CROSS

Car park fires; Lessons for learning

Dr Peter Wilkinson, Designated Person

Structures in Fire Forum, 27th September 2024

Overview

- CROSS purpose and aims
- The confidential reporting process, what can be reported and the benefits
- The safety information CROSS provides and where to find it
- Liverpool Echo Arena car park
- Luton airport car park

CROSS scheme timeline

1976

- SCOSS founded by the IStructE & ICE
- **1995** HSE join to support CROSS

CROSS scheme timeline

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- Voluntary confidential reporting system launched
- Based on safety reporting in aviation (designed by NASA)

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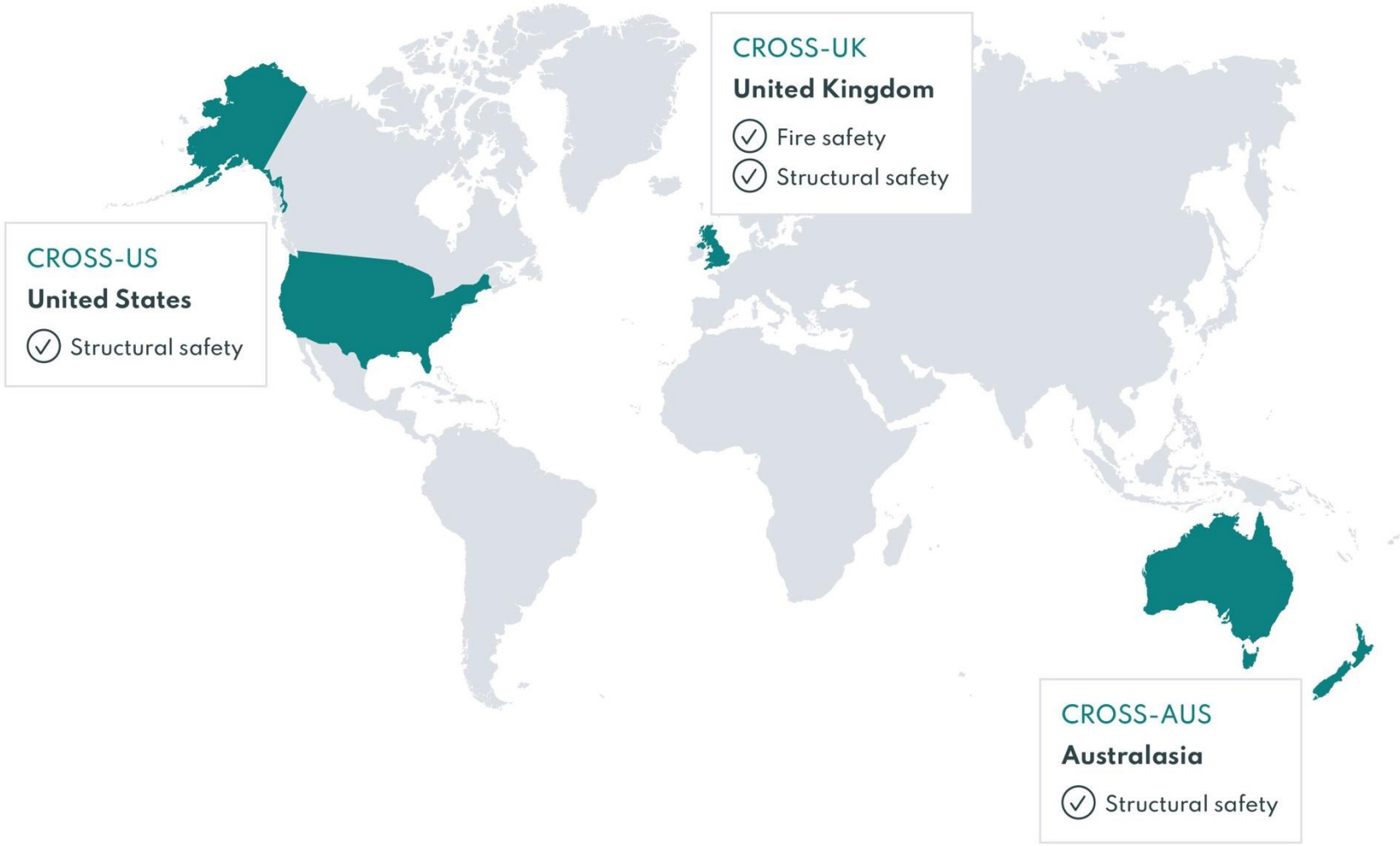
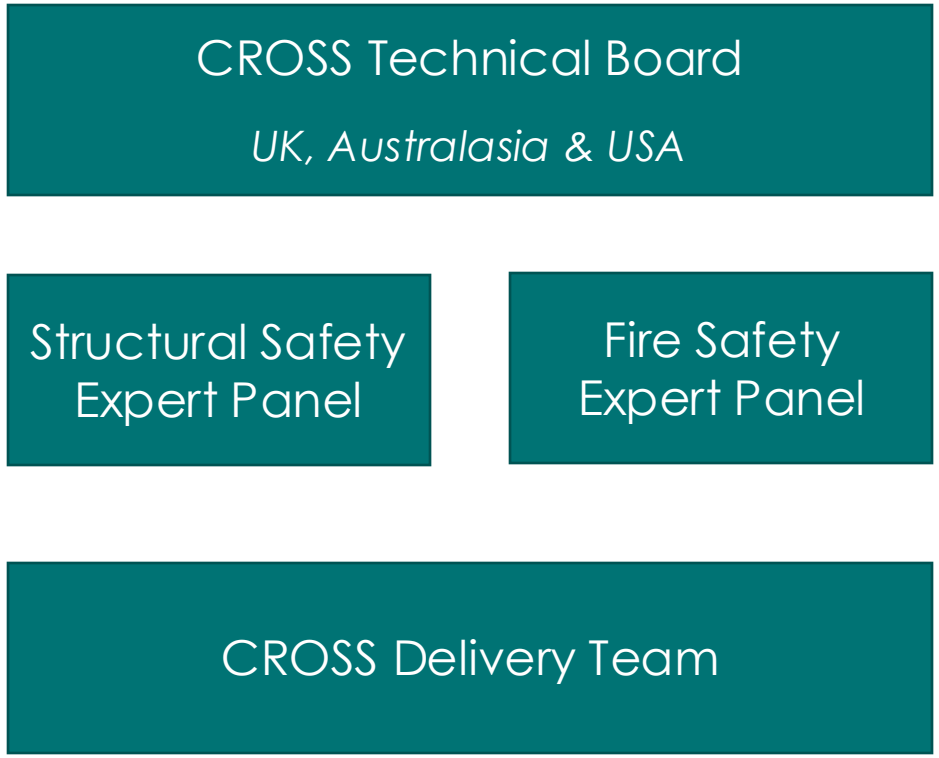
2021

