



CROSS

COLLABORATIVE REPORTING  
FOR SAFER STRUCTURES

**BOF**  
Bridge Owners' Forum

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# CROSS update

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# Safety of structures

- Every day somewhere in the world buildings collapse or burn
- Every day there is news of more damage from the climate emergency
- Need to be sure that buildings and infrastructure are safe
- Need to have more concern about the impact of what we do
- Learn so that we do better



# CROSS scheme timeline

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1976



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

# CROSS scheme timeline

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1976

2005



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- **1995** HSE join to support CROSS
- Voluntary confidential reporting system launched
- Based on safety reporting in aviation (designed by NASA)

# CROSS scheme timeline

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1976

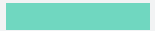
2005

2021

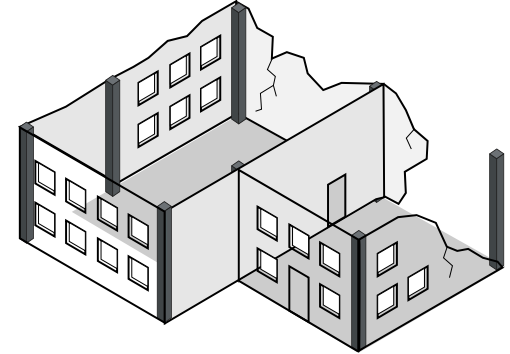
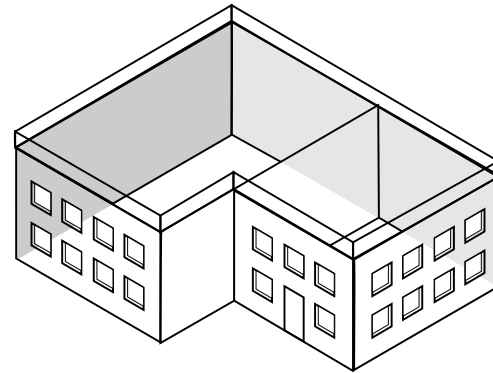
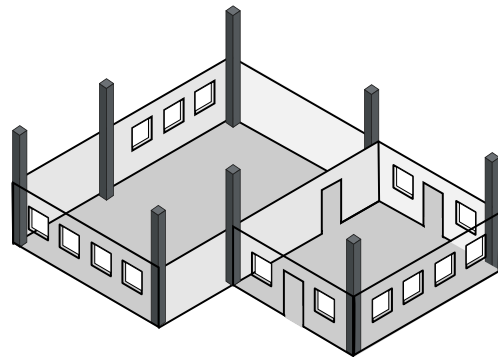
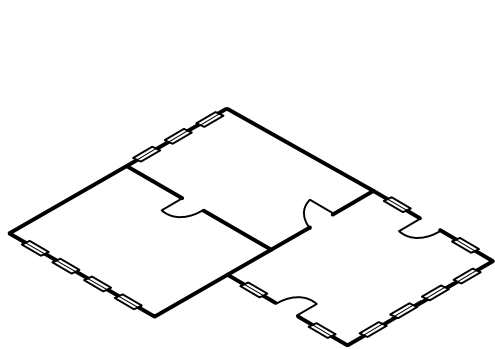
- SCOSS founded by the IStructE & ICE
- **1995** HSE join to support CROSS
- Voluntary confidential reporting system launched
- Based on safety reporting in aviation (designed by NASA)
- CROSS-UK expands into fire safety following Grenfell Tower fire
- Supported by IFE
- Relaunch funded by Government

