

MICHIGAN



MICHIGAN STATE UNIVERSITY: Prevention of work-related injuries & illnesses through research & investigation

WORK-RELATED FATALITIES & INJURIES FROM USING LADDERS IN MICHIGAN

Almost everyone has used a ladder at one time or another. We keep them in our garages and basements in our homes and they are used in almost all industries. We think we know how to use ladders safely, but the frequency with which ladders are used and our casual attitude towards ladder use may actually lead to their incorrect use, resulting in injury and even death. In Michigan, falls involving ladders caused 41 deaths from 2001 to 2014 and 105 injuries in 2014 and 2015 that required hospitalization. The average age was 46, range 19 – 79, and 90% were men. Twenty-eight (27%) suffered a fracture of the lower limb, 22 (21%) had a fracture of the neck or trunk, and 15 (14%) had a fracture of the upper limb. The predominant industries where injuries involved ladders were construction (29), trade (14), and manufacturing (13).

EXAMPLES: 3 WORK-RELATED DEATHS & 2 HOSPITALIZATIONS FROM USING LADDERS AT WORK IN MICHIGAN

- A male carpenter in his 30s died after jumping 15 feet from an unsecured 30-foot ladder that was moved sideways by a gust of wind. The ladder feet were supported by a piece of plywood adhered to a walk-out deck on the second floor to prevent the ladder from sliding away from the house. As the ladder was falling, the decedent jumped to the deck approximately 15 feet below and landed at the unguarded deck edge. He then fell ten more feet onto a concrete basement window well.
- A male bakery owner in his 50s died when he fell 20 feet from an extension ladder while trying to repair a leaking roof. The decedent propped the extension ladder inside of the building against the rafters near the roof to provide access to perform repairs to the leaking roof. There was a large amount of water on the floor. The ladder slipped out from underneath him and he fell to a concrete floor.
- A male master plumber in his 60s died when he fell from a 6-foot stepladder while prepping a second floor ceiling area for the installation of a water line in a condominium. The decedent was using a Milwaukee Hole Hog, heavy duty ½-inch drive drill, which snagged on a metal identification plate that was located on the opposite side of the lumber being drilled. The torque of the drill housing kicked and threw the decedent off the ladder.
- A male in his 40s fell 15 feet from a ladder, with possible electrocution from a nearby power line. He worked for a telephone company. He suffered a concussion and was hospitalized for 12 days.
- A female in her 60s fell from a small ladder. She worked at a lumber and building supplier. She suffered a lower leg fracture and was hospitalized for 8 days.

DID YOU KNOW?

There are five major causes for ladder fall incidents:

- **INCORRECT EXTENSION LADDER SETUP ANGLE-** causes 40% of ladder falls. The ladder is set at a shallower angle than the optimal angle of 75 degrees. For every 4 feet in ladder height, the ladder should be placed 1 foot away from the structure. Ladder users tend to set up at a shallower angle, causing the ladder to slide out at its base.
- **INAPPROPRIATE LADDER SELECTION-** inappropriate ladder height for the job, improper duty-rating to avoid structural failure, and material composition (fiberglass vs aluminum when working around electricity).
- **INSUFFICIENT INSPECTION OR MAINTENANCE-** to prevent ladder structural failure.
- **IMPROPER LADDER USE-** such as inappropriate set up (e.g., leaning a step ladder against a wall), overreaching, carrying objects (not able to maintain 3-points-of-contact with hands and feet), applying excessive force, slips, and missteps.
- **LACK OF ACCESS-** to ladder safety tools and information.

RESOURCES

Get the NIOSH Ladder Safety App! [Download for free](http://www.cdc.gov/niosh/topics/falls/mobileapp.html/?s_cid=3ni7d2externalemail022016)
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- *Angle Measuring Tool*—makes it easier for users to set an extension ladder at the proper angle (~ 75 degrees) and to check the verticality of extension and step ladders.
- *Selection Tool*—to select the minimum required ladder duty rating corresponding to user characteristics and task.
- *Inspection Tool*—checklist for ladder mechanical inspection.
- *Proper Use Tool*—rules for safe ladder use.
- *Accessories Tool*—extension ladder safety accessories.

Preventing Electrocutions of Workers Using Portable Metal Ladders Near Overhead Power Lines

<http://www.cdc.gov/niosh/docs/89-110/>

You Tube OSHA video

<https://www.youtube.com/watch?v=4QcctfnUeOM>

OSHA Fall Protection Standards for Non-Construction Work

<https://www.osha.gov/SLTC/fallprotection/standards.html>

OSHA Fall Protection Standards for Construction Work

<https://www.osha.gov/SLTC/fallprotection/construction.html>