Northern Ireland
Fire & Rescue Service

# STANDARD OPERATING PROCEDURE NO 13

## High Rise Procedures

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| Version Number: | 6 |
| Version Date: | 14 January 2022 |
| Issued by: | Resilience Department |

# INDEX

# VERSION CONTROL

This document and subsequent amendments will be issued by the Emergency Response Department, Northern Ireland Fire & Rescue Service (NIFRS) Headquarters.

Amendments are detailed as below:

| No | Issued | Amendment | Prepared by | Approved by |
|---|---|---|---|---|
| 1 | 09/10/2008 | New Standard Operating Procedure (SOP) | Group Commander (GC) Entwistle | GC Synnott |
| 1 | 12/04/2010 | Change type of branch | GC Entwistle | GC Synnott |
| 1 | 23/04/2010 | Page numbers corrected | GC Entwistle | GC Synnott |
| 1 | 24/09/2010 | Jet pack inventory amended – budget lock key added | GC Entwistle | GC Synnott |
| 2 | 03/07/2014 | Revised format - consultation | Project Team | Assistant Chief Fire Officer (ACO) Ashford |
| 3 | 19/11/2014 | Issue of SOP following approval | Project Team | ACO Ashford |
| 4 | 10/12/2014 | Clarification of use of red Emergency button on TETRA radio | Watch Commander (WC) Belton | GC Martin |
| 5 | 17/12/2014 | Various – to reflect new Training Notes | WC Belton | GC Martin |
| 6 | 14/01/2022 | **Section 1.2** (Pre-Determined Attendance (PDA)) – Replacement – Buildings of 5 floors or more (now – *High Rise – Reports of a Fire*)/new PDA | Resilience Department | GC (Resilience) |
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# 1 INTRODUCTION

## 1.1 Scope

This SOP has been developed to contribute to a safe system of work for incidents in high rise buildings. For the purposes of this procedure, a high rise building is defined as a **building of 5 floors and above**.

A fire confined to within the first 4 floors of a high rise building may adopt the firefighting tactics as for a low rise building.

SOP 1 (Incident Command) details the command and control procedures for all types of incident and the procedures in this SOP mirror those detailed in SOP 1.

This SOP is to be read alongside other SOPs that assist to provide a safe system of work at a high rise incident, which are as follows:

- SOP 8 - Firefighter Emergencies;
- SOP 28 - Tactical Ventilation;
- SOP 29 - Operational use of TETRA Radio System;
- SOP 36 - Fighting Fires in Buildings.

## 1.2 Pre-determined Attendance (PDA)

| **Incident Type** | **PDA** |
|---|---|
| High Rise – Reports of a Fire | ▪ 4 Pumps (minimum of 18 personnel);<br>▪ 1 Aerial Appliance;<br>▪ 1 Command Support Unit;<br>▪ 2 Flexi Duty System Officers, of which one must be an Assistant Group Commander or above. |

## 2 SIGNIFICANT HAZARDS AND CONTROL MEASURES

| Significant Hazards | Control Measures |
|---|---|
| ▪ Fatigue, due to arduous physical activity climbing stairwells | ▪ Additional crews will be required to move equipment from the ground floor to the bridgehead, to permit a fresh team to then deploy using Breathing Apparatus (BA).<br>▪ Limit the work of the BA crews prior to deployment. Firefighters intended to be used as BA wearers must not be used for other functions requiring **high/medium** levels of physical effort, eg, transporting equipment up stairs during high rise incidents.<br>▪ Use fresh BA Teams, where possible.<br>▪ To reduce body temperature, crews ascending stairwell may consider removing helmet, gloves and opening tunic.<br>▪ Early assistance message to make up for personnel to assist, if required.<br>▪ Have relief crews at the bridgehead early to recover before being deployed.<br>▪ Ensure crews are kept hydrated. |
| ▪ Difficulty in tactical firefighting due to height of building | ▪ Make up for an Aerial appliance, which is generally effective up to the eighth floor, for:<br><br>– rescue or removal of casualties;<br>– secondary means of escape for Firefighters;<br>– observation tower;<br>– means of providing water to bridgehead or fire floor in the event of rising mains failure;<br>– external ventilation to remove the risk of flashover or backdraft, prior to internal Firefighting Teams entering a compartment;<br>– defensive firefighting where there is no life risk. |

