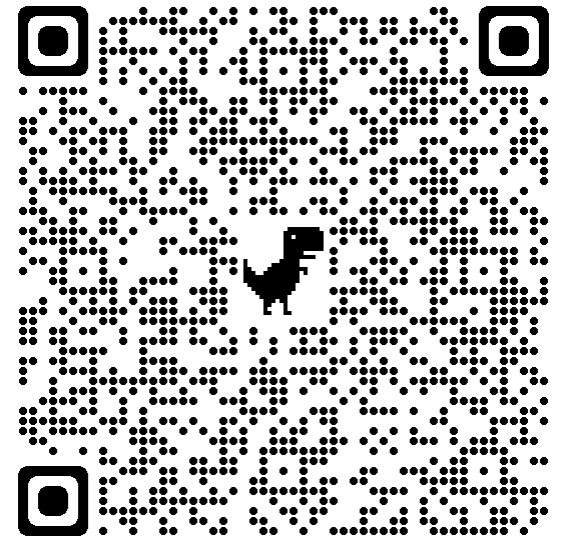
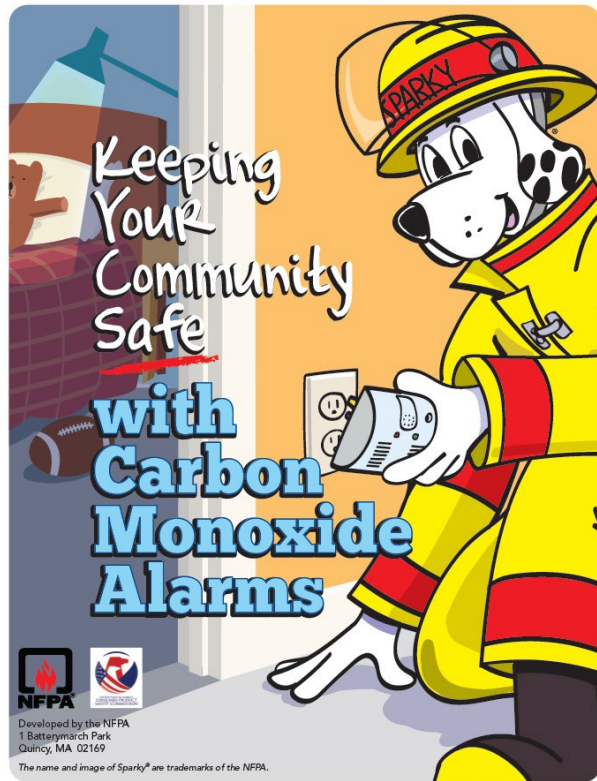
Chapter 10 Heating

10.3 Fuel-burning space heaters

NEW! **10.3.5** Newer models of unvented gas-fired space heaters have an oxygen depletion sensor that detects a reduced level of oxygen in the area where the heater is operating. They still produce carbon monoxide, carbon dioxide, and nitrogen dioxide. It is recommended to only use this type of heater for emergency heat and to choose a vented gas heater, vented wood stove, or electric heater for prolonged amounts of time.



NFPA Community Tool Kit: Keeping Your Community Safe with Carbon Monoxide Alarms



Lesson Plans



Mastering the 10-Minute Mini-Lesson

SAMPLE LESSON PLAN

CO ALARMS IN THE HOME

Educational Messages to Review:

- 3.1 Dangers of Carbon Monoxide
- 3.2 Installation
- 3.3 Testing & Replacement
- 3.8 If Your Carbon Monoxide Alarm Sounds

Topic: Carbon Monoxide Alarms in the Home

Audience: Adult Attendees of a City Council Meeting

Lesson Objective: By the end of the mini-lesson, participants will be able to describe at least 3 actions to ensure carbon monoxide alarms can serve as life-saving warning devices.

Step 1: Introduction (3 Minutes)

- Greet the participants and let them know you appreciate the invitation to speak for 10 minutes.
- Introduce yourself and share your connection to the community.
- **HOOK:** Play the sound clip of the singing canary.
 - o Ask audience members to identify the sound.
 - o Share a brief bit of history about the role canaries once held in coal mines:

Poor ventilation is a problem in coal mines. Miners once used canaries to test the air quality in the mines. Canaries are very sensitive to the dangerous gases sometimes found in the mines. The canaries would chirp and sing all day long. But, if the levels of poisonous gases got too high, the canaries would have trouble breathing, and maybe even die. When the canaries stopped singing, miners would know that the gas levels were unsafe. They would leave the mine quickly to avoid suffocation or being caught in an explosion.

- o Some miners relied on canaries as early warning devices into the 1980's.
- o Modern technology has provided miners with new tools to detect the poisonous gases in mines.
- o Modern technology has also provided us with a tool to detect carbon monoxide that could be in our homes.

Step 2: Body of the Presentation (5 minutes)

- Inform the group about the topic of the mini-lesson: The importance of having working carbon monoxide (CO) alarms in the home.
- Share the following points with the participants:
 - o Carbon Monoxide is not only found in coal mines. It is a gas that can come from heating and cooking devices in the home. Carbon monoxide is poisonous. It can make a person feel sick and can be deadly.
 - o Carbon Monoxide is sometimes called "The Invisible Killer."
 - ASK: Why do you think CO has this morbid nickname? *CO is odorless and colorless. People are usually not aware of its presence and can get sick or die from breathing the poisonous gas.*
 - Since we cannot see, smell, or taste CO, we need to rely on another early warning system — like a canary in the coal mine.
 - o Carbon Monoxide alarms act as canaries in the coal mine. These alarms detect this poisonous gas and provide early warning.