- CROSS-UK expands into fire safety – supported by IFE
- Hackitt review recommendation
- Relaunch supported by DLUHC

CROSS international network



CROSS technical structure



Expert Panel Members

Engineers

- Civil & structural
- Fire
- Blast & resilience
- Forensic / expert witness
- Nuclear

Legal

- Insurance & warranty
- Lawyer

Contractors

Products & Testing

Transport

- National Highways
- Network Rail

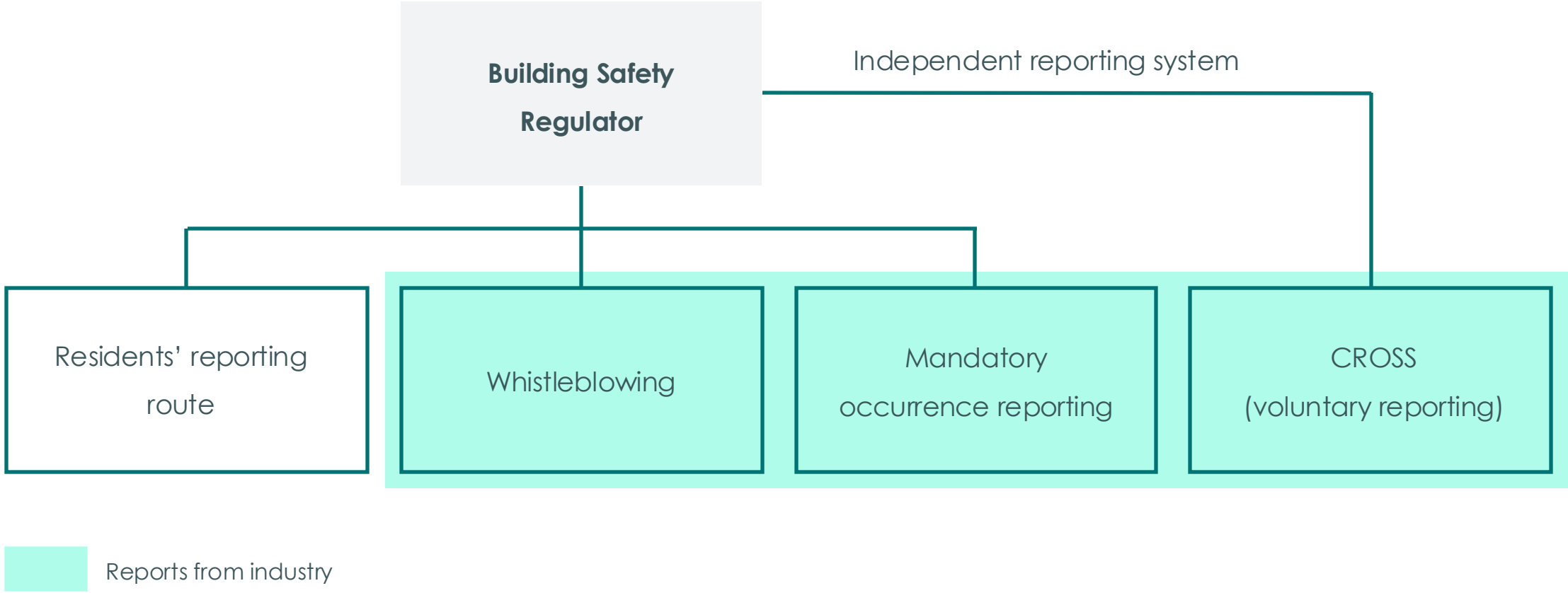
Fire & Rescue Officer

Regulators & Government

- DLUHC
- Building Control
- HSE

Early careers members

Overview of safety reporting systems



How the reporting process works

Key principles:

