

Ironworker Falls 42 Feet through Hole when Cover Fails

INCIDENT FACTS

REPORT #: 71-201-2020s

REPORT DATE: November 3, 2020

INCIDENT DATE: July 21, 2014

VICTIM: 31 years old

INDUSTRY: Structural steel and precast
concrete contractors

OCCUPATION: Ironworker

SCENE: Roof deck of three-story college
building under construction

EVENT TYPE: Fall



A 31-year-old journeyman ironworker died when he fell through a covered hole, landing on concrete 42 feet below.

The incident happened on the roof deck of a three-story college building under construction.

The victim's employer was a structural steel and precast concrete contractor acting as a subcontractor on the project

The ironworker and his journeyman coworker, assisted by an apprentice, were constructing a mechanical enclosure windwall structure to house a rooftop HVAC unit.

Inside the windwall was a wooden form for a concrete stem wall to support an HVAC unit. They were installing windwall sections.

The ironworker was welding angle brackets to support these sections while working from an extension ladder leaning against the inside of the windwall. His coworker asked him to get a clamp to support a bracket prior to it being welded.

The ironworker then stepped sideways from the ladder onto the top of the wooden form and then jumped down from the 32-inch-high form onto a sheet of plywood covering an HVAC ducting hole.

He landed with both feet on the cover, which had the word “HOLE” painted on it. The cover failed and he fell through the hole, landing on concrete 42 feet below.

Investigators determined that the general contractor had installed the cover.

The 32-inch by 62-inch hole was covered by a 5/8-inch thick piece of 10-year-old worn plywood.

The plywood was 48 inches by 60 inches and was secured on one side with two nails to the stem wall sill. This placement left a gap of one inch on each end and only two sides of the plywood supported.

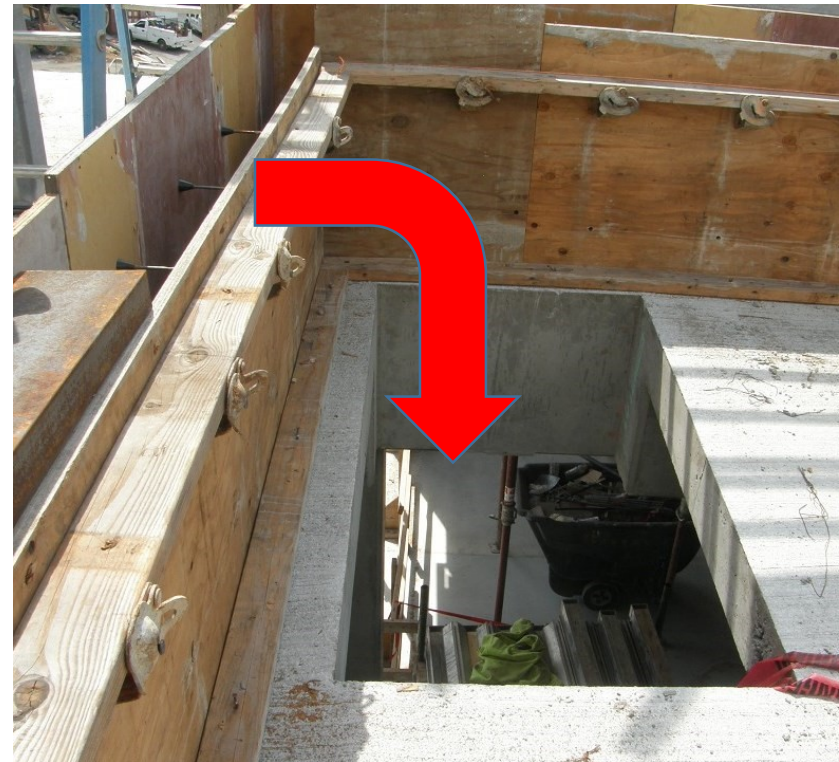
When the ironworker landed on the plywood, it buckled in the center.



Photo 1. Incident scene showing rooftop windwall structure.



Photo 2. Incident scene showing rooftop windwall structure, wooden form for a concrete stem wall to support an HVAC unit, and the location where the ironworker jumped down from the form onto the hole cover.



Photos 3 and 4. Incident scene on building roof deck. The ironworker had been working from an extension ladder installing sections of a windwall. In order to retrieve a clamp, he stepped from the ladder onto a wooden form and then jumped down onto a plywood hole cover (photo 3). The cover failed and he fell through the hole, landing 42 feet below on concrete (photo 4).



Photo 5. Plywood hole cover that failed with the word “HOLE” painted on it. Two nails that secured the cover to the stub wall sill are indicated by red circles. The ironworker’s boot prints are indicated by the blue circle.

Requirements

Cover Specifications

Hole covers must be capable of supporting, without failure, at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time.

See [WAC 296-880-40015\(1\)\(b\)](#)

Requirements

Guarding of Holes

Holes must be guarded by one of the following fall restraint systems:

- 1) a standard guardrail or equivalent,
- 2) a cover,
- 3) a warning line system.

See [WAC 296-880-20005\(3\)](#)

Requirements

Management Responsibility - Training

It is the responsibility of management to establish, supervise, and enforce, in a manner which is effective in practice:

- Training programs to improve the skill and competency of employees. In this instance:
 - Recognize the hazard of falling into or through holes.
 - How to select, place, and secure hole covers.

For full requirements, see [WAC 296-155-100\(1\)](#)

Recommendations

- Subcontractors should check hole covers to verify that the covers are adequate in strength and placement and report potential problems to the general contractor.
- Employers on multi-employer sites should use contract language that clearly defines the safety responsibilities of each contractor prior to initiation of work.

This bulletin was developed to alert employers and employees of a tragic loss of life of a worker in Washington State and is based on preliminary data ONLY and does not represent final determinations regarding the nature of the incident or conclusions regarding the cause of the fatality.

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