Your Source for SAFETY Information

NFPA Public Education Division • 1 Batterymarch Park, Quincy, MA 02169 www.nfpa.org/education

— Mastering the 10-Minute Mini-Lesson: CO Alarms in the Home —

- Inform participants about steps to take to ensure CO alarms are protecting people in the home:
 - o Have working CO alarms in the home.
 - o Install CO alarms outside sleeping areas and on every level of the home.
 - o Follow the instructions on the package for proper installation and maintenance.
 - o Test the CO alarms monthly.
 - o Know the sounds the CO alarm makes. The alarm will sound if CO is detected. If the battery is low, the alarm will chirp. Replace the battery right away. If the alarm still sounds, call the fire department.
 - Press the test button on a CO alarm to demonstrate the sound.
 - ASK: Can CO alarms substitute for smoke alarms? *NO! You need both in the home. Know the difference between the sound of the smoke alarms and the sound of CO alarms.*
- ASK: What should you do if CO is detected?
 - o *Immediately move to a fresh air location outdoors.*
 - o *Make sure everyone in the home gets to fresh air.*
 - o *Call the fire department from a fresh air location.*
 - o *Stay there until help arrives.*

Step 3: Conclusion (2 minutes)

- Remind participants of the importance of having working Carbon Monoxide alarms in the home
- Ask a few review questions:
 - o How is a CO alarm like a canary in the coal mine? *(early warning, can reduce injury & death)*
 - o What actions do you need to take to keep CO alarms working properly?
 - o What actions should be taken if CO is detected in the home?
- Remind the audience that simple steps will help increase safety in the home.
- Share your contact information and encourage participants to contact you if they have questions or concerns about other home safety issues.
- Thank everyone for their time and for inviting you to speak.

The [NFPA Tip Sheet on Carbon Monoxide Safety](#) is a great take-away for participants to review at home.



Your Source for SAFETY Information

NFPA Public Education Division • 1 Batterymarch Park, Quincy, MA 02169 www.nfpa.org/education



Preventing CO Poisoning Lesson Plan



Mastering the 10-Minute Mini-Lesson

SAMPLE LESSON PLAN

Educational Messages to Review:

- 3.4 Inside the Home
- 3.5 The Garage
- 3.6 Appliances
- 3.7 Portable Generators

Topic: Preventing CO (Carbon Monoxide) Poisoning
Audience: Parent PTO meeting
Lesson Objective: By the end of the mini-lesson, audience members will be able to identify at least 3 actions to take to help prevent CO poisoning.

Step 1: Introduction (2 Minutes)

- Greet the audience. Let them know you appreciate the invitation to speak for 10 minutes.
- Introduce yourself. Share your connection to the community.
- **HOOK** — ASK: Which of these kills more people in the U.S. each year?
 - a) Shark attacks
 - b) Lightning strikes
 - c) CO poisoning
 The answer is: C! CO poisoning


a) shark attacks
(about 1 each year in the US)
Source: Oceana

b) lightning strikes
(about 32 each year in the US)
Source: National Weather Service, NOAA

The Centers for Disease Control and Prevention (CDC) reports that more than 400 people die each year, in the US, from unintentional CO poisoning from different products and motor vehicles. CO is poisonous gas known as the invisible killer. You can't see it or smell it, but it can hurt people who breathe it. CO poisoning can happen fast or over a long period of time. It can lead to death.

Step 2: Body of the Presentation (7 minutes)

- Inform the group the topic of the mini-lesson: Ways to prevent CO poisoning in and around the home. CO can come from many things in and around your home.
 - **ASK:** What are some things around your home that could produce CO?
 - Faulty fuel-burning appliances such as furnaces, ranges, water heaters and room heaters
 - Cars
 - Engine-powered tools like generators
 - Burning charcoal in fireplaces or in barbecue grills inside
 - Inform the group about steps they can take to help prevent CO poisoning:
 - Have heating equipment and chimneys checked by a professional each year before cold weather starts. Make sure the system is working properly. The inspector should check for proper exhaust ventilation through chimneys and flues.
 - Open the damper when using a fireplace for proper ventilation.
 - Never use your oven or stove to heat your home.
- **ASK:** What are some things that could block your dryer, stove, furnace or fireplace vents? Lint, snow, leaves...
 - Clear all things from dryer, furnace, stove, and fireplace vents.
- **ASK:** Who has warmed your vehicle up in the garage? Who has lost track of time after turning it on?
 - When warming a vehicle, move it out of the garage. Do not run a fueled engine inside, even if garage doors are open. Make sure the exhaust pipe of a running vehicle is not blocked.


 Your Source for SAFETY Information
 NFPA Public Education Division • 1 Batterymarch Park, Quincy, MA 02169 www.nfpa.org/education

— Mastering the 10-Minute Mini-Lesson: Preventing CO Poisoning —

ASK: Why might someone use a grill inside a garage? Raining, snowing...
 – Always use barbecue grills outside and away from doors and windows. Never use grills inside the home or garage, even if the doors are open.
 – A generator should be used outside only! NEVER use inside a home or garage.
 – Keep generators at least 20 feet away from your house. Make sure they are far from windows, doors, and vent openings.

Step 3: Conclusion (1 minute)

- Review: Ask for volunteers to share something they can do to prevent CO poisoning at home. Ask for a variety of responses.
- Remind participants that simple steps will help increase safety.
- Share your contact information and encourage the attendees to contact you if they have any questions or concerns about other home safety issues.
- Thank everyone for their time and for inviting you to speak.

 Your Source for SAFETY Information
 NFPA Public Education Division • 1 Batterymarch Park, Quincy, MA 02169 www.nfpa.org/education

Learn the Sounds of Fire Safety

What is your alarm telling you?

Alarm: 4 sounds

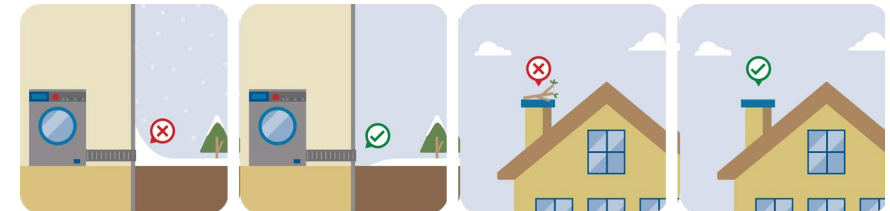
- 1 continuous bell or siren sound means: There's a fire! Leave the house or building immediately. Get out, stay low, and get outside.
- 3 or 4 short beeps (or 4 or 5 short beeps) means: The battery is low and needs to be changed.
- 10 or more beeps (or 10 or more short beeps) means: The battery has been replaced.
- Chirping that continues after the battery has been replaced means the alarm is at the end of its service and must be replaced.