- Confidential & secure
- Simple & transparent
- Easy to access
- Expert insight

Pyramid of risk

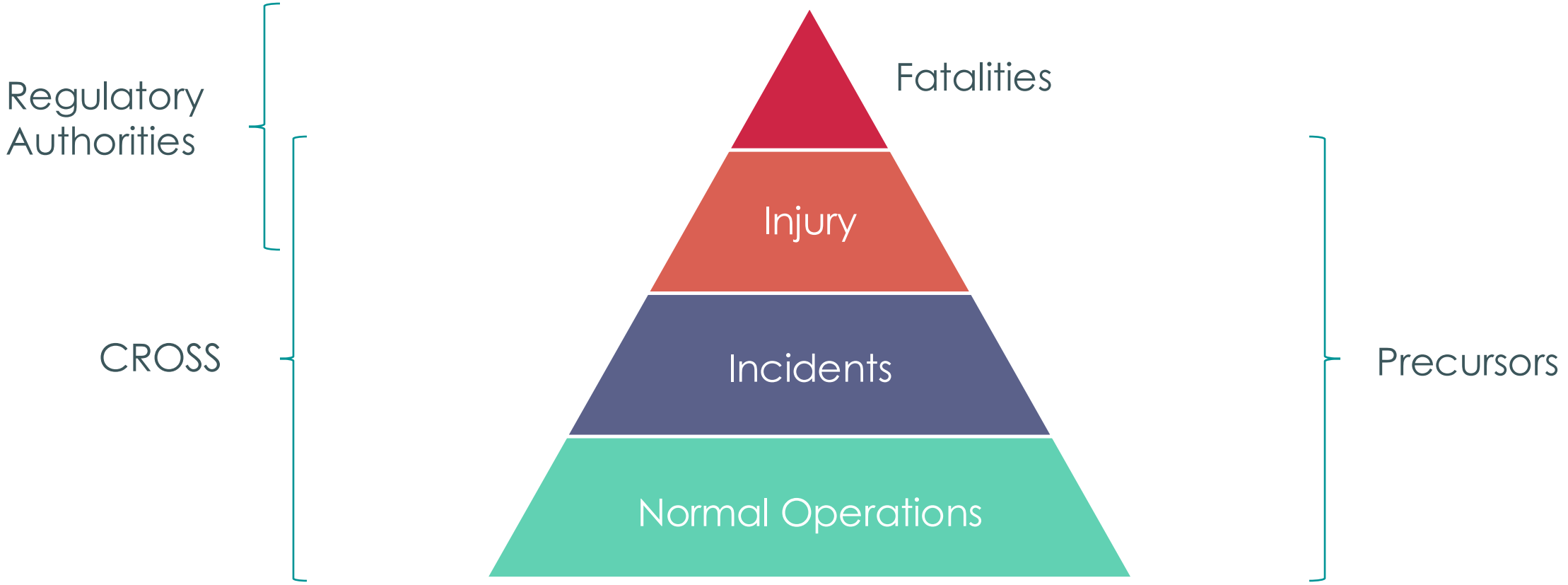
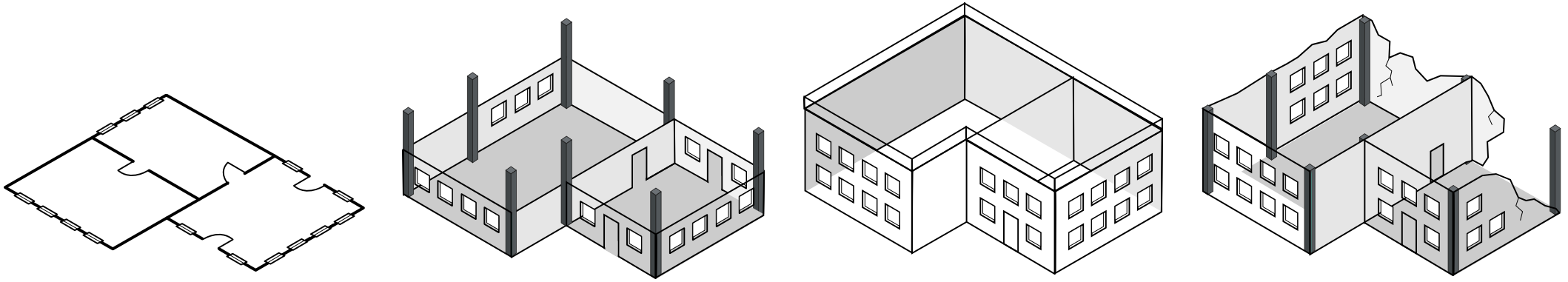


Diagram courtesy of ASRS

What can be reported?

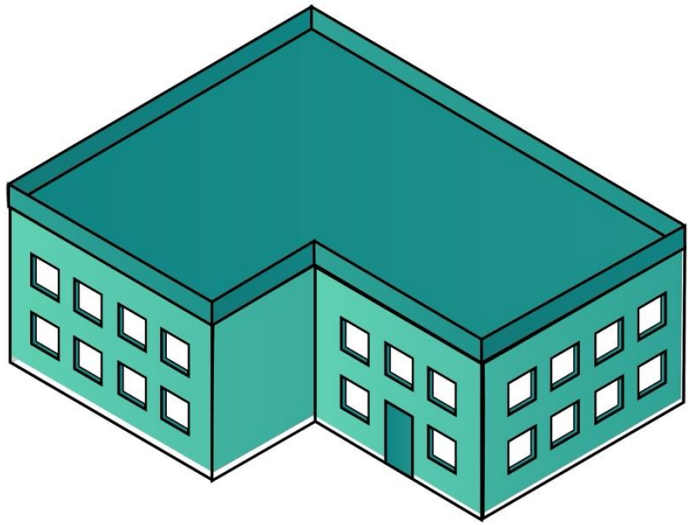
Fire and structural safety



Benefits of safety reporting

Make structures safer and ultimately save lives and reduce injuries

- Promotes culture change
- Identifies shortfalls & pre-cursors
- Improves competence
- Lessons learned shared
- Informs regulatory & industry activities
- Assists with horizon scanning
- Protect your reputation



Benefits of safety reporting

For individuals

- Continuous learning and development
- Improve your knowledge of safety
- Keep up to date with emerging safety issues
- Find out more about best practice
- Keep your colleagues and peers updated

