LONDON FIRE BRIGADE

High rise firefighting

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Contents

1 Introduction

1.1 This policy sets out a safe system of work for operational personnel who are engaged in search, rescue and firefighting in high rise buildings. Further information is available via Big Learning.

1.2 A high rise building, for the purposes of this policy, is defined as a building containing floors at such a height or position that external firefighting and rescue operations may not be feasible. This is not limited to but will always include buildings of 6 floors/18 metres or more.

1.3 The term high rise building encompasses a wide variety of structures from conventional tower blocks containing residential flats to very large and complex commercial buildings. Some high rise buildings may be of multiple use (e.g. occupied by a mixture of commercial and residential accommodation) and can contain complex systems which control the building's internal environment, during normal use or during a fire situation.

2 Hazards

2.1 Some of the hazards detailed below are specific to high rise buildings; others are more general in nature but are included due to their potential occurrence at high rise incidents and because the characteristics of the building are likely to intensify their effect.

2.2 Hazards of high rise firefighting are grouped under four headings:

(a) Building height and design

(b) Management and use

(c) Fire behaviour

(d) Firefighting and rescue operations

Building height and design

2.3 The height/layout of the building may impact operations due to travel distance for firefighters, equipment and water supplies.

2.4 Large or complex floor layouts:

(a) A lack of information on the internal layout, flat or floor numbering systems can cause confusion and may also increase the risk of firefighters becoming disorientated.

(b) The size and layout of some buildings may make it difficult to reliably determine the location, floor of origin and the extent of fire and smoke spread from the access or street level. This can create the potential for firefighters using firefighting lifts to proceed directly onto a floor area involved in fire or mean that resources are deployed to inappropriate locations.

(c) The fire service access level may not be the recognised ground floor level of the building or the same access point used by the public.

2.5 Access for firefighters may be delayed due to security arrangements, such as coded entry systems, security grilles and multi-lock door systems. Progress may be inhibited more than once as devices are encountered at a number of points along the route to a fire.

2.6 High rise buildings may have a range of fixed installations and fire engineered solutions installed to assist in a safe and timely intervention by the fire service. If the building has been subject to poor standards of installation, poor management or vandalism, these systems may not perform as designed, which can increase risk to occupants, firefighters and other emergency service personnel in the event of a fire.

2.7 Some buildings may contain single dwellings that are spread over two or more floors. This means access from the front door may be up or down, and that firefighters may exit the dwelling on a different level to the initial access point. This can lead to disorientation and may affect the decision about where to site the bridgehead.

2.8 Objects falling from height. This may include debris which is on fire or in a molten state. These can be a risk to anyone entering or exiting the building and can damage hose lines. Debris can be ejected explosively and building materials such as glass and curtain walling can 'plane' some distance from the building.

2.9 Risk of persons falling from height due to the failure of external walls, panels or windows.

2.10 Difficulty with lines of communication and radio reception. The scene of operations may be a considerable distance from the point of access and/or command. Communication dead spots may exist within the building.

2.11 Entanglement in electrical cabling that has been displaced from surface mounted cable trunking, fixings or failure of false ceilings.

2.12 When any high rise building is under construction or refurbishment, facilities such as firefighting shafts, rising mains and active/passive fire safety measures may be incomplete or absent. This may also create a risk of a more rapid fire or smoke spread, collapse and spread of smoke/fire to adjacent buildings.

2.13 Failure of firefighting lift equipment or use of non-designated lifts can lead to firefighters and/or evacuees becoming trapped in a lift car. Either the lift, its shaft and/or machine room may be affected by the spread of smoke, fire, heat and water ingress from firefighting operations.

2.14 Failure of compartmentation:

(a) Original doors may have been replaced with types which do not necessarily offer the required level of fire protection. This may lead to a failure of compartmentation and create more rapid fire spread or, conversely, hinder access where additional security is encountered.

(b) The introduction of some modern materials and services, such as cable television, replacement double glazing or combustible cladding arrangements, may compromise existing fire safety measures or compartments. This may cause unpredictable or unexpected spread of fire or smoke.

2.15 External cladding is a non-structural material or assembly used to cover structural surfaces on the outside of the building and spandrel panels. They can be used for aesthetic reasons, for insulation or to provide protection from the elements. If external cladding becomes involved in a fire experience has shown that, in spite of regulation, a risk of rapid and catastrophic external fire spread remains. Cladding systems can also create voids and cavities which can contribute to the spread of fire and smoke, this may not be initially obvious. Fires travelling within the cavity between the cladding and the building can be difficult to extinguish.

2.16 Fire loading on balconies and the material from which the balconies are constructed may cause fire to spread through and across the building.

2.17 Some buildings may be completed in phases, in these cases there may be partial occupancy and people other than construction workers requiring rescue.

2.18 Supplies of firefighting water in high-rise buildings may be limited by the capacity of dry or wet rising mains (see Appendices 3 and 4).

Management and use

2.19 Poor management and the storage of combustible materials in escape routes may impede evacuation and hinder the progress of firefighters, while promoting fire development.

2.20 Although the building may be complete, occupied and fully operational, certain aspects of the building's safety features may be disarmed or isolated for testing, repair or refurbishment such as sprinkler systems, fire alarms and rising mains.

2.21 High rise buildings offer additional non-residential service rooms such as storage areas, lift motor rooms and electrical intake rooms which may be illegally accessed for illegitimate purposes, such as drug manufacture, pirate radio station studios or inappropriate sleeping accommodation.

2.22 In a multiple use high rise building there may be a mix of evacuation or "stay put" strategies depending on which part of the building is involved. This is often the case in mixed use buildings which are part commercial or part community-use and part residential. This may result in difficulty identifying whether persons have evacuated, need evacuating or require rescue. Additionally, occupants may not be aware of a building's evacuation strategy, leading them to behave differently to the responsible person's fire risk assessment and the IC's expectations.

Fire behaviour

2.23 Fire and smoke spread in a high rise incident can be very unpredictable. Fire and smoke may spread rapidly in an upward, downward and/or horizontal direction. It can spread to remote locations not obviously connected to the seat of the fire and compromise escape routes. The following factors can contribute to fire and smoke spread:

(a) Failure of compartmentation both internal and externally.

(b) Air currents moving up and down the external and internal areas of a high rise building. This may lead to smoke in the building being drawn downwards.

(c) Wind speeds are likely to increase with the height of a building and be affected by the position of nearby buildings.

(d) A 'blow torch' type effect can be created by an increase in pressure within the fire compartment caused by a build up of products of combustion known as an over pressure and/or by external wind forcing the products of combustion from the compartment, sometimes in unpredictable directions. This is sometimes known as a wind driven fire.

(e) The opening of doors, windows or emergency exits may create a flow path for products of combustion leading to a rapid, unexpected increases in temperature and/or fire and smoke spread.

(f) Burning material either falling from upper floors or carried aloft by buoyant smoke can also ignite combustible materials through open windows, on balconies and around the base of the building.

(g) Staircases in high rise buildings have the potential to act as a chimney allowing the products of combustion to rise or fall.

(h) Inappropriate activation or failure of Heating, Ventilation Air Conditioning (HVAC) systems may inhibit the safe removal of smoke from the building or conversely move smoke into previously unaffected areas.

2.24 Fires may be encountered on more than one floor as a result of the factors identified above or by acts of deliberate fire setting. In extreme circumstances this can lead to a fire affecting the full height of the building.

