

Letter to Heads of Housing all London Boroughs, and ALMOs (18), and social housing landlords (180).

London Fire Brigade is run by
London Fire and Emergency Planning Authority

Date 17 February 2014

Dear Sir/Madam

ADVICE ON SMOKE VENTILATION SYSTEMS AND MAINTENANCE OF LIFTS FOR FIRE SERVICE USE IN RESIDENTIAL BLOCKS OF FLATS

This letter provides information about issues the Brigade has identified relating to (a) smoke ventilation and (b) the maintenance of fire lifts in residential buildings, which are both relevant to the fire risk assessments for your residential property portfolios where they are installed.

(A) SMOKE VENTILATION SYSTEMS IN RESIDENTIAL BLOCKS OF FLATS

Recent fire incidents and Brigade audits of premises have demonstrated that in some cases smoke ventilation systems installed in residential buildings are not operating correctly. As part of this, we are also identifying that in some cases, natural smoke ventilation of common corridors, lobbies and staircases by more simple means such as windows or permanent vents is also being removed, obstructed or otherwise compromised. This raises serious concern as in the event of a fire there is the potential that smoke can be contained and spread within a building rather than being vented to the atmosphere via these dedicated smoke ventilation provisions.

Smoke ventilation of escape routes, combined with limitations on travel distance in corridors and lobbies, is designed to assist means of escape for both the occupants who have escaped from the flat that is on fire and for others who may choose to escape subsequently. It may also be there to assist fire-fighters to gain access to the floor of the fire incident. As a result it is extremely important to design, install, and maintain these smoke ventilation provisions so that they operate correctly and safely.

Depending on the number of stairs and the age of the property, smoke ventilation is normally installed in either the stair lobbies or corridors that form the common access area to the residential flats, as well as in the staircase enclosure itself. Simple smoke ventilation measures could comprise of manually or automatically opening windows, or in older buildings, permanently open vents.

However, complex natural or mechanical smoke extract systems can also be employed using smoke ventilation shafts or 'chimneys', particularly in more modern buildings. In some cases, where the building may have only one stair, or where extended common corridor travel distances are present, these can be mechanical single or two-speed smoke extract systems, with pressure sensors and manual override controls for fire fighters.

The expectation in purpose built blocks of flats is that if the smoke ventilation system is automatic and heat and/or smoke enters the common parts on the floor where a fire has started, the smoke ventilation system for the premises will vent that heat and smoke to allow the means of escape to continue to be safely used, at least for a reasonable period of time, as well as to help facilitate fire fighting activities within the building.

In the case of an automatically opening smoke ventilation system into a smoke shaft, if smoke is detected, the door/ damper to the smoke shaft on that floor should open, together with a vent at the top of the shaft and also in the stair at the roof level. This creates a chimney effect, allowing the smoke to vent to open air. All other vents opening into the smoke shaft should remain closed in order to maintain the required level of fire separation in the building, prevent smoke spread to otherwise unaffected parts of the building, and to avoid reducing the smoke ventilation rate from the floor of fire origin.

The Brigade recommends that as part of your on-going maintenance and fire risk assessment programmes you arrange to have the smoke ventilation arrangements within your buildings checked and maintained by a competent person. Where relevant, any automatic systems should be checked to ensure that only the vent on the floor where the fire is first detected opens and that, with the exception of those at the head of any smoke vent shaft and the stair, that the vents on all other floors remain closed (even if smoke were to be detected or manual fire fighter overrides activated subsequently on those other floors).

Additionally, it has come to our attention that some smoke ventilation shaft installations utilise electromagnetic holding devices (to secure/ release vents), which are devices that can have an unpredictable performance leading to failure under fire conditions. Such failure can occur due to a loss of power to the devices, or through the magnetic fields of the devices being weakened as temperatures in and around the smoke ventilation shaft rise. As a result, multiple vents on multiple floors are susceptible to opening to the smoke shaft during a fire incident. This increases the likelihood of fire and smoke spread in a building, with no means to remotely re-set (i.e. close) the vents that have opened. It is therefore recommended that the use of electromagnetic holding devices as part of any smoke ventilation shaft installation should be specifically reviewed as part of your premises fire risk assessment, with consideration being given to replacing these devices with a more robust form of vent actuator.

