

## TOOLBOX TALK: CONCRETE AND FORMWORK

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**Job or site** \_\_\_\_\_

**Date** \_\_\_\_\_

**Led by** \_\_\_\_\_

### Open with this

Who here has seen a shore that was not quite in contact at the top? Nobody is in trouble. I want to know whether that is something we notice or something we walk past.

### The talk

The rule about rebar is one sentence and it is absolute. All protruding reinforcing steel onto and into which employees could fall shall be guarded to eliminate the hazard of impalement. Not most of it. Not the bits near the edge. All of it that anybody could fall onto or into.

Notice what it does not say. It does not say cap it, because a plastic mushroom cap that shatters is not guarding. What eliminates the hazard is a cap rated to take the load, a bent over bar, or a trough over the run, and the standard is written in terms of the outcome so that the answer has to actually work.

Formwork has to be designed, fabricated, erected, supported, braced and maintained so it can carry without failure every vertical and lateral load reasonably anticipated. Lateral matters. A form that would hold the concrete standing still can still go over when the pour pushes sideways or a machine touches a brace.

The drawings have to be at the jobsite, including every revision. If the shoring on this job does not match a drawing somebody can put a hand on, nobody can honestly say the shoring is right, they can only say it has not fallen yet.

Shoring gets inspected three times, and this is the part crews skip. Before erection, to confirm it matches the drawings. Immediately before, during and immediately after the pour. During. That means somebody is watching the shoring while the concrete is going in, and anything found damaged or weakened after erection gets reinforced immediately.

Sills have to be sound and rigid, base plates and shore heads and screws have to be in firm contact and secured where needed, and eccentric loads on shore heads are prohibited unless the member was designed for them. Firm contact is the one to look for, because a shore with a gap at the head is carrying nothing until the deck moves.

Then the short prohibitions that cover the rest of the pour. No employee rides a concrete bucket. Nobody works under a bucket while it is being raised or lowered, and the buckets get routed so the fewest possible people are ever under them. During post tensioning, nobody except the people essential to it is behind the jack, and signs and barriers go up to keep everyone else out of the area.

And before any construction load goes onto a poured structure, somebody qualified in structural design has to say it can carry it. Not the foreman's judgment, and not the fact that it looks cured.

### **Point at these before anybody starts**

- Every piece of protruding rebar anybody on this site could fall onto, and what is on it.
- The formwork drawings, and whether anybody here could produce them in two minutes.
- The shore heads and base plates, checked for actual firm contact.
- The route the bucket takes, and who stands under it.
- The post tensioning area, and whether the barriers are up before the jack runs.
- Any material stacked on a slab poured this week.

### **The rules that apply**

- All protruding reinforcing steel onto and into which employees could fall shall be guarded to eliminate the hazard of impalement.
- Formwork shall be designed, fabricated, erected, supported, braced and maintained so it can support without failure all vertical and lateral loads that may reasonably be anticipated, and the drawings including revisions shall be available at the jobsite.
- Shoring shall be inspected before erection, and erected shoring shall be inspected immediately prior to, during, and immediately after concrete placement, with anything damaged or weakened reinforced immediately.
- Base plates, shore heads, extension devices and adjustment screws shall be in firm contact and secured where necessary, and eccentric loads on shore heads are prohibited unless designed for them.
- No employee shall ride concrete buckets, and no employee shall work under a bucket while it is being raised or lowered.
- During post tensioning no employee other than those essential to the operation shall be behind the jack, and signs and barriers shall limit access to the area.

### **Ask the crew**

- What does the standard require for protruding rebar, and does a cheap plastic cap do it?
- How many times does shoring get inspected around a pour, and when is the one everybody forgets?
- Who is allowed behind the jack during tensioning?

### **Close with this**

Formwork does not sag first. Look at the shores while the truck is still pouring, because after it is a different job.

Attendance

Everybody who was present signs, including subcontractors and anybody visiting the site.

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*This talk is general safety information for a crew briefing, not legal advice and not a substitute for the training your employees are required to have. Standards are quoted for orientation only. Check the current text of the standard and your own state plan, which may be stricter than the federal rule.*