Firefighting and rescue operations

2.25 Firefighting equipment in staircases and other parts of the building may create obstructions for firefighters and those evacuating the building. This hazard will be intensified in buildings which have a single staircase.

2.26 Operations may breach compartmentation. For example, it may be necessary to run hose lines into protected routes, staircases and through fire doors. This may cause smoke and hot gases escaping the fire compartment to enter previously unaffected areas. This may present a hazard to occupants in the common areas and may also impact firefighters at the bridgehead.

2.27 The way in which the building evacuation is conducted may adversely impact on the evacuation itself and/or firefighting and rescue operations.

2.28 If the building's evacuation plan includes use of lifts by residents, this may affect the ability to move firefighting resources to upper floors.

2.29 The intensity of work rate required in relation to firefighting in a high rise fire can lead to an increase in the core body temperature of firefighters. In addition, access to the fire may be limited to a single route, so teams entering the flat or compartment may have little or no option to avoid hostile conditions.

2.30 There are public expectations that firefighters will attend incidents and will put themselves at risk to save lives. This can lead to pressure to act immediately, even if no safe system of work is possible with the resources available at the time.

3 Definitions

3.1 For LFB operations to be effective, it is important that all personnel have a consistent and clear understanding of the following terms:

3.2 **Responsible person** – A specific term under fire safety law referring to a person (an individual or a corporate entity) who has a measure of control over a premises.

3.3 **Planned evacuation** – A pre-determined strategy for a premises to secure the removal of any persons in or around the premises to a place of safety. The responsibility for determining the strategy rests with the Responsible Person.

3.4 **Evacuation** – The immediate movement of people away from actual or potential danger towards a place of relative safety, normally supported by a pre-determined plan/strategy.

3.5 **Place of ultimate safety** – A place in which there is no immediate further danger and no risk of fire, heat and/or smoke spreading to. e.g. outside the premises and beyond the hazard zone.

3.6 **Place of relative safety** – A place in which there is no immediate danger, but in which there might be future danger from fire. This may be within a staircase enclosure, adjacent corridor or area of the building that is protected from fire/smoke spread by fire resisting construction and doors. It must also have an alternative route to a place of ultimate safety if needed.

3.7 **"Stay put"** – A predetermined strategy of the responsible person for a building under which in the event of a fire elsewhere in the building the occupants should be safe to remain where they are unless they are directly affected by fire, heat or smoke. The strategy relies on the principle of compartmentation combined with other fire safety provisions.

3.8 **Emergency evacuation** – The immediate and unplanned movement of people, assisted by LFB personnel or other emergency responders, away from actual or potential danger towards a place of relative safety, using recognised or normal means of escape, in circumstances where:

- A planned evacuation strategy does not exist for the premises and the IC decides that an evacuation is necessary
- The planned evacuation strategy has not taken place and the IC decides that an evacuation is necessary
- It is determined that the planned evacuation strategy, including a 'stay put' strategy is no longer tenable and/or is not working effectively

It should be noted that both evacuation and emergency evacuation can be either full or partial i.e. they can be applied to the entire premises or just a part of it (e.g. a wing of a hospital).

3.9 **Rescue** – The act of helping a person or persons who are threatened with immediate harm and require assistance to move away from danger towards a place of relative or ultimate safety.

3.10 **Mass rescue -** The act of helping a large number of people that are threatened with immediate harm and who require assistance to move away from the danger towards a place of relative or ultimate safety. This is likely to involve the deployment of a large number of LFB personnel and/or other responders.

3.11 Emergency evacuation and mass rescue may need to be undertaken at the same time and at the same incident.

3.12 **Compartmentation** – A building design principle used in high rise and other buildings which is intended to inhibit rapid fire spread within the building from one area to another by dividing the building into a series of fire resistant compartments (or boxes) which form a barrier to fire and the products of combustion.

3.13 **Bridgehead** - Definition is contained in Policy number 987 - Incident command - Organisation at incidents – NOG. The purpose of a Bridgehead is to enable an incident to be dealt with by establishing a control point with suitable resources and emergency provision in a safe area as close as practical to the risk area. In a residential high rise building it is normally located two floors below the fire floor.

4 Planning

4.1 Operational information should be gathered and recorded in accordance with Policy number 800 - Management of operational risk information.

5 Operational procedure

On arrival and information gathering

5.1 Unless an RVP or split attendance has been identified during planning, which should be recorded on the ORD, attendance should be made at the main entrance of the premises.

5.2 The siting of appliances that form the PDA should take into account:

(a) Access for aerials and other specialist appliances.

(b) Other agencies such as the London Ambulance Service (LAS) or Metropolitan Police Service (MPS).

(c) The potential danger of objects falling from height and fire spread.

5.3 The IC should remain at access/street level unless planning arrangements have identified a more appropriate location. This should be recorded on the ORD.

5.4 To begin to establish effective situational awareness, the IC should gather available relevant information from sources such as:

(a) Any 'responsible person' present or building occupants.

(b) Fire alarm or ventilation control panels.

(c) Building plans. If necessary, it may be possible to create plans drawn from the floor layout of unaffected floors, where the floor layout is consistent throughout the building.

(d) Premises information plate or ePIP.

(e) Signage.

(f) Mobile Data Terminals (MDT) and appliance tablets.

(g) Identifying which floor(s) the incident is located on in order to determine where the bridgehead should be sited.

(h) CCTV.

(i) The location and status of any fire control, fire engineering and/or fixed installation systems.

5.5 The IC should ensure that a 360o visual inspection is carried out utilising a thermal image camera (T.I.C) to help identify:

(a) Internal and external fire conditions paying particular attention to the location of the fire and any unusual or rapid fire spread.

(b) Immediate rescues.

(c) External building features such as additional staircase, balconies.

(d) Alternative access points.

(e) Siting opportunities for aerials.

5.6 The IC should also give early consideration to the following points:

(a) Additional resources required to support operations.

(b) The potential to attack the fire externally (if vented) with solid core or coned down jets.

(c) The need to lay out jets and deploy ground monitors and aerial appliances to prevent external fire spread or to control fires caused by falling debris.

(d) If occupants are evacuating or a simultaneous evacuation is in progress. This may hinder firefighting activities which in turn may compromise the safety of occupants in stairwells, lobbies or corridors.

(e) Rapid fire spread. Efforts may need to be diverted from firefighting activities and directed towards assisting the emergency evacuation of residents. (See section 6 - Emergency evacuation and mass rescue).

(f) If the premises has more than one staircase, the need to establish, if appropriate, separate attack and evacuation stairwells. If this tactic is employed, firefighters assigned to assist evacuation should use the stairwell that has been nominated by the IC as the evacuation stairwell.

(g) Recognising the effect of wind, noting this may be amplified and made more unpredictable by factors such as the building's height and its proximity to nearby tall buildings.

Securing water supplies for firefighting

5.7 The hydrant supply and deliveries from the pump to the dry rising main (DRM) must be twinned and charged using 70mm hose.

5.8 Pump operators should monitor their flow gauges while charging the riser and before firefighting has commenced. High flow rates or difficulty in achieving 10 bar pressure before firefighting has commenced can indicate that rising main landing valves may be damaged or open.

5.9 If falling debris poses a risk to hose lines going into the building, consideration should be given to protecting hoses with hose ramps or finding an alternative route outside the area where the debris is falling. Care should be taken to not create additional trip hazards by covering hoses.