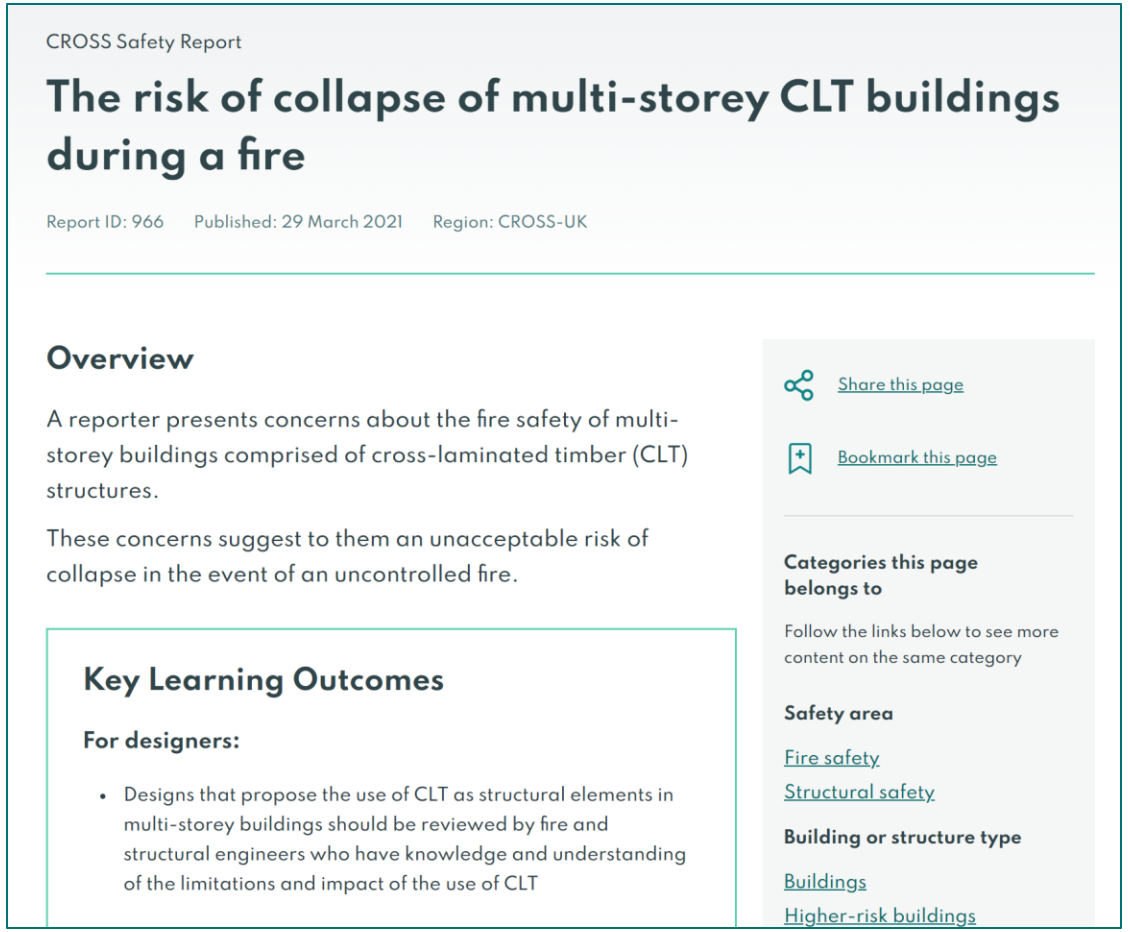
Where to find reports

Website

Social media

Email

Website



CROSS Safety Report

The risk of collapse of multi-storey CLT buildings during a fire

Report ID: 966 Published: 29 March 2021 Region: CROSS-UK

Overview

A reporter presents concerns about the fire safety of multi-storey buildings comprised of cross-laminated timber (CLT) structures.

These concerns suggest to them an unacceptable risk of collapse in the event of an uncontrolled fire.

Key Learning Outcomes

For designers:

- Designs that propose the use of CLT as structural elements in multi-storey buildings should be reviewed by fire and structural engineers who have knowledge and understanding of the limitations and impact of the use of CLT

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Categories this page belongs to

