

**Dave Berry**  
**HMFSI**

**Simon James Hunt**  
**Area Manager**

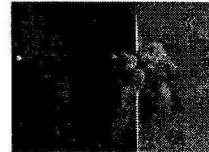
**Building Disaster**  
**Assessment Group**



**The Building Disaster Assessment Group**  
**(BDAG)**

BDAG has been established within the Office of the Deputy Prime Minister (ODPM) to consider the issues for fire authorities and their fire brigades in the UK that have been highlighted by the World Trade Centre incident of 11th September 2001. The terms of reference of BDAG are:

"To consider the potential implications, for the UK fire service of terrorist activities within the built environment, taking into account fire authorities' responsibilities for ensuring the provision of appropriate fire precautions for buildings in use and safe operating procedures that reflect building design."



**BDAG - Membership**

Chair	HMCIFS Sir G Meldrum
Project Manager	Dr D Peace (HMI D Berry)
Project Leader	SDO S J Hunt
Project Staff	DO Andy Howard
	DO John Fay
Buildings Division	P Everall
Fire Research	Dr D Peace
BCSF	P Castle
IFE	D Smith

and representatives of NDG, HMFSI, CFOA, FBU, FSC, HSE



**The Building Disaster Assessment Group**  
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Whilst the issues raised by September 11th 2001 are particularly important when considering the health and safety of firefighters and building occupants in extreme events such as terrorist activities, they also impact upon firefighting and building design assumptions for 'normal' activity.

Current building design guidance is often based on fire service equipment and practices which are no longer in use. The building stock has also changed significantly in this period, as have construction materials used.



**Post War Building Studies.**

**Relationships Established included:**

- Maximum height, floor area and cubic capacity of buildings and compartments
- Limitations on height, size and occupancy of single-staircase buildings
- Fire resistance and non combustibility of building elements
- Access and facilities for the fire service



**Impact**

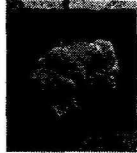
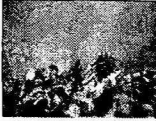
The combined effect of changes to operational procedures and equipment, building uses construction techniques and materials has significant implications for the design of the built environment and Fire and Rescue Service and other stakeholders.



**FR35:19 Development of physiological performance criteria for firefighting**

**Firefighter physiology**

- All firefighting and other rescue activities are dependent to a greater or lesser extent upon the physiological capabilities of firefighters.
- The World Trade Centre incident of September 11th 2001 demonstrated the potential extreme demands of firefighting and rescue activities
- The physiological limitations of firefighters are key issues when planning for conventional and terrorist induced incidents within the Built and Natural Environment



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**Live Fire trials overview:**

- Fires designed and constructed by BRE around fire service college cribs  $\approx$  5 MW total
- Maximum distance from compartment entry 45m
- Casualty 75Kg



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**Water Supplies and firefighting in tall buildings**

Rising main standards developed in 1940-60's

New techniques for compartment firefighting / covering hose lines

Significant, disparity between the standards for rising mains and performance needed to support firefighting operations

International experience - NFPA standards have been revised

Changes needed to F&RS equipment and riser standards

Two hose lines for firefighting operating in staircase - discounting of staircases?



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**FR31:07 Communication systems in large complex buildings**

Tall buildings pose unique challenges vertical route of access and egress beyond limits of external rescue

Similar difficulties in large complex buildings such as multi-use recreation, shopping complexes

Identified as major hindrance to New York Fire Brigades response to September 11th - picked up in Building Divisions scoping study of issues arising from 9-11

Presently no systems to support control of evacuation and firefighting and search and rescue in large complex buildings



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**FR23:25 Firefighting in under-ventilated compartments (original title "unfenestrated" compartments).**

Present guidance is not empirically based, no guarantee that it will operate or, be effective, due to wind effects and lack of design

Guidance places firefighters at risk if backdraught occurs

International review - firefighters continue to be killed and injured in backdraughts

Comparison to other smoke control requirements

Sprinklers in deeper basements



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**FR11:24 A review of the provision of fire fighting shafts using FDR1 data**

Project established the probability of fire spread, use of fire fighting media and presence of casualties in buildings.

**Fire Spread and firefighting:** Educational, Office and Assembly & Recreational buildings are as likely to have large fires as the classes that currently attract a firefighting shaft below 18m

**Casualties:** Hotels, Assembly & Recreational, Law, Welfare & Charitable buildings have higher casualty rates than present classes which attract a firefighting shaft beneath 18m

**Effect of Sprinklers:** Sprinklers can make a building less likely to have large fires, not only compared to a similar building without sprinklers but also to different building types altogether.



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