National Operational Guidance

Fire survival guidance

Introduction

During a fire, people at risk may be unable to reach a place of safety due to::

- Their physical limitations
- The location and behaviour of the fire
- Physical limitations of the environment

During these situations, the provision of fire survival guidance (FSG) may be necessary to improve their chances of survival. FSG is defined as the advice and guidance given by fire control personnel to people at risk, who are directly affected by fire, heat or smoke and cannot get to a place of safety.

FSG will follow the three principles of emergency call handling to:

- Assess
- Protect
- Assist rescue

This guidance covers the provision of a single FSG call within specific environments. However the principle of FSG can be applied to other fire situations, as well as being provided to multiple callers.

FSG may need to be passed on by someone else; for example, if a translation or text relay service is being used, or if the caller is relaying information to others. This will not change the advice being given; however, fire control personnel may need to tailor their call handling techniques.

This guidance document should be read in conjunction with:

- Emergency call handling people at risk, which will provide guidance on evacuation, reassurance to callers and joint situational awareness
- Fires and firefighting, which will provide additional details on fire behaviour and development
- Unstable or collapsed structures, which will provide additional details on signs of symptoms of a failing building

Hazard	Controls
Calls from or about people at risk trapped within a building fire	Situational Awareness: fire survival guidance - building fire Protect people at risk: fire survival guidance – building fire Assist rescue for people at risk: fire survival guidance – building fire
Calls from or about people at risk trapped by wildfire	Situational Awareness: fire survival guidance - wildfire Protect people at risk: fire survival guidance- wildfire Assist rescue for people at risk: fire survival guidance - wildfire
Calls from or about people at risk trapped within a transport fire	Situational Awareness: fire survival guidance – transport fire Protect people at risk: fire survival guidance – transport fire Assist rescue for people at risk: fire survival guidance transport fire
Call involving people on fire	Situational Awareness: fire survival guidance – people on fire Protect people at risk: fire survival guidance – people on fire Assist rescue for people at risk: fire survival guidance – people on fire

Hazard: Calls from or about people at risk: Trapped in a building fire

HAZARD KNOWLEDGE

If a person is at risk due to immediate danger from flames, heat or smoke, there is a risk of serious injury or death.

It is likely that operational personnel will be required to rescue people at risk. Although the personal protective equipment (PPE) and safe systems of work reduce the likelihood of harm, there is still a risk to operational personnel in the building.

To accurately provide fire survival guidance (FSG), it is important that fire control personnel have an appropriate level of understanding of fire behaviour and the effects of fire.

Fire behaviour and effects of fire

Flames - Flames will generally identify where the fire is most intense and will tend to be confined to some extent in the room of origin by the walls, floor, ceiling and closed doors. Flames within vertical shafts, such as stairwells, will rapidly spread upwards.

Heat – Fires release enormous amounts of heat energy. The extremely hot air and gases produced are very buoyant and will tend to collect initially at ceiling level in a steadily deepening layer.

Smoke – Smoke can be produced at a very rapid rate and can fill entire buildings within minutes. As well as causing breathing difficulties, smoke will severely impair visibility resulting in disorientation, even in familiar surroundings.

Smoke may have severe toxic effects, resulting in irrational behaviour, nausea, and fatigue. Inhalation of hot gases and smoke may cause severe damage to the internal tissues of the throat and lungs, and may even cause unconsciousness or death.

The less time people at risk are exposed to fire and smoke, the chances of survival are increased. The length of time people at risk are exposed to the effects of fire may depend on:

- Location of nearest appliances
- Access and egress for operational personnel
- Operational personnel being able to locate people at risk
- Location of people at risk in relation to the fire
- Ventilation within the building including:
    - Natural ventilation, such as open windows
    - Ventilation, such as heating, ventilation and cooling (HVAC) systems

As the situation changes or escalates, it may not be safe for people at risk to remain in the room and receive FSG. This could be due to:

- Potential flashover
- Potential backdraught
- Gas ignition
- Firespread

- Failure of building safety systems
- Building collapse

For more information refer to Fires and firefighting: Flashover, backdraught and fire gas ignition.