| Significant Hazards | Control Measures |
|---|---|
| ▪ Entrapment of Firefighters due to fire-spread;<br>▪ Entrapment of Firefighters due to dislodgement of loose ceiling materials. | ▪ Locate the seat of fire and apply extinguishing media to rapidly knock down fire.<br>▪ Use of TIC to locate the seat of fire.<br>▪ BA Teams should not proceed beyond or above the seat of fire without applying appropriate extinguishing media.<br>▪ Use of jet to dislodge loose ceiling materials prior to entering compartment. |
| ▪ Inappropriate use of compartment firefighting techniques/gas cooling, leading to accelerated fire development | ▪ Use copious amounts on well-developed fire. |
| ▪ Objects and fire debris falling from height | ▪ All personnel to wear full Personal Protective Equipment (PPE).<br>▪ Position appliances outside the potential Danger Zone.<br>▪ Establish safe access/egress routes into and out of building.<br>▪ NIFRS to secure the Inner Cordon – be aware that debris may fall some distance from a building.<br>▪ Appoint and fully brief a Safety Officer.<br>▪ Request attendance of Police Service of Northern Ireland (PSNI) to secure and maintain the Outer Cordon. |
| ▪ Smoke;<br>▪ Products of combustion. | ▪ BA.<br>▪ BA Entry Control Officer (ECO) procedures.<br>▪ For comfort, wearing of BA (Aerial Operators, working at the head of a ladder, damping down, etc), wearer must insert BA Tally into the BAECO board to activate telemetry, data recording, enable selective Evacuation and Emergency procedures.<br>▪ BAECO board must be monitored at intervals commensurate with risk. |

| Significant Hazards | Control Measures |
|---|---|
| ▪ Backdraft/flashover;<br>▪ Rapid fire development;<br>▪ Effect of wind;<br>▪ Blow torch effect.<br><br>*Wind speed will increase with height of building.* | ▪ Secure firefighting media prior to entry.<br>▪ Covering jet – must be as long or longer than firefighting jet.<br>▪ Recognition of indicators of fire behaviour.<br>▪ Compartment firefighting techniques/gas cooling.<br>▪ Effective use of water.<br>▪ Keep low.<br>▪ Correct door-opening procedure.<br>▪ Ensure sufficient weight of attack.<br>▪ Tactical ventilation – ventilation only to be carried out on instructions of the Officer-in-Charge (OiC). |
| ▪ Failure of cable fixings leading to fallen cables;<br>▪ Cable entanglement. | ▪ Expect at all high rise incidents - brief teams effectively prior to entry.<br>▪ Use Thermal Imaging Cameras (TICs).<br>▪ Ensure anti-entanglement straps are in place on BA sets, with a minimum of one set of wire cutters between each BA Team.<br>▪ Early availability of Emergency Teams.<br>▪ Declare a Firefighter Emergency immediately, if entangled. |
| ▪ Gas explosions from mains gas or gas cylinders | ▪ Request a Hazmat Officer.<br>▪ Identification.<br>▪ Isolation.<br>▪ Ventilation. |
| ▪ Electrical shock | ▪ Isolation.<br>▪ Firefighter shuffle. |
| ▪ Unsafe floors and staircases | ▪ Firefighter shuffle.<br>▪ Moving in smoke and darkness techniques.<br>▪ Consider defensive firefighting where there is no life risk. |
| ▪ Disorientation due to unfamiliar and complex building layout | ▪ Information from occupier and neighbours.<br>▪ Search techniques.<br>▪ Use TICs.<br>▪ Use BA guidelines.<br>▪ Reconnaissance of similar flat on lower floor. |