5.10 Effective communication between BA teams, the bridgehead, the IC and the pump operator are necessary to ensure best use is made of the available water supply.

5.11 Buildings over 60m (50m from 2006) may be fitted with wet rising mains (WRM). These may need to be augmented at protracted incidents.

5.12 **Appendices 3 and 4** contain more information on dry and wet rising mains.

Securing the firefighting lifts and non-firefighting lifts

5.13 Where the height and location of the incident makes the use of a lift beneficial, the firefighting lift should be identified and, as soon as resources allow, a firefighter must be detailed to take control of and remain with the lift. The IC should also be aware that some lifts may not access all floors of the building.

5.14 Only designated firefighting or fireman's lifts are to be used during an operational incident and other lifts should not be used for firefighting operations. It should also be noted that some older style fireman's lifts may not have the same capabilities as modern firefighting lifts. See Appendix 2 for further information regarding firefighting and fireman's lifts. For the purposes of this policy, fireman's lift will be referred as a firefighting lift.

5.15 Teams should exit the firefighting lift at least two floors below the floor where the fire is reported or believed to be unless the IC's plan dictates otherwise. This is to ensure that the risk of firefighters becoming unintentionally involved in the fire is minimised.

5.16 If the location of the fire is not known with a reasonable level of certainty, firefighters should approach the believed or likely location of the incident with caution, using a protected staircase. Where possible, floor plans should be obtained to assist in the identification of a safe route to the incident.

5.17 The firefighting lift should remain at the bridgehead so that rescued persons can be quickly brought to ground floor level.

5.18 In the event that the firefighting lift is not available, consideration should be given to:

(a) The resource implications for teams accessing and carrying equipment to the bridgehead.

(b) The use of aerial appliances to transport equipment to the bridgehead (if the building design makes this a viable option).

(c) Additional resources to enable safe manual handling of casualties down stairways to the point where they can be passed to the care of the ambulance service.

5.19 Firefighters should be mindful that any failure of firefighting lift equipment or use of non-designated lifts can lead to firefighters and/or evacuees becoming trapped in a lift car. Either the lift, its shaft and/or machine room may be affected by the spread of smoke, fire, heat and water ingress from firefighting operations.

5.20 The IC should consider securing all non-firefighting lifts to assist controlling the movement of people throughout the building.

Establishing a bridgehead and fire sector

5.21 Sectorisation of high rise incidents should be in accordance with Policy number 987 - Incident command - Organisation at incidents – NOG.

5.22 The rank of the sector commander fire should be commensurate with the scale and complexity of the incident and be a minimum of leading firefighter. The sector commander fire will be responsible for establishing a bridgehead and committing teams to carry out any tasks beyond the bridgehead in line with the IC's plan.

5.23 The bridgehead should be located two floors below the fire floor unless planning arrangements or the specific design features of the building allows for safe air to be reliably maintained in a position which is closer to the fire. Examples of this might include high rise buildings where flats are accessed from open air balconies or where there are multiple fire doors maintaining compartmentation between the flats and the protected stairwell.

5.24 Use of the F.I.R.E. system will help ensure that at the early stages of an incident, the correct personnel and equipment are available to implement safe systems of work. See – **Appendix 7** for detail on the F.I.R.E. System. The provision of an appliance tablet must form part of this system when establishing the bridgehead.

5.25 If there is potential for congestion at the bridgehead, a staging area below the bridgehead may be required for additional resources.

5.26 If worsening conditions or fire spread at or below the bridgehead require it to be repositioned, the following should be done:

(a) The BA teams and the IC must be informed of any decision to re-locate the bridgehead and a message sent around the incident ground.

(b) All BA teams must be informed to ensure they monitor their air supply and take the new distance into account when assessing their turn around pressure.

(c) As relocation will increase the travel distance for BA teams, consideration must be given to the immediate withdrawal of BA teams. Any decision to withdraw BA teams must be balanced against the urgency and importance of the task(s) they are performing.

(d) If it is decided not to withdraw the BA teams, teams should acknowledge receipt of the message regarding the bridgehead's new location. If no acknowledgement of the relocation message is received, then the entry control operative (ECO) should instigate a withdrawal of that team via the BA entry control board (ECB).

(e) All information and resources should be transferred to the new bridgehead location.

(f) If the bridgehead is moved a message should be sent to control to inform them of the relocation.

5.27 Gas Detection Monitors (GDM) should be considered for use at the bridgehead for monitoring air conditions.

Committing teams

5.28 All specific briefing of teams should take place at the bridgehead once the decision has been made by the IC to commit teams to operations above the bridgehead.

5.29 No personnel should proceed beyond the bridgehead without the sector commander fire's authorisation.

5.30 The initial BA team's charged jet should be supplied from the floor below the fire floor unless the risk assessment by sector commander fire indicates it is safe to set in on the fire floor. If the initial BA team's branch is taken from the fire floor, consideration should be given to fitting a dividing breech to the DRM outlet to allow the back up jet to be taken from this floor also, if conditions allow.

5.31 This assessment can be conducted by looking at the layout of unaffected floors beneath the fire floor to establish the compartmentation of the lobby, protected stairwell and location of the rising main in relation to the fire compartment.

5.32 The rising main outlet on the fire floor should only be used if teams can control the doors between them and the suspected location of the fire. As a rough guide this will mean a minimum of two fire doors separation between the rising main and the fire compartment.

5.33 If the nature and location of the fire cannot be determined in any other way (i.e. external signs, witness accounts) then, if it is safe to do so, the sector commander fire and ECO may proceed to the fire floor while the bridgehead is being set up to gather information for the IC's situational awareness, taking into account the following control measures:

(a) They proceed only for as long as there are no signs of fire and return immediately to the bridgehead when signs of fire are observed.

(b) They only proceed on the IC's instructions.

(c) They maintain radio contact with the IC.

(d) The IC has appointed safety officers observing the external faces of the building for signs of fire and they return to the bridgehead immediately if this safety officer reports signs of fire.

(e) They use a thermal image camera to look for signs of fire.

(f) They maintain a two fire door separation between themselves and the reported compartment on fire (as described in paragraph 5.32).

5.34 The sector commander fire must also be mindful of the risks of being pressured into action before sufficient resources are available to mount an effective attack on the fire.

5.35 The sector commander fire should recognise that any delay in committing teams can increase the likelihood of fire growth and fire spread occurring. In spite of this pressure, teams must only be committed when a safe system of work has been implemented. Teams should not delay their preparations at the bridgehead while information is being gathered.

5.36 The sector commander fire should inform the IC when BA teams have been committed.

5.37 An additional BA team with a second jet must be provided as soon as possible, in order to protect and support firefighters involved in rescue/firefighting operations. BA teams must not be committed to the fire compartment without a back-up team being available unless:

(a) There is an immediate risk to life, or

(b) There is an immediate risk of serious escalation of the incident if action is not taken.

5.38 The second jet can be supplied from the rising main outlet on the fire floor (or the additional dividing breeching outlet if this has been used) or the next appropriate floor and must be of sufficient length to reach the furthest point that the initial firefighting team can reach.

5.39 If signs, symptoms or conditions that may lead to backdraught, flashover or other abnormal fire development are present, a second jet and BA team must be present before the initial firefighting team are committed into the fire compartment.

5.40 Hose lines should be laid and charged in an area unaffected by fire or smoke and behind the safety afforded by a fire-resistant structure or fire resisting door(s).

