



Thank you for your interest in our “Fire Safety for Wheelchair Users at Work and at Home” brochure and training program.

**This program is brought to you by the Accessibility Services Program of United Spinal Association and was made possible with funding assistance from the THE CRAIG H. NEILSEN FOUNDATION [www.chnfoundation.org](http://www.chnfoundation.org)**

The materials provided in this section are meant to serve a wide array of individuals, including, but not limited to: building owners and managers, employers, first responders and of course, people with disabilities.

Unfortunately, despite the statistics on the growing number of people with disabilities living and working independently throughout the United States, many employers, fire/code officials, municipal managers and people with disabilities themselves, are still unaware of the steps that should be taken to ensure the safety of people with disabilities in emergency situations.

By reading our attached materials and providing this Training Program you are taking a significant step to ensure that people with disabilities and all stakeholders within a building or facility are aware of the important features found in the design and construction of buildings - in conformance with widely adopted codes and standards - in order to protect people with disabilities in the event of an emergency. The Goals of this training program are:

- 1.) To review the features of building code life/fire safety requirements for newly constructed buildings and facilities that affect people with mobility impairments.
- 2.) To review evacuation protocols from the workplace and home for wheelchair users.

We recommend that you begin by ordering print copies of the publication “Fire Safety for Wheelchair Users at Work and at Home”. Please contact Jennifer Perry at [jperry@unitedspinal.org](mailto:jperry@unitedspinal.org) and indicate how many copies of the brochure you need for your proposed training program. (You may also download this publication in English or Spanish via the following link: <http://www.accessibility-services.com/fire-safety-for-wheelchair-users/> or direct your training attendees to this link where they can review and/or download the publication on-line if they so choose). We will be happy to accommodate your request for publications at no charge, we just ask that you allow 10 business days for delivery of the publications.

The next step in this process is to review the training program, which is based on the brochure. The training program was developed to be instructed by a trainer who can use the brochure as a handout for the training program. We have developed a “Trainer’s Guide” to assist the person providing instruction on this topic as they go through the slide presentation.

If you have any questions about the training program, please contact Jennifer Perry at [jperry@unitedspinal.org](mailto:jperry@unitedspinal.org) or at 1.800.404.2898 #7504.

### **Getting Started**

We have organized the materials on this site to make this training program download user friendly. Simply follow the steps below. Should you have any questions, you can always contact us at 1.800.404.2898 #7504.

#### **Step #1**

Order copies of the Fire Safety for Wheelchair Users at Work and At Home brochure from United Spinal Association (as detailed above) **OR** direct training participants to the following link to access the brochure on-line: <http://www.accessibility-services.com/fire-safety-for-wheelchair-users/>

#### **Step #2**

Review the brochure and training slide presentation contained here.

If you choose, you can print out copies of the slide presentation prior to the training program to distribute as a secondary handout (the brochure is intended to be a handout as well.)

Print out the Trainer's Guide (below) and review for assistance with providing the presentation.

#### **Step#3**

Organize the training program and review the slides with the target audience. Be prepared to have a group discussion at the conclusion of the presentation about evacuation policies for people with disabilities and emergency evacuation protocols specific to your facility.

## Trainer's Guide

**Slides #1 – 12** provide general information about United Spinal Association and the Accessibility Services Program of United Spinal, which developed this training program. Should you need technical assistance or have questions about the program, contact information for our staff is provided in this section as well.

The goals of the training program are also highlighted in this Section and background information is provided that addresses why it is important to learn about fire safety for wheelchair users.

**Slide #13** this slide shows a map which is meant to drive home the point that every jurisdiction throughout the country is using one or more of the International Code Council (ICC) codes for building construction. The ICC International Building Code (IBC) contains the scoping requirements for Accessible Means of Egress, which are referenced many states throughout the country. Where referenced, the Accessible Means of Egress design and construction requirements for new construction require certain accessibility features to be included within facilities at the time of construction that are meant to provide people with disabilities protection in the event of an emergency. The important thing to note here is that given the wide adoption of these accessible means of egress requirements nationwide, people with disabilities and all stakeholders should be aware of the design requirements intended to assist people with disabilities and first responders in the event of an emergency.