| Significant Hazards | Control Measures |
|---|---|
| ▪ Risk of Firefighter Emergency due to changing conditions | ▪ Use of red Emergency button on TETRA radio to initiate Firefighter Emergency, ensuring it is in Trunked Mode (TMO).<br><br>Where deemed appropriate and due to escalating risk:<br><br>▪ Emergency Teams fully briefed, equipped and standing by.<br>▪ Rapid Intervention Team (RIT) fully briefed and standing by.<br>▪ Firefighter Assistance and Search Team (FAST) fully briefed, equipped and standing by. |
| ▪ Presence of sharps - consider present in all derelict premises | ▪ Vigilance.<br>▪ Isolation.<br>▪ Removal.<br>▪ PPE.<br>▪ Health surveillance following possible contamination. |
| ▪ Presence of illegal activities;<br>▪ Drugs manufacturing/ storage/processing;<br>▪ Explosion of improvised explosive devices;<br>▪ Anti-social behaviour;<br>▪ Violence (eg, drugs manufacturers, dealers, users, etc). | ▪ Request a Hazmat Officer.<br>▪ PSNI assistance.<br>▪ Implement SOP 15 - Improvised Explosive Devices.<br>▪ Vigilance.<br>▪ Withdrawal.<br>▪ PPE.<br>▪ Detection, Identification and Monitoring (DIM). |
| ▪ Injuries to Firefighters and members of the public due to inhalation of asbestos | ▪ Request a Hazmat Officer to the incident.<br>▪ BA.<br>▪ “Asbestos Confirmed” message passed to the Regional Control Centre (RCC).<br>▪ Cordons.<br>▪ Decontamination Strategy based on advice from a Hazmat Officer. |
| ▪ Buildings under construction or refurbishment | ▪ Extended Hazard Zones.<br>▪ Consider defensive firefighting.<br>▪ Use of Ground Monitors/Aerial appliances. |

| Significant Hazards | Control Measures |
|---|---|
| ▪ Fires on multiple floors | ▪ Maintain bridgehead 2 floors below lowest fire floor, or smoke-filled floor.<br>▪ Keep doorways closed.<br>▪ Extend Fire Sector and evacuate accordingly. |
| ▪ Relocation of bridgehead needs to be moved due to smoke-logging/stack effect | ▪ BA Teams must be informed. Deploy another team to communicate with any team already deployed.<br>▪ Incident Commander (IC) and Command Support must be informed. All personnel on the incident ground must be made aware of relocation of the bridgehead.<br>▪ RCC to be informed of relocation. |
| ▪ Disorientation/confusion caused by lack of clarity regarding floor numbers | ▪ To avoid confusion, NIFRS is to use the same numbering system as adopted by the building occupiers. |
| ▪ Obstruction/congestion by residents evacuating | ▪ Use of firefighting lifts/pre-planning.<br>▪ Use of designated stairwell for evacuation purposes only, if available |
| ▪ Manual handling injuries | ▪ Rotate crews, limited carry loads/ distance.<br>▪ Correct manual handling techniques to be used. |

# 3 OPERATIONAL CONSIDERATIONS

## 3.1 EN ROUTE

### Mobilise

- Don PPE.

### Immediate Considerations

- Strategic control of the incident should be from the ground floor.
- Consider additional Fire Service resources you may require on arrival.
- Confirm if Risk Critical Information (RCI) is available on the Mobile Data Terminal (MDT).
- Consider hazards likely to be present.

## Think through the phases of the Incident Plan

*Pump 1*

- OiC - IC (ground level).
- Firefighter (Ff) - check landing valves.
- Ff - Lift Operator with Jet pack, communications, reciprocating saw and Method of Entry (MoE) gear.
- Driver - secures water supply.

*Pump 2*

- 2IC - Fire Sector Commander (bridgehead).
- BA Team Leader (BATL) - firefighting jet with 51 mm hose and communications.
- BA - firefighting jet with 51 mm hose.
- BAECO.
- Driver - assist to secure water supply.

*Pump 3*

- OiC - water, reconnaissance, assistance.
- BATL - covering jet with 51 mm hose.
- BA - covering jet with 51 mm hose, hose branches and breaking-in gear.
- Driver - establish an Inner Cordon.

*Pump 4*

- OiC - Lobby Sector Commander.
- BATL - BA Emergency Team.
- BA - BA Emergency Team.
- Ff - equipment carrier – Emergency Air Supply Equipment (EASE) hose, Microvent resuscitator.

## Officer-in-Charge Considerations

- Focus on safety throughout.
- Direct operations from ground floor level.
- For Residential Life Risk - immediate use of BA with fully charged jet on instruction of the OiC.
- For No Life Risk – do not commit BA wearers until firefighting jets **and** covering jets are in place, unless a pre-emptive strike can be used to tackle a known small fire.
- Establish a bridgehead.
- Understand the hazards associated with high rise firefighting.
- Establish water supplies.
- Never self-deploy.
- Only permit BA Teams to enter a fire compartment with a fully charged firefighting jet.
- Establish a covering jet.