Control measure – Situational awareness: F**ire survival guidance – building**

CONTROL MEASURE KNOWLEDGE

Situational awareness will support fire control personnel to identify the hazards and risks associated with the incident. This will enable them to share risk-critical information with the personnel attending, provide appropriate fire survival guidance (FSG), and react dynamically if the incident or the situation of the people at risk changes.

Situational awareness can be gathered from:

- Questioning callers
- Occupant and premises risk information held on the mobilising system for example Site Specific Risk Information (SSRI)
- Risk information shared by other agencies
- Situational updates from operational personnel
- Visual footage or images

Known risk information may not be up-to–date, therefore appropriate assessment and questioning should be carried out to determine if identified hazards and risks still apply, and if there are any additional factors to consider.

There are several factors which may affect the advice given to callers by fire control personnel, as well as the ability for operational personnel to rescue people at risk. These include:

- The immediate threat to people at risk, for example:
    - The location of the fire in relation to their location
    - The effects of the fire they are being exposed to, for example flames, smoke or heat
- The condition, number and ability of people at risk, for example:
    - Existing physical injury, illness or condition, preventing them from leaving safely
    - Disorientation or unconsciousness
    - Being non-ambulant
- The condition and structure of the building, for example:
    - Hoarding or fire loading in the building
    - Effects of the fire compromising the structure of the building
    - Location of windows and doors

- Layout of the building

To ensure there is joint understanding of risk, relevant information gathered should be shared with operational personnel and other responding agencies.

Due to the dynamically changing situation, and potential escalation of the fire, it is vital that information gathered is continually reviewed for accuracy.

A change in situation may affect the ability of operational personnel to rescue people at risk, or mean that people at risk are in imminent danger. In these circumstance people at risk may be required to evacuate immediately. This could be due to:

- Firespread and smoke travel
- Potential flashover or backdraught
- Signs and symptoms of fire gas ignition
- Signs and symptoms of building failure
- Physical condition of people at risk

Any change in advice to the caller or fire situation should be communicated to operational personnel immediately.

If possible, a method of contact should be maintained with the caller until people at risk have been rescued. This contact will ensure that regular re-evaluation of the incident and the caller's situation continues throughout, and that any change of advice can be passed on to people at risk.

If a call is disconnected before the people at risk have been rescued fire control personnel should attempt to re-contact the caller to continue the advice until arrival of operational personnel.

STRATEGIC ACTIONS

Fire and rescue services should*:*

- Ensure up-to-date risk information can be accessed by fire control personnel
- Ensure inaccuracies in risk information are resolved and systems updated post incident
- Consider the use of system based call prompts or aide memoirs to assist fire control personnel in gaining situational awareness
- Consider the use of electronic systems to share information between the fire control room and the incident ground to improve joint situational awareness
- Consider the use of electronic systems to share information between the fire control room and other responding agencies to improve joint situational awareness

TACTICAL ACTIONS

Fire control personnel should:

- Use professional judgement, call handling techniques and available risk information to gather sufficient situational awareness to allow the provision of fire survival guidance
- Use situational awareness to assist operational personnel
- Identify the immediate threat to people at risk from fire or smoke in a building
- Establish the condition, number and ability of the people who are at risk from fire or smoke in a building
- Gather information on the condition and structure of the building
- Identify the location of people at risk and their location in relation to the fire
- If possible maintain contact with the caller until people at risk have been rescued
- Establish a method of recontacting the caller if required
- Continually reassess the situation and recognise the signs of potential incident escalation, including fire development and signs and symptoms of a failing building
- Consider instructing people at risk to immediately evacuate the building, if it is recognised that they are in immediate danger
- Use ongoing situational awareness to amend fire survival guidance as required
- Continually exchange information between the fire control room and operational personnel

Control measure– Protect people at risk: fire survival guidance – building

CONTROL MEASURE KNOWLEDGE

To protect people at risk from a fire in a building, the advice given should be based on knowledge and understanding of fire behaviour and development.

