CONCRETE TRADE
VERTICAL FORMWORK PRECAUTIONS

PROJECT OVERVIEW

After a concrete wall pour, carpenters were dismantling the vertical formwork when a formwork tie that an employee was anchored to broke off.

VERTICAL FORMWORK PRECAUTIONS ISSUES

It was discovered that the formwork tie was <u>rated for light-duty and was not approved as a tie-off point</u> by an engineer.

- Fortunately, the employee was not seriously injured when they fell.

When designing and installing vertical formwork, verification must be used in calculating installation loads.

- Extra precautions must be taken whenever a work crew will be working off formwork and anchoring to it.
- A good rule of thumb is multiplying all calculated loads by a factor of 3 or more for an extra margin of safety.

Snap ties are easy to install, inexpensive, and reduce labor.

- However, their use should be limited to only the shortest vertical formwork because of their light-duty rating.

It should be a policy that formwork of a predetermined height, used as fall protection, should have tie-off points designed by an engineer.

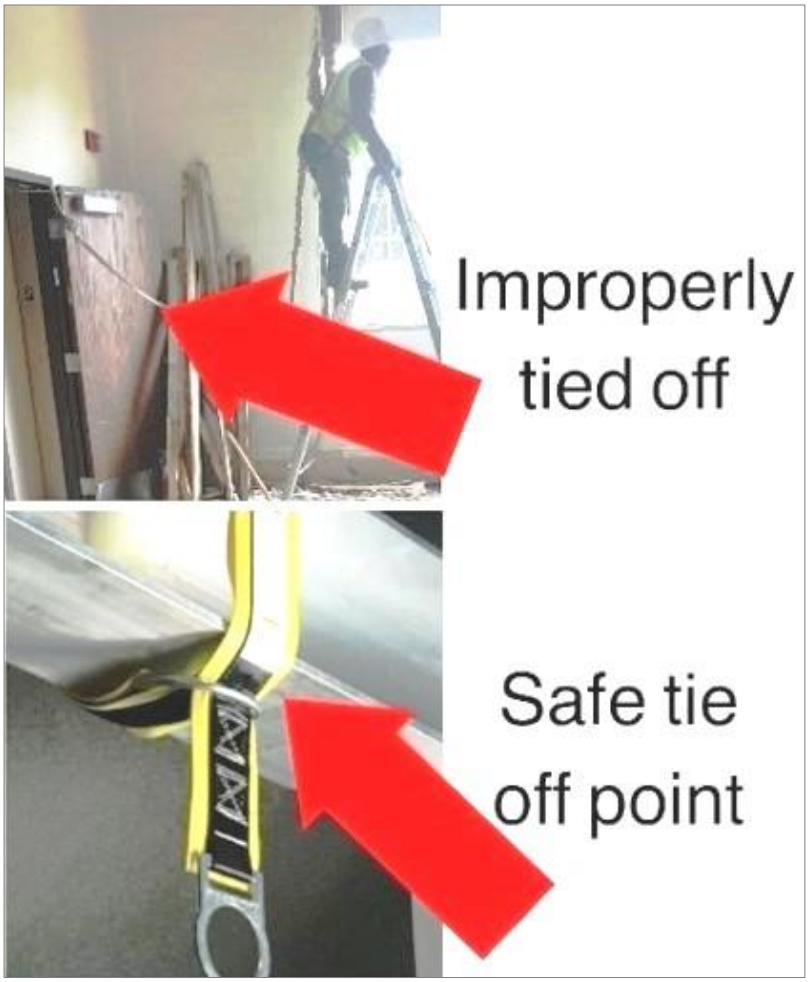
LESSONS LEARNED

The actual cost included:

- The medical expenses of the injured employee.
- Loss of production during incident investigation.
- Loss of client goodwill.

The foreman could have avoided this event <u>if he had calculated the formwork loads.</u>

- In designing the formwork, the added load of the concrete <u>was not considered when calculating the overall point load on the form ties with a carpenter tied off to it.</u>
- Medium-duty form ties have working loads that are above 3,750 pounds.
  They include coil ties, she-bolt, taper ties, etc.



DISCUSSION QUESTIONS

1. Has anyone on the crew experienced this type of situation?
2. Have you ever needed to use medium to heavy-duty forming ties in the past?
3. Do we have vertical formwork on this project?
4. Are all tie-off points properly rated and designed?