Alarm: 2 sounds

- 1 continuous bell or siren sound means: There's a fire! Leave the house or building immediately. Get out, stay low, and get outside.
- 3 or 4 short beeps (or 4 or 5 short beeps) means: The battery is low and needs to be changed.
- 10 or more beeps (or 10 or more short beeps) means: The battery has been replaced.
- Chirping that continues after the battery has been replaced means the alarm is at the end of its service and must be replaced.

Hear a Bleep, Cool On Your Feet!

Hear a Chirp, Make a Change!



Safety Tip Sheets



Marina & Boating Safety

Boats can be a great source of summer fun and leisure. But, boaters, swimmers, and marina staff must be aware of dangers in and around the water. Electrical hazards and carbon monoxide (CO) bring unique risks to the boating world. Learn to protect people and pets from these dangers.

ELECTRICAL SAFETY

- Never allow swimming near the boat, marina, or launching ramp. Residual current could flow into the water from the boat or the marina's wiring. This can put anyone at risk of electrical shock drownings (ESD).
- Be sure your boat is well maintained. Have it inspected each year. Ask a qualified marine electrician to do this job.
- Ground fault circuit interrupters (GFCIs) and equipment leakage circuit interrupters (ELCIs) should be installed and tested monthly. Run tests to find out if electrical current is leaking from the boat.
- Only use cords intended for marine use. Never use household cords near water.
- Know where your main breakers are on both the boat and the shore power source. This will help you respond quickly in an emergency.

CARBON MONOXIDE SAFETY

- Poorly tuned engines produce more CO. Keep your engine properly maintained. Follow manufacturer's instructions for service.
- Proper ventilation for engine and generator exhaust vents must be clear and pipes should be inspected for leaks.
- Get into fresh air right away and get help if you feel symptoms of CO poisoning. These include headache, fatigue, confusion, dizziness, nausea, or seizures. The symptoms can be similar to seasickness. Assume it is CO exposure until you are sure the boat is safe.
- Do not swim near the boat's exhaust vents. CO accumulates there.
- Install CO alarms inside your boat. Test CO alarms before each trip.
- Choose a CO alarm that is listed by a qualified testing laboratory.
- If the CO alarm sounds, move to a fresh air location right away.

Your Source for SAFETY Information
NFPA Public Education Division • 1 Batterymarch Park, Quincy, MA 02269

www.nfpa.org/education ENF-PA 2016



KNOW THE RISKS!

Electrical shock drownings can occur when marina electrical systems leak electrical current into the water. Boats can also serve as the source of an electrical leakage. Leakage can cause a shock that can injure, disable, or kill a person.

Carbon Monoxide is a gas you cannot see, taste, or smell. It is often called the "invisible killer." CO is created when fuels such as gasoline, diesel, or propane do not burn fully. CO is also produced when wood or charcoal is burned.

Sources of CO on your boat may include engines, gas generators, and cooking ranges. Space and water heaters can also be sources of CO. CO can collect anywhere in or around a boat. The gas is harmful to both people and to pets.

FACT

CO can remain in or around your boat at unsafe levels even if the engine has been turned off.

Name of Organization Here

Contact Information Here



Portable Fireplace Safety

There is nothing like sitting by an open fire on a cold night. Indoor and outdoor portable ethanol burning fireplaces have become more popular in recent years. While these products provide ambiance and a little warmth, keep in mind the fuel, device and open flame can be dangerous.

Fireplace Safety

- A portable ethanol burning fireplace, and the fuel, should only be used by adults.
- Clean up any fuel spillage and be sure all liquid has evaporated before lighting the fireplace.
- Light the fireplace using a utility lighter or long match.
- An adult should always be present when a portable fireplace is burning.
- Place the fireplace on a sturdy surface away from table edges.
- It's a good idea to crack a window open for a fresh supply of air.
- Never try to move a lit fireplace or one that is still hot.
- Don't pour ethanol fuel in a device that is lit or not completely cool. It may result in a fire or injury.
- Allow the device to cool down for at least 15 minutes before refueling.
- Extinguish the flame when you leave the room, home or go to sleep.

General Fire Safety

- Keep anything that can burn, children and pets at least 3 feet from the fireplace.
- Store lighters and matches out of the reach of children, in a locked cabinet.



Your Source for SAFETY Information
NFPA Public Education Division • 1 Batterymarch Park, Quincy, MA 02269

www.nfpa.org/education ENF-PA 2016

Ethanol Fuel Smarts

Store ethanol fuel in a closed container, away from the fireplace and out of the reach of children.

It may not be easy to see the ethanol fuel flame. Always close the lid or use a snuffer to be sure the flame is extinguished before refueling into a cooled fireplace.

Use only fuel made specifically for the fireplace.

FACT

Ethanol is a plant-based product that does not release new carbon monoxide into the air.

Name of Organization Goes Here

Contact Information Goes Here



Clothes Dryer Safety

Doing laundry is most likely part of your every day routine. But did you know how important taking care of your clothes dryer is to the safety of your home? With a few simple safety tips you can help prevent a clothes dryer fire.

- Have your dryer installed and serviced by a professional.
- Do not use the dryer without a lint filter.
- Make sure you clean the lint filter before or after each load of laundry. Remove lint that has collected around the drum.
- Rigid or flexible metal venting material should be used to sustain proper air flow and drying time.
- Make sure the air exhaust vent pipe is not restricted and the outdoor vent flap will open when the dryer is operating. Once a year, or more often if you notice that it is taking longer than normal for your clothes to dry, clean lint out of the vent pipe or have a dryer lint removal service do it for you.
- Keep dryers in good working order. Gas dryers should be inspected by a professional to make sure that the gas line and connection are intact and free of leaks.
- Make sure the right plug and outlet are used and that the machine is connected properly.
- Follow the manufacturer's operating instructions and don't overload your dryer.
- Turn the dryer off if you leave home or when you go to bed.