- Establish a BA Emergency Team.
- Take control of lift for firefighting.
- Liaise with other agencies.

### Arrival

- Careful approach.
- Safe appliance positioning.
- Maintain access for Aerial appliances.
- Ensure firefighting pump has access to and is in view of riser inlet.

## 3.2 IN ATTENDANCE

### In Attendance

- Confirm Pump 1, 2, 3 or 4, to determine role.
- OiC from Pump 1 to remain on ground floor as IC.
- Pump 1 or Pump 2 should locate within 18 m and in sight of the riser inlet box.
- Other appliances at main entrance or Rendezvous Point (RVP).
- Consider siting of Aerial appliances.
- Consider danger of falling debris from height.
- Carry out a $360^{o}$ of the building or send a fully briefed crew member to check and report back.

### Initial Actions

- Gather all relevant information:

  - high rise plates;
  - from residents/concierge;
  - external reconnaissance;
  - from fire panel;
  - RCI from MDT.

- Incident Commander to conduct a full Dynamic Risk Assessment – no self-deployment.
- Formulate incident objectives based on available information.
- IC to establish a suitable command structure at ground and bridgehead level.
- Use available fire detection systems and auto vents to help identify location of fire.

### Informative Messages

- Send an early informative message, stating nature of the incident, location of fire and Tactical Mode.
- Send a Tactical Mode update and informative message every 20 minutes.
- Consider Ops normal protocol (as set out in SOP 8 – Firefighter Emergencies)**.**

### Assistance Message

- Make up for additional resources as appropriate (pumps, Aerials, Northern Ireland Ambulance Service and Police Service of Northern Ireland).

### Brief Crews

- Brief crews on the priorities and plan, hazards and control measures.
- Confirm evacuation signal.
- Assembly Point is to be at the Control Point.

### Secure Water Supplies

- Drivers of Pump 1 and Pump 2 are responsible for securing water supplies.
- Use twinned 70 mm lines of hose between hydrant to pump and pump to riser inlet.
- Appoint a Firefighter to ensure all landing valves are closed from lobby (including drain valve) to bridgehead.
- OiC of third pump is to become the Functional Water Officer and is responsible to secure and maintain water supplies.
- Where fire sprinklers have been fitted, they should remain open during firefighting operations and only switched off on instruction of IC after the fire has been extinguished.

### Actions if Water Supply Fails

- Inform crews at bridgehead.
- If a landing valve is found to be open, riser should be closed down, landing valve closed and the riser recharged.
- If fixed installations are vandalised, or unavailable, consider use of Aerial appliance to provide mains and provide alternative water supply.
- If there is a wet riser water failure, check main stop valve is in the “open” position. If this is confirmed as open and there is still no water, a parity valve may be defective. To resolve, move down one floor and use a different outlet.

### Actions if a Secondary Water Supply is required

- Consider using an Aerial appliance as an external riser - generally effective up to floor 8.
- Consider lowering hose at intervals down the gap in the internal stairway, securing the hose to the stairway spindles.
- Consider passing hoses down the exterior, over a balcony or down a refuse chute, securing the hose to the building.

## Sectorise

- Lobby Sector - all floors below the Fire Sector. The Lobby Sector will include the bridgehead as the uppermost floor and the staging area one floor below the bridgehead.
- Fire Sector - one floor below the fire floor, the fire floor and one floor above the fire floor.
- Search Sector - all floors above the Fire Sector.

## Cordons

- The driver of Pump 3 is to establish an effective Inner Cordon.
- Distance to take account of risk of falling debris.
- The Outer Cordon will normally be controlled by the PSNI and should totally surround the Inner Cordon.

## Secure Lifts

*The IC declares that **lifts can be used***

- If available, firefighting lifts must be used.
- A Firefighter from Pump 2 is to become the dedicated Lift Operator.
- The dedicated Lift Operator is to secure the lift using the “Fireman’s” switch.
- Lifts must not be used above the bridgehead.
- When not in use, the fire lift is to remain at the bridgehead to aid in the removal of causalities.
- If a lift fails, additional crews should be requested immediately from the RCC.
- NIFRS personnel trapped in a lift - declare a Firefighter Emergency as per SOP 8 - Firefighter Emergencies.