5.41 Hose lines should be fully charged before entering any doorway to prevent them passing under a door, which could subsequently cause a flow restriction or the door to become an obstruction when the jet is charged.

5.42 If pump operators report gauge readings that indicate that dry rising main outlets above the fire floor may be open, or there are other signs that this is the case, the IC may consider committing a team above the bridgehead without BA or extinguishing media for the specific task of closing DRM outlets. The following control measures must be applied:

(a) There are no signs of failure of the building's compartmentation.

(b) There are no signs of the failure of the building's fire safety systems, and there is no site specific risk information that indicates there are issues with the building's fire protection measures.

(c) Radio communications are maintained with the bridgehead.

(d) The stairwell is clear of smoke.

(e) They use a T.I.C to survey each floor for signs of fire before proceeding to check the DRM outlet.

(f) GDMs must be used to monitor air conditions

5.43 If the area above the bridgehead may become affected by products of combustion, this team must be in BA.

5.44 If smoke is reported on the stairwell above or below the fire floor, consideration should be given to committing BA teams above the fire floor without extinguishing media to determine the status of fire doors and ventilation openings, to open or close doors on the IC's instructions and to determine the effectiveness of any ventilation systems present. The benefits of this must be balanced against the risk of BA teams having no extinguishing media. The following control measures must be implemented:

(a) The teams are committed for this specific task.

(b) Safety officers have been established to monitor the exterior of the building and can update these teams directly by radio on changing external conditions.

(c) The teams use T.I.C's to monitor heat conditions around them.

(d) Teams withdraw to the bridgehead if radio communications is lost.

(e) Teams withdraw to the bridgehead if telemetry signal is lost.

Search and rescue

5.45 The IC should nominate a Sector Commander Search at the earliest available opportunity. It is good practice for the Sector Commander Search to nominate a Search Coordinator early in an

incident to support a systematic and thorough process. See Policy number 803 – Search and rescue procedures within structures.

Fire survival guidance

5.46 Incidents in high rise buildings can lead to fire survival guidance (FSG) calls being received by Brigade Control. All FSG calls should be managed in accordance with Policy number 790 Fire survival guidance calls.

Safety officers

5.47 The IC should appoint safety officers as soon as reasonably practicable as per Policy number 987 - Incident command - Organisation at incidents – NOG.

5.48 The IC must deploy dedicated external spotters in the early stages of and throughout the incident to monitor the following:

(a) Fire conditions including:

(i) External breaching of compartmentation.

(ii) Rapid, unusual or abnormal fire spread.

(b) Any rescues required.

(c) Structural integrity of the building.

(d) Falling debris.

5.49 External spotters should provide the IC with regular updates and communicate directly with the sector commander fire to enable them to inform BA teams via the ECO of any changes in the ventilation profile and/or fire dynamics which may affect internal conditions. This is a control measure for all firefighting activities above the bridgehead.

Safety cordon

5.50 IC's should consider the implementation of an appropriate sized hazard zone cordon.

5.51 The size and shape of this cordon should take into account wind conditions and the size, height and construction of the building and give consideration to falling debris, smoke travel and convected heat.

5.52 As part of cordon arrangements, it may be necessary to designate and take steps to maintain 'safe routes' of access and egress into the building.

Communication difficulties

5.53 Where appropriate and available the IC should consider the use of alternative radio channels to manage the volume of radio traffic or, where there are communication difficulties, other equipment, such as radio repeaters, leaky feeders and hand-held digital main scheme radios (see Policy number 987 - Incident command - Organisation at incidents – NOG).

Messages

5.54 When attending a high rise incident, the IC will have to gather sufficient information to carry out a risk assessment and implement the appropriate safe systems of work. The implementation of high rise procedure should be reflected in an informative message to Brigade Control as soon as possible. If sent in isolation, the full details of the incident (e.g. dimensions, area involved) do not

need to be sent. See Policy number 518 – Messages from incidents.

Example:

"From …… at ……; high rise procedure implemented, tactical mode Oscar"

5.55 The above message indicates that a risk assessment has been carried out, and that a safe system of work has been implemented. This message can only be sent where the following minimum systems of work have been implemented:

(a) The location of the bridgehead has been risk assessed as appropriate for the incident.

(b) Access and egress to and from the bridgehead is secured and maintained.

(c) The bridgehead is established and a charged jet is ready for deployment.

Ventilation

5.56 Ventilation should only be undertaken on instruction of the IC and in accordance with Policy number 883 - Tactical ventilation.

Building design and fire safety measures

5.57 A senior fire safety officer (SFSO) will be informed of all confirmed four pump fires, will attend all confirmed six pump fires and above and can be requested whenever specialist advice is required by the IC.

5.58 Every high rise building has been designed with systems to help keep stairwells and escape routes clear from the products of combustion.

5.59 Building regulations require all buildings over 6 floors/18m high to make provisions for firefighting and firefighter access. The basic facilities provided within these buildings should include:

(a) Firefighting shaft.

(b) Dry/wet rising mains (DRM or WRM).

(c) Firefighting lift.

(d) Ventilated lobby or corridor.

5.60 Firefighting shafts including fire mains (but not firefighting lifts) may also be found in certain building types with a floor exceeding 900 m2 and heights exceeding 7.5m. In addition to those within firefighting shafts, fire mains may also be located in other staircases and/or corridors within a high rise building.

5.61 Automatic fire suppression systems may also be found in high rise buildings. The installation of sprinkler systems may indicate that there are larger compartment areas with significant fire loadings present.

5.62 Automatic fire curtain systems may be present in a variety of configurations and orientations. If the building has an automatic fire curtain system installed, the IC should ensure teams are suitably briefed on their location(s) and the risk they can pose to safe egress from the building, should they operate whilst a team is committed in the compartment where they are installed.

5.63 Additional information on firefighting facilities and fixed installations is provided in **Appendices 1 – 5**.

5.64 In premises identified as having an increased risk of fire/smoke spread due to issues such as, but not limited to, combustible cladding or a lack of compartmentation, the responsible person may

have temporarily changed the stay put strategy to simultaneous evacuation. In these cases, fire detection and alarm systems may have been installed or a temporary simultaneous evacuation protocol may have been adopted whereby fire marshals monitor the premises and are responsible for initiating evacuation if a fire occurs.

6 Emergency evacuation and mass rescue

6.1 There may be circumstances where high rise buildings have failed to behave as they are designed, and the level of risk to both residents and firefighters is substantially increased.

6.2 In these circumstances it may be necessary to implement an emergency evacuation or mass rescue.

When to implement an emergency evacuation and/or mass rescue

6.3 The decision to initiate an emergency evacuation and/or mass rescue requires the IC to strike a proportionate balance between the prevailing risks and benefits. This cannot be exhaustively predicted in advance for every situation.

6.4 Advising large numbers of people to evacuate from a premises, through escape routes that may be affected by smoke, can have adverse as well as positive consequences. Any decision to commence emergency evacuation is likely to cause disruption and may also lead to panic, a delay in tackling the fire, persons being injured or, in the most extreme case, fatalities.

6.5 Conversely, an appropriate and timely decision to evacuate may reduce the risk that people may be harmed or become trapped and increases the likelihood that an emergency evacuation or mass rescue will be successful.

