

# Operating Elevator Cars During a Building Fire

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ONE OF THE MOST DANGEROUS OPERATIONS THE fire service performs is using elevators during a building fire. Elevators provide the third most common means of transport for firefighters, after apparatus and stairs. Our history is full of incidents where firefighters have been killed, seriously burned, or injured while using elevators during a fire. The many editions of the American Society of Mechanical Engineers (ASME) A17.1, *Safety Code for Elevators* (Firefighter's Emergency Operations), and local modifications to it impact firefighters' trip to the upper floors. Different generations of Firefighter's Emergency Operations will be found in buildings in your response districts, including some buildings built before the introduction of ASME A17.1 (Fireman's Service) in the 1970s, which may have none of the protection you may be used to. The questions you must ask if you want to ensure your safety at building fires where elevators are present include the following:

- Does this building have Firefighter's Emergency Operations? If so, what edition is installed in this building?
- Do we know how to operate this edition?

The obvious answer is usually in front of us. With smoke/ fire showing from an upper floor and reports of people trapped on or above the fire floor, first-due fire companies must cover some very important aspects to ascertain their familiarity with that building. The remainder of the response expects that the fire companies stationed in the area will be familiar with the building.

Tragically, it is usually the first-due engine, ladder, or truck company that becomes trapped in the car or on the fire floor landing. Sometimes, this happens to the best-trained fire companies when equipment fails, but, at other times, it is because members fail to follow established procedures. The remainder of the first-alarm fire companies seem to make their way up to the fire area without a problem, because they know from radio transmissions what the conditions are upstairs, or they have been warned by the situation unfolding. They also could be using a different bank or group of elevators or the stairs.

Horror stories are told at the firehouse kitchen table about near or actual disasters involving fire company members responding to the upper floors in elevators. Occasionally, a



(1) A fifth-floor elevator lobby in a structure in Clearwater, Florida, in 2002. (Photo courtesy of U.S. Fire Administration and Tri-Data Corporation.)

fire department will let the true story out to the rest of the fire service so that others may learn from their department's tragedy. The lessons learned from the tragic results of the fire at The Regis Tower Fire, 750 Adams Street, Memphis, Tennessee (April 11, 1994) were published as lessons for the entire fire service, in response to an order by then-director of Memphis Fire Services, Charles E. Smith, of the Inquiry Review Board.

Unfortunately, as we all know, mistakes and errors often get buried in the paperwork, never to see the light of day. The cardinal rules of the firehouse seem to be the following:

- Keep it in the group (shift).
- Keep it in the station.
- Keep it in the battalion or division.
- Above all, *never* let Group 2 know about it.

The lessons learned that are so vital to our learning process are lost to all who could benefit from them.

## ON ARRIVAL

If you arrive at the incident as the first-due company officer, check the Fire Alarm Initiating Device (FAID) annunciator panel for the lowest floor of activation. Never take the word of building security officials. Check the panel yourself. The panel may be in the lobby or in a fire command post, which may be conveniently located at the entrance, or it could be as far as one-quarter mile away in another part of the building. The lobby contains many elements (e.g., fire command room, FAID panel,



(2) Elevator lobby. (Photos by John O'Donoghue.) (3) Fire operation panel.

elevator position panel, emergency power status) that can assist you in determining the conditions on the building's upper floors.

After you know where you are going, who is going with you, and what your assignment is, determine if you have sufficient firefighters and equipment to perform the job the incident commander (IC) has given you. Do not be afraid to ask for more help or equipment to perform the task if you need it. The successful extinguishment of a fire depends on many things; if any one of those tasks is not completed or is not feasible, the whole extinguishing effort will suffer.

Companies assigned to make the first movement up the hoistway in the elevators must don full personal protective equipment (PPE), including SCBA. Company members should also have portable radios. This equipment should be donned before stepping off the apparatus on arrival. Using elevators for transport to the upper floors entails a set of rules that include the tools and other equipment that must be carried. All of this information should be part of the department's standard operating guidelines (SOGs), which should be fully enforced. Elevator SOG protocols may include, for example, checking the elevator shaft for smoke prior to entering the car (by shining a light up the shaft in the gap between the car and the shaft wall in the lobby) and stopping every five floors to check for smoke above (again, by shining a light up the shaft). Most SOGs were written based on experience gained at other fires and problems the department deemed it necessary to correct before the problem was repeated. Many departments write their own SOGs to fit the local situation, gleaned the basic components from model SOGs, which are available on the Internet.