Gather together

If there are several people at risk in a building, it may be advantageous for them to gather in one location because:

- Fire survival guidance (FSG) can be passed from fire control personnel to a single person, who can consistently relay the advice to others
- It reduces the likelihood of multiple FSG calls being received by the fire control room
- It supports easier and quicker rescue of multiple people from a single location

However, people at risk should not move into one room or location if doing so exposes them to additional risk. Fire control personnel should assess whether this is appropriate guidance when gaining awareness of the situation.

Move away from fire

The risk of injury from flames, heat and smoke should be reduced the further away people are from the location of the fire.

When advising people to move to another room or location, consideration should be given to the following:

- Fire gas ignitions can affect rooms adjacent to the fire location; it is also possible for the fire to cause ceilings to collapse
- Doors that feel hot to the touch are likely to be affected by the fire and should not be opened
- A window can provide both fresh air and a means of leaving the building if the situation escalates, or if external rescue by operational personnel is required
- The person at risk may be on a phone that is only available in their current location
- If the caller is unable to remain on the phone when moving to another location, consideration should be given to:
    - Advising the person to redial 999 so that FSG can be continued
    - Providing sufficient FSG before allowing the caller to hang up the phone

Close doors

A standard door will usually contain the spread of fire due to the inherent fire resisting properties of the materials used. Standard doors should also lessen the spread of toxic smoke and fumes into otherwise unaffected parts of the building for a short amount of time. They also reduce the flow of air to the fire, reducing fire growth and spread.

The more closed doors between people at risk and the fire, the safer they will be and the more the spread of the fire will be reduced.

Block doors

Although closing doors will slow the spread of smoke, considerable quantities can still pass around the door edges and through other gaps in the room, such as air vents. Cloth can absorb some of the smoke particles and filter some of the gases contained in the smoke. Placing cloth objects, such as bedding, pillows, clothing or towels, around gaps where smoke is entering, will reduce the amount of smoke reaching the room.

Cover mouth and nose

Placing cloth objects over the mouth and nose can reduce the inhalation of smoke and gases.

Stay low

Near the fire, the smoke will be hot and buoyant, collecting with the hot gases at higher levels. Further from the fire, as the smoke cools it will mix with the general air and be more evenly distributed at high and low levels.

Remaining close to the floor, as low as possible, should reduce the amount of smoke and hot gases people are exposed to.

Open window

An open window will allow smoke to leave the room and fresh air to enter; the air underneath the window will also be cooler.

When fire control personnel advise people at risk to open a window, consideration should be given to the location of the fire. Opening a window may increase the risk due to:

- Firespread on the external walls of the building
- Fire being located beneath the window, allowing smoke from outside to enter the room through the window
- The air entering the room may encourage fire development

It is important to reassess the conditions after a window has been opened, if there are any signs or symptoms which suggest an increased risk or escalation of the incident, for example:

- Signs and symptoms of backdraught
- Smoke entering through the window
- Flames visible behind the door
- Flames visible outside the window

In these scenarios, the situation should be assessed as to whether the window should be closed or people at risk told to evacuate.

If the window cannot be opened, a firm blow aimed at the corner of the pane with a hard, sharp object will help the glass to break. Glass left at the edges should be knocked out and sharp edges should be covered if possible to prevent injury.

It is important that fire control personnel confirm with the caller that people at risk have taken action and followed the advice before moving on to the next stage of advice.

The advice given may affect the tactical actions of operational personnel, for example, an open window can act as a source of natural ventilation of the building. If operational personnel then use tactical ventilation methods, it may push the heat and smoke towards people at risk. Informing operational personnel of the advice given and actions taken will allow an effective tactical plan to be produced.

