

## INDUSTRY SAFETY ALERT

# RISKS FROM EXPOSED REINFORCEMENT BARS

### ISSUE

The dangers of falling against exposed reinforcement bars.

### BACKGROUND

A recent incident in which a person was impaled on an exposed reinforcement bar highlighted the need to protect against this risk. It also identified an apparent misunderstanding of the purpose of caps placed on reinforcement bars ('rebar-caps'), which may give a false sense of protection against impalement.

A worker stumbled and fell against a vertical reinforcement bar. The bar had a rebar-cap on it, but it offered no protection against impalement as the weight of the worker against the rebar-cap was sufficient for it to be pierced by the bar. Subsequent tests involving a 20 kg bag of sand dropped one metre onto a vertical reinforcement bar show that standard rebar-caps provide little, if any, protection against impalement on reinforcement bars should a person fall against them, even for a fall on the same level. Any protection offered by the rebar-caps, no matter how slight, was greatly reduced if they were the wrong size for the bar or were incorrectly fitted (see Figures 1 and 2 below.).

These findings were supported by information obtained from a number of suppliers who state that rebar-caps are only intended to provide visual warning of a hazard and protection against brush contact with burred ends of the bars, and not as a means to control the risk of impalement.

### WHAT SHOULD BE DONE?

#### Designers, manufacturers and suppliers

Designers, manufacturers and suppliers of rebar-caps must ensure that all relevant information is provided so they can be properly used for their intended purpose. This information must state limitations on the rebar-caps' use, and include:

- whether the rebar-caps are simply intended to be visual warnings and offer protection against brush contact with the ends of reinforcement bars, or if they are intended to offer any degree of protection against impalement
- their correct fitting to the bars
- the size or range of reinforcement bar to which the rebar-cap can be fitted
- possible degradation under exposure to direct sunlight, and means to detect this.

Where possible, the information should be stamped or otherwise displayed on the rebar-caps.

## Employers

In controlling the risk associated with falling against reinforcement bars, the measures below need to be applied in the order listed:

### 1. Eliminate

Where possible, the need for persons working adjacent to exposed reinforcement bars should be eliminated. For example, this can be achieved by relocating work activities or access routes away from areas with exposed reinforcement, or by scheduling work to be done when there are no exposed bars present.

### 2. Separate

Where elimination is not possible, persons should be effectively separated from the reinforcement bars by guardrails, screens or other means. Where persons are working adjacent to exposed reinforcement bars on scaffolding or other form of portable work platform, it should be fitted with edge protection regardless of its height above the adjacent ground. Properly guarded access needs to be provided between work areas, including elevated areas.

### 3. Use of rebar-caps

Where it is required that persons work adjacent to exposed reinforcement bars even after the application of the above measures, rebar-caps should be placed on top of the exposed reinforcement bars. In using such rebar-caps, the following needs to be taken into account:

- Careful consideration should be given to the type of rebar-cap used, and rebar-caps offering some level of protection against impalement should be used where necessary.
- Most rebar-caps come in different sizes; the correct rebar-cap must be used for the size of bar. (Some types of rebar-caps cannot be reused on smaller bars.)
- The rebar-caps must be fitted properly in accordance with the manufacturer's instructions. (Some types of rebar-caps have to be twisted onto the bar.) An incorrectly fitted rebar-cap greatly reduces its effectiveness to prevent impalement injuries.
- The condition of the rebar-caps must be checked. In particular, as prolonged exposure to ultra violet light can cause the plastic used in their manufacture to deteriorate, care is necessary when re-using rebar-caps that may have been exposed to direct sunlight.
- The rebar-caps should be inspected on a daily basis to ensure that they are in place and are fitted correctly.

A WorkCover NSW officer encountering a site where there is a risk of impalement from reinforcement bars will take appropriate action.



Figure 1: Typical example of a correctly fitted rebar-cap



Figure 2: Typical example of an incorrectly fitted rebar-cap