Most communities do not have the staffing seen in major cities such as New York City, Los Angeles, Chicago, Atlanta, and Boston. The fire does not care what your staffing limitations are and will not show any consideration for your local problems. It will kill and injure your members unless you build and enforce SOGs to protect them and work within your department's staffing limitations.

As you enter the elevator lobby with your fully trained and equipped crew, ask yourself the following:

- Do I know the status of the elevators?
- Do the elevators have full Firefighter's Emergency Operations, Phase I and Phase II?
- If so, are they all working and available at this time?
- What is the vintage of the elevators?
- Do I know how to operate them?

If the fire is reported to be on the sixth floor or lower, do not use the elevators to attack the fire. Use the stairs *after* you have confirmed that all of your cars are down on Phase I automatic recall or *after* you have captured the cars with the Phase I key and they have been emptied of passengers.

ASME A17.1-2004, *Safety Code for Elevators and Escalators*, includes a major improvement that will start to appear inside the cars of elevators firefighters will be using during Firefighter's Emergency In-Car Operation. This improvement will be dependent on the authority having jurisdiction's adopting that edition of the code. For the past few years, the A17.1 Emergency Operations Committee has been developing the "FIRE OPERATION" panel described in requirement 2.27.3.3.7 of A17.1-2004. The creation of this panel was in response to the firefighter community's request for an "EMERGENCY STOP" switch for use during Phase II operations.

In 1987, the ASME code had removed the stop switch from public access; however, even today, many firefighters still are not aware that the switch is no longer installed in the main car-operating panel. The ASME A17.1 Emergency Operations Committee decided to place all of the Phase II components together instead of having them spread out all over the operating panel, to increase efficiency and safety for firefighters operating the car. To overcome the elevator community's objections to a publicly accessible stop switch, it was necessary to place it behind a locked panel, away from the riding public and those who might abuse it in criminal pursuits. This eliminated the objections and ensured its passage at the Standards Committee meeting in 2003.

## FEATURES OF ASME STANDARD

Some of the newer features of the latest editions of A17.1 include the following:



(4) The door cannot be closed with the key inserted. (Photos courtesy of GAL, Inc.)  
 (5) All functions are located under one cover.

## Get out into your buildings. Determine which have the FEO-K1 and which do not. If present, ascertain the key's location.

- The “FIRE OPERATION” panel will be located at the top of the main car-operating panel, behind a locked cover. (2004)
- The same key that operates Phase I-Fire Recall and Phase II-Emergency In-Car Operation will be used to open the locked cover to that panel. (2004)
- The ASME A17.1-2006 edition of the code mandates a *common key* (2.27.8) for Firefighter’s Emergency Operation. This will eliminate the complaints of having to have different keys for each elevator. *This will apply to new elevators only.* (2006)
- The new key, called the “Firefighter’s Emergency Operation—Key 1” (FEO-K1), will be arriving in elevators installed under the A17.1-2006 code. The FEO-K1 is a result of the 2004 workshop in Atlanta, where the fire service voiced its concerns and elevator industry representatives pushed the code change through.
- When open, the inside surface of the cover shall contain the operating instructions, as contained in Fig. 2.27.7.2 of the code. (2004)
- The cover shall be permitted to open automatically when the car is on Phase I and at the recall level. (2004)
- When the key is in the “FIRE OPERATION” switch, the cover will not be able to close. (2004)
- The cover shall be self-locking. (2004)
- All buttons and switches shall be readily accessible, located

not more than 1,800 mm (72 inches) above the floor and arranged as shown in Figure 2.27.3.3.7 in the A17.1 (2004) code.

- If you enter an elevator and find that the fire hat symbol on the main car operating panel is illuminating intermittently (*flashing*), it indicates that a smoke or heat detector, or other fault, has been activated in the elevator machine room or hoistway containing equipment that services that group of elevators. That situation may make the continued use of the elevator unsafe. At that point, the IC must decide whether to use the elevator or not. (1998b)

Training division leaders should review the entire ASME A17.1 - 2.27.3 code to ensure that their members are aware of the changes to this important tool for the fire service. Get out into your buildings. Determine which have the FEO-K1 and which do not. If present, ascertain the key’s location. If not present, find out which key is being used, and test it before an incident occurs. ●

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