Quality Safety Times wants to present your industry professional, real-life work stories and scenarios. Your stories are learning tools to improve the industry to help reduce rework and improper installation. Consider sharing your stories via our website. **www.qualitysafetytimes.com,** at ***Tell Your Story***

CONCRETE AND REBAR TRADE
STEP LADDER
SAFETY TOOLBOX TALK

OVERVIEW

Step ladders are a standard ladder used by most trades throughout the construction industry.

- Improper workplace use of ladders accounts for 25% of non-fatal falls and 33% of fatalities on our job sites.
- The most common citation issued by OSHA inspectors in 2017 was the failure to use stepladders correctly.

The use of ladders is an ordinary aspect of the workplace and is why ladder incidents are so prevalent. Because of this, all concrete and rebar craftsmen must be well-versed in ladder safety tips and familiar with the risks that come with them.

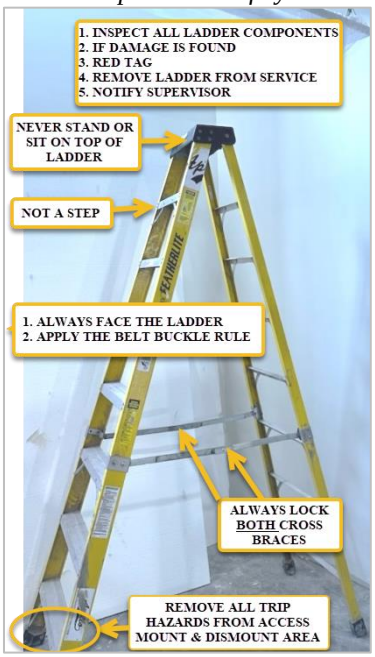
- It is essential for supervisors who oversee concrete and rebar workers to understand the Do's and Don'ts of step ladder safety to ensure that safe practices are being followed on-site.

LEARN AND APPLY THE FOLLOWING

Concrete and Rebar workers must know and practice the following step ladder safety precautions and proper procedures to avoid potential accidents.

1. Before use, familiarize yourself with the various types of step ladders. (a) Always use a non-conductive fiberglass step ladder if there is potential exposure to an electrical hazard. (b) Consider a platform step ladder that offers a more comfortable, larger working surface and greater protection.
2. Know the maximum load of the step ladder, including the weight of tools or equipment.
3. Before use, inspect the step ladder to ensure it is in good condition: check for cracks, wet or slippery substances, bent rungs or feet, rungs that are secure and fitted on the stiles, spreaders that are locked into place, and no ladder distortions.
4. Verify the area where you set the step ladder's base will not cause a trip or tip-over hazard: level, free of any obstacles, debris, and protruding rebar.
5. Ensure any rebar within the ladder area is capped to avoid impalement if a fall occurs.
6. Use a barricade to keep people away from the step ladder, especially near doorways.
7. Ensure you have proper footwear in good condition before climbing a step ladder.
8. Maintain a 3-point contact: two hands and a foot or two feet and a hand while climbing or descending a ladder. ALWAYS firmly plant one foot on the ground before leaving the ladder. NEVER dismount a ladder too early.
9. Never carry tools in your hands while ascending/descending a step ladder. Always transport equipment such as rebar ties, safety caps, and cutters/benders using a tool belt, hoist, bucket, or hand line.
10. Maintain a centered body position on the step ladder to avoid tipping or tilting. This is important when using heavier tools that can throw off one's balance when shifted. Apply the Belt Buckle Rule: "The ladder user should keep their body positioned to keep their torso and belt buckle between the side rails of the ladder."
11. You must NEVER stand or sit on the top of a step ladder. Many people are seriously injured each year by standing or sitting on the top of a step ladder and falling.
12. Ensure you are clear of any overhead obstacles that could cause awkward reaching or unnecessary motions, such as protruding rebar. Apply the "Belt Buckle Rule."

Step Ladder Safety



Meeting Date: **Supervisor:** **Employee Name:**

DISCUSSION QUESTIONS

A. What must you consider before selecting a step ladder and step ladder accessories? Think task and the required tools and equipment?

B. What are some key takeaways for safely working on a step ladder?
Why is it good practice to always use rebar caps?

C. Are there General Contractor or Building Owner specific rules that apply to step ladder work that are above OSHA standards?