Follow the links below to see more content on the same category

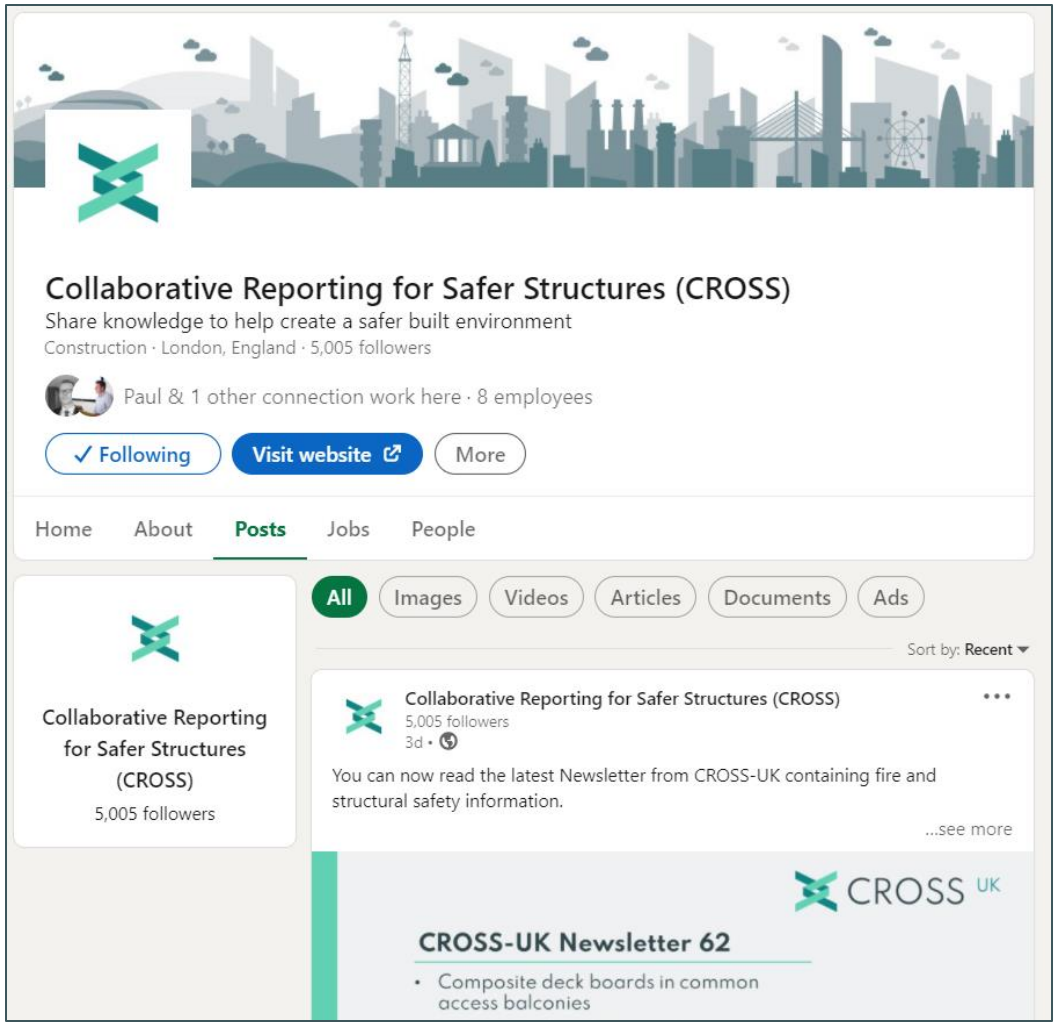
Safety area

Fire safety
Structural safety

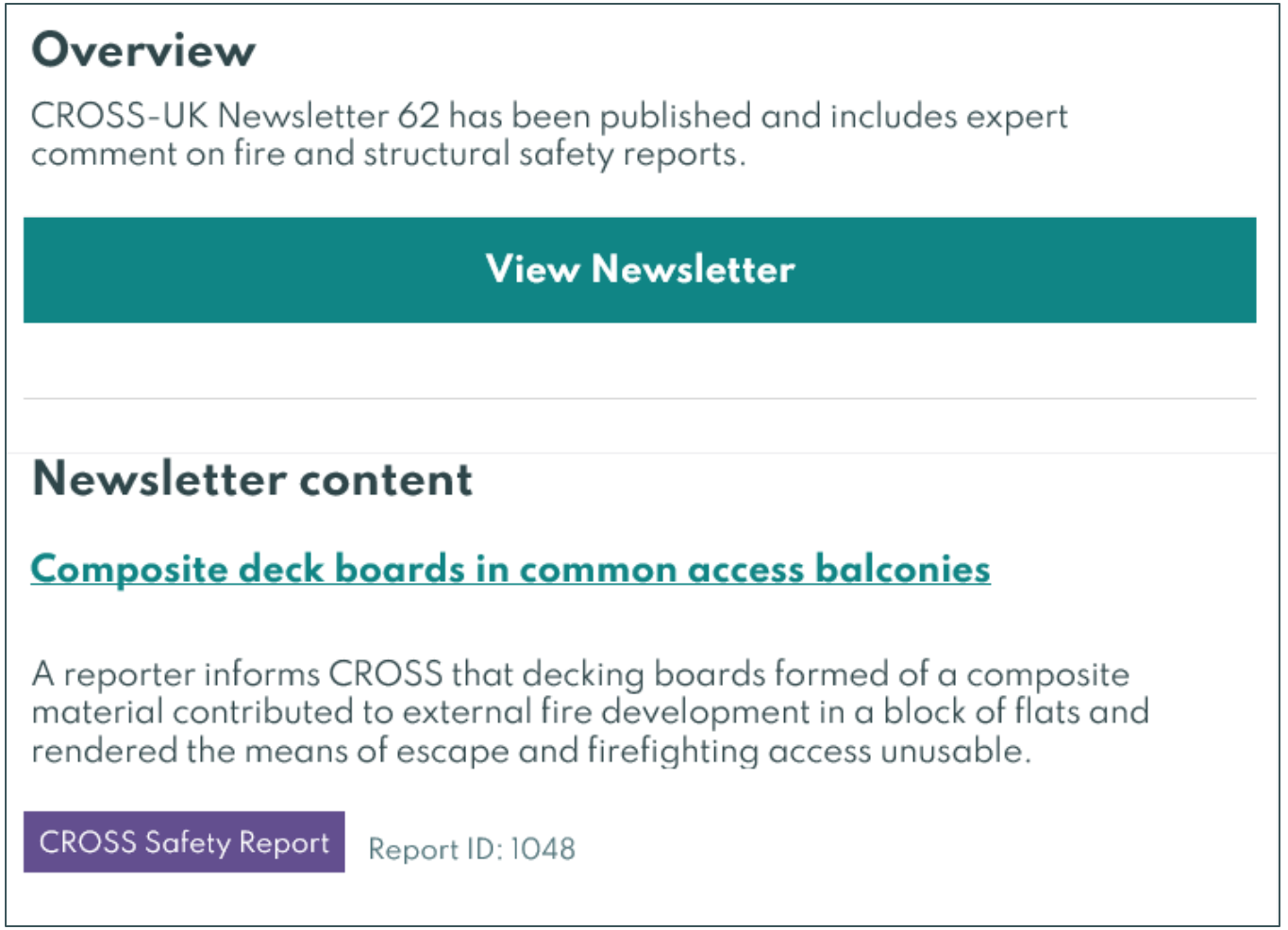
Building or structure type

Buildings
Higher-risk buildings

Social media



Email



Overview

CROSS-UK Newsletter 62 has been published and includes expert comment on fire and structural safety reports.

View Newsletter

Newsletter content

Composite deck boards in common access balconies

A reporter informs CROSS that decking boards formed of a composite material contributed to external fire development in a block of flats and rendered the means of escape and firefighting access unusable.

