

# Emergency Exits and Safety

## 1. Introduction

Provincial and national building and fire codes don't fully respond to the needs of people impacted by blindness when it comes to the emergency systems of a built environment. In general, they do not address how to effectively alert people who are Deafblind to an emergency situation or how to safely assist people impacted by blindness out of a building in an emergency. This discussion paper will discuss both concerns.

It is also important to keep in mind that building design and construction are only part of the answer in terms of meeting the needs of people impacted by blindness in emergency planning. Staff training programs and maintenance schedules also play a critical role. The need for accessible and updated Life Safety Plans is also crucial and will be addressed in this paper.

## 2. Emergency Exits and Safety

### 2.1 Emergency Exits

Building codes require a certain number of exit routes in case of an emergency but often fail to take into account the specific needs of people impacted by blindness. It may take someone with blindness more time to locate an exit and get there unassisted. Emergency exits should be logically located (i.e., at the ends of corridors) along a simple path of travel. Use tactile, audible, colour and visual design features to attract attention to the location of the exit path.

Everyone should participate in regularly scheduled fire drills, particularly people impacted by blindness. These exercises provide an opportunity for everyone to become familiar with the location of emergency exits and the procedures to follow in the event of an emergency.

### 2.2 Interior Routes

The minimum unobstructed width for a path of travel to an emergency exit should be at least 1,200 mm. This provides sufficient space for people impacted by blindness walking with a sighted guide or guide dog during evacuation procedures.

All interior routes to emergency exits should be properly lit and clearly identified on the life safety plan for a building. These plans should be made available in alternative formats such as in large print, braille, electronic text or as audio files.

### 2.3 Exit Doors and Hardware

Exit doors on each floor should be clearly labelled with proper signage. The doors should open out in the direction of the exit to avoid hitting a person impacted by blindness or low vision. As with any door in a public space, emergency doors should never hinge so that they open into the path of travel.

The hardware should be installed between 800 and 1,100 mm from the finished floor.

Thresholds should contrast in colour and brightness to their surroundings. Use tactile or textured flooring where possible to mark emergency exits so that the exits can be easily identified.

Exit door closures should be set up to provide a sweep duration of no less than five seconds from an open position of 90 degrees to a partially closed position of about 12 degrees. This will accommodate people who may walk at a slower pace.

The clear width of exit doors should be no less than 920 mm. Double doors that are an emergency exit should not have centre posts, except when center posts are required by building codes to create and maintain smoke and flame barriers in a building.

## 2.4 Emergency Exit Signage



A tactile emergency evacuation plan sign. Information is presented visually and through tactile elements including a map, raised lettering, pictograms and braille.

Illuminated exit signage should be used to assist wayfinding, especially where an exit route changes direction or joins another route. All print and tactile signage used to direct people to exit points should be located at exit route junctions and exit points as needed. Tactile signs should be consistently placed with their centre line 1,500 mm above the floor. Lower mounting heights may be appropriate in facilities intended primarily for the use of children or for people of short statures. Tactile signs should be situated so that they are easily detectable by someone impacted by blindness if they are guiding themselves by running their hand along a wall.

Emergency exit signage should be located on the right hand side of an exit route. When emergency signage is placed in proximity to a corner, the signage should be located at a consistent distance from the wall junction.

## 2.5 Exterior Exit Routes

The route away from a building should be an accessible path of travel at least 1,200 mm in width. Exit routes should be configured to ensure that everyone can quickly and safely clear the building. Routes should not require people to pass close to windows or traverse along the immediate perimeter of the building. Where exit routes require travel across landscaped areas, pedestrian paths should be of firm construction, with gradients complying with the requirements for accessible routes. These routes must be maintained clear of obstructions, such as snow and vegetation growth.

Exterior routes from the building should incorporate tactile and colour-contrasted walking surfaces for easier identification. Exterior emergency routes should be clearly identified on the life safety plan for the building and routinely practiced by all building occupants, especially those impacted by blindness.

## 3. Emergency Alarms

### 3.1 Types of alarms

There are two types of emergency alarm systems. These include one-stage alarm and two-stage alarm.

One-stage alarm sounds an evacuation signal as soon as a problem is detected. A two-stage alarm produces two distinct signals.

To ensure that people with vision or hearing loss are alerted to an alarm, both auditory and visual signals should be used in an alarm system, regardless of whether it's a single-stage or two-stage system.

Alarm systems should be designed in compliance with local building codes and installed in conformance with the [National Canadian Fire Alarm Code and Standards – \(CFAA\)](#).

