

Deaths from Aerial Lifts in Construction

Michael McCann

An average of 26 construction workers die each year from using aerial lifts. This is 2 to 3% of all construction deaths. On aerial lifts, the major causes are falls, electrocutions, and collapses or tipovers. For this article, aerial lifts include boom-supported aerial platforms, such as cherry pickers or bucket trucks, and elevating platforms, such as scissor lifts (OSHA regulates scissor lifts as mobile scaffolds, not aerial lifts). There are also 2 to 3 deaths each year from working on crane personnel platforms.

Electricians had the most deaths (25%), followed by construction laborers (15%), electrical power installers and repairers (13%), painters (8%), and carpenters (5%). These results do not show which trade is most at risk, because we don't know how many workers in the various trades use aerial lifts.

1. Causes of deaths in construction by type of aerial lift, United States, 1992-99

Cause	Boom-supported lifts	Scissor lifts	Unknown type of lift	Total
Electrocutions	62	6		69
Falls	35	23	6	64
Collapses or tipovers	23	21		46
Caught in/between	11			14
Struck by/against	6			9
Other causes	5			5
Total deaths	142	55	10	207

fewer than 5 deaths

Note: Other causes include 6 fire deaths.

Source: U.S. Bureau of Labor Statistics data

Boom lifts accounted for almost 70% of the aerial lift deaths:

- " Half of the falls from boom lifts involved being ejected from the bucket after being struck by vehicles, cranes, or crane loads, or by falling objects, or when a lift suddenly jerked.
- " Two-thirds of the deaths from collapses/tipovers of boom lifts occurred when the bucket cable or boom broke or the bucket fell; almost one-third were due to tipovers.
- " Half of the boom lift electrocutions involved body contact with overhead power lines, mostly involving electricians or electrical power installers and repairers. Over one-third of the electrocutions involved an overhead power line contacting the lift boom or bucket.
- " In most of the caught in/between deaths, a worker was caught between the bucket edge and objects such as roof joists or beams while repositioning the bucket.

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Scissor lifts accounted for over 25% of the aerial lift deaths:

- " The causes of scissor lift falls were unknown for over half of the fall deaths; in one-fifth of the falls, the worker was ejected from the scissor lift, mostly when the scissor lift was struck by an object. The rest of the fall deaths occurred after removal of chains or guardrails, or while standing on or leaning over railings.
- " Three-quarters of the tipovers of scissor lifts resulted in fall deaths; for the rest, workers died from being struck by the falling scissor lift. About two-fifths of the tipovers occurred when the scissor lift was extended over 15 feet, mostly while driving the lift.

Recommendations

The Center to Protect Workers Rights is continuing to do research on the safe operation of aerial lifts. In the meantime, here are some suggestions.

To prevent electrocutions:

- " Non-electrical workers should stay at least 10 feet away from live overhead power lines.
- " Avoid sudden jerks of buckets which can cause contact with live overhead power lines.
- " According to OSHA, electrical workers working on or near live power lines must wear Class E (old Class B) insulated hard hats and voltage-rated shoes, rubber gloves, rubber sleeves, and other protective clothing as needed. Insulated tools must be used where necessary. If possible, de-energize or insulate live power lines. Boom buckets must be insulated or the aerial lift grounded. Insulated buckets must be tested regularly to ensure the insulation meets requirements.

For safe operation of aerial lifts, general OSHA requirements include:

- " Qualified individuals must train aerial lift workers in the operation and limitations of each aerial lift they will be using.
- " Do not modify an aerial lift without written permission of the manufacturer or other recognized entity.
- " Boom lifts used for carrying people must have easily accessible controls in or beside the platform.
- " Make sure aerial lifts are properly maintained. (This is particularly a concern with rented lifts.) Workers should inspect safety devices and check the operation of lift controls before using an aerial lift.
- " Do not drive an aerial lift when the lift is extended, unless designed for that purpose.
- " Set brakes and outriggers (if available). Use wheel chocks on slopes.
- " Do not exceed weight or load limits.
- " Stand on the floor of the lift platform; do not climb or sit on guardrails.
- " For boom lifts, full-body harnesses are required although a safety belt with a 2-foot lanyard may be used instead. Tie off to the boom or basket, not nearby structures.
- " For scissor lifts, fall protection is not required if there are guardrails.