**Slides #14 -15** address how the ADA applies to the development of emergency evacuation plans.

**Slide #16** contains the model codes and federal laws that require some level of accessible means of egress in the built environment. Note that the Revised ADA/ABA Accessibility Guidelines are italicized because while not adopted as an enforceable standard yet for Title III entities (public accommodations) under the ADA, once adopted, the Revised ADA/ABA Accessibility Guidelines will reference the IBC Accessible Means of Egress Requirements discussed in this program for newly constructed facilities covered by the ADA. This is important because once adopted, the Revised ADA/ABA Accessibility Guidelines will have the same requirements in place for accessible means of egress as those that are found in the widely adopted IBC jurisdictions nationwide.

**Slides #17 – 19** show the elements of an accessible means of egress. The IBC states that every accessible space in new construction must be served by at least one **accessible** means of egress. (At this time, these provisions do not apply to alterations to existing buildings) Means of egress (accessible or not) have three components:

- ② exit access (the travel to an exit);
- ② exit (e.g., an exit door, stair, or corridor); and
- ② exit discharge (the path from an exit to a public way).

For spaces where one regular means of egress is required, one **accessible** means of egress is also required. Where more than one means of egress is required, two accessible means of egress are required. Where three or more regular means of egress are required, the baseline requirement for accessible means of egress remains two. However, areas of refuge explained later in the presentation have to be placed such that every accessible space is within an acceptable travel distance to an area of refuge, so in some building designs a greater number of accessible means of egress will result.

General or regular means of egress may be made accessible and thus meet both requirements. However, the codes do not require general means of egress to be accessible - other means can be used to meet the requirements.

Accessible means of egress include one or all of the following components:

1. Accessible routes;
2. Stairways within exit enclosures, 48 in. (1220 mm) wide as measured between handrails to accommodate a three-person carry of someone in a wheelchair;
3. Elevators equipped with firefighter service and standby power;
4. Platform lifts in very limited applications;
5. Horizontal exits; and
6. Smoke barriers.

Like all means of egress, these components when linked together must lead ultimately to a public way so that the building occupants are a safe distance away from the building.

Some helpful definitions of key terms are provided below:

**ACCESSIBLE ROUTE.** A continuous unobstructed path connecting all accessible elements and spaces of a building or facility. Interior accessible routes may include corridors, floors, ramps, elevators, lifts, and clear floor space at fixtures. Exterior accessible routes may include parking access aisles, curb ramps, crosswalks at vehicular ways, walks, ramps, and lifts.

**ACCESSIBLE MEANS OF EGRESS.** A continuous and unobstructed way of egress travel from any accessible point in a building or facility to a public way.

**AREA OF REFUGE.** An area where persons unable to use stairways can remain temporarily to await instructions or assistance during emergency evacuation.

**EXIT.** That portion of a means of egress system which is separated from other interior spaces of a building or structure by fire-resistance-rated construction and opening protectives as required to provide a protected path of egress travel between the exit access and the exit discharge. Exits include exterior exit doors at the level of exit discharge, vertical exit enclosures, exit passageways, exterior exit stairways, exterior exit ramps and horizontal exits.

**EXIT ACCESS.** That portion of a means of egress system that leads from any occupied portion of a building or structure to an exit.

**EXIT DISCHARGE.** That portion of a means of egress system between the termination of an exit and a public way.

**HORIZONTAL EXIT.** A path of egress travel from one building to an area in another building on approximately the same level, or a path of egress travel through or around a wall or partition to an area on approximately the same level in the same building, which affords safety from fire and smoke from the area of incidence and areas communicating therewith.