AND DON'T FORGET...

Dryers should be properly grounded.

Check the outdoor vent flap to make sure it is not covered by snow.

Keep the area around your dryer clear of things that can burn, like boxes, cleaning supplies and clothing, etc.

Clothes that have come in contact with flammable substances, like gasoline, paint thinner, or similar solvents should be laid outside to dry, then can be washed and dried as usual.

FACT

The leading cause of home clothes dryer fires is failure to clean them.

www.nfpa.org/education

Your Source for SAFETY Information
NFPA Public Education Division • 1 Batterymarch Park, Quincy, MA 02269



NFPA Social Media Posts

 **Sparky The Fire Dog**
December 29, 2020 · 🌐

Keep these tips in mind while enjoying the outdoors this holiday season.
[#WinterFireSafety](#)



Enjoying the outdoors this holiday season?
Keep kids 3 feet (1 metre) from the backyard fire pit.
Have a bucket of water, a hose, or fire extinguisher on hand.
Be ready to put the fire out quickly.

 **Sparky The Fire Dog**
January 21 · 🌐

Heating equipment is the leading cause of home fires between December and February, with 1/5 of all home heating fires occurring in January. Stay safe with our safety tips: <https://bit.ly/2Y0vTg8>
[#heatingfires](#) [#homesafety](#) [#firesafety](#) [#winter](#) [#heat](#) [#research](#) [#education](#)



  26

55 Shares

 **National Fire Protection Association (NFPA)**
February 6 · 🌐

Are you counted in? Join us this year for [#nfpaconf23](#) in Las Vegas June 19-21. Don't delay, register for the conference before February 15 and take advantage of early bird rates: <http://nfpa.social/8mf50ML18g>



Translations and Easy-to-Read Tip Sheets

Seguridad de la ropa

“UA NOJ H...
 Yuv tum...
 Nyoob hau...
 Yag tias...
 Muab cov...
 Yag tias koj...
 Ntawm lub...
 Yag cov qf...
 Yag tias koj...
 Tsaus yag...
 Hu rau 9-1...
 Koj Cov...
 NFPA NFPA

Calefacción

ESTE INVIERNO, MANTENGA SU SEGURIDAD...
 No hay nada más lindo que la chimenea con un buen funcionamiento...
 Mantenga objetos que estén a tres pies de distancia...
 Mantenga una zona “niños” de tres pies de alrededor de llamas...
 Nunca use el horno para calefacción...
 Haga que un especialista instale los equipos...
 Haga que un especialista revise sus chimeneas...
 Recuerde apagar los aparatos...
 Siempre use el tipo de quemadores de combustible...
 Asegúrese que su sistema de protección...
 Coloque las cenizas en un contenedor...
 Verifique las alarmas de...
 Su fuente de información de NFPA...
 Su fuente de Info NFPA...
 Your Source for SAFETY Information NFPA...
 www.nfpa.org/education

Regas de seguridad

Las personas temen por los delitos que se cometen cerca de sus hogares...
 HECHOS: Cerca de 50 personas por año resultan heridas o mueren a causa de incendios en sus hogares...
 Asegúrese de que las rejas cuenten con mecanismos de rápida apertura...
 Rejas de seguridad con mecanismos de rápida apertura...
 En algunas áreas, se han aprobado leyes que versan sobre las rejas de seguridad...
 Consulte al departamento de bomberos...
 Solicite a los dirigentes locales...
 Su fuente de información de NFPA...
 Su fuente de Info NFPA...
 Your Source for SAFETY Information NFPA...
 www.nfpa.org/education

Conheça os alarmes de fumo

Se houver um incêndio em sua casa, haverá fumo...
 Um alarme de fumo indicará que existe um incêndio em sua casa...
 Hel Oggaanshaha Alaarmiga Qiiqa | BOGGA 1
 Haddii uu dab ka kaco gurigaaga...
 Alaarmiga qiiqa ayaa kuu sheegayo in dab uu ka jiro gurigaaga...
 Waxaad u baahantahay alaarmiga qiiqa...
 Name of Organization Goes Here
 Contact Information Goes Here
 NFPA • 1 Batterymarch Park, Quincy, MA 02169 • www.nfpa.org

Pwoteje tèt ou kont dife elektrisite lakòz

Ou pa bezwen yon flann pou kòmanse yon dife...
 1. Mete bagay ki ka boule, tankou founa...
 2. Mete rido yo lwen anpou yo...
 3. Bagay lou ou mete anilè yon ralonj...
 NON WI
 NON WI
 NON WI
 NFPA • 1 Batterymarch Park, Quincy, MA 02169 • www.nfpa.org




Social Media Cards







Install and test carbon monoxide (CO) alarms at least once a month.

CO is called the “invisible killer” because it’s a colorless, odorless, poisonous gas. Breathing in CO at high levels can be fatal.






Generators should always be used outside the home.

Carbon monoxide poisoning can occur when a generator is not working or vented properly.