# The reporting process

What to report



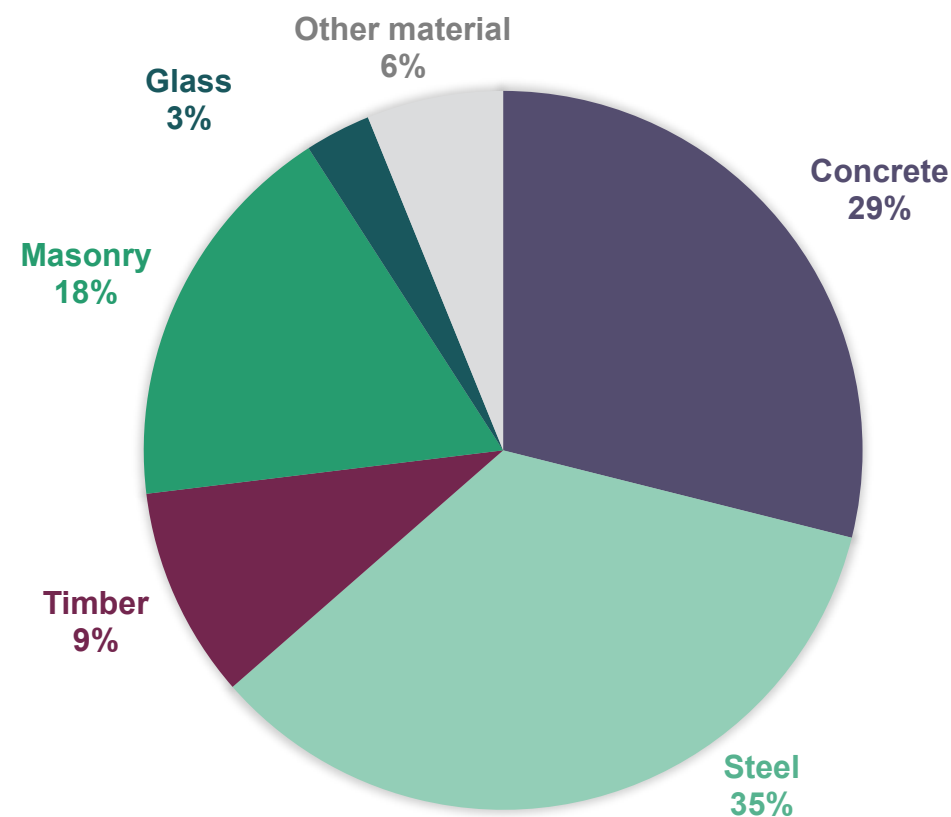
# What can be reported?