**Slides #20 – 21** Key features of the IBC Accessible Means of Egress are highlighted and explained in more detail in the slides to follow. Ambulatory people in multi-story buildings immediately proceed to exit stairs when a fire alarm goes off. When you're in a wheelchair, a flight of stairs may as well be an out-of-service elevator.

Obviously, accessible means of egress from levels above or below a level of exit discharge are significantly different than the regular means of egress used by ambulatory persons. Simply, an elevator on an accessible means of egress will often not be available for independent operation by a disabled person, having gone into firefighter service and been recalled to a designated floor<sup>☞</sup>. Of course stairs are never negotiable for the mobility impaired persons for which accessible means of egress are intended.

General means of egress are designed to allow people to get out of the building, while accessible means of egress are designed with the assumption that mobility impaired persons will remain in the building. Accordingly, building code requirements and facility designers will fail to accomplish their intended goal of providing an equivalent level of safety for persons with mobility impairments if procedures to use these new egress systems are not put in place and used, leaving disabled people in the building and in danger.

**Slides #22 – 32** provide details on Areas of Refuge (also called Areas of Rescue Assistance).

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<sup>☞</sup> The ASME A17.1 Safety Code for Elevators and Escalators requires an elevator to return to a designated level when Phase I Elevator Recall Operation is initiated by fire alarm initiating devices (*e.g.*, smoke detectors) located in an elevator lobby, hoistway or machine room. The initiating devices are regulated by the NFPA 72 National Fire Alarm Code, which states that only these devices shall initiate the firefighter recall (unless the authority having jurisdiction states otherwise). Thus, elevators will not go out of normal service in many fire situations, and will remain usable for independent evacuation from the building.

In buildings not equipped throughout with an automatic sprinkler system, areas of refuge must be part of an accessible means of egress from levels above and below the level of exit discharge. Each area of refuge must be immediately adjacent an accessible means of egress stairway or elevator, and be sized to accommodate at least one wheelchair for each 200 occupants or portion thereof of the building floor space it serves. Equipped with a two-way communication system linked to a central control point, an area of refuge becomes a staging area for a person to be evacuated from or a location to “protect in place”, separated from the remainder of the story by a smoke barrier. Signage requirements are in place to clearly identify Areas of Refuge and two way communication must be available in these areas so that someone with a disability is able to relay to an outside contact that they are waiting in the Area of Refuge.

Protection in Place is common in high-rise construction, where zoned evacuation is the norm. Because removing a person who uses a wheelchair demands extraordinary activity and because leaving the building is not always necessary to the safety of the disabled occupant, protecting in place should be the first option and the use of Areas of Refuge in these instances provides a safe place for people with disabilities to wait for evacuation assistance. The safety of people with disabilities in emergency situations often necessitates protect in place measures, as carrying some people with mobility impairments can lead to an increased risk of harm to the person with a disability.

The travel distance slides are showing that how you measure travel distance for accessible means of egress will differ slightly from how you measure travel distance to an exit (due to the nature of areas of refuge for instance, you would measure your travel distance to the area of refuge – which may be in a stairway or within an elevator lobby for instance – as opposed to general means of egress where you would likely measure your travel distance to the exit stair that will be used by most able bodied individuals).

The space necessary to accommodate a single wheelchair and its occupant is 30 inches minimum by 48 inches minimum. A required Area of Rescue Assistance must have those minimum dimensions located within the area of refuge and that space (30 inches minimum X 48 inches minimum) cannot overlap the required exit width (so that people with disabilities are not blocking the flow of traffic as people exit the building).