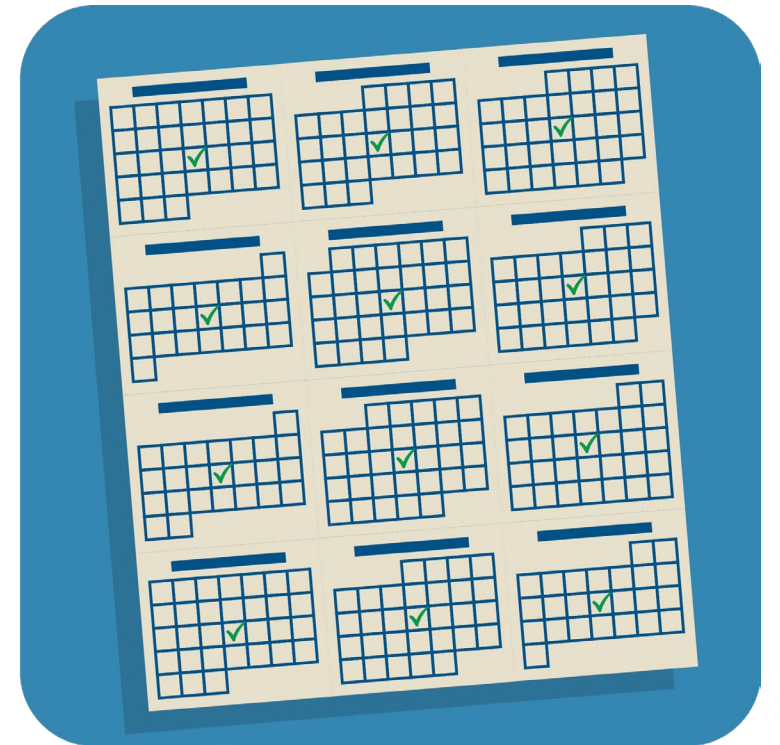
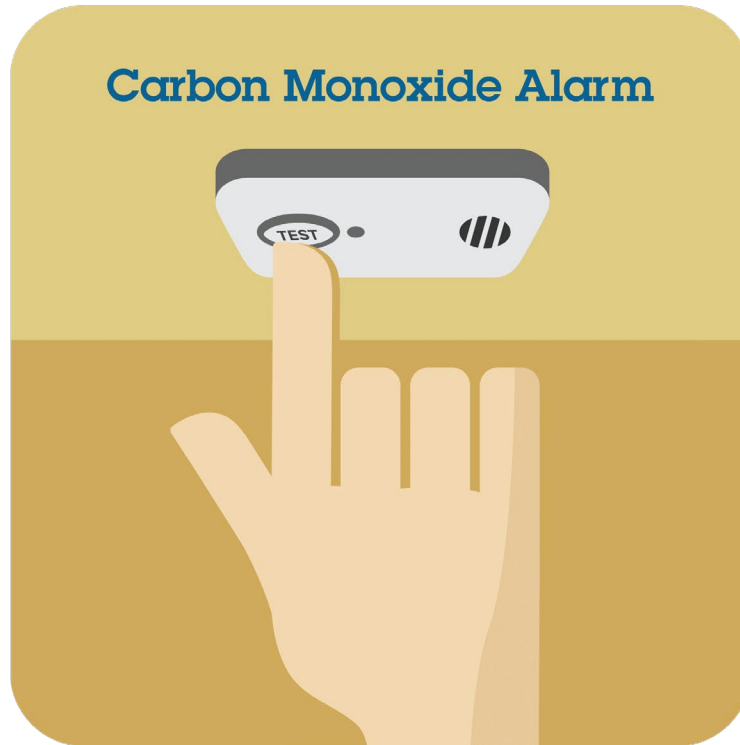
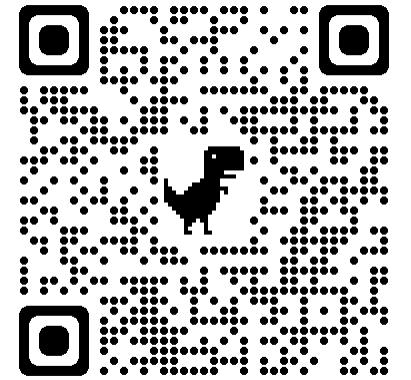


Solo use los generadores fuera de la casa.

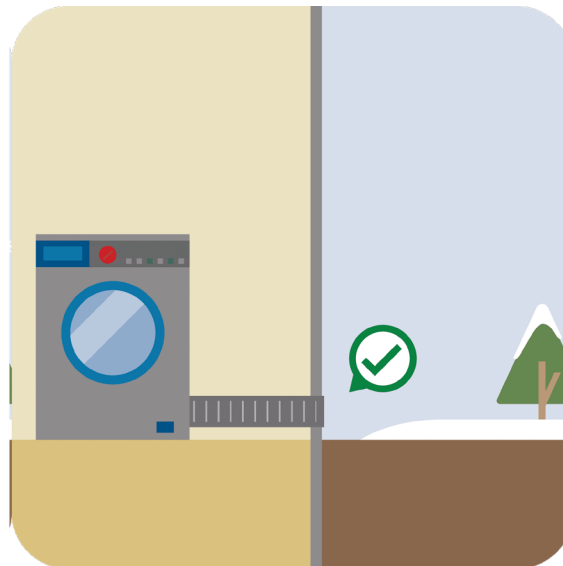
Cuando un generador no funciona bien o no tiene la ventilación adecuada podría causar envenenamiento con monóxido de carbono.