In residential settings, installation of vibrating alarm-signalling devices should be implemented where residents who are both deaf and blind reside. Typically, these systems are configured with a bed vibrator that activates if the building alarm, a smoke alarm or a CO2 system within a dwelling unit is triggered. During waking hours, other warning systems should be provided.

## **4. Emergency Lighting**

People with some types of blindness have difficulty adapting to sudden changes in light levels. In some cases, it may take a few hours for a person impacted by blindness to adjust to a dramatic change in lighting. For this reason, the level of illumination provided by emergency lights should ideally match the usual light levels in the building.

Emergency lighting is meant to be a temporary light source and is not intended to illuminate entire areas. However, where emergency lighting is essential to provide a visual cue leading towards an exit or area of safe refuge, then the normal illumination levels for that space should be maintained during an emergency.

An added benefit to providing a level of emergency lighting that exceeds the minimum building code requirement of 10 lux (average at floor or tread level) is that it has the potential to increase visibility in smoke-filled areas.

Avoid directing light towards the direction of travel. Glare or light directed at pedestrians can cause problems for some people impacted by blindness.

Use photo-luminescent strips along baseboards and stairs to lead people to emergency exits. This lighting is also recommended to highlight features such as door frames and telephones in areas of safe refuge.

## **5. Areas of Safe Refuge**

An area of safe refuge provides a safe space where people can wait to be rescued or where they can stay during an emergency. While the construction and location of safe refuges are set out in provincial, territorial and national building codes, these codes don't specify how to ensure that people impacted by blindness can find them.

As part of emergency procedures, the location of areas of safe refuge should be described in public address announcements during an emergency situation.

An area of safe refuge should have a telephone system to connect people to emergency rescue personnel. The operable parts of the telephone should be no higher than 1,200 mm from the finished floor. Visual, tactile (including braille) and auditory signs should identify the location of the telephone.

## 6. Life Safety Plan

A life safety plan sets out how building occupants will be alerted to an emergency and evacuated from a building or public space. It's specific to a particular location and it must address the needs of everyone who uses or may use the space or building. When developing a life safety plan, consider the needs of people impacted by blindness. All people who have blindness and are working in a new space within a building should be informed about the location of emergency exits and practice identifying them on their first day.

Life safety plans should be made available in alternative formats such as accessible electronic documents, large-print or braille. These documents should be updated as often as necessary to ensure that documents in alternative formats are current with the print versions of the life safety plan.

For commercial tenants, alternate format materials should be made available to people impacted by blindness immediately upon joining an organization. In residential settings, these documents should be made available with tenant or condominium agreements. Building attendants, security guards, reception staff and event hosts should receive regular training on how best to assist individuals impacted by blindness in an emergency.

Instructions about the location of emergency exits should be part of the routine when greeting people impacted by blindness who are visiting or attending a meeting at a facility. Fire wardens in a building should be provided with training on how to inform people who are deafblind of an emergency. One commonly used method is to trace an "X" on the person's back using your finger. This will inform a person who is deafblind that an emergency situation exists and that the information provider will lead them to an area of safety. Each warden should receive training on how to act as a sighted guide for a person with blindness.

The life safety plan for public buildings should include the following documents, which should be available by request in print, braille, audio and electronic text formats:

- A tactile floor plan (i.e., a floor plan showing where fire protection and emergency features are located on each floor) prominently displayed and placed near elevators, building directories and/or at the building's main entrance.
- A statement of life safety policies.



Example of a Life Safety Plan.  
Source: Catawba Fire Alarm Annual Testing Services, 2019.

- A description of evacuation procedures.
- A description of evacuation procedures for people impacted by blindness who are regularly in the building.
- A description of the responsibilities of building staff and other occupants of the building in an emergency situation, including specific instructions on how to assist people impacted by blindness.
- A copy of applicable fire safety regulations.
- A description of the established “buddy system.”

The life safety plan should be supported by these activities:

- Distribution of relevant parts of the life safety plan to all occupants of the building in alternative formats.
- Training of life safety officers on how to assist in evacuation of the building and how to act as a sighted guide for building occupants with blindness.
- Posting of evacuation procedure signage on each floor in print, tactile and braille formats.
- Regular checking and maintenance of life safety systems including, alarm systems, emergency lighting, emergency communications systems and obstruction-free evacuation routes.
- Regular review of emergency procedures through the use of practice drills.
- Provision of orientation and mobility training around emergency exits for building occupants with blindness on a routine basis.