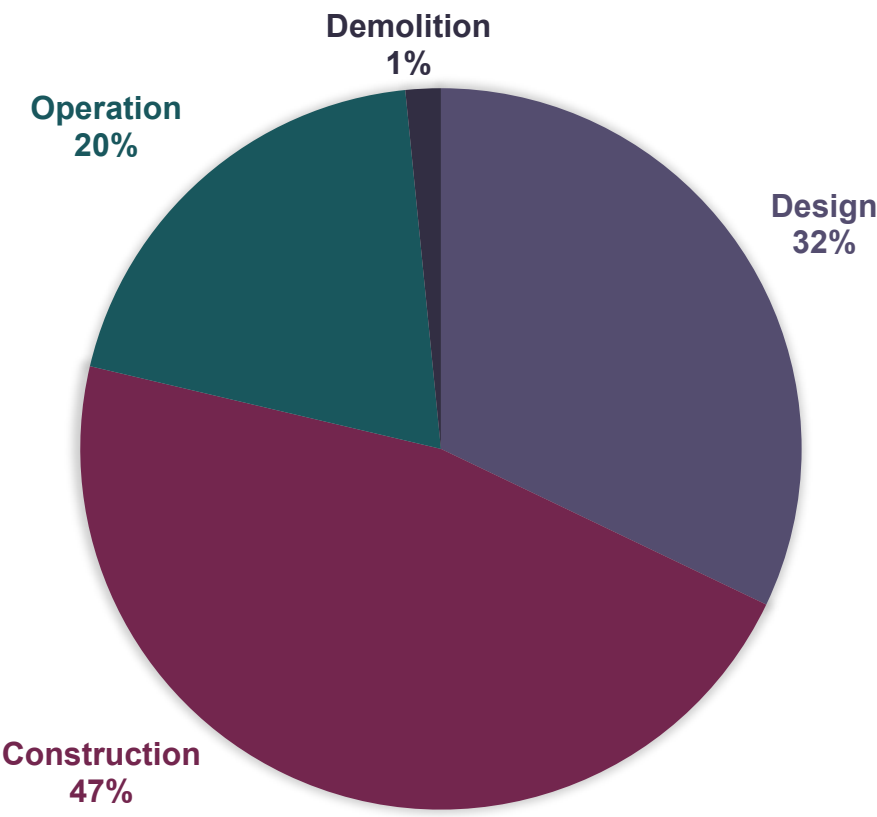


# Safety Report Management System

## Analysis of Reports Received



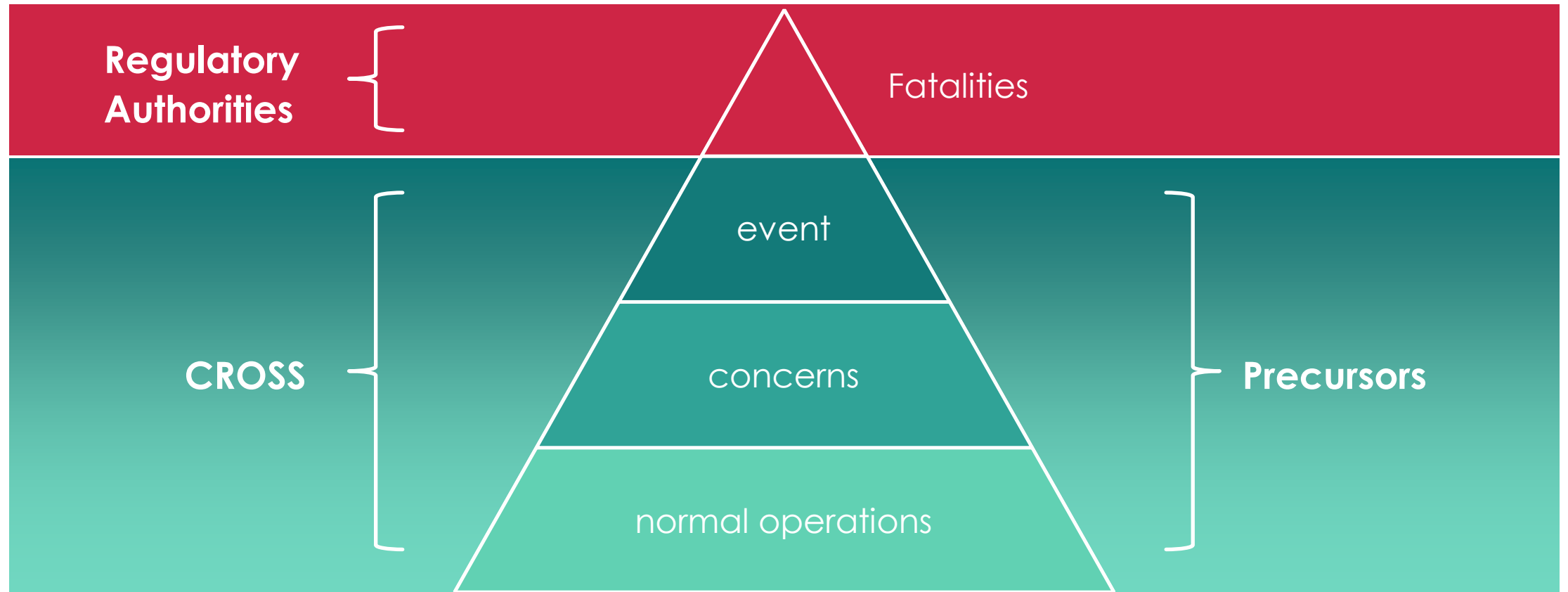
Material



Project Stage



# Looking for pre-cursors



# Alerts



# EV Fires

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# Fire safety risks with lithium-ion batteries

Report ID: 1058    Published: 10 March 2022    Region: CROSS-UK

## Overview

A reporter has raised concerns regarding the increase in the use of lithium-ion batteries, along with their related hazards which currently remain unregulated.

