Lethal ladders: new research on ladder climbing calls for fundamental rethink of access design.
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Abstract

New research by Australia's most prominent ergonomist may well save lives if it succeeds in forcing a rethink of the way ladders are designed.

A member of the committee reviewing Oceania's biggest fall prevention standard, Carl Sachs, commissioned the exploratory study by Professor David Caple to challenge the assumptions underpinning safe design.

In this presentation, Carl Sachs explains what the research revealed and the implications for fall prevention right around the world.

The Caple study involved analysis of videotaped footage of Australians as they used various types of ladders.

Professor Caple also found extended stiles that allowed users to maintain their hand grip while stepping down onto the first rung of a ladder reduced the risk of falling.

This research supported assertions made in is the most popular safety-related Australian Standard of all time (AS1657) and deals with some very serious risks that affect people right around the world.

Summary

(a) Purpose

The individual design features of the ladders were analysed to see how they contributed to a safer environment focusing on the ladder construction, installation, and use. Ladder falls are the biggest contributor to falls in Australia, with slips trip and falls costing the Australian economy over $6 billion a year.

(b) The reviewers reviewed the behaviour of 12 subjects climbing a variety of ladders that had been erected. The video footage of the subjects was reviewed, and they were interviewed to establish climbing patterns and views on the ladders.

(c) The key findings were that selecting and designing ladders by way of using a hierarchical approach, reduced the likelihood of falls in workplaces. This information was subsequently shared with the drafting committee, and the approach integrated into the recently published Australian standard AS1657.

References


Tables and figures

Extract from AS1657:2013, following the hierarchical approach supported in the study.
FIGURE 2.1 SELECTION OF ACCESS—LIMITS OF SLOPE