CROSS Safety Report Report ID: 1048

Safety information we provide

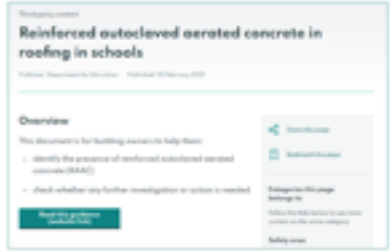
CROSS Safety Reports

CROSS Safety Alerts

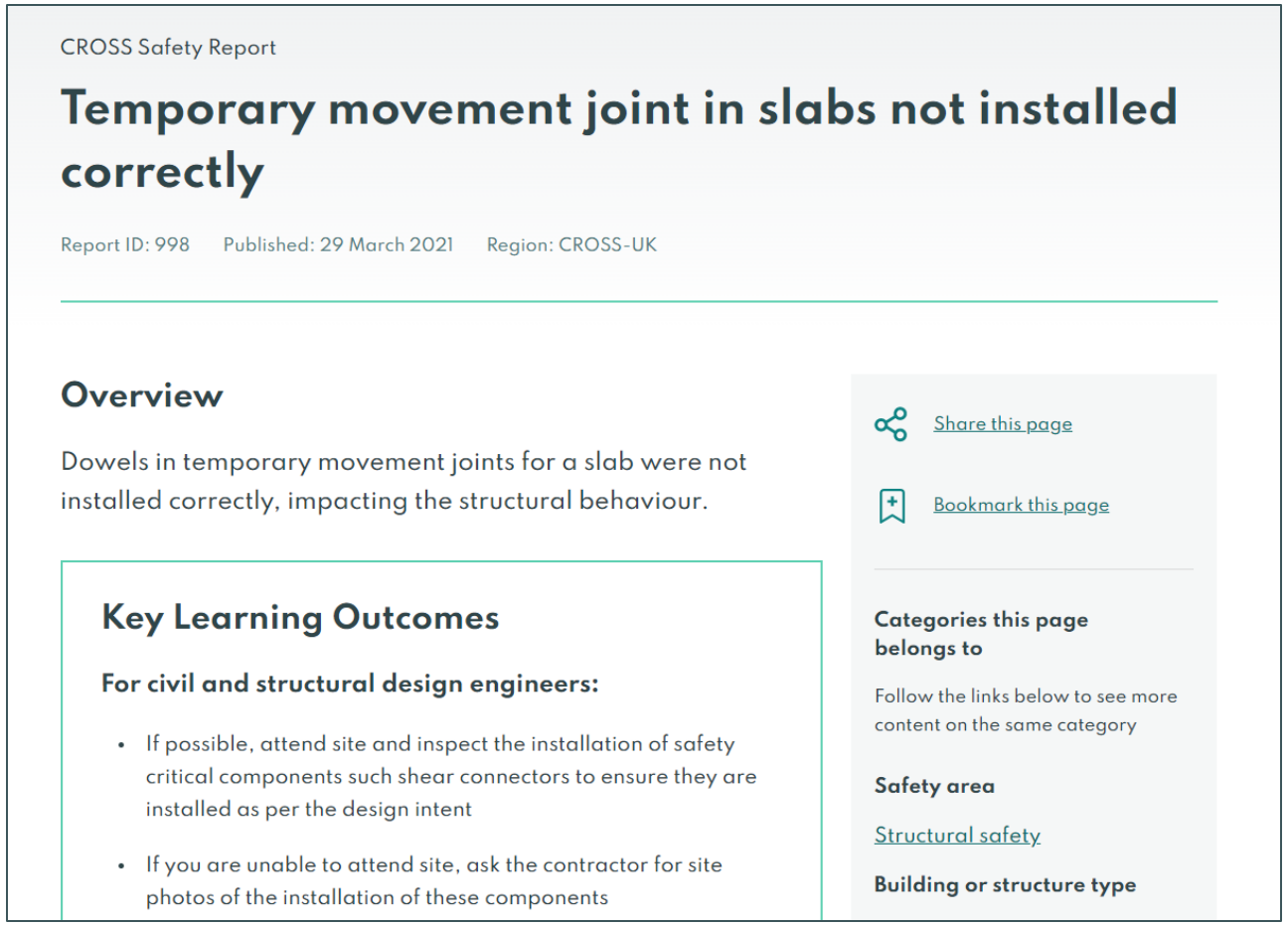
CROSS Feature Articles

CROSS Theme Pages

Third party content



CROSS Safety Reports



CROSS Safety Report

Temporary movement joint in slabs not installed correctly

Report ID: 998 Published: 29 March 2021 Region: CROSS-UK

Overview

Dowels in temporary movement joints for a slab were not installed correctly, impacting the structural behaviour.

Key Learning Outcomes

For civil and structural design engineers:

- If possible, attend site and inspect the installation of safety critical components such shear connectors to ensure they are installed as per the design intent
- If you are unable to attend site, ask the contractor for site photos of the installation of these components

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Safety area

Structural safety

Building or structure type

CROSS Safety Alerts

CROSS Safety Alert

Safety issues associated with balconies

Region: CROSS-UK, CROSS-AUS, CROSS-US Published: 17 February 2022

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Follow the links below to see more content on the same category

Safety area

Fire safety

Structural safety

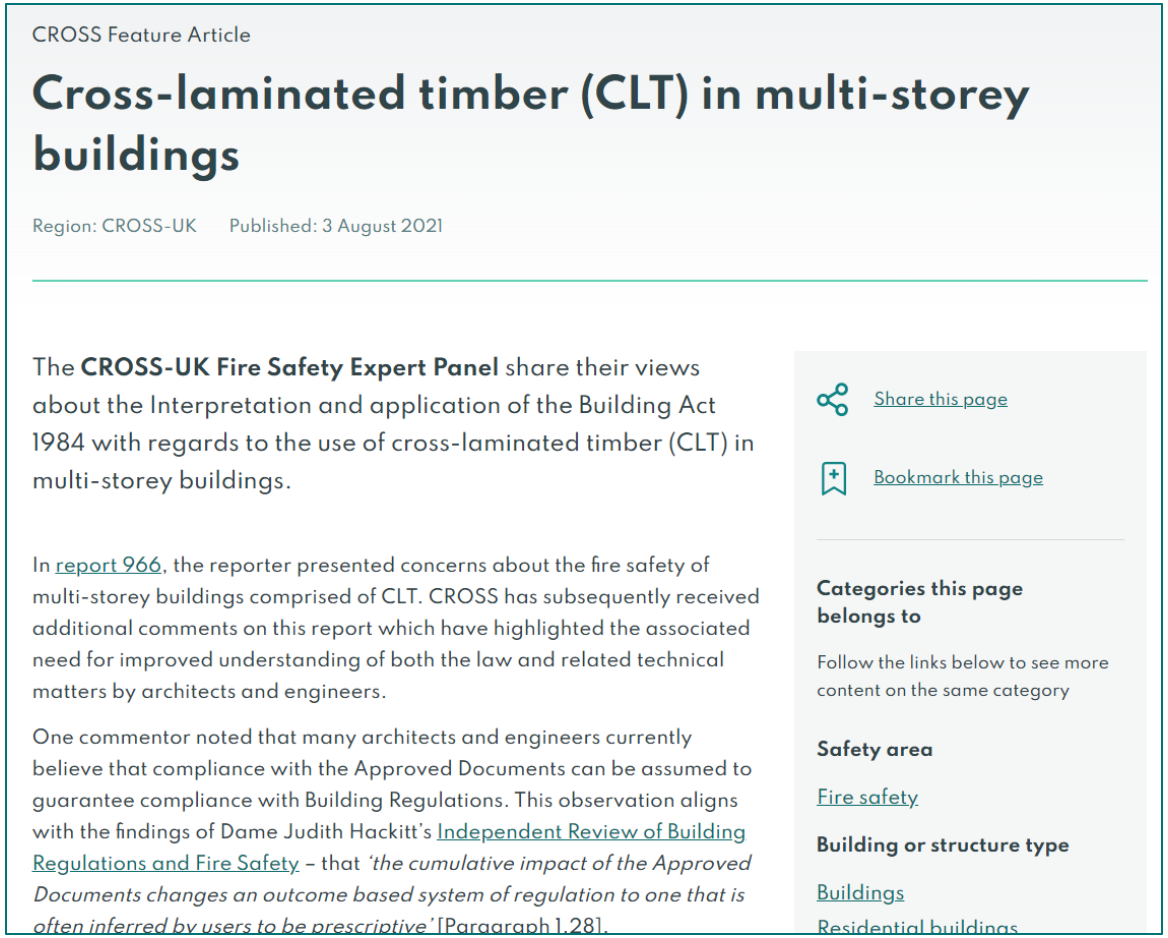
Building or structure type

Buildings

Elements & systems

Balconies

CROSS Feature Articles



CROSS Feature Article

Cross-laminated timber (CLT) in multi-storey buildings

Region: CROSS-UK Published: 3 August 2021

The **CROSS-UK Fire Safety Expert Panel** share their views about the Interpretation and application of the Building Act 1984 with regards to the use of cross-laminated timber (CLT) in multi-storey buildings.