## Key Learning Outcomes

### For designers:

- Ensure that a competent fire safety engineer is consulted in projects that involve battery systems

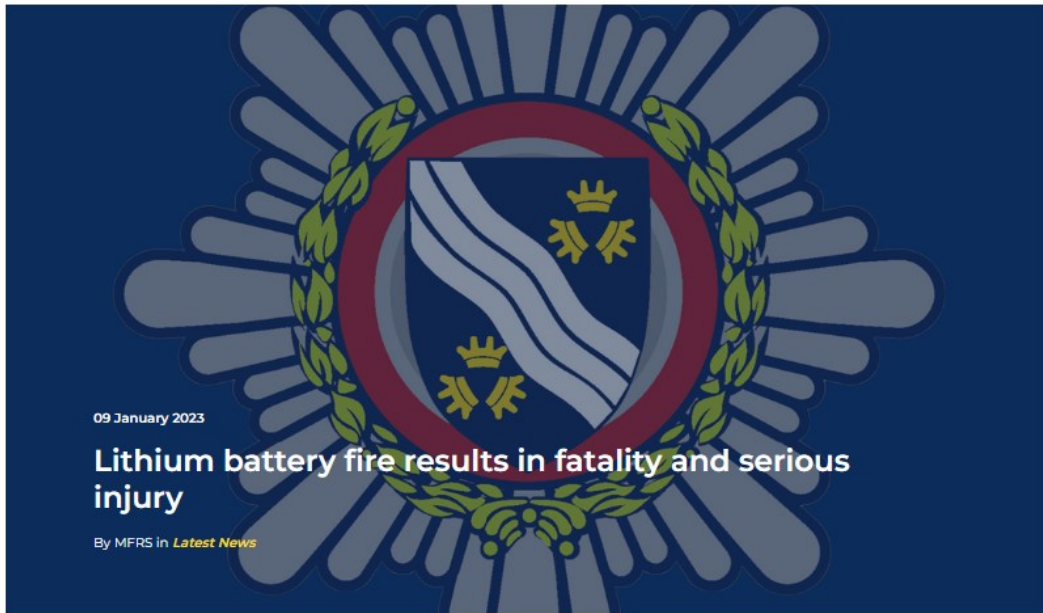
### For fire engineers:





# Fires from lithium batteries

## Lithium battery fire results in fatality and serious injury



Merseyside Fire & Rescue Service (MFRS) crews were called to a serious fire at Daisy Mews, Litherland in the early

- TfL ban electric scooters on the network
- Fire chief issues warning after rise in e-bikes and e-scooters lithium battery related house fires



