

CROSS Safety Report

The potential impact of scaffolding on fire safety

This month's report discusses the potential fire safety risks of scaffolding when it is present around in-use buildings and the current risk assessment process.

Report

An issue has been raised with CROSS regarding the risk assessment process when scaffolding is present around an in-use building. It is considered that combustible scaffolding elements can potentially facilitate external fire spread, and additionally impact the performance of some of the building's fire safety measures.

Cause for concern

The reporter is alarmed by the existence of 'numerous residential buildings operating 'stay put' procedures undergoing works that have scaffolding formed of timber boards with plastic wrapping which could present a medium for fire spread'. This introduction of combustible structures and elements around the external wall of in-use buildings presents a potential medium for fire spread which needs to be considered appropriately. It is also noted that other buildings with sleeping occupants or places of assembly may be affected from the same issue.

An additional complication that arises from the existence of scaffolding wraps, apart from their contribution to the heat release rate, is that if the wrapping completely envelopes the building, then it can affect the capacity of ventilation outlets. The reporter thinks that the wrapping can trap the smoke within the scaffold structure and spread it to other parts of the building if the scaffold structure is not adequately ventilated. This situation may inhibit smoke ventilation, not just from designated ventilators, but also through the windows and other openings.

The reporter is of the mind that this fire scenario will change the required

safe egress time (RSET), lowering it due to the increased rate of external fire spread. At the same time, the implication of the smoke control system's performance being affected by enveloped outlets will probably reduce the available safe egress time (ASET). If the RSET extends beyond the ASET, then that creates a potential risk for the safety of the occupants.

Fire risk assessment

The reporter is concerned that the construction industry is not appropriately fire risk assessing this issue or taking reasonable steps



IF THE BUILDING IS OCCUPIED WHILE THE WORKS ARE ONGOING, THEN THE RISK ASSESSMENT SHOULD INCLUDE THE OCCUPANTS

Key learning outcomes

For scaffold specifiers, building owners and contractors:

- A holistic risk assessment must be carried out when adding combustible materials to the external face of a building, evaluating the risk of fire spread
- The potential for sheeting or other elements to have a negative impact on fire safety systems, such as smoke vents, must be considered
- Contractors should be cognisant with HSE's guidance document *HSG 168*.

to reduce the risk associated with scaffolding on in-use buildings. They go on to say that the risk from fire tends to be considered only in relation to fires starting on the scaffold, ignoring fires starting in the building and spreading through the windows to the scaffold. This arguably ignores the most likely risk, which builds a false sense of security in the construction industry and is reinforcing potentially dangerous practice which can be encountered across the country.

Their explanation on the underlying cause for this issue is that fire risk assessments carried out by Principal Contractors, or their scaffolding sub-contractors, are often generic and the reporter is of the opinion that 'guidance issued by the HSE is not fit-for-purpose'. They support that statement by claiming that the HSE guidance focuses on risks associated with the scaffold as if it was a construction site. This is not the case, however, in occupied buildings, where there are fire hazards associated with the in-use areas of the building and these are currently not appropriately covered by the HSE's guidance. Consequently, contractors have a false sense of security that they are following the HSE guidance and suitably mitigating any risks. The construction industry needs to be aware that the fire risk assessment associated with an in-use building with a scaffold installation present will in many cases be a specialist task that requires involvement of competent fire engineers. This can be in much the same way as a PAS 9980 fire risk appraisal of the external wall would be undertaken.

Their suggestion is that in the absence of any other guidance,

PAS 9980 may present a suitable methodology for approaching the issue. However, at present, construction industry norms are often to rely on ‘an unsuitable and insufficient fire risk assessment prepared by a scaffold contractor’ without a suitable and complete understanding of the risk assessment issues involved to adequately assess and evaluate the fire risk.

Suggestions for improvement

The reporter provided CROSS with some suggestions for addressing this issue:

- | The first is that scaffold designers should be specifying non-combustible materials when possible and deemed appropriate, particularly where there is limited alarm provision to initiate an evacuation.
- | Continuing; acknowledging that installation of fire detection and alarm systems that initiate evacuation procedures may reduce the risk in some cases, the presence of vulnerable or disabled people also needs to be carefully considered, with appropriate evacuation arrangements to ensure that RSET is well below ASET.
- | Scaffold designers should be carefully considering the issues raised in this report, namely the impact on smoke ventilation, not just from smoke ventilation systems, but also considering smoke and heat exiting the in-use buildings by windows, doors, and other openings in the external wall.
- | They additionally think that advice to the construction industry is needed about the required level of competence of fire risk assessors who could carry out a suitable and sufficient fire risk assessment of an in-use building with scaffolding installed. This is a specialist task and a reference could be made to PAS 9980.
- | The HSE’s guidance should be revised to properly advise those planning and undertaking work on the holistic risk profile of the building, not just focusing on the risk on the scaffold itself.
- | Finally, HSE and fire and rescue authorities should be informed and trained on these risks, to enable them to suitably participate in the safety management system with the potential for enforcement where needed.

Expert Panel comments

The panel agrees that this is a concern. There are numerous residential buildings in the country where remedial works are happening, usually due to failures in the external wall construction.

Under the Construction (Design and Management) Regulations 2015, the contractor should carry out a comprehensive risk assessment to ensure that the works they are undertaking do not present an unacceptable risk. If the building is occupied while the works are ongoing, then the risk assessment should include the occupants. That risk assessment should include issues such as the introduction of combustible materials during the works (e.g. scaffold boards, scaffold sheeting, or more) and try to ensure that the risk is reduced as much as possible. It should also consider the works methods (e.g. if the works include removal of combustible insulation, where is it stored once removed?) and any other risks (e.g. will the works affect any existing fire precautions, such

as smoke vents?). This should be given serious consideration before any works start.

HSE’s guidance, *HSG 168* does give some guidance on this (paragraph 207, Figure 11, and more).

In addition to the above it is worth remembering that while the contractor has responsibilities, so does the existing responsible person (RP), under the Regulatory Reform (Fire Safety) Order 2005 in England and Wales (with similar legislation in devolved administrations). The RP must also consider these risks, holistically, and work with the contractor so each of them are aware of the risks and cooperate in minimising the impact (e.g. that the contractor is aware of any smoke control outlets). Given the potentially complex nature of the process, this will, no doubt, require the services of a competent person to assist the RP (and contractor), and also highlights the need for all stakeholders to meet and discuss these issues as early as possible.

The full CROSS Safety Report, including links to guidance mentioned, is available on the CROSS website (report ID: 1153) at www.cross-safety.org/uk/safety-information/cross-safety-report/potential-impact-scaffolding-fire-safety-1153.

What is CROSS?

Collaborative Reporting for Safer Structures (CROSS) helps professionals to make structures safer by publishing safety information based on the reports it receives and information in the public domain.

CROSS operates internationally in the UK, US, and Australasia. All regions cover structural safety, while CROSS-UK also covers fire safety.



SCAN ME



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Professionals can submit reports on safety issues related to buildings and other structures in the built environment. Reports typically relate to concerns, near misses or incidents. Find out more, including how to submit a safety report, at <https://bit.ly/cross-safety>. Your report will make a difference.