In report 966, the reporter presented concerns about the fire safety of multi-storey buildings comprised of CLT. CROSS has subsequently received additional comments on this report which have highlighted the associated need for improved understanding of both the law and related technical matters by architects and engineers.

One commentor noted that many architects and engineers currently believe that compliance with the Approved Documents can be assumed to guarantee compliance with Building Regulations. This observation aligns with the findings of Dame Judith Hackitt's Independent Review of Building Regulations and Fire Safety – that *'the cumulative impact of the Approved Documents changes an outcome based system of regulation to one that is often inferred by users to be prescriptive'* [Paragraph 1.28].

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Follow the links below to see more content on the same category

Safety area

Fire safety

Building or structure type

Buildings

Residential buildings

CROSS Theme Pages

CROSS Theme Page

Safety of structures in the climate emergency

Region: CROSS-UK, CROSS-AUS, CROSS-US

In the current climate emergency and the race to achieve zero emissions, we must ensure our structures remain safe as we develop and implement any climate-motivated innovation or change of approach.

This Theme Page will be used to both collate content around this topic and to allow professionals to share safety issues for others to learn from.

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Safety area

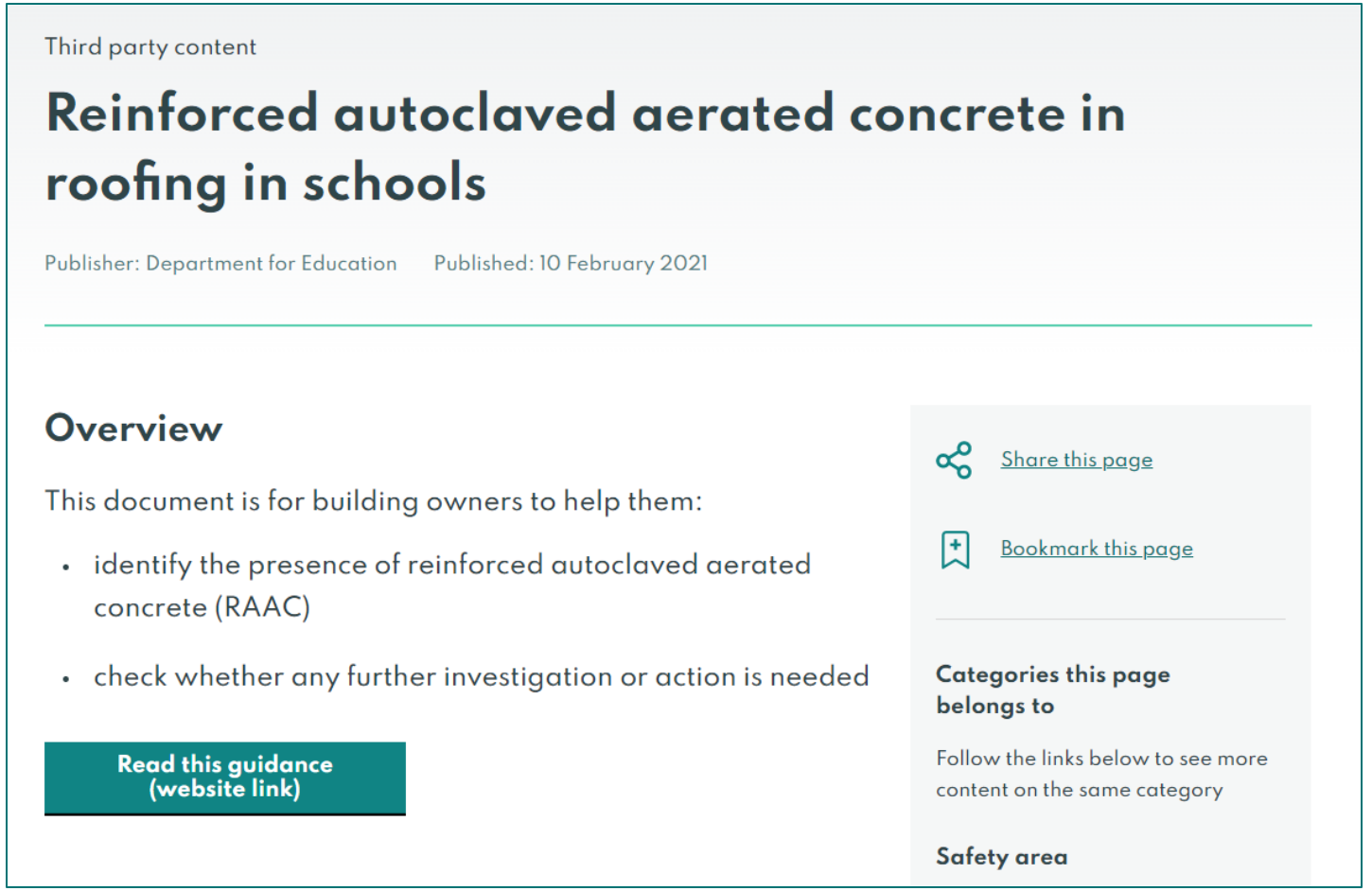
Fire safety
Structural safety

Design

Sustainability

Content type

Third party content



Third party content

Reinforced autoclaved aerated concrete in roofing in schools

Publisher: Department for Education Published: 10 February 2021

Overview

This document is for building owners to help them:

- identify the presence of reinforced autoclaved aerated concrete (RAAC)
- check whether any further investigation or action is needed

Read this guidance (website link)

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Categories this page belongs to

Follow the links below to see more content on the same category

Safety area

Grenfell Tower fire 2017

Fire in multi-storey car parks
Liverpool Echo Arena


Wapping Dock
Freiwheel Wheel
Of Liverpool
ACC Liverpool
Google

Fire in multi-storey car parks
Liverpool Echo Arena

15 mins FIRE RESISTANCE - OPEN SIDED CAR PARK 2 HR TO STAIR WALLS / 1HR TO COMPARTMENT FLOORS PROVIDED BY SLABS (ADDITIONAL FIRE PROTECTION MAY BE PROVIDED BY SPRAY APPLIED SYSTEM)	Design Fire Requirements
CAR PARK DECK – 2.5kN/m^2	Loading Data

Fire in multi-storey car parks

CROSS Safety Alert

Fire on separate levels. Image courtesy of Merseyside Fire and Rescue Services (MFRS).

