

Appendix

Use of Lifts for Fire fighting

If fire fighters can safely use the lift the fire-ground logistics are dramatically improved. Firefighters and their equipment can reach the upper floors speedily and without undue fatigue. However, improper use of lifts in a fire situation can expose firefighters to serious risk.

Various makes and models of lifts operate differently. Individual lift manufacturers have variation within their own products. Building pre-incident planning should include lift familiarisation to ensure that the lifts may be used safely during fire conditions.

The Incident Commander (IC) must always conduct a careful risk-versus-benefit analysis before placing fire fighters in a lift.

1. Safety

- 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.
- When a firefighting lift is used for emergency purposes care must be taken not to overload or overcrowd the lift car. Consider maximum weight and space required to don BA etc.
- Whenever any uncertainty remains as to the location of the fire floor, fire and rescue personnel should proceed on foot within the protected stair from the highest confirmed unaffected floor.
- Prior to utilising a firefighting lift the shaft should be checked to ensure that it is clear of smoke, fire or water. Directing a torch or thermal imaging camera up between the lift car and the shaft can determine the presence of any amount of smoke, fire or water.
- When fire spread is likely to involve a 'firefighting lift' or 'lift motor-room' the IC must ensure that all lift cars are taken out of service immediately and an alternative method of transport identified. The IC must re-assess the incident plan and ensure that all fire ground personnel are informed.
- Elevators may stall or act erratically under fire conditions. Fire fighters who are trapped in a stalled lift become part of the problem, as other fire fighters are needed to rescue the rescuers.
- Firefighters should never take a lift directly to the fire floor or above.
- The lift doors may open on the fire floor, exposing fire fighters in the lift to smoke and heat before they are in a position with hose lines to attack the

fire. Once lift doors are open on the fire floor, sensing devices may prevent the doors from closing, thus trapping the fire fighters.

- The lift shaft is a fire protected enclosure, but a fire of sufficient intensity can invade the shaft, and smoke, and hot gasses will certainly enter elevators that are stalled above the fire floor.
- Civilians should not be taken into the lift until it has been verified that the lift is completely safe.
- Lifts are equipped with redundant safety systems to prevent them from falling.
- Avoid the use of lifts unless they substantially improve operations. do not use lifts of questionable safety
- When travelling in a lift wear full PPC including BA and take forcible entry tools.
- Before breaking out of a stalled lift, activate the emergency stop button.
- When there is fire separation between the lifts and the fire area, it may be safe to use lifts in another building zone and then travel horizontally to the fire.
- If a lift is considered unsafe for fire fighters, unstaffed it may be adequate to transport tools and equipment to the *Forward Control Point* (FCP).

2. Operational Procedures

Once the safety of a lift has been established, then fire fighters can use it under the close supervision of the *Lift Controller*. A firefighter must be detailed as the *Lift Controller* to maintain control of the lift and is to remain in control until relieved of the duty. This firefighter should have a radio for communication with the FCP and the IC.

Lift emergency use is divided into two phases:

Phase 1, “Recall Phase” using the *Recall Fire Service switch*

- Obtain the appropriate lift key and insert it in the FIRE SERVICE switch. (Lift keys are carried on the Pumpers and are marked T7, T5, T10, T3 & T305. The FIRE SERVICE switch should have one of these ‘T’ numbers marked on it.)
- Place the lifts under independent (ACTF&R) control by switching the FIRE SERVICE switch to the ‘on’ position.
- This key-operated on/off switch labelled FIRE SERVICE is usually found in the lobby of each group of lifts on the ground floor or a level that provides direct access to open space.



Figure 1 Recall Fire Service switch

- When the control switch is switched to the 'on' position all lifts in the group (except a lift operating in FIRE SERVICE or INSPECTION mode) will:
 - If travelling upwards the lift car will stop and return to the access floor level.
 - If the car is travelling downwards, it will continue in 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
- Ensure that all lifts are accounted for at the access floor level. If a lift does not return to access level, the IC must determine the location and status of the lift and the potential for extrication and rescue.
- Leave the switch in the ON position, remove the lift key from the *Recall Fire Service switch* and enter the lift car.

Phase II, “Override Phase” using the *Fire Service Control Switch*

Emergency lifts in older buildings, and all lifts in newer or renovated buildings, have a key-operated *Fire Service Control Switch* inside the car. This allows fire crews to take full control of the lift.

The switch, labelled FIRE SERVICE, can be either a:

- two-position switch (OFF/ON), or
- Three-position switch (OFF/ON/START).

Once the lift is switched to FIRE SERVICE, it will not respond to calls from other levels in the building, including Fire Service Recall. Instead, the lift responds to the level selection controls in the car and will go directly to the level selected. The FIRE SERVICE switch also allows manual control of the lift doors.

Two position switch:

1. Insert the lift key into the switch and turn to the ON position.
2. Press the button or keypad for the required level.
3. Press the CLOSE DOOR button until the doors are fully closed. The lift will then move
4. The lift will stop at the desired level.
5. The lift doors will remain closed when the lift stops.
6. The lift doors open when the door open button is activated.
7. The lift doors close when the door open button is released.

Three position switch:

1. Insert the lift key into the switch and turn to the ON position.
2. Press the button or keypad for the required level.
3. Turn the switch to the START position. The doors will close and the lift move.
4. Once the lift is moving, return the key to the ON position immediately.
5. The lift will stop at the desired level.
6. The lift doors will remain closed when the lift stops.
7. The lift doors open when the door open button is activated.
8. The lift doors close when the door open button is released



Figure 2. Fire Service Control Switch (three position)

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 trapped in a fire in the lift lobby area.

Post Incident

When the emergency is over, the fire switch is to be returned to the off position, and one of the landing call buttons operated to check that the lift has been restored to normal working.

3. Other Considerations

Split Bank Lifts

Be aware when accounting for recalled (Phase 1) lifts that the building may be equipped with high-zone /low-zone (split bank) lifts. One lift may serve levels 1 to 8 and the other may serve levels 8 to 14.

Blind Shaft Lifts

Lifts that travel through a *blind shaft* should be avoided whenever possible. A *blind shaft* allows expedited lift access to upper levels by excluding access at intermediate level locations. A lift that malfunctions or stops within the *blind shaft* can present a difficult and time consuming forcible rescue concern.

Stairway Support

When lifts are not available, consider *Stairway Support*. Place one or more fire fighters on every other level to shuttle equipment up through the building to the *Forward Control Point*.

Locked Fire Stair doors (internal).

Many high- rise buildings have locked doors from the fire stairs to the general floor area. For buildings greater than 25 metres in height, The Building Code of Australia (BCA) stipulates that every fourth floor is to be left unlocked. Alternatively, if the doors are electronically locked, all door locks are to release on activation of the fire alarm system.