

T: 0131-244 2342 F: 0131-244 2564
E: Brian.Fraser2@scotland.gsi.gov.uk

Chief Officers

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Dear Chief Officer

DEAR CHIEF OFFICER (SCOTLAND) LETTER 3/2009

FIREFIGHTING IN BASEMENTS

1. Fires in basements may present a particular hazard to firefighters due to the lack of ventilation. When firefighters open vents such as pavement lights and doors to begin firefighting or rescue there is a risk of backdraught or other rapid fire development.
2. The Technical Handbooks for compliance with Building Regulations contain provision for certain basement storeys to have ventilation provided to assist firefighting operations and to allow smoke clearance after the fire and for smoke outlets communicating directly with the external air. Smoke vents may discharge by means of windows, panels or pavement lights which are readily accessible to fire service personnel and which can be opened or knocked out if necessary. However, the guidance in the Fire Service Manual and Generic Risk Assessments does not make clear the circumstances under which ventilators should be used by firefighters.
3. Research was undertaken to investigate different realistic basement fire scenarios and to determine the effect of using different venting strategies on the conditions both in the compartment and at the opened vents. This will help to determine the safest strategies for firefighters to use prior to and during entry to a basement for firefighting and rescue.
4. Part 1 of the research involved practical fire tests and computer modelling to simulate fire behaviour and growth. Part 2 of the research involved further computer modelling of specific factors such as the effect of positive pressure ventilation. The research reports:
 - *Computer modelling of basement fires Part 1 Fire Research Report 26/2008*
 - *Computer modelling of basement fires Part 2 Fire Research Report 27/2008*

can be accessed at: <http://www.communities.gov.uk/fire/publications/research-stats/>

5. Fire and Rescue Services (FRSs) should take account of the findings of this research for their own operational procedures and practices. Relevant conclusions of this work are:
 - Venting of basements using pavement lights cannot be relied on as a safe practice for fire and rescue services to use during firefighting. Successful venting during a fire is too dependent on wind and pressure conditions at the vent outlet and identification of the correct vent to operate. FRSs should use standard compartment entry tactics as recommended in the Fire Service Manual, keeping venting to a minimum, and should not use natural vents from basements until full extinguishment of the fire is confirmed or extinguishing media are ready for immediate use to control any possible fire development.
 - Similarly, venting of a basement compartment via a second compartment is not advisable as a safe practice for FRSs to use during firefighting.
6. The research recommends that consideration be given to revision of the existing guidance in the Fire Service Manual to address the findings. This will be considered as part of the ongoing development of an operational guidance framework.

Yours faithfully

A handwritten signature in black ink, appearing to read 'B Fraser', written in a cursive style.

BRIAN FRASER
Head of the Scottish Fire and Rescue Advisory Unit