OR-OSHA
Construction Depot
Fall 2004 *A newsletter for the construction industry* QUARTERLY

In this issue of the Construction Depot: **OR-OSHA consultant Bob Bryant recently called and asked about information in the out-of-print OR-OSHA publication, *"Fall protection: rebar and concrete formwork."* He pointed out that much of the information is still useful for construction workers and contractors, though it's not in any current OR-OSHA publication. "Why not share that information with them in the Construction Depot?" he asked. You'll find it in this issue.**

Editor's note: *On Saturday, October 30, Bob Bryant died in an ATV accident during a hunting trip. Bob, an OR-OSHA employee since 1986, worked as a safety consultant in the Eugene field office. He was passionate about his work and his enthusiasm was evident to everyone who knew him. Bob was instrumental in creating the 502 Committee and was a major contributor to the committee's new fall protection guide for truss work. OR-OSHA and the construction industry will not be the same without him.*

Also in this issue: **■ OR-OSHA's 502 Committee publishes a new fall-protection publication on setting trusses and rafters. ■ OR-OSHA and The American Society of Safety Engineers team up to educate construction workers and contractors about workplace safety.**

Fall protection, rebar, and concrete formwork: the basics

Positioning-device systems

Positioning-device systems are the most appropriate type of personal fall protection for working on and placing rebar. A positioning-device system enables one person to work on a vertical surface with both hands free and has the following components:

- **Body support –** a body belt or full body harness that has side D-rings or a single D-ring for positioning. A body belt must limit maximum arrest force on a worker to 900 pounds and can't be used for any other purpose. A body harness must limit maximum arrest force to 1,800 pounds.
- **Connecting assemblies and connectors –** a chain/web rebar assembly or rope/web lanyard, snaphooks, and D-rings. Snaphooks and D-rings must support 3,600 pounds without cracking, deforming, or breaking. Connecting assemblies must support at least 5,000 pounds.
- **Anchorage connector –** a carabiner or snaphook.
- **Anchorage –** rebar or other support structure. The anchorage must be able to support at least twice the potential impact load of a worker's fall or 3,000 pounds, whichever is greater.

A positioning-device system

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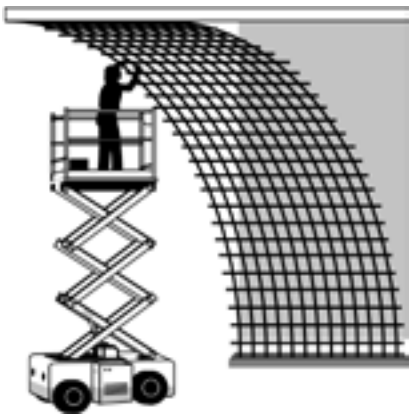
Fall protection *– continued from Page 1*

Climbing concrete forms and rebar



OR-OSHA permits you to free-climb concrete forms and rebar to reach work areas. The maximum free-climbing height is 24 feet. The horizontal bars must be spaced not less than six inches or more than 16 inches on center. When rebar spacing is more than 16 inches on center, use a ladder or lift to reach work areas. Upon reaching a work area, you must use a personal fall arrest system, safety net, or positioning device system for fall protection.

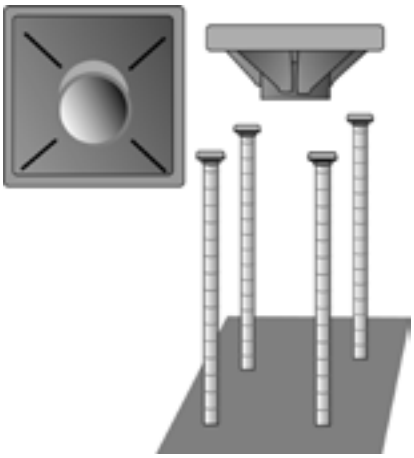
Do not climb overhanging rebar on formwork. If you have to work on overhanging structures, use a powered elevated lift or a ladder.

Check the rebar's rigidity before climbing. If it's not rigid, brace it to meet the 3,000-pound anchorage-load requirement.

Do not climb overhanging rebar or forms. This type of climbing increases your risk of falling and overexerting your muscles and joints.

Capping rebar

Whenever you work above rebar that protrudes from the floor, cover the rebar with protective caps that will prevent you from being impaled if you fall. Cap horizontally protruding rebar to prevent scrapes, cuts, or eye injuries.

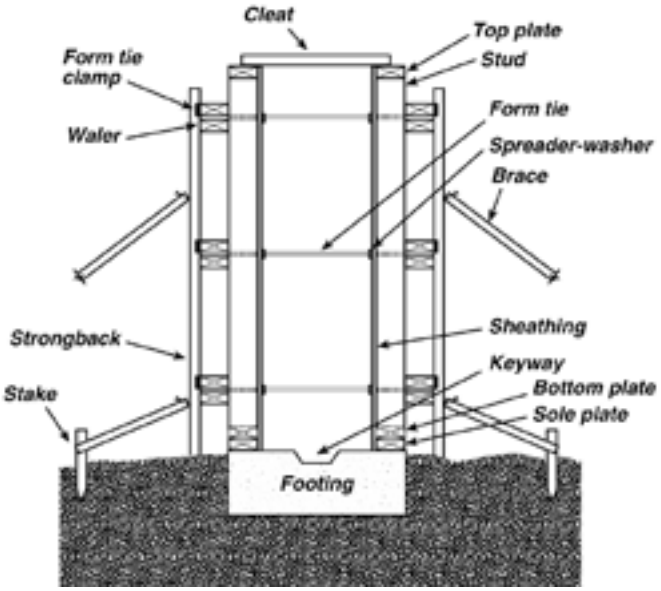


Capped rebar

Standard formwork

When you work on standard forms, use appropriate fall protection – guardrails, personal fall-arrest systems, safety-net systems, or positioning-device systems – or work from a platform on a carpenter's bracket scaffold. Use appropriate fall protection on scaffolds when the platform height exceeds 10 feet. Railings on work platforms must be 45-48 inches high. Include midrails and toeboards if people are working below.