# RAAC

## CROSS Safety Alert



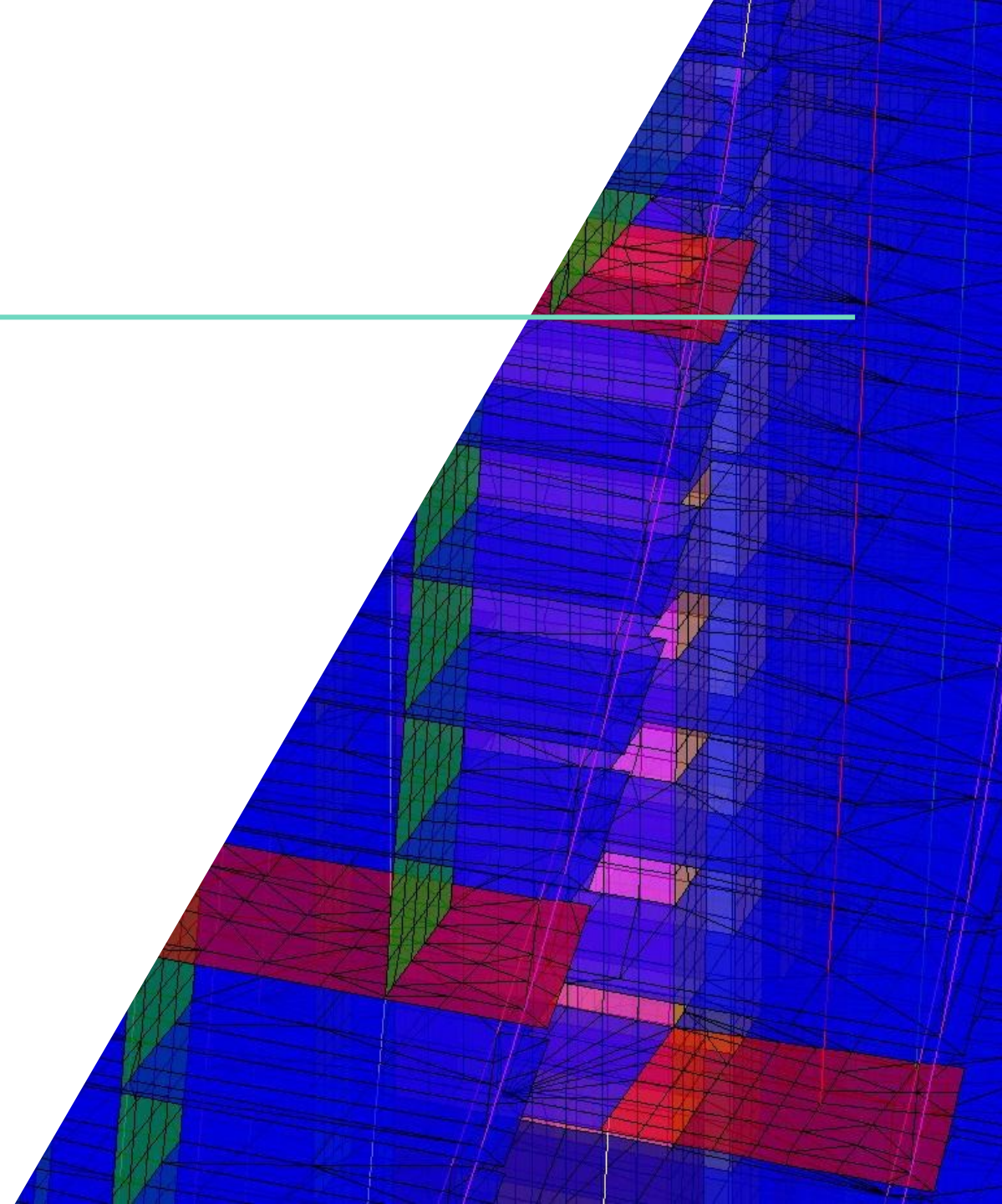
“Thirty-four hospital buildings in England have concrete roofs in such a poor state of repair they could collapse at any moment, according to a government minister.”



# Alerts in the pipeline

## CROSS Safety Alert

- Computer modelling of structures
- Ageing concrete structures
- Fire safety subject





# ICE Hansford Report *In Plain Sight* 2018

- Work with professional bodies to review, comment on and disseminate lessons from concerns, near misses and catastrophic incidents, building on the work of CROSS



# The Building Safety Act England



# Grenfell Tower Fire

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# Building Safety Act

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- Total number of high-rise residential high-rise residential buildings of 18 metres or more in height, or at least seven storeys (whichever is reached first) in England is estimated to be 12,500
- To be prioritised and assessed within 5 years



# Safety Case report

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The safety case report is a document that summarises the safety case. It identifies the building's major fire and structural hazards. It shows how risks are managed as far as they can. The report should give the reader confidence that the Approved Persons:

- Have identified the building's major fire and structural risks
- Are managing and controlling them



# Risk scenarios

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- Fire risks
- Structural risks
- Combined fire and structural risks – escalation
- Low probability: high consequence risks
- Unforeseen risks



# Reporting for HRBs

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## Mandatory

- Mandatory occurrence reporting will legally require dutyholders to capture and report certain fire and structural safety issues ('safety occurrences') to the Building Safety Regulator

## Voluntary

- The BSR must operate a voluntary reporting scheme
- It is anticipated that this will be CROSS
- All other safety matters for structure and fire can be reported to [CROSS](#)

