

Use Skid Plates for Moving Concrete Filled Hoses

Problem:

During concrete pumping laborers are frequently required to pull concrete filled hoses across rebar matting. There may be a dozen sections leading from the slick line to the pour site. It takes in excess of 80 pounds of force by each laborer to move these hoses.

Pulling these hoses is difficult because latches on quick release couplings catch on rebar matting and hoses are heavy, creating friction and resistance to movement.

Risk Factors:

Awkward postures and high force in the low back result when pulling and moving hose sections as the pour progresses.

The low back must also exert high movement velocities and accelerations.

Studies with manufacturing employees have shown that the combination of trunk flexion, high velocity movements, low back torque and repetitive activities increase the risk of low-back injury.

This combination of factors in concrete laborers may increase the risk of injuries such as low-back strains, sprains and disc protrusions.



Laborer pulling hose secured to a skid plate

One Solution:

Skid plates are 2' metal disks that are placed under hose couplings. Four to 6 skid plates should be used near the pour end of the hose.



Skid plate secured with bungee cords

Skid plates decrease the friction under the hose and prevent quick release latches from catching on rebar matting. However, they have a tendency to catch on Nelson studs.

Use of skid plates has been shown to reduce forward bending, decrease low back velocity and the force required by the low back to move hoses. One study showed that use of secured skid plates decreased low-back injury risk from 67% to 46%.

Skid plates work best when secured in some manner. Without securing, they may increase bending and force to the low back.

Laborers found rebar wire the best method of securing skid plates. The wire was accessible, quick to attach and could be rapidly removed with a wire cutter. Bungee cords and quick-release straps didn't work as well.

Effect on Productivity:

Use of skid plates does not result in loss of productivity. Workers like using them and feel they make pulling the hose easier. If workers are less fatigued from pulling heavy hoses productivity may actually increase.

Cost: Skid plates can be purchased for about \$200 each from Conforms, www.conforms.com, part # LH-54.