STRATEGIC ACTIONS

Fire and rescue services should:

- Consider the use of system based call prompts or aide memoirs to assist fire control personnel in providing advice to protect people at risk
- Consider the use of electronic systems to share information between the control room and the incident ground about the advice and guidance that is being given

TACTICAL ACTIONS

Fire control personnel should:

- Provide suitable fire survival guidance to protect people based on their professional judgement
- Provide suitable fire survival guidance to protect people based on their knowledge of fire behaviour and the effects of fire
- Consider encouraging people to gather together in one location

- Consider encouraging people to move to another location further away from the fire
- Consider encouraging people to move to a room where there is a window or an alternative means of escape
- Consider telling people not to remain in a room immediately above or next to the location of the fire
- Consider telling people to use the back of the hand to feel the heat of doors prior to opening them
- Consider telling people to close all doors possible between people at risk and the fire
- Consider encouraging people to use cloth objects to cover any gaps around doorways or air vents
- Consider encouraging people to use cloth objects to cover the nose and mouth
- Consider telling people to open the window, using methods of breaking the glass where the window is locked
- Reassess the conditions after opening a window, and change advice where necessary
- Encourage people to remain low to the ground underneath the open window
- Confirm that people at risk have followed each piece of advice
- Inform operational personnel of the actions taken and advice given to people at risk

Control measure– Assist rescue of people at risk: Fire survival guidance – building

CONTROL MEASURE KNOWLEDGE

People who are directly affected by fire and unable to safely evacuate from a building, will need to be rescued by operational personnel. Operational personnel use four phases in every search and rescue scenario as detailed in Search, rescue and casualty care, these are:

- Locate
- Access
- Stabilise both the situation and any casualties
- Transport - to a place of safety and definitive care

Fire control personnel have the ability to assist operational personnel with all stages of search and rescue. Throughout the call, fire control personnel should continually share all information with operational personnel, both prior to and when they are in attendance. This should include information about the incident, as well as the casualty, to support a joint understanding of risk and to inform accurate situational awareness.

The information provided by fire control personnel aims to allow a swift rescue of people at risk. This should reduce the amount of time operational personnel are in the building, thereby reducing their risk of harm.

The following information should be gathered by fire control personnel and relayed to operational personnel:

- Location of all people, for example kitchen or first floor bedroom
- A description of where the location is, for example:
    - Front left window when looking from the road at the front of the building
    - First room on the right at the top of the stairs
- Age and number of people at risk
- Condition and mobility of people
- Access and egress information for the building, for example:
    - Access codes for the building
    - If the window is at the rear of the building
    - If there is a gate to gain access
- Location of the fire and fire conditions people at risk are experiencing
- Description of the smoke including:
    - How much smoke is in the room, for example, can they see across the room or can they see their hand at arm's length
    - Colour and type of smoke
    - Where the smoke is coming from
- Condition of the building, including any known risks such as hoarding

Depending on the situation the following advice to people at risk may prove useful in assisting the rescue:

- Remain near to the window or against a wall
- Use a window marker or turn the light on to identify the room you are in
- Do not hide underneath any furniture or lock yourself in a room
- If it is safe to do so, on arrival of operational personnel stand at the window and make yourself known by making noise, using visual aids or waving to them

This list is not exhaustive and consideration should be given about why people at risk were unable to evacuate initially, as this may restrict access and egress for operational personnel.

Information shared by fire control personnel with operational personnel may lead to them requesting additional resources. However, this does not remove the discretion and professional judgement of dynamic mobilising applied by fire control personnel.

STRATEGIC ACTIONS

Fire and rescue services should:

- Consider the use of system based call prompts or aide memoirs to assist fire control personnel providing advice to assist the rescue of people at risk
- Consider the use of electronic systems to share information between the fire control room and the incident ground to assist in the rescue of people at risk

- Consider the use of electronic systems to share information between the fire control room and other responding agencies to improve joint situational awareness
- Ensure inaccuracies in risk information are resolved and systems updated post incident

TACTICAL ACTIONS

Fire control personnel should:

- Pass the location of people at risk, including a visual description if available, to operational personnel
- Share the number of people at risk, as well as their condition and mobility to operational personnel
- Share information about access and egress with operational personnel
- Share information about the location of the fire and conditions in the building with operational personnel
- Consider advising people at risk to remain near to the window or against a wall
- Advise people at risk to use a window marker or turn a light on to identify the room they are in
- Advise people at risk to not to hide or lock themselves in a room
- Advise people at risk to alert operational personnel to their location by making noise or using visual aids when they arrive
- Consider dynamic mobilising to assist with the incident, including multi-agency resources