6.6 The factors listed below should be considered by the IC when deciding whether to implement an evacuation and/or mass rescue operation may include - but may not be limited to whether;

- multiple emergency calls (four or more 999 calls to the same address) or multiple fire survival guidance (FSG) calls, defined as three FSG calls or more from one premise type or a number of premises within a building; Policy number 790 - Fire survival guidance calls
- emergency or FSG calls are being received to the same building but from a location that is remote from the initial fire
- where it becomes apparent that Brigade Control are reaching their capacity to manage the number of 999 calls and duration of individual FSG calls, the information gathered from waiting callers may be delayed, which in turn could impair the IC's situational awareness on the incident ground
- large numbers of people are evacuating
- there is rapid spread of fire or smoke, either externally or internally from one compartment and/or floor to another
- fire and/or products of combustion spread to locations within the premises remote from the original fire
- fire is spreading via external cladding
- reports of deteriorating conditions internally
- where it is not possible to deliver sufficient extinguishing media or, for other reasons, firefighting activity is not controlling or extinguishing the fire

This list is not exhaustive and other signs of the potential catastrophic failure of compartmentation may be observed.

6.7 These signs and symptoms, either in isolation or in combination, do not automatically mean that an emergency evacuation and/or mass rescue is required, but their presence should always be actively assessed by the IC.

How to implement an emergency evacuation and/or mass rescue

6.8 When the decision is made to implement an emergency evacuation and/or mass rescue the development of a tactical plan for the emergency evacuation and/or mass rescue must be informed by a risk assessment. See Policy number 985 - Operational safety management - knowledge skills and competence – NOG. Tactics that commit firefighters to the risks of operations above the fire floor without extinguishing media must be robust, proportionate and carefully considered.

6.9 If a decision is made to change the responsible person's planned evacuation strategy, it should be recorded as soon as practicably possible on the Key Decision Log (KDL) and shared with other attending emergency services (Policy number 986 - Command skills - knowledge, skills and competence – NOG).

6.10 Information regarding the status and progress of the evacuation should continue to be shared and updated between responding services, Brigade Control and those attending or monitoring the incident on a regular and timely basis.

6.11 The IC must inform control of the following information so that it can be passed on to callers:

(a) Where fire escape hoods are in use.

(b) Firefighting/evacuation/rescue activity currently taking place elsewhere in the building.

6.12 If a mass rescue and/or emergency evacuation plan is implemented then the IC must declare a 'Major Incident', See Policy number 263 - Major incident procedure, and send a METHANE message as soon as practically possible.

6.13 Any incident where emergency evacuation and/or mass rescue is implemented is likely to be resource intensive. ICs must anticipate this and make up resources accordingly.

6.14 The speed and extent at which an incident is escalating will dictate the urgency of the emergency evacuation and mass rescue plan. The IC will need to consider the safest and most effective way to warn and inform the residents that they need to escape from the building. This could include for example:

(a) Use of megaphones.

(b) Use of intercoms or door entry systems.

(c) Use of public address systems.

(d) Use of fire alarms.

(e) Use of building evacuation systems.

(f) Use of LFB drone public address capability.

(g) Use of the NPAS helicopter public address capability.

(h) Use of the media and social media via LFB press office.

(i) Internal telephones.

(j) Systematic loud door knocking.

(k) Forcing of doors to flats.

Committing firefighters to knocking on doors and/or forcing entry are higher risk activities but are likely to be safer and more effective the earlier in the incident they are commenced. (See section headed "Managing increased risk").

6.15 It may be necessary to begin emergency evacuation and mass rescue operations with minimal teams. The IC will need to decide which communications methods they use against the level of risk this exposes their teams to and the speed at which they anticipate they will need to clear the building.

6.16 The IC's evacuation plan must consider:

(a) The risks to residents of flats closest to the fire.

(b) The risks to residents of flats furthest from safety (e.g. at the highest points of the building).

(c) Whether time and resources allow forcing entry to flats from which there is no answer.

(d) Residents who may require additional assistance to evacuate.

(e) The need for a systematic approach and record keeping.

6.17 Teams conducting door knocking will need to be briefed on the time spent at each door considering the need to alert the entire building's occupants and the time available.

6.18 It is important to note where flats have been cleared. This can be achieved using the door marker crayon and door marker tags in the F.I.R.E bag and recorded on a Forward Information Board (FIB).

6.19 When deciding whether or not to force doors to any flat the IC should consider the potential breach of compartmentation and the effects this may have on the entire building.

How to manage increased risk

6.20 In order to conduct an emergency evacuation and/or mass rescue it is highly likely that teams will be placed at a greater level of risk than is normally tolerated at a high rise incident. For example, in order to conduct systematic door knocking teams are likely to be required to work above the fire without extinguishing media. This decision should be recorded in a KDL.

6.21 IC's should only undertake higher risk activities if the benefits are proportionate, such as saving saveable life. This section supports the IC's risk assessment process.

6.22 Where resources and the capacity of the rising main allow, teams with firefighting jets should be strategically positioned to protect the escape routes of teams committed above the bridgehead without extinguishing media. The locations of these teams should take into account the need to keep doors on to escape routes closed as far as possible. The IC must consider the priority of protecting the escape routes against the priority of fighting fire.

6.23 When managing increased risk, the following control measures must be in place (in addition to those detailed in paragraph 5.43) for teams working above the bridgehead in BA but without extinguishing media:

(a) immediate withdrawal to the bridgehead in the event of the loss of radio communication and telemetry signal.

(b) external spotters observing the external faces of the building with established communication lines. The IC should consider withdrawal of crews if communication with external spotters are lost and cannot be re-established.

(c) stairwell safety teams.

(d) only forcing entry into flats in which crews are confident that there is no fire spread.

Use of stairwell safety teams

6.24 Firefighters committed above the bridgehead without extinguishing media are at increased risk of harm from deteriorating fire conditions below or above them. In order to protect them the IC must deploy stairwell safety teams to:

(a) Monitor the temperature and conditions in the stairwell and around lobby access doors with T.I.Cs and assess the safety of teams. Instigate a tactical withdrawal if indications of a sudden or significant rise in temperature or deterioration in conditions are observed.

(b) Report on fire/smoke conditions and ventilation of the escape route/s to the sector commander fire.

(c) Update the bridgehead and teams working above it of any change in conditions.

And also to:

(d) Provide advice and support to residents and members of the public within the stairwell.

(e) Provide residents with fire escape hoods if necessary.

6.25 Teams committed to protect the stairwell should comprise of a minimum of two, follow normal BA procedures and where resources allow, be led by a minimum of leading firefighter. Each team should have a GDM to monitor air conditions for members of the public in the stairwell.

Physiological strain of high rise firefighting

6.26 High rise firefighting, and in particular ascending stairs will cause core body temperatures to rise and firefighters are at risk of illness caused by the physiological strain. Officers should be mindful of this when tasking teams.

6.27 Physiological trials have indicated that, in order to manage the level of physiological strain in BA, firefighters should not ascend stairs vertically greater than 100m (or lower if they are required to perform a significant firefighting task before descending or if there are arduous conditions on the ascent).

6.28 As a rough guide, 100m will normally equate to approximately 30 floors in a residential high rise building.

6.29 It is recommended that BA teams ascending stairs take one minute breaks every ten floors as a minimum in order to manage their exertion levels, regulate their breathing and heart rate.

6.30 In circumstances where teams are required to ascend multiple floors to reach the bridgehead without the use of a firefighting lift, consideration must be given to facilitating the rest and cooling of firefighters within a staging area or bridgehead. This will enable BA teams to lower core body temperatures prior to commitment.