When you climb standard forms with walers or cross-tiers to gain access to a work area, make sure the climbing members are not more than 16 inches apart. Use a ladder or lift to reach the work area if the climbing members are spaced more than 16 inches apart. Tie off an unstable ladder so that it is anchored at the access to the work area and at the ladder's base.



A typical standard form

Walers have depths ranging from $1^1/_2$ inches to $3^1/_2$ inches. Small walers don't offer much toehold; use caution when you climb walers with narrow depths.

If you are doing dismantling work outside protective guardrails, you must use a personal fall-arrest system.

When rebar protrudes from wall forms that you are dismantling, you may tie off to the exposed rebar if it's strong enough and if you can't slide off the end. A number three, grade 60 bar (0.375-inch diameter) has a shear strength of about 6,000 pounds. A number four, grade 60 bar (0.500-inch diameter) has a shear strength of about 8,000 pounds.

Don't walk, sit, or stand on top of wall forms.

Slipforms

Workers using slipforms can be protected from falls by safety-net systems or catch platforms attached to the forms by carpenter's brackets. Special hooks that anchor directly to slipforms are available, too. Follow the manufacturer's recommendations and instructions if you use these hooks.

Tilt-up work

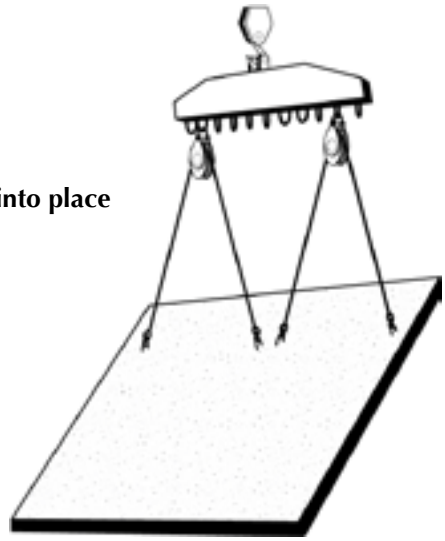
When doing tilt-up work:

- Make sure wall anchors are cast in the wall when it is formed on the ground.
- Attach braces to the wall before the lift.
- Install appropriately sized bolts and shackles to do the lift.
- After the wall is tilted into place, secure the braces before the lifting cables are released.
- Stand clear of the wall and out of its drop zone until it is securely braced.
- Use appropriate fall-protection equipment to walk or straddle upper wall areas.
- Use ladders or lifts to gain access to the upper wall area.

Precast concrete

When you erect precast concrete members such as wall panels and columns or do related work, such as grouting precast members, and you're 10 feet or more above a lower level, you must be protected from falling by guardrails, safety-net systems, or personal fall-arrest systems.

Tilting a wall into place



OR-OSHA's 502 Committee produces a new fall protection booklet

Can you eliminate or minimize fall hazards for workers who set and brace wood trusses and rafters? If you're involved in the woodframe construction industry in Oregon, see the newest publication from OR-OSHA for answers.

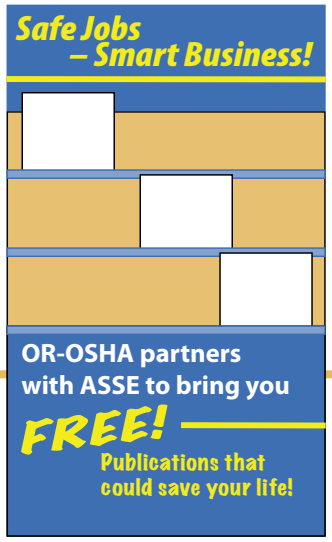
"***Fall Protection: Safe practices for setting and bracing wood trusses and rafters***" tells you how to anticipate fall hazards and gives you practical methods for controlling and preventing them. Online now at **www.orosha.org**. Available November 1 at the OR-OSHA Resource Center, **(503) 378-3272**.

OR-OSHA established the 502 Committee, which includes OR-OSHA and industry representatives, to evaluate construction processes with difficult-to-control fall hazards and to determine appropriate fall-protection systems or methods.

Next on the 502 Committee's agenda: fall protection challenges in leading-edge work and exterior-wall construction in stick-framed construction.

Safe Jobs, Smart Business
for construction contractors

In August, the Department of Consumer and Business Services launched a campaign — called ***Safe Jobs, Smart Business*** — to educate employers about the value of planning workplace safety and health in their business activities. As part of that effort, OR-OSHA is working with trade associations and other stakeholders to reach construction contractors who may not be aware of OR-OSHA services. Beginning in early December, OR-OSHA and the American Society of Safety Engineers will place displays featuring free OR-OSHA and ASSE publications in home improvement retail stores across Oregon.



OR-OSHA

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For general information, technical answers or information about Oregon OSHA services, please call (503) 378-3272 or toll-free within Oregon, (800) 922-2689.

For a color version of Construction Depot and related occupational-safety-and-health information, visit the OR-OSHA Web site, www.orosha.org.

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