Disintegration of floor slab. Image courtesy of MFRS.


KOMATSU
KOMATSU

Fire resistance of multi-storey car parks

CROSS Safety Report 857

Overview

A reporter visited a recently constructed car park which contained some of the same design issues discussed in the February 2018 CROSS Safety Alert on Fire in Multi-Storey Car Parks.

They find it difficult to believe that the car park they visited could survive for significantly more than 15 minutes in a fire without collapsing.

Fire risks in multi-storey car parks

CROSS Safety Report 940

Overview

A reporter is concerned by the reluctance of the industry to voluntarily take on board and proactively react to the lessons learnt from the fire at the Echo Arena car park in Liverpool.


STAND
91
Fire & Rescue
2
www.bedsfire.gov.uk
72
London Luton Airport
GL
FLOAT
STLP32
STLP21

CROSS-UK press statement about fire and structural collapse at Luton Airport multi-storey car park

Region: CROSS-UK Published: 11 October 2023

Dr Alastair Soane, Principal Consultant for CROSS-UK (Collaborative Reporting for Safer Structures UK) comments:

"Fires in car parks are not uncommon, but a fire of this magnitude is rare.

A full investigation will be required to understand what has happened. We do not yet know the reasons for this fire and structural damage to this multi-storey car park.

While we await further news from the site regarding the cause of this fire and the impact on the structure it is inappropriate to speculate.

When details on the fire are available, we will help to disseminate lessons learned so that similar events can be prevented in future."

CROSS

CROSS operates a confidential reporting system which allows professionals working in the built environment to report on fire and structural safety issues.

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Content type

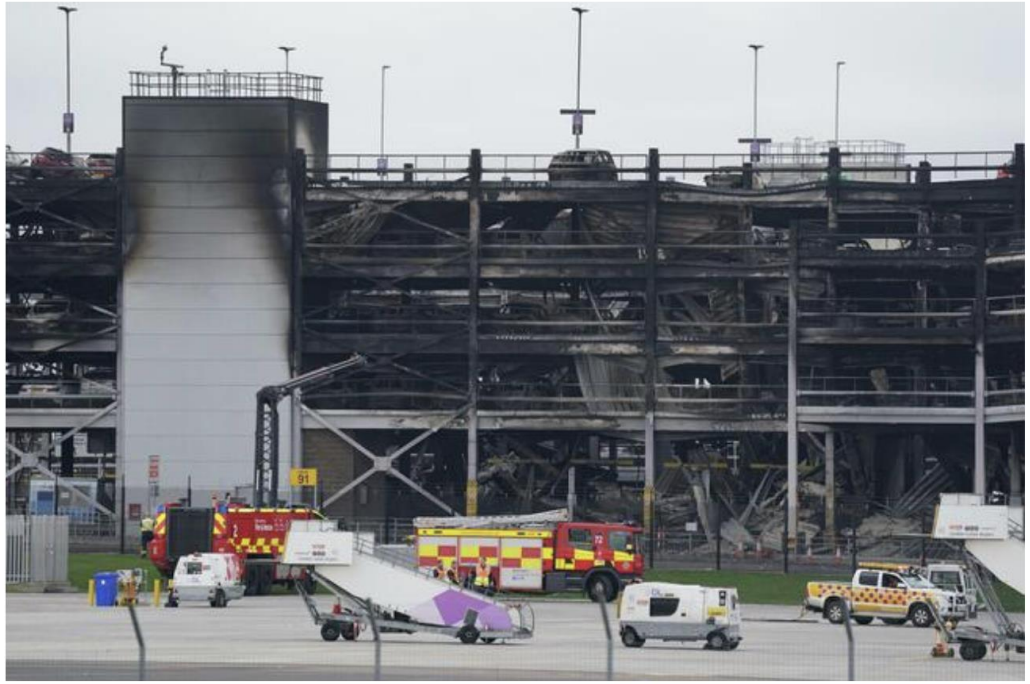
News

CROSS regions

CROSS-UK

Reflections on the Luton Airport car park fire: six months on

Region: CROSS-UK Published: 10 April 2024



On October 10th, 2023, a fire started on level 3 of Luton Airport's Terminal Car Park 2. The fire spread rapidly through the structure, ultimately causing significant collapse. Fortunately, no one was killed, but over 1,400 vehicles were damaged or destroyed in the blaze.

Six months on, Neil Gibbins, Lead Fire Safety Consultant and Alastair Soane, Principal Consultant for CROSS reflect on the incident, giving their

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Safety area

Fire safety

Structural safety

Public incidents

Echo Arena multi-storey car park fire

Content type

News

CROSS account – sign up

bit.ly/cross-account

CROSS account – preferences

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- [x] CROSS-AUS (Australasia)
- [x] CROSS-UK (United Kingdom)
- [x] CROSS-US (United States)

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Safety area:

- [x] Fire safety
- [x] Structural safety

How to get involved

- Keep up to date with emerging safety issues
- Use the information on our website to make structures safer
- Encourage others to get involved with CROSS

Your report will make a difference

Submit a report! Share your experiences to help others and create a safer built environment

www.cross-safety.org/uk/submit-a-report-uk

Any questions?

Create a CROSS account

- Go to bit.ly/cross-account
- Fill in your details and set your email preferences

SCAN ME

CROSS on social media

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@cross_safety

LinkedIn

Collaborative Reporting for Safer Structures (CROSS)