6.31 EDBA wearers are more likely to be at risk of physiological strain (including increased core body temperature) due to the weight of the BA set and the potential duration of the wear.

Use of Extended Duration Breathing Apparatus (EDBA)

6.32 Due to the extended duration provided by an EDBA set, it is beneficial for use at high rise incidents for the following tasks:

- emergency teams
- extended travel distances such as working on upper floors carrying out evacuation and mass rescue
- stairwell safety teams.

The IC should consider reserving EDBA for this purpose and requesting additional resources as required.

7 Review and trade union consultation

7.1 This policy will be reviewed monthly by LFB and Fire Brigades Union (FBU).

7.2 Other triggers for review include:

(a) The introduction and retro-fitting of evacuation alarms in high-rise residential buildings.

(b) The retro-fitting of sprinklers in high-rise residential buildings.

(c) The outcomes of any national or regional research into the practicality of evacuating high rise residential buildings built to support a Stay Put strategy.

(d) Legislation requiring landlords to devise evacuation plans for high rise residential buildings built to support a Stay Put strategy.

(e) Legislation requiring landlords to provide personal emergency evacuation plans (PEEPs) for residents needing additional help to evacuate their home.

(f) The introduction of personal gas detection equipment into the LFB.

(g) The introduction of smoke curtains/blockers into the LFB.

8 References

8.1 The following policies are relevant to and should be read in conjunction with this policy:

- Policy number 047 - Sprinklers and drenchers
- Policy number 263 - Major incident procedure
- Policy number 412 - Mobilising policy
- Policy number 466 - Respiratory protective equipment - breathing apparatus – operational procedures
- Policy number 513 - Premises information box systems
- Policy number 518 - Messages from incidents
- Policy number 790 - Fire survival guidance calls
- Policy number 800 - Management of operational risk information
- Policy number 803 - Search and rescue procedures within structures
- Policy number 829 - Hoarding
- Policy number 883 - Tactical ventilation
- Policy number 907 - F.I.R.E Bag - technical information
- Policy number 977 - All incident considerations – NOG
- Policy number 985 - Operational safety management - knowledge skills and competence - NOG
  Policy number 987 - Incident command - Organisation at incidents – NOG

Appendix 1 - Firefighting shafts

1 Firefighting shafts are a means of enabling firefighters to reach a point within a building in a position of relative safety from which to commence their firefighting and rescue operations.

2 The detailed recommendations on the provision of firefighting shafts within buildings are contained within BS 9999 and Approved Document B (Building Regulations). In brief a firefighting shaft will contain a firefighting stair, a firefighting lobby with a dry or wet fire main and a firefighting lift. There will always be a provision to ventilate a firefighting shaft either mechanically or manually. In large complexes with a variety of uses, firefighting shafts may serve separate parts of the complex. For example, in a complex consisting of high rise offices over a shopping centre, the offices may be provided with a dedicated firefighting shaft that does not serve the shopping centre.

Appendix 2 - Firefighting and fireman's lifts

1 Firefighting lifts are provided in high rise buildings to enable firefighters and their equipment to reach the upper floors speedily and without undue fatigue. Firefighting lifts are dedicated lifts that have a special electrical circuit and a fire control switch at the fire brigade access level (usually at ground floor). Wherever possible a firefighting lift is not smaller than an eight person lift and will carry a load of up to 850kg. The electrical supply to the lift is independent of the other circuits in the building.

2 The term "fireman's lift" describes a normal lift, in which is fitted a "fireman's switch" at ground floor or at firefighter access level which is used to override the normal lift controls. These were normally installed in buildings prior to or around the 1980s. As with a normal lift it will not have all the structural protection, protected services, duplicate power services, functionality, or overall resilience that a more modern standard BS EN 81-72: 2003/2015, BS 5588 Part 5 or BS 9999 firefighting lift will have.

3 The term "Firefighting lift" describes a lift installed to BS EN 81-72: 2003/2015, BS 5588 part 5 or BS 9999, and is a lift fitted with additional protection, functions, and controls that enable it to be used under the direct control of the fire service when fighting a fire. The firefighting lift is a development of the type of lift known as a "fireman's lift". Although existing "fireman's lift" installations may in some circumstances be refurbished, in new buildings and those under going significant changes, the aim should be to provide lifts that comply with the current codes of practice. Further information can be sourced from BS EN 81-72 2015 – Lifts: Firefighters lifts.

4 It is not possible to determine whether or not a lift is a firefighting lift or a fireman's lift visually. The type of lifts should be identified during the planning phase and during PRA visits and recorded in the ORD. Older lift installations may not provide all the facilities that modern firefighting lifts, conforming to the latest European standard will offer. In these instances, lift facilities and functions should be checked during the planning phase for appropriate use at an incident.

5 The minimum features to be considered when assessing whether a lift is safe for use by firefighters should include the provision of:

- Firefighter recall switch at access level
- Firefighter in-car controls
- Firefighter communication system
- Floor indicators

6 Early control of the firefighting lift(s) must be taken by switching the fire switch to the 'on' position. If any doubt exists as to which floors a lift serves, its use should be avoided.

7 The fire control switch varies according to the manufacturer but is of a positive on/off type and is located adjacent to the firefighting lift. There are a number of different types e.g. a switch contained in a glass fronted box or metal fronted padlocked box, or of lift key type. In all cases the position of the control switch should be indicated by a suitable notice. For a modern standard firefighting lift installation, the expectation is that when the control switch is operated to the 'on' position it will provide the following action:

(a) If travelling upwards the lift car will stop and return to the access floor level, while if the car is travelling downwards, it will continue to travel and stop at the access floor level. At the access floor level, the doors will then open and remain open. The buttons provided at each floor landing and inside the car will be inoperative during this period.

(b) When the lift reaches the access floor level the landing call point buttons will remain inoperative, but the car buttons will resume control. Because of this, where resources allow, a firefighter is to be detailed as the firefighting lift operative to maintain control of the lift and is to remain in control until relieved of this duty. This firefighter is to have a radio for communication with the bridgehead and the IC.

(c) Modern lifts require the close door button to remain depressed until the door has closed fully and the open door button depressed until the door has opened fully. This is a safety mechanism to minimise the risk of firefighters becoming caught in a fire in the lift lobby area.

(d) When two lifts are side by side it is possible that both will be controlled by the fire control switch; this will be the case if, on the operation of the switch, both cars return to the access floor level and the doors open and remain open.

(e) The lift is to be taken to the bridgehead when firefighting commences so that it is available to transport any rescued people quickly to ground floor level. The lift operative must closely monitor radio traffic to ensure that the lift is used to greatest effect when required at either the bridgehead or ground floor. If the lift is not available to transport casualties to the ground floor, consideration must be given to requesting additional resources to assist.

(f) When a firefighting lift is used for emergency purposes care must be taken not to overload it and, when the emergency is over, the fire switch is to be returned to the off position, the cover closed and secured and one of the landing call buttons operated to check that the lift has been restored to normal working.

(g) The use of passenger lifts that are not identified as a firefighting lift should be avoided and must not be used for firefighting purposes. Normal lifts do not have a dedicated power supply and will not be under the control of the fire service personnel. It is possible for a normal lift to be called to the floor involved in the fire and the doors to open automatically, exposing the occupants to potential harm.