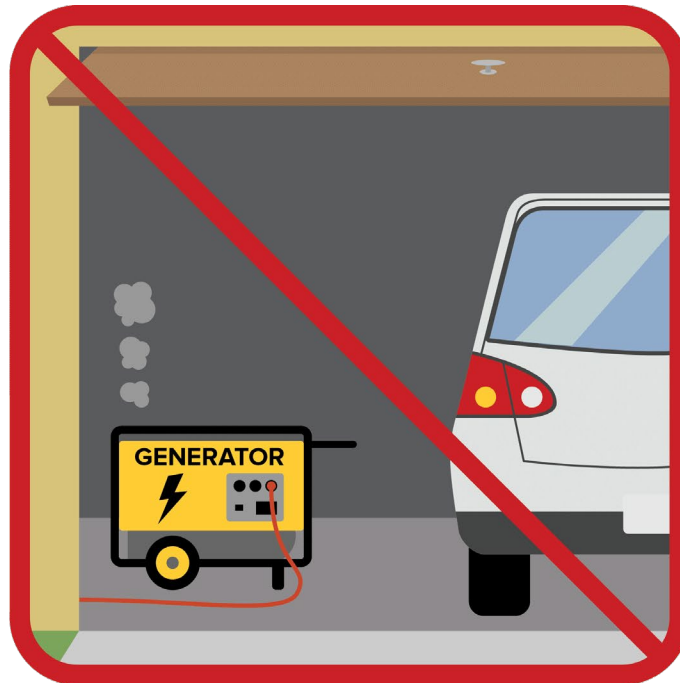
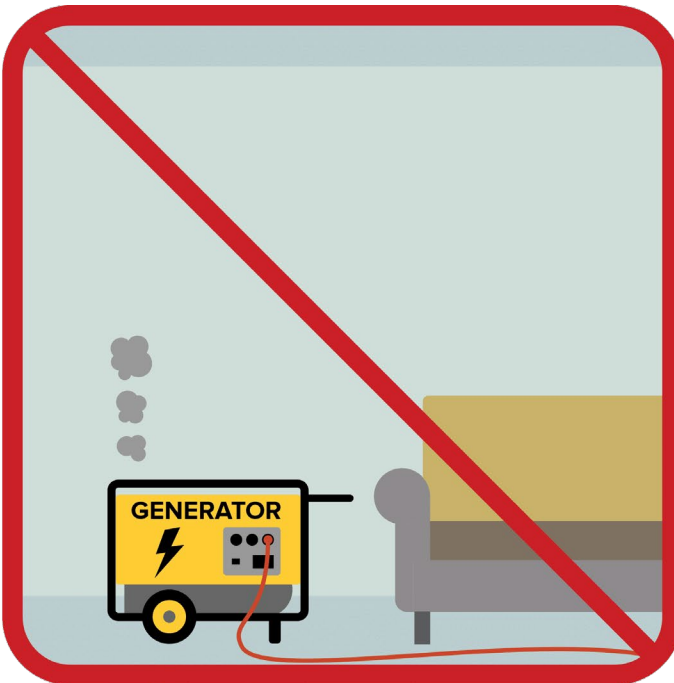
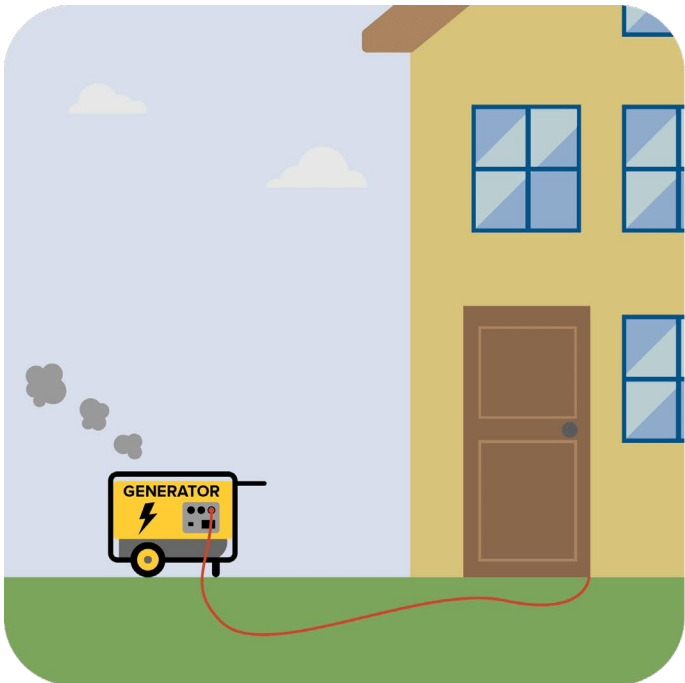
Pictographs



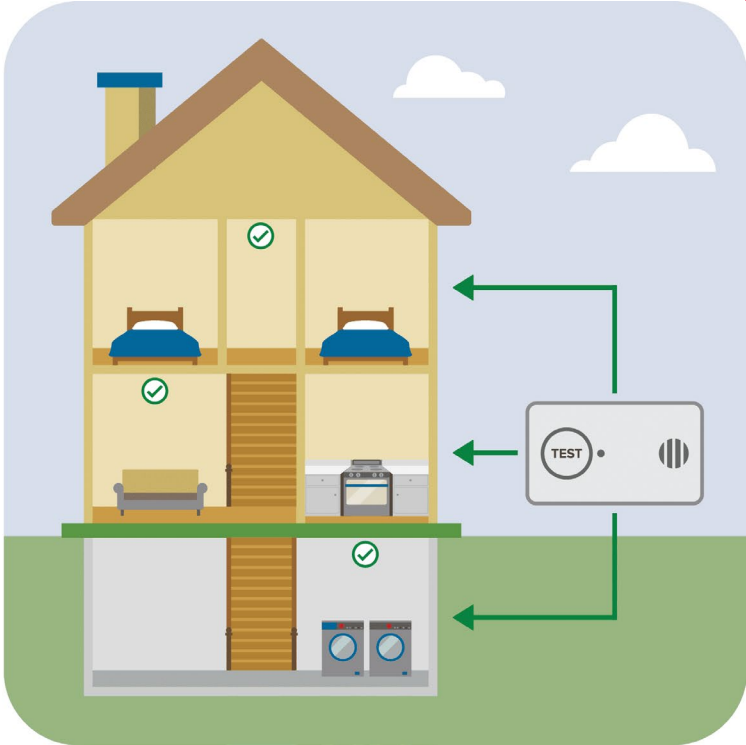
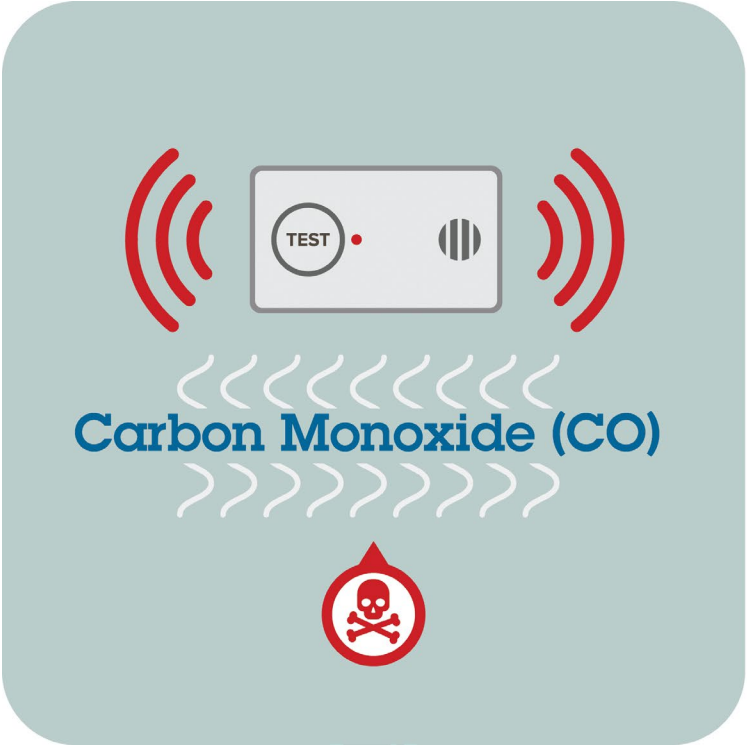
Pictographs



Pictographs



Pictographs



Learn Something New!

