

Ergonomics For Plaster Tenders



Musculoskeletal Risks in the Plaster Tender Industry

MIXING STATION SETUP

To reduce your risk of sprains and strains, proper set up of the mixing station is important.

The following items go in the mixer:

- Plaster mix/Portland cement
One bag - about 94 pounds
- Sand
Three bags or twenty #2 shovels full - about 100 pounds
- Lime
One 50-pound bag
- Water
5 gallons - about 50 pounds

A mortar mixer makes about one mix every hour and therefore moves about 2,400 pounds—or over a ton—of materials in and out of the mixer each day.

PLASTER MIX/PORTLAND CEMENT:

The plaster mix/Portland cement comes in bags. Stack the bags as close to the mixer as possible and provide a ramp from the bags to the mixer. There should be a 3-foot high platform next to the mixer so you can load the mixer

from waist height. Bags should be stacked on a pallet. An adjustable spring-loaded lift table is best because it raises the load to waist height as bags are removed from the pallet. Bags should be developed that are easier to open, pour, and carry (with spouts and handles, for example). Use utility knives to cut the bags open instead of trying to break them on the mixer.

SAND: Sand is delivered in bags, cardboard boxes, or is dumped on the ground. If it has to be shoveled, use a long-handled shovel, preferably with a D-handle on the shaft so you do not have to bend as far forward to lift the load. The sand needs to be as close to the mixer as possible. Sand bags are more difficult to carry because they are fluid; a box with handles is easier.

LIME: Lime is extremely alkaline and can be very caustic. It is delivered in 50-pound bags and is mixed with approximately 6 gallons of water per bag. Once the lime has been prepared it can be scooped out of 5-gallon pails using homemade scoops (a pail can be cut into four scoops using a sawsall). There are scoops with handles that can be purchased inexpensively.

WATER: Water is often delivered in 50-gallon barrels. A 5-gallon bucket is dipped into the barrel to get water for the mix. However, it is easier and more accurate to deliver water from a hose attached to a water flow meter. The meter costs about \$100 and can accurately measure the water for the mix.

MIXING

Mixing is usually done using an electric mixer. For a small batch of a single product, it may be mixed in a barrel or drum with an electric drill running the mixer. Slacking—which is mixing in a lime mixture—is done by hand by adding a small amount of material at a time from a bag

TRANSPORT

After the product is prepared, the mixer is dumped into a wheelbarrow or mortar buggy (it can also be delivered to the plasterer with a pump). One mixer can fill about two wheelbarrows. However, if you are using wheelbarrows they should only be half full (especially if you are pushing them on gravel or have to transport them up a ramp to a hoist). Another variable is your own strength and capabilities. A full wheelbarrow can weigh 150- to

200 pounds and can be difficult to push. Always use your legs, not your back, to push it. Motorized buggies are better as are wheelbarrows with two wheels in front, making them easier to push (but harder to turn).

Mortar delivered by buggy or wheelbarrow is shoveled either directly onto mortarboards for use by the plasterers or into pails that are hauled up to a scaffold and dumped onto the mortarboards. Full pails are very heavy and plastic pails are flimsy. Do not overfill a pail because they spill and are difficult to handle. Three-quarters full is plenty. A fill line on the pail would help. Pail handles are made easier to handle by using gloves or a wrap-around cushion for the handle. On scaffolds, pails are often hoisted up with ropes and pulleys.

TENDING

One tender usually supplies about four plasterers. When using a pump system, the tender's job and the ergonomic hazards are very similar to that of a fireproof tender (for example, dragging heavy hoses, slippery floors, cleaning clogged hoses, setting up and tearing down of hoses).

CLEANUP

The tender is responsible for cleanup of all tools, planks, buckets, and hoses. Most materials are easily cleaned with a wet brush and water. Materials become difficult to clean once the mix hardens; then they must be cleaned with hammers and scrapers. Wastewater is often dumped into barrels during clean up.