Appendix 3 - Dry rising mains

1 A dry rising main (DRM) consists of an empty pipe installed vertically in buildings over 18 metres in height, with a fire service inlet at the lower end and outlets at various levels throughout the building. DRMs may be installed in any building as a compensatory feature to address other factors such as the nearest hydrant, poor perimeter access or layouts within buildings which exceed 45m from the fire appliance to the furthest point.

2 The advantages of using a DRM are that it:

- Reduces the time taken to supply water to upper levels
- Reduces the amount of hose required to reach the fire
- Reduces frictional loss in the delivery supply
- Lessens the amount of equipment needed
- Reduces effort required by firefighters
- Helps to keep stairways clear of hose

3 A DRM can deliver at least 1500 litres of water per minute. If the requirement for water exceeds the DRM capacity, the IC should consider augmenting supplies.

4 The inlet box will have the words 'DRY RISER INLET' in 50mm lettering on the box door for identification. They have a 65mm instantaneous female outlet on each floor or in some cases alternate floors. Riser outlets should be located either in a protected lobby or approach stairway. The outlets should be secured in the closed position. In a residential building, it should be noted that the lobby may be the corridor.

5 A drain valve is connected at the inlet and allows the system to be drained on completion of the incident. An air valve is normally fitted at the highest point in the riser to facilitate drainage by allowing air to enter the riser.

6 The British Standard – BS 9990:2015 includes the requirement for the provision of isolation valves at intervals not exceeding 10m so that sections of the fire main can be isolated to enable repairs to be carried out. The valves should be secured in the open position by a chain and padlock or incorporated within a monitoring system to indicate when the valve is not fully open. (However, these are sometimes considered an overprovision in DRM installations and may not therefore be present. They should however be found in new WRM installations.)

7 The standard charging pressure for a DRM is 10 bar at the inlet.

8 DRMs have a finite capacity to deliver water. If multiple jets are in use, it may not be possible to achieve optimum flow rates or recommended operating pressure for individual branches. Branch collar and flow settings can be used to improve water distribution between all jets in use.

9 Where two separate rising mains exist within the same building, the management and identification of branches must be strictly controlled and communicated between sector commanders.

Appendix 4 - Wet rising mains

1 Wet rising mains may be fitted in all buildings over 60 metres in height (as of 2006 buildings over 50 metres in height) due to the excessive pressures required to pump water beyond this level.

2 Wet rising mains consist of vertical pipes similar to the dry rising main system with landing valves at each floor. The pipe system is connected to a permanent water supply, normally a tank, fed from the town mains. Duplicate automatic pumps, one duty and one standby supply this water to the pipe system.

3 The tanks are fitted with an automatic warning system to indicate a low water level.

4 At protracted incidents or where there is a high demand for water, the wet rising main tank may need to be augmented.

5 Wet rising mains are designed to supply 1500 litres per minute for 45 minutes as a minimum. Due to the height of the building and the pressures used, water pressure reduction valves are fitted to the outlets at each floor.

6 If the WRM should fail, the IC should identify whether the system has isolation valves installed and use these to optimise water supplies to the outlets being used.

7 Buildings constructed prior to 2006 will have outlet pressures of 4 to 5 Bars. Changes to BS 9990:2015 now recommend an outlet pressure of 8 Bars, this recommendation does not affect installations installed before this date.

Appendix 5 - Water suppression systems (sprinklers)

1 These may be found in commercial, residential and multiple use high rise buildings (and since 2006 has been a requirement to be installed in residential buildings over 30m) and can play an important part in fire suppression. Sprinkler installations comprise of a system of pipes erected at or near the ceiling of each floor and are connected (through a series of valves) to one or more dependable water supplies. The installation of sprinkler systems may enable larger compartment areas with significant fire loadings to be constructed. It is important to understand the system installed and how it operates during familiarisation visits.

2 Sprinklers perform three functions: to detect fire, to attack fire and to give an audible warning.

3 All residential buildings over 30m and built after 2005 should have the facility to isolate the sprinklers per flat or per floor.

4 The full normal, augmented or special attendance, as appropriate is to be ordered to a call for a sprinkler gong or head actuating.

5 If no fire is apparent, a thorough search of the building is to be made.

6 Sprinkler gongs are not to be shut down by the Brigade. The cause of the operation of the gong is to be investigated and any defect found and reported to the responsible person.

7 On arrival a member of the team should be sent to the main stop valve in a commercial premises or on the floor controls for residential, so that:

(a) They can open the valve if they find it closed, on the orders of the IC.

(b) They can ensure that the valve is not closed except on the orders of the IC.

8 Where the water supply can be augmented, via a Brigade inlet, the pump should be set in ready to increase the pressure should a large number of sprinkler heads be operating at the same time.

9 The sprinklers should not normally be turned off in order that the fire may be fought with jets or spray branches.

10 If extra water is needed, it should not be taken from the main supplying the sprinklers unless it is of a large size.

11 Always check the area where the sprinklers have activated to make sure the fire is out and not hidden under stored items.

12 If for any reason the water supply to the sprinklers cannot be turned off, consider damage control to avoid unnecessary water damage. Water discharge from single sprinkler heads can be dealt with by tying the female coupling of hose under the sprinkler head and running the hose out of the building.

13 Sprinkler floor isolating valves may be fitted to the system to allow for maintenance or repair of part of the sprinkler system.

14 Residential systems can have isolation valves located within the flats, outside the individual flats (ceiling mounted) or whole floor isolation points located in service risers.

15 Where fire control centres are provided often the sprinkler system is fully monitored. Therefore, there should not be any need to send a FF to the stop valve. The IC should liaise with the fire control centre to confirm this.

Messages - Details of the number of sprinkler heads actuated are to be included in the stop message for every fire which occurs in a building with sprinklers.

Water mist systems

16 Water mist systems are increasingly being used in the built environment but are still classed as water suppression systems. They may not have all the design features of a traditional sprinkler system. Additionally, they will fall into different categories depending on the risk they are designed to protect.

17 For more technical detail reference can be made to the British Standard Draft for Development series 8489-1:2016 – Industrial & Commercial & BS 8458:2015 Residential & Domestic systems.

Appendix 6 - Controlled dividing breeching – Protocols for use

1 Only one controlled dividing breeching should normally be used in a rising main. This should normally be connected to the DRM via the short length of 70mm DRM outlet hose to reduce strain on the DRM outlet.

2 The second jet (to protect the egress of firefighting teams) can be taken from the dividing breeching.

3 Where two jets are supplied via dividing breeching, a burst length in one hose line will cause a reduction in the quantity of water supplied to the second jet.

Appendix 7 - F.I.R.E. System

1 The F.I.R.E system is designed to be a "Grab & Go" solution, to efficiently and systematically transport the essential items of equipment required at the bridgehead in the early stages of the incident.

2 Although not intended to be absolutely prescriptive, using the F.I.R.E system and distributing equipment as detailed below, allows the risk critical equipment to be transported in a systematic way to the bridgehead by a minimum of 4 personnel.