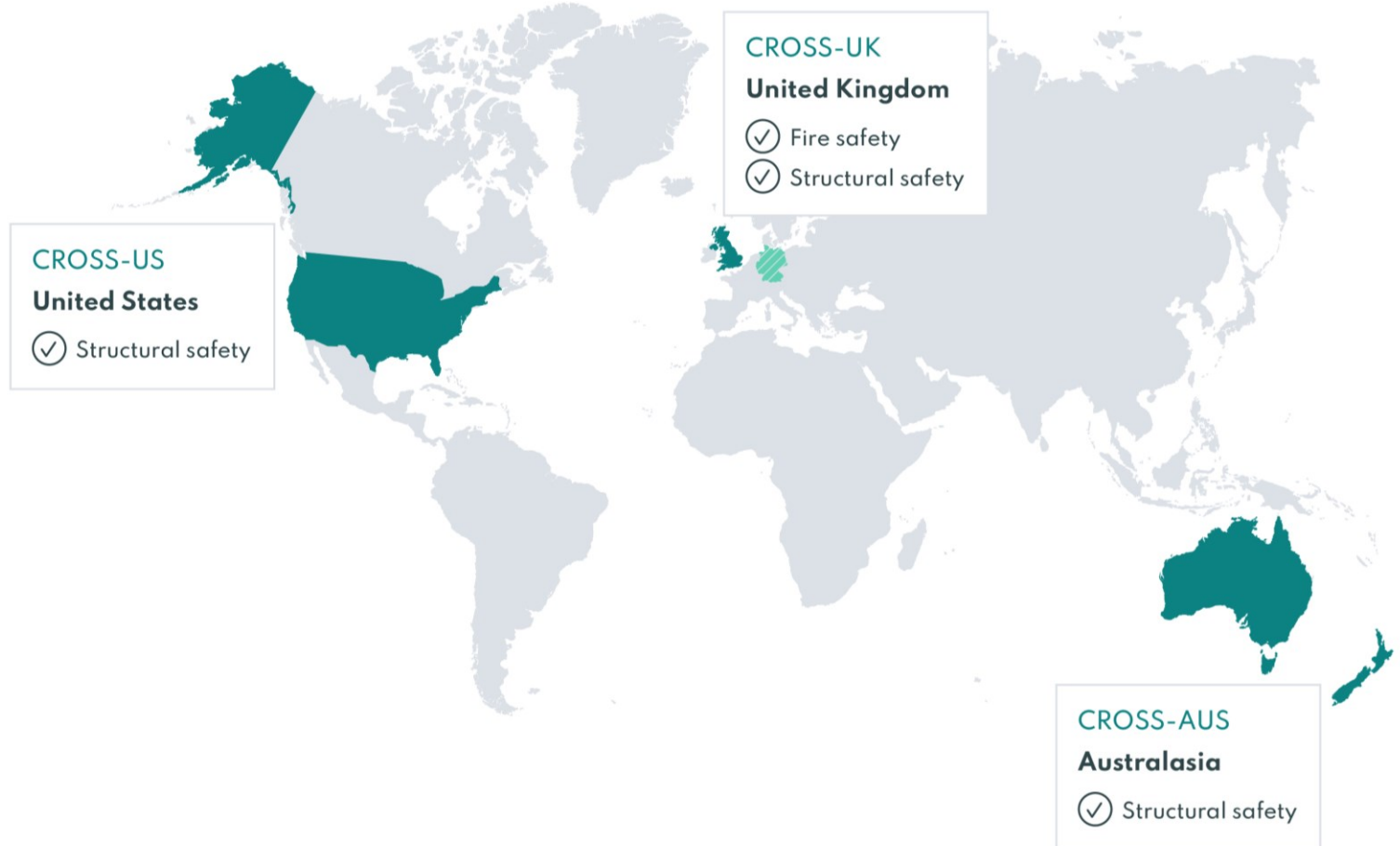




# CROSS International



# CROSS international network



# Champlain Towers Surfside

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- Progressive collapse of 12 storey condominium in June 2021 with 98 fatalities
- Reinforced concrete structure 40 years old
- Investigations ongoing by NIST
- Recommendations will have a profound affect on thinking about ageing buildings

# Lessons learned



# Key lessons

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- Similar issues recur
- Inadequate communications and a lack of responsibility
- Lack of competency at all levels
- Deterioration and degradation in older structures coupled with a lack of maintenance
- Changes in design trends which can have unforeseen consequences
- Poor understanding of computer analysis and design
- A shortage of structural engineers and fire engineers leading to safety critical decisions being made by others
- Pressure on fees and bids is creating potential problems for the future – the race to the bottom
- Poor supervision on site
- Adding to the technical problems are the human traits of carelessness, corruption and ignorance
- **The vast majority of buildings are designed and constructed safely.**