Due to the potential for misuse and tampering, the need and type of any manual override controls for fire fighters (or maintenance purposes) as part of any smoke ventilation system should also be carefully considered/ reviewed. For example, we have recently identified that in some cases residents of blocks of flats have inappropriately used manual override controls for fire fighters to open vents to improve environmental conditions within corridors, and have mistakenly used such controls during a fire incident. In both examples, this has led to the fire compartmentation and means of escape routes within the buildings in question to be compromised.

Therefore the need to provide manual override controls for smoke ventilation systems should be reviewed as part of your premises fire risk assessment. Where any such controls are installed, these should be provided with clear signage (for example, '*Smoke vent – fire fighter use only*'), and anti-tamper measures where required. Residents should also be informed that these override controls are for fire fighter use only.

If there is any doubt as to whether a smoke ventilation system has been designed and installed correctly in the first instance (and for the purpose of instructing those who are to test and maintain these systems), or you require further guidance in relation to the above mentioned issues, we recommend that reference is made to the current industry best practice document:

'Guidance on Smoke Control to Common Escape Routes in Apartment Buildings (Flats and Maisonettes) - First published Nov 2010; Revision 1 published 14 June 2012'

This document can be downloaded for free at -

Once a smoke ventilation system has been checked and verified it should be recorded in the fire risk assessment for the building.

Separately, on the basis of experience in some fire situations, I also recommend that residents and other occupiers should be made aware of the importance of not tampering with or disabling measures used for smoke ventilation in case of a fire. Ultimately residents and other users safety in the event of a fire in a building could depend upon the smoke ventilation working effectively when needed.

(B) MAINTENANCE OF LIFTS FOR FIRE SERVICE USE

For housing stock above 18m in height a lift for fire service use should have been installed as part of the access and facilities provided for fire-fighters. The type of lift for fire service use will largely be dependent on the age of the building and can be broadly categorised as a "fireman's" lift, or a fire-fighting lift. Each can have very different features/ functions, and offer varying levels of protection for attending fire-fighters.

A fire-fighting lift is the modern standard lift, and will have been installed in accordance with BS5588 part 5/ BS9999: 2008 and BS EN 81-72. These lift installations typically form part of a fire fighting shaft, and include water protection measures, robust power supplies and control logic, and a dedicated fire and rescue service communication system.

A "fireman's" lift will generally have been fitted prior to the mid 1980s and offers a recall facility at ground floor level via a fire-fighters key switch, and may or may not have any additional safety features. A "fireman's" lift typically does not include a secondary power supply or a means of protecting the lift and its components from water ingress. The result is that a "fireman's" lift may have a limited use during a fire incident due to the risks relating to loss of power.

Where it has been identified that a "fireman's" lift (as opposed to a fire fighting lift) is installed within a building then we would request that the responsible person liaises with the relevant London Fire Brigade local Fire Safety Regulation Team to advise them of the premises address and style of lift present (in accordance with sharing of information detailed in Article 13(3)(c) of the Regulatory Reform (Fire Safety) Order 2005). This allows any necessary pre-planning to be undertaken and consideration of a familiarisation visit to the premises by our crews.

The type and functionality of lift for fire service use should also be included in the fire risk assessment for the building, and consideration given to the potential impact that a "fireman's" lift may have on any fire incident that may occur on the upper floors of a high rise building. If crews are not able to use the lift beyond the initial stages of an incident then the potential effect of this on the safety of residents must be considered and recorded within the fire risk assessment.

Regardless of the type of lift for fire service use installed within your building(s), the requirement to maintain it in good working order (in accordance with Article 38 of the Regulatory Reform (Fire Safety) Order 2005) is paramount to assisting operational crews in the course of their duties. Again, this should be accounted for as part of the premises fire risk assessment.

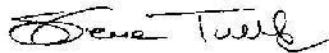
The maintenance schedule should include specific checks of all special functions and facilities provided for the lift to be used by the fire service, with this being clearly detailed on the relevant inspection/ testing certification. It has, however, come to our attention that such checks may not historically have been included in standard maintenance agreements and so may not have been carried out, I would therefore recommend that you review the service arrangements you have with your maintenance provider(s).

It is also recommended that where buildings have been provided with "fireman's" lifts that consideration is given to upgrading these to fire-fighting lifts designed and installed to BS EN 81-72, particularly where

a significant finding has been made within the fire risk assessment about the suitability of the lift present.

If you have any queries relating to the content of this letter please contact us using the following e-mail address – rro@london-fire.gov.uk

Yours faithfully



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