Search

IT'S A BIG WORLD.
LET'S PROTECT IT TOGETHER.®

National Fire Protection Association
25.6K subscribers

HOME VIDEOS PLAYLISTS COMMUNITY CHANNELS ABOUT

It's a Big World. Let's Protect It Together.
12,648 views • 2 years ago

We believe that only by working together can those of us whose work affects the safety of others — from electricians to engineers to first responders — build a network of intelligence to keep our increasingly complex world safe. NFPA is committed to leading this charge, working tirelessly with tradespeople and professionals to stay ahead of problems and to create real-time solutions to prevent loss to life and property.
READ MORE

Learn Something New ▶ PLAY ALL

Learn Something New is an educational video series by NFPA Journal that explores topics related to fire, electrical, and life safety hazards.

- WHAT IS ELECTRIC SHOCK DROWNING? 2:55
National Fire Protection Assoc...
1.1K views • 2 weeks ago
- WHY DO FACADE FIRES KEEP HAPPENING? 6:11
National Fire Protection Assoc...
2.3K views • 1 month ago
- HAND SANITIZER: A FIRE HAZARD? 5:35
National Fire Protection Assoc...
112K views • 2 months ago
- NFPA 1581 OVERVIEW 5:04
National Fire Protection Assoc...
2.8K views • 3 months ago
- ARE 3D-PRINTED BUILDINGS SAFE? 4:55
National Fire Protection Assoc...
2.6K views • 4 months ago

NFPA JOURNAL
The magazine of the National Fire Protection Association

NFPA Journal Search

JOURNAL HOME

ARCHIVED ISSUES
JOURNAL MOBILE APP
ADVERTISING
AUTHOR INDEX
SUBJECT INDEX
JOURNAL NOW ARCHIVE
CONTENT
DISCLAIMER
ABOUT NFPA JOURNAL

JULY/AUGUST 2020

In this issue, NFPA Journal details the return of crowds in a post-COVID-19 world, the push toward remote video inspections, and the latest in crowd management research. PLUS: A look at how a cannabis-related explosion in Los Angeles could set the industry back, an interview with a wildfire preparedness coordinator, the 2019 US Firefighter Fatalities report, and much more.

FEATURES

A COVID OPENING
An event safety expert offers an opinionated look at the challenges of opening gathering spaces during an ongoing pandemic

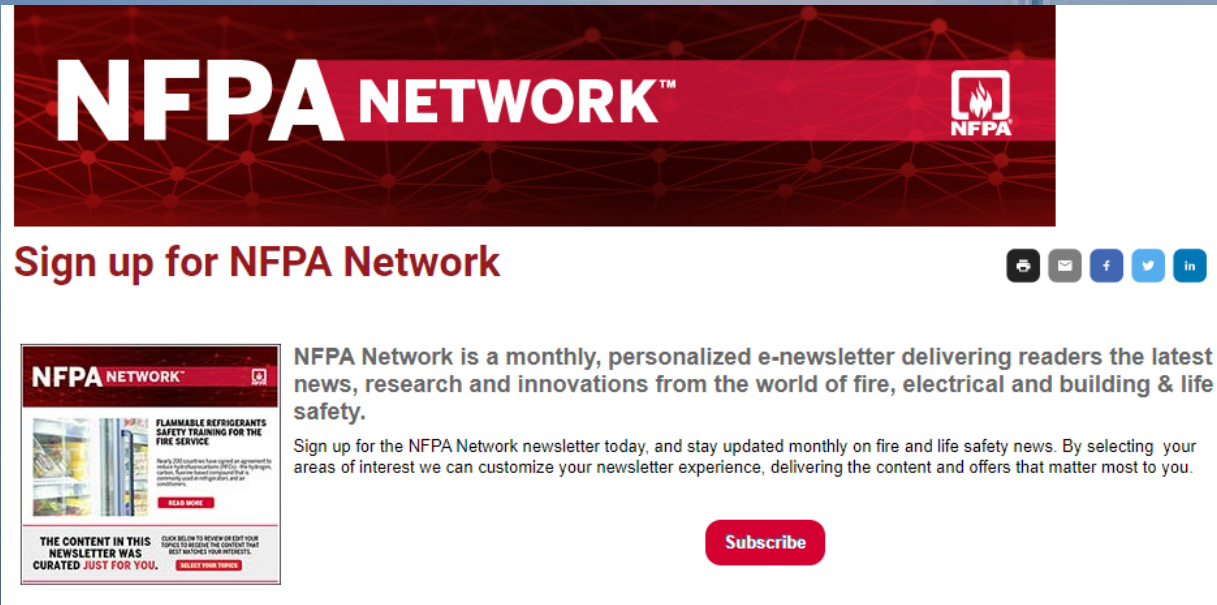
CROWD CONTROL
As crowds return, a new tool from NFPA will offer facility managers and safety officials the power to evaluate and manage potentially dangerous crowd dynamics


REMOTE VIDEO INSPECTION REVOLUTION
Thanks to COVID-19, RVI has gone from a seldom-used approach to the next big thing in building life safety. Is it here






