# Construction Fact Sheet

# An Innovation for Grout Delivery

## The Problem

- When workers deliver grout using the traditional method, they have to shovel loads of grout into buckets and then carry the buckets to the masons.
- Full buckets of grout weigh around 32 kgs., and workers may handle buckets many times per day in order to fill blocks with grout.
- Risk of injury from lifting and shoveling depends on the weight and the number of loads.
- This risk increases even more if the body is twisted while lifting and shoveling.
- Workers are at risk of injuries to their hands and arms when scooping the grout with the trowel, which requires repetitive, forceful exertions of the arm and awkward wrist positions.

*Traditional method of transporting grouting using buckets.*

## One Solution

- Use a mechanical **grout delivery system** to deliver grout and fill the blocks.
- A mechanical grout delivery system reduces the need for manual grouting using buckets, shovels and masonry trowels.

*Grout delivery system*

CRE-MSD Centre of Research Expertise for the Prevention of Musculoskeletal Disorders

INFRASTRUCTURE HEALTH AND SAFETY ASSOCIATION

## How It Works

*Filling the blocks*

- The mechanical grout delivery system has a large hopper that uses gravity or compressed air to deliver grout into the masonry wall space.
- After the grout has been delivered or mixed on site, it is poured into the grout hopper.
- For a gravity-based delivery system, the hopper is lifted by crane or boom truck to the work area above the wall being grouted. For a compressed air system, a long hose is used to deliver the grout and the main grout container can be place at ground level.
- The grouting material is pumped through the hose which is guided by a worker to the desired location.

## Benefits

- The mechanical grout delivery system reduces the lifting and carrying of heavy buckets of grout. The repetitive forceful exertions required to scoop the grout with a trowel are reduced/eliminated.
- Productivity is also increased because :
  - The grout delivery system allows fast grouting to be done with only two workers: one worker guides the hose to the block cell and the other maneuvers/controls the grout delivery system.
  - Multiple grout hogs may be used simultaneously to increase productivity.

## For More Information

- Products related to this solution are described at http://www.cpwrconstructionsolutions.org and www.cpwr.com/simple.html.
- Products may also be found on the internet using the following search terms: “grout delivery systems” or “grout hog.”
- Local contractor tool and equipment suppliers or rental companies may be another source of information on products.
- For general information on this solution, call the Infrastructure Health and Safety Association at 416-674-2726 or 1-800-781-2726.

This factsheet is adapted from the Pre-Blended Mortar and Grout Bulk Delivery Systems Tip Sheet and the construction solution Pre-Blended Mortar and Grout Delivery Equipment. We would like to give credit for this factsheet to the following: Albers, James T., and Estill, Cheryl F. (2007) *Simple Solutions: Ergonomics for Construction Workers.* DHHS, National Institute of Occupational Safety and Health (NIOSH) Publication Number 2007-122. http://www.cdc.gov/niosh. To view the full Table of Contents for the *Simple Solutions* document, please visit: http://www.cpwr.com/simple.html. *Construction Solutions* is an online product of CPWR – The Center for Construction Research and Training. Research used to develop and maintain *Construction Solutions* was funded by CPWR, using grant U54 OH008307 from NIOSH. The contents are the sole responsibility of the authors and do not necessarily represent the official views of NIOSH. For more information, visit www.cpwr.com or www.cpwrConstructionSolutions.org