3 Example of division of tasks and equipment - Team of 4:

- **Sector commander fire/bridgehead commander**
  F.I.R.E bag (Policy number 907 - F.I.R.E Bag - technical information) and appliance tablet
  T.I.C
  Halligan bar (FEE)

- **Entry control operative**
  IEC Pack and AED
  ECB
  F.I.B
  Hydraulic door opening tool (in holdall)

- **2 x BA Wearers**
  SDBA Set each
  2 lengths of 45mm hose each - secured with carrying straps or carried as a Cleveland roll

4 As soon as practicably possible, the F.I.R.E system should be augmented as a minimum with:

(i) Sufficient hose for two hose lines to reach the affected area of the building

(ii) An additional branch

(iii) Bracket and tripod for BA board

(iv) Access keys/codes

(v) Floor plans (if available)

(vi) Extinguisher

(vii) Smoker blocker

(viii) Fire escape grab bag

Further information on the F.I.R.E system is available via the F.I.R.E. system briefing document

Appendix 8 - Buildings with combustible cladding

1 Since the Grenfell Tower fire, all responsible persons for buildings with aluminium composite cladding (ACM) were directed by the government to test their ACM to determine the combustibility of the products on their buildings. Fire safety inspecting officers subsequently carried out fire safety inspections on those buildings with combustible cladding.

2 The purpose of the inspections was to ensure the general fire safety measures within these buildings were properly installed, maintained and managed. This included inspecting fire doors, fire compartmentation, smoke detection systems (where installed) and ventilation arrangements. Fire crews supported these inspections and where necessary have updated tactical plans on the operational risk database (ORD).

3 Over 200 buildings in London have been identified as having cladding systems and compartmentation issues that do not meet the required standard and subsequently present a risk of uncontrolled internal and external fire and smoke spread. The responsible persons of these buildings have implemented interim control measures which should a fire occur, will support a full evacuation of the building.

4 If 'stay put' advice is not supported, then a range of interim mitigating measures will be required in order to support the responsible person's simultaneous evacuation strategy, which could include a waking watch or a communal alarm in order to safely alert and evacuate the residents of the building.

5 Operational crews are expected to familiarise themselves with such buildings on their station grounds and ensure a revised tactical plan is prepared to reflect these arrangements. Policy number 800 - Management of operational risk information provides guidance on undertaking a premises risk assessment and the development of a tactical plan. The plans should focus on identifying firefighting facilities installed in the buildings and have a good understanding of the fire safety measures in place to protect the lobbies, corridors and staircases should a fire occur. Consideration needs to be given to the occupants evacuating down the staircases when setting up a firefighting operation.

Appendix 9 - Key point summary – High rise firefighting

Information on task or event

- MDT
- Plans
- Premises Information plate
- Persons reported
- Potential fire spread
- Evacuation strategy
- Building design
- Fire Survival Guidance
- Evacuation

Information about Resources

- PDA
- Aerial
- Police/Ambulance/Local Authority
- Utilities
- Firefighting lift
- Wet/Dry riser
- Sprinklers
- Hydrant location
- Ventilation arrangements

Information about Risk and Benefit

- Life risk
- Fire spread
- Signage
- MDT
- Processes within building
- Plant rooms
- Potential for collapse
- Gas
- Electricity

Gathering and thinking

Objectives

- Save life
- Locate fire
- Prevent fire spread
- Extinguish fire
- Evacuation
- Safety of personnel
- Ventilation

Communicating

- Radio channels
- Fire Survival Guidance
- Police/Ambulance/Local Authority
- "High rise procedure implemented" if; bridgehead established/risk assessed/access and egress is secured and maintained/ a charged jet deployed.

Controlling

- Sectorise
- Fire Survival Guidance and Search co-ordinator
- Evacuation strategy
- Cordons
- Safety Officers

Plan

- Site appliances leaving access for others
- Safety cordons
- Secure water supply– twin hydrant and DRM with 70mm hose and charge the DRM.
- Order resources
- Secure firefighting lift
- Conduct DRA to establish the bridgehead
- Minimum 1Lff and 3 FFs to bridgehead
- Fire Sector Commander
- F.I.R.E system:
  - Minimum of 4 people
  - F.I.R.E bag
  - 45mm hose sufficient to set up attack (min 4 lengths).
  - 1 x ECB
  - 2 x BA sets
  - First aid and resuscitation equipment
  - Breaking in gear
  - T.I.C
  - Access keys/codes
  - Floor plans
  - F.I.B
- Adequate weight of attack
- Additional resources to bridgehead
- Safety team – internal and external;
- Stairwell protection team – Ventilation arrangements
- Jets to cover surrounding risks
- Rescues
- Co-ordinate search
- Evacuation strategy
- Communication structure
- Lobby sector

Document history

Assessments

An equality, sustainability or health, safety and welfare impact assessment and/or a risk assessment was last completed on:

EIA	15/10/08	SDIA	H - 15/11/11	HSWIA		RA	17/05/13

Audit trail

Listed below is a brief audit trail, detailing amendments made to this policy/procedure.

Page/para nos.	Brief description of change	Date
Throughout	This policy has been protectively marked.	21/06/2011
Throughout	This policy has been reviewed as current. Minor changes have been made throughout and the Key Point Summary has been updated to reflect current procedure. Please read to familiarise yourself with the content.	18/11/2011
Throughout	Minor wording corrections added. Sections now correctly referenced.	23/11/2011
Page 16, para 8	Updated reference to form 5566 as this has now been withdrawn and replaced with a new procedure.	10/05/2012
Pages 11 and 12	Cross reference links to policies added to paragraphs 7.30, 7.35 and 7.37.	13/12/2012
Page 14	Reference page has been updated with additional policy numbers.	13/02/2012
Throughout	PN521 has been replaced with PN800.	22/02/2013
Page 12	Changes made following review of policy in response to an SAI event.	26/11/2013
Page 1 & page 22	Changed 'Protect' to 'Official' in line with new security marking scheme.	07/08/2014
Page 2and 22	Key point summary removed from page 2 and KPS flowchart added as appendix 7.	28/08/2014
Page 2 Para 1.1 Page4 Para 2.29	Reference made to PN 793 Compartment Firefighting. Minor amendment to wording.	11/09/2014
Page 21	'Subject list' table - template updated.	29/01/2015
Throughout	Policy updated to reflect national GRA 3.2. and associated LFB risk assessment	01/06/2015
Risk Assessment Throughout	Amended to include controlled dividing breeching. Updated to reflect introduction of Fire Initial Response Equipment (FIRE) Bag.	10/07/2017

Page/para nos.	Brief description of change	Date
Throughout	Changes made following review of policy in response to event.	17/06/2021
Page 9 Page 26	Reference made to the provision of an appliance tablet forming part of this system when establishing the bridgehead. Appendix 7 updated to include appliance tablet.	17/06/2022
Throughout	Cross references updated.	16/09/2022
Page 26	Appendix 7 updated to show the AED is now separate from the IEC pack on the entry control operative.	27/07/2023
Appendix 5	Sprinklers content added to this appendix.	23/04/2024

Subject list

You can find this policy under the following subjects.

Cable entanglement	Buildings and Structures
Incident Management	Flowchart - Key Point Summary (KPS)
Wet rising main	Tower blocks
Special risks	Mobile Data Terminals (MDT)
High Rise Buildings	High Rise
Firefighting shafts	Firefighting lift
Firefighting - Special risk areas	Firefighting – Buildings
Firefighting	Dry Rising Mains
GRA 3.2	

Freedom of Information Act exemptions

The reason this policy has been securely marked:

Considered by: (responsible work team)	**FOIA exemption**	**Security marking classification**
Operational Procedures	Fully exempt, see FOIA592.1 request.	Official – Ops Security Official – Health & Safety