THE NFPA PODCAST




Network Newsletter



NFPA NETWORK™ 

Sign up for NFPA Network     

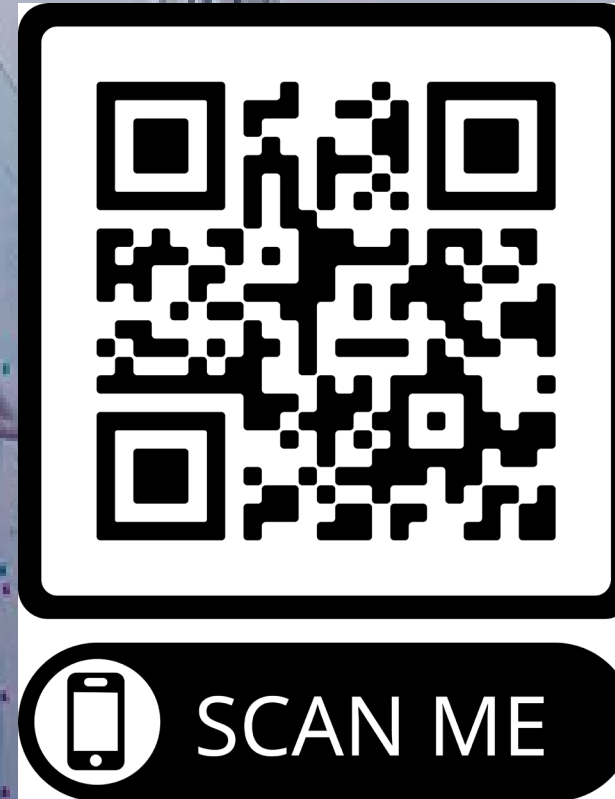
NFPA NETWORK  **FLAMMABLE REFRIGERANTS SAFETY TRAINING FOR THE FIRE SERVICE**
Nearby 20 companies have signed an agreement to...
[READ MORE](#)

THE CONTENT IN THIS NEWSLETTER WAS CURATED JUST FOR YOU. [SELECT YOUR TOPICS](#)

NFPA Network is a monthly, personalized e-newsletter delivering readers the latest news, research and innovations from the world of fire, electrical and building & life safety.

Sign up for the NFPA Network newsletter today, and stay updated monthly on fire and life safety news. By selecting your areas of interest we can customize your newsletter experience, delivering the content and offers that matter most to you.

[Subscribe](#)





NATIONAL FIRE PROTECTION ASSOCIATION

The leading information and knowledge resource on fire, electrical and related hazards

TRY LiNK™ FOR FREE

MY PROFILE

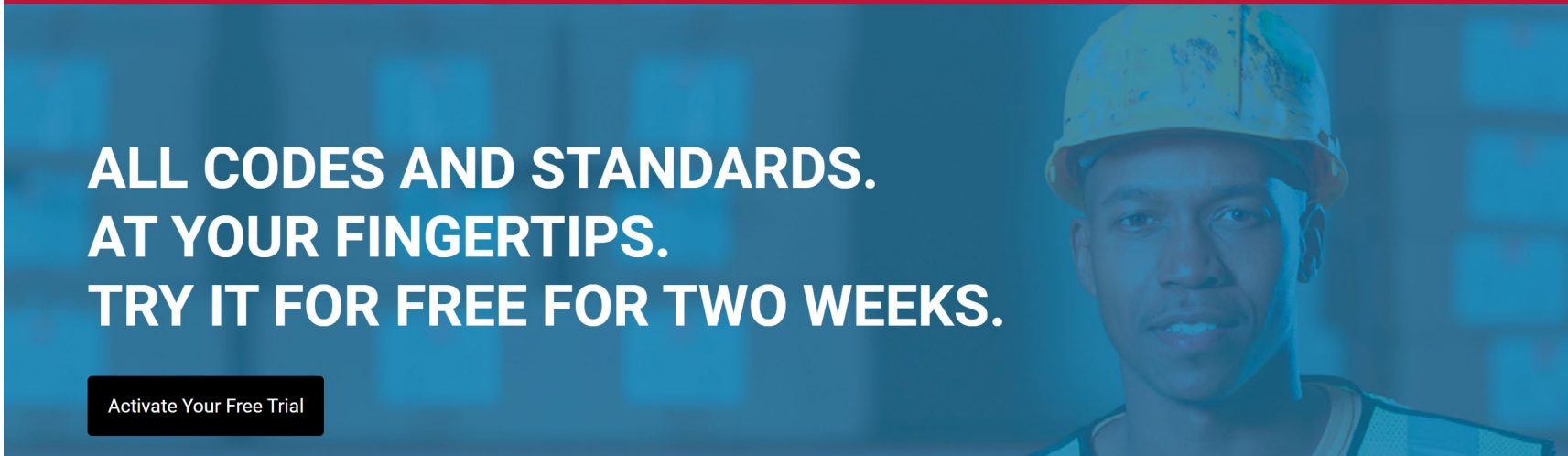
SIGN OUT

CART (0)

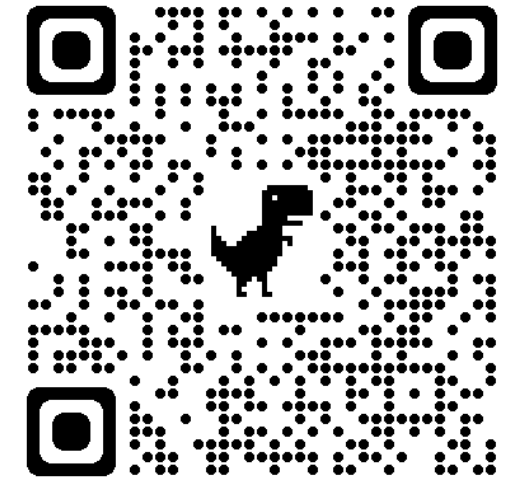
CODES & STANDARDS | SOLUTIONS | NEWS & RESEARCH | TRAINING & CERTIFICATION | PUBLIC EDUCATION | MEMBERSHIP | EVENTS

**ALL CODES AND STANDARDS.
AT YOUR FINGERTIPS.
TRY IT FOR FREE FOR TWO WEEKS.**

Activate Your Free Trial



www.nfpa.org/link



Thank You
Kelly Ransdell
kransdell@nfpa.org
919-717-0017



IT'S A BIG WORLD.
LET'S PROTECT IT TOGETHER.™