



CCM G14F

Guidance Note

Construction Fire Safety for High Rise Developments

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1. Introduction

- 1.1. There are around 11 construction fires every day on sites in the UK. High rise structures provide special challenges in supplying water to fight a fire or escaping in time. Thus special attention must be paid to additional risk reduction measures.
- 1.2. The Joint Code of Practice 'Fire Prevention on Construction Sites' (9th Edition) contains a section dealing with the risk from fires in high-rise developments. HSG 168 - Fire Safety in Construction Work (Second edition) was updated in 2010 to strengthen sections on multi-storey and high-risk buildings such as timber frame.
- 1.3. There is a need to identify, plan and implement measures to protect all people on the site and adjacent premises should a fire occur, with particular emphasis on the safety of people working at the higher levels.

2. Advice & Enforcement

- 2.1. The HSE are responsible for fire safety on all construction sites. However, as the Fire and Rescue Service have extensive experience of managing fire precautions and fighting fires, they must be extensively consulted and their advice taken before work proceeds.

3. Specific Challenges Posed by High-Rise Developments

- 3.1. A specific fire risk assessment should be undertaken with fire and rescue services before any work at height proceeds. In addition to the standard risks we face, such as security against arson, hot works, flammable materials or gases, fire points, site electrics etc, special attention must be paid to problems specific to high rise.

Some of the Key risks and possible solutions are identified as follows:

3.1.1. Fire Tenders cannot generally pump water to above 60 m.

Wet risers of suitable diameter can be converted to dry risers. High-rise construction must have an operating wet riser fed by duplicate pumps, as agreed with fire services and BS 9990. Ensure the fire service can access the riser and maintain clear access during construction.

3.1.2. Insufficient fire compartmentalisation means fire escape stair shafts will not be protected and could fill up with smoke injuring people or preventing the escape from levels directly above the affected floor or point of fire.

Compartmentalisation can be achieved by the installation of Fire doors and closers (either the permanent or temporary fire door sets) with smoke seals from the below ground levels to the very top of the building.

Where reasonably practicable, and at the earliest opportunity, the building should be horizontally compartmented at intervals not exceeding 10 floors with 30 min fire stopping material until the permanent fire stopping can be fitted. All holes, shafts and openings should be closed off. If this temporary material is removed, it should be replaced. Risers, shafts and ducts should be closed off with fire doors fitted with closers.

3.1.3. There is additional risk to the fire crew in the event of a fire as there is no operational fireman's lift for the crew or their equipment.

At least one stair should be designated as a fire-fighting stair and there should be early commissioning of fire fighting lifts. Provide Fire doors or protection to all escape routes as covered in point 3.1.2 above.

3.1.4. Potential ignition sources are hot works and smoking.

As people are less likely to descend to ground level to carry out hot works or smoke, a formal hot work permit system must be established and policed. Smoking must be banned in the workplace and this ban strictly enforced. To discourage illicit smoking, it may be wise to establish formal smoking stations.

3.1.5. It is critical that the fire load is managed at all levels. As fit out work progresses, the fire load will also progress up the building.

A regime for waste management must be established and rigorously enforced. This will entail provision of bins, regular emptying cycle and consideration of storage of flammable materials and products.

3.1.6. There must be an adequate audible fire detection system and evacuation plan for high rise buildings to protect the safety of persons at all floors.

CENVE and the Main Contractor must review their procedures with respect to raising the alarm and evacuation drill. There should be a highly audible centrally controlled system, which will immediately sound throughout the building when activated. The system may be linked back to a central point and use radio or mobile communications to seek confirmation of the risk before sounding a general alarm to evacuate site. Consideration should also be given to adjacent occupied premises, so that if a separate system is installed it must be distinctively different in sound so as not to cause unnecessary evacuation of any critical areas.

The Joint Code of Practice 'Fire Prevention on Construction Sites suggests an electrically operated fire alarm systems (with battery backup) must be provided with break glass (or similar), call points and sounders at each level linked to a manned location from where calls to fire services or other actions can be instigated

4. CENVE System Considerations

- 4.1. A site specific Fire Protection Plan should be developed with the formal agreement with the Fire Officer / HSE (at a very early stage, even pre-tender) prior to commencing work on site. Consideration would need to be given to the timing of this approval so it could be accurately costed into the project.
- 4.2. CENVE should check the client's brief and design solution and pre-tender health & safety Plan provides sufficient information to allow us to cost for the specific fire hazards and risks of the construction project.
- 4.3. Consideration may be given to appointing a Building Control partner to advise on construction site risks and provide the necessary interface with HSE and Fire Officers to ensure we are implementing adequate fire safety measures on site.



5. Relevant Reference Material

- 5.1. Always Consult your local Fire and Rescue Service
- 5.2. Section 5 of CCM Construction Health & Safety Manual gives excellent guidance on escape travel distances and numbers of extinguishers.
- 5.3. The Joint Code of Practice 'Fire Prevention on Construction Sites' 9th Edition is published by Construction Confederation, FPA and Association of British Insurers and forms the basis for Fire Prevention Checklist App. 17E.
- 5.4. HSG 168 - Fire Safety in Construction Work (Second edition published 2010)

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