**Slides #33 – 40** Evacuation methods are discussed in these slides. Vertical means of egress are critical components in designing accessible means of egress. In most low-rise construction, the widened stairs are cost effective and most typically used. Where buildings have levels that are four or more stories above a level of exit discharge, both the IBC and NFPA 5000 require at least one accessible means of egress to be an elevator, as carrying persons in wheelchairs down stairs becomes impractical at that point. Finally, there are unique spaces -- accessible stages in theaters, witness stands in courtrooms – where the codes permit a platform or wheelchair lift to serve as part of an accessible route. Lifts are permitted to serve as part of an accessible means of egress as well in these limited instances, as the only practical way off that raised space is often the way a person got on. Stairway chair lifts (as shown in the photo) do not

comply with accessibility requirements for commercial buildings because they cannot be used independently by someone who uses a wheelchair. With this type of lift, you must transfer from your wheelchair to a seat. The nature of this type of lift requires assistance from someone else to then carry your mobility device or wheelchair up/down the stairs for you. Stairway chair lifts can be used within your personal home if you so choose, they just cannot be used in a commercial occupancy as part of a required accessible route or accessible means of egress.

Elevator egress or evacuation has been used in high-rise construction for decades as a means of evacuating people in wheelchairs from the upper stories of buildings. Understanding the risks of losing elevator operation due to loss of building power or a shut down of the elevator due to water in the hoistway, first responders will still be in a position to determine whether an elevator car, lobby, hoistway or machine room are either involved in a fire or in eminent risk from fire or smoke. They can determine when an elevator is a safe way to evacuate a building, and assist mobility impaired persons accordingly. Keep in mind that Means of Egress elevators are not intended to be used by people with disabilities to evacuate themselves in the event of an emergency. The intent of these elevators is that firefighter personnel will be able to use them to assist people with disabilities located in areas of refuge awaiting rescue assistance.

**Slide #41** Stair evacuation should be the “option of last resort” and used only when a person with a disability is at immediate risk. The minimum of 48 inches between handrails is the space necessary to perform a “3 Person Carry” as shown in the photo. Many people with disabilities have conditions such that transferring them to an evacuation device or bumping them down a stair in a three-person wheelchair carry could cause serious injuries. For those untrained in evacuation procedures, attempting to carry someone down a stairway could cause injuries to themselves as well. There are other issues to take into consideration when developing an evacuation plan as well. One is that evacuating a person in a wheelchair in an exit stairway will render that exit unusable to everyone else. Emergency personnel are thus faced with effectively removing an exit for use by all other building occupants while evacuating a mobility impaired person down a stair, or waiting until the building is empty before saving the disabled person (and themselves). Clearly, a usable and safe elevator is the preferable option for egress, particularly in hi-rise types of buildings.

**Slides #42- 43** Providing accessible routes from a ground floor exit to the public way can prove difficult where the terrain is uneven. In these cases, an exterior area of rescue assistance may be provided where an accessible exit discharge is not practicable. These are essentially areas of refuge outside the building, served by exterior stairs but providing a level of protection for the disabled person similar to that provided by interior areas of refuge. Two-way communication is not required, as it is assumed that emergency responders will easily locate persons using these spaces (since they are located outside of the building) who are unable to use the stairs to reach the public way.

**Slide #44** This drawing depicts the accessible means of egress elements discussed, including a depiction of Areas of Rescue Assistance.

**Slides #45 -46** address sprinkler systems. Many of the advances in fire safety in the built environment that benefit all building occupants benefit persons with disabilities to an equal or

greater degree. It is important to remember that sprinkler protection makes buildings safer for all occupants and provides additional safeguards for persons who cannot use exit stairs to evacuate a fire floor or building.

**Slides #47 – 66** review evacuation protocols that should be addressed in public buildings and facilities. These points should be reviewed in detail while developing an emergency plan and are self-explanatory.

**Slides #67 -71** review the protocols for making a home evacuation plan for people with mobility impairments.

**Slide #72** includes a recommendation for a group discussion about the topics covered in the previous slides. Having an open dialogue about emergency evacuation protocols and the design features of a particular building should be discussed at the end of this program.

**Slide #73** contains the websites for some additional resources on this topic.