*The IC declares that **lifts cannot be used***

- Internal staircases must be used.

## Establish a Bridgehead and Bridgehead Team

- The OiC from Pump 2 will become the Fire Sector Commander and will form the Bridgehead Team, 2 floors below the fire floor, consisting of:

    - the Fire Sector Commander.
    - 1 x Firefighter to act as a dedicated Lift Operator with communications, a Jet pack, reciprocating saw and breaking in/MoE gear.
    - 2 x BA wearers, with communications and TIC, will establish the firefighting jet from 1 floor below the fire floor, using a minimum of 2 x lengths of 51 mm hose. The firefighting jet must be tested prior to entry onto the fire floor.

- 2 x BA wearers will establish the covering jet from 2 floors below the fire floor at the bridgehead, using a minimum of 3 x lengths of 51 mm hose. The covering jet must always be 1 length longer than the firefighting jet.
- BAECO with communications.
- BA Emergency Team, consisting of a minimum of 2 wearers, TIC, with 2 x spare BA sets, 2 x EASE hose and 1 x Microvent resuscitator.

- An Accountability board, or Level 1 Incident Command board, must be completed to indicate the location and number of personnel working at the bridgehead.
- The location of the bridgehead must be communicated to all personnel and the RCC.

**Life Risk**

*For Residential Life Risk*

- Immediate use of BA with fully charged jet on instruction of the OiC.
- Consider the use of TICs.

*For No Life Risk*

- Do not commit BA wearers until firefighting jets and covering jets are in place, unless a pre-emptive strike can be used to tackle a known small fire and prevent escalation.
- After confirmation with the IC, BA Teams may vent the lobby and then withdraw to the staircase to await the arrival of the covering jet.

**Staging Area**

- If required to avoid congestion, a Staging Area may be established one floor below the bridgehead.
- PPE may be relaxed in the Staging Area to reduce metabolic heat stress.

**Additional Resources**

- Consider the need for make-up – Pumps, Aerials, Specials, Northern Ireland Ambulance Service and PSNI.

**Brief BA Teams**

- To be carried out by the Fire Sector Commander.

**Primary Search**

- Carry out a systematic primary search of the fire floor.
- Declare each room clear, on a room-by-room basis and log with the BAECO.

**Rescues**

- Carry out time-critical rescues and firefighting priorities.

**Fire Strategy**

- Confirm the Management Fire Strategy for the building.
- If the Management Fire Strategy requires phased evacuation and if the staircase has not been compromised, allow to continue
- From the RCC obtain and log details of residents who called 999 and check their property one-by-one.
- Where possible, consider establishing separate firefighting and evacuation staircases.
- If the Management Fire Strategy is a stay-put policy, advise occupiers during operations.

**Emergency Teams**

- A BA Emergency Team is to be appointed to standby as soon as resources permit, with covering jet.
- Consider RIT and FAST protocols as per SOP 8 - Firefighter Emergencies.

**Establish a Control Point**

- As soon as resources permit, establish a Control Point for the incident.

**Continually Re-evaluate**

- Decision Making Model.
- Incident information.
- Resources information.
- Hazards and safety information.
- Think.
- Prioritise objectives.
- Plan.
- Communicate and control.

**Secondary Search**

- Carry out a systematic secondary search of the Fire Sector to confirm if fire has spread between floors and if there are casualties.
- Thoroughly search each room by turning over debris.

- Declare each room clear, on a room-by-room basis and log on search board and incident log.
- Send informative message when secondary search is complete and all persons are accounted for.

**Search Sector**

- A Search Sector Commander is to be appointed.
- The Search Sector Commander is to confirm if there is any fire-spread or casualties in the Search Sector.
- Start on the floor immediately above the Fire Sector and work up.

**Damping Down**

- Maintain supervision.
- Do not relax PPE. If hazards are present, dust masks, respirator facemasks or BA to be worn as appropriate.
- Use TIC to confirm all hot spots are extinguished.
- Cut away as required.

**Salvage Operations**

- Ventilate to prevent smoke damage.
- After fire is extinguished, keep water use to a minimum.
- Determine salvage priorities.

