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Lift Evacuation and ANSI B77 Guidelines  
Part 1

Although the Federal Standards for testing ski lift safety have been in place for many years, they have only recently included lift evacuation as performed by ski patrol. If snow sports participants can be evacuated safely from chair lifts, trams, gondolas etc. then those evaluation procedures will be deemed in compliance. This means that ski areas, ski patrols and other mountain personnel involved in the process will be certified as performing the evacuation safely and satisfactorily as certified by the State of Pennsylvania.

To explain why Federal Standards are tested by the state, we need to examine the evolution of the process.

A committee composed of representatives from ski area management lift manufactures and designers, the National Ski Patrol and governing authorities having jurisdiction, meet with representatives of the American National Standards Institute (ANSI) to review a list of policies governing lift safety, lift installation and finally lift evacuation.

Although these standards are put forth by the federal government, it is the individual states that must carry out the evaluation.

In the state of Pennsylvania that jurisdiction falls to the Department of Occupational and Industrial Safety specifically the Elevator Division. Although all ANSI

standards must be included in the evaluation process, states may add to the standards if they so wish.

In Pennsylvania the state has not altered or added to the standards, which I suspect is common practice. Throughout the United States this certification process is carried out on an annual basis when the lifts at a particular ski area are safety and load tested. Ray Adkins, a state evaluator, stated that the test must be conducted on the ski lift that has the highest towers and the most difficult terrain. The evacuators must successfully evacuate a typical passenger, a passenger with adaptive ski equipment and a non-ambulatory passenger. At successful completion of the evacuation, the process is approved by authorities, in our case the Elevator Division.

The following are excerpts from the ANSI B77 standards that effect Ski Area Management and Ski Patrol,  
Page 129.

“Conveyors (evacuators) shall be trained and competent. The owner (Ski Area Management) shall be responsible for the supervision and training”.

Note that NSPS is not specifically or directly involved in the process.

Page 101, 117.

“One or more persons must be trained to provide first aid/ emergency care at the BLS level including CPR. Basic Life Support is defined as medically accepted non-invasive procedures used to sustain life.

Page 81.

“There shall be ready access to first aid / emergency care and supplies and equipment including provisions for transportation of an injured person to an enclosed and if required heated shelter”.

Page 2.2 1B-4

Emergency lighting shall be provided in the event of an electric power failure to permit emergency evacuation of carriers.

3.

Page 85.

“Passengers, while riding and area’s lift shall not throw or expel any objects nor shall any passenger do any act or thing that shall interfere with the operation of the aerial lift”.

In addition to the above information there are two additional pages specifically devoted to the lift evacuation process.

#### ANSI B77 Guidelines

Page 82/83.

A plan for evacuation of passengers from each aerial lift shall be developed and documented. The plan shall include:

- a) the definition of the line of authority in the event of an evacuation. This line of authority shall list:
  - 1) the individuals or positions responsible for determining the need for an evacuation;
  - 2) the individuals or positions responsible for ordering an evacuation;

- 3) the individuals or positions responsible for performing the evacuation, the first aid, and for ground care of evacuated passenger.
- b) a description of the equipment necessary for evacuation and where it will be stored;
- c) provisions for adequate training in the functions performed in the evacuation process at least once each operating season. Such drills are to be recorded in the operational log of each aerial lift;
- d) an estimate of the time necessary for the total evacuation of each lift;
- e) description of unusual terrain conditions and how each of these conditions will be dealt with during an evacuation;
- e) an estimate of when the evacuation should begin in the event the aerial lift becomes inoperable;
- f) provisions for communications with passengers of an inoperable aerial lift, the frequency of such communication, how soon after the aerial lift becomes inoperable such communication to the passengers will start, and the frequency of communications thereafter;
- g) the methods of evacuation to be used for the typical passenger, incapacitated passenger, common adaptive ski equipment and non ambulatory passengers;  
Note: In Pennsylvania the non ambulatory and incapacitated are combined in one evacuee.
- h) provisions for communication with the evacuation teams;
- i) provisions for suspending the evacuation in the event that the aerial lift is made operable during the evacuation;

- j) provisions for control and assistance of evacuated persons until released;
- k) provisions for a post-evacuation report.

All nonmetallic rope used for evacuation shall be of nylon or polyester (Dacron) fiber of either laid or braided construction. Laid rope of nylon shall be of a hard lay.

These ropes shall be either of a static rescue type or a dynamic mountaineering type.

Breaking strength, when new, shall be at least 15 times the maximum expected operating load but in no case less than 4000 pounds (17.8 kilonewtons). No natural fiber or polypropylene ropes shall be used.

These ropes shall be carefully stored when not in use and shall be examined after each completed aerial lift evacuation and prior to each season of operation, both summer and winter, to ascertain that they are in the satisfactory condition.

Carabiners, if used, shall be of the locking type.

With the states adoptions of the ANSI B77 guidelines and their subsequent evaluation of lift evacuation and methods, there is now an opportunity for Ski Patrols to have their lift evacuation process sanctioned. Because those methods follow exactly the Federal Standards, there would be a tacit approval of Ski Patrol lift evacuation equipment and procedures by not only the state but also the Federal government. This provides a unique opportunity for Pennsylvania Ski Patrols and lift evacuation equipment manufacturers to have their techniques and products authorized.