**Handover**

- To occupier, PSNI or other agency.
- If not present, make every effort to secure premises.
- If not possible to secure premises, request RCC to inform PSNI.
- Return operation of lift to normal by de-activating “Fireman’s” switch.

**De-brief**

- Carry out a Hot De-brief.
- Brief crew on Critical Incident De-brief procedure if appropriate.
- Identify training needs.

## 3.3 POST-INCIDENT

**Critical Incident De-brief**

- An officer will carry this out where appropriate.

**De-brief**

- Carry out and feedback as appropriate.

**Equipment Issues**

- Replenish items used.
- Submit defects.
- Source replacement equipment via District.

**Accident or Near Misses**

- Accidents to be fully investigated and reported as per normal procedures.
- Near misses to be reported as per normal procedures.

**Medical Attention**

- Medical attention to be sought as appropriate.

**Decontamination of Personnel and Fire Kit**

- Standard procedures to be followed.
- Decontamination Strategy to be implemented on the advice of a Hazmat Officer.

**Risk Critical Information (RCI)**

- Update RCI where appropriate.

**Incident Recording Form (IRF)**

- Complete IRF within 21 days.

# 4 PRE-INCIDENT PREPARATION

## 4.1 Relevant Literature

This SOP is supported by the following supporting information, which is available from the Global Folder at G:\Document Management System:

- SOP 1- Incident Command;
- SOP 6G - Asbestos;
- SOP 8 - Firefighter Emergencies;
- SOP 27 - Working at Height;
- SOP 28 - Tactical Ventilation;
- General 8 - Radio Communications
- Operational 1 - Incident Command System;
- Operational 2 - Practical Firecraft 1 and 2;
- Operational 3 - Practical Firecraft 3 and 4;
- Operational 6 - Salvage;
- Operational 10 - Positive Pressure Ventilation;
- Operational 20 - Rick Critical Information;
- Building Construction 1 - Structures and Materials;

- Building Construction 2 - Elements of Structure and Fire Development;
- Building Construction 3 - Building Types;
- Building Construction 4 - Fixed Installations;
- Building Construction 5 - Detection Systems;
- Building Construction 6 - Structural Collapse;
- Hazmat 2 - Environmental Considerations;
- Incidents 1 - Basement and Roof Fires;
- Incidents 6 - High Rise Procedures;
- Pumps 5 - Practical Pumping;
- Breathing Apparatus 1 to 21;
- Specialist Appliances 1 - Vema 33TFL;
- Fire Science 4 - Flashover and Backdraft;
- Fire Science 9 - Ventilation;
- DCLG Operational Guidance - Breathing Apparatus.

## 4.2 Training

The following training shall be carried out, in accordance with the Area Training Planner, to prepare in advance for rescues of trapped persons:

- Application of the Decision Making Model.
- Incident Command procedures.
- Backdraft and Flashover procedures.
- Compartment Firefighting training.
- Practice hose management in staircases.
- Practical drills on station, pumps, ladders, BA, search procedures, etc.
- On and off station high rise exercises.
- BA refresher courses.
- Hazmat awareness.
- Practice MoE, focusing on composite doors and the specific techniques required to open these.
- Working at height.
- The use of the MDT to access RCI.
- Practice Anti-entanglement procedures in case of fallen cables.

All training must be recorded on the Tracking & Training database to provide an effective audit trail.

## 4.3 Pre-planning

It is vital that personnel carry out pre-planning activities as follows:

- Gain knowledge of the high rise premises you may be turned out to; water supplies; riser inlet points; floor layouts; lifts; door entry codes; “Fireman's” switch; Evacuation Strategy and if a stay-put policy is in place; fire safety engineered solutions; fire alarm panel location; RVPs; additional access routes; determine best location for siting Aerial appliance and check what floor can be reached; determine number of hose lengths required for firefighting jet and covering jet; check for high rise marker plates; develop communications solution for the building through testing.
- Following visits, complete SC61(a)s as required.
- Maintain close liaison with the responsible person on high rise premises.
- Gain knowledge of the additional resources that can be called on to assist.
- Prepare RCI for high risk premises.
- Complete regular exercises on premises that have had a Site-Specific Risk Assessment completed on them.