

Overview:

Trowels vary in length, width, shape and size (examples, photos 1, 2 and 3). Selecting the right trowel depends on the type of work being performed as well as your hand measurements. A brick trowel, for example, has a handle that extends from a shank (or stem) that is slightly angled away from the blade. In contrast, the handle of a flat trowel sits on top of the blade, with less of an angle (see “*What to Consider When Choosing Flat Trowels and Floats*”).



Photo 1 – 13” Narrow London Trowel w/ wood handle



Photo 2 - 6” x 2” Margin Trowel w/ wood handle

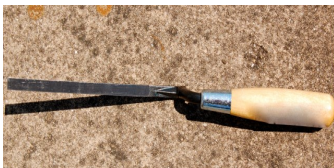


Photo 3 – 3/8” Caulking/Tuckpointing w/ wood handle

Tips for what to look for:

- ⇒ **Grip size.** The trowel handle’s grip size should match or be close to your grip size.
- ⇒ **Length.** Handles that extend beyond the end of your palm will reduce injuries and discomfort caused by the handle cutting into the base of your palm. Select a handle length that is longer than your palm size.
- ⇒ **Material.** Trowel handles are often available in different materials, such as wood, leather, and synthetic non-slip and cushion grips. Softer handle materials, such as leather, take less work to hold and can help to reduce vibration and cold. But leather may absorb sweat, which can make the trowel heavier and

more difficult to manipulate or ‘spin.’ Select a material that matches how you use the handle when performing your work.

- ⇒ **Handle shape.** Tapered handles, such as those commonly found on brick trowels, have a varied grip size, which may increase comfort and allow for a pinch grip for doing more exact work.
- ⇒ **Trowel size & weight.** A trowel’s size makes a big difference in working weight. Larger ones are heavier because of their size and the fact that they can hold more mortar and other materials. But a larger trowel does not always mean greater productivity. Some craft workers *may* be able to work more productively with a larger trowel, while others may be more productive with a smaller trowel since a smaller length and width reduces the amount of effort over time. Less hand and wrist fatigue means you can work at a steadier pace, for a longer period of time, and with a lower risk for injury. So even with larger hands, the biggest size trowel may not be the best choice.
- ⇒ **Handle/work angle.** A handle angle that keeps your wrist straight will reduce hand and wrist fatigue and risk of injury. If different handle angles are not available, then it is important to change the staging height of your work to keep working at a fairly even angle. Working at an optimal height – between knees and shoulders– can help prevent hand as well as back and shoulder injuries. If that is not an option, you may want to change to a different angle tool for work at higher levels in order to do this.
- ⇒ **Anti-slip materials:** Tools are used in different ways depending on the user and the task. For some tools, a smooth surface that allows the user to easily ‘spin’ the handle is preferred. For others, a slippery handle can require a stronger grip – increasing fatigue and risk for injury. If a steady grip is needed, using a tool with a non-slip grip or adding anti-slip materials may help.

Applying the tips:

- ⇒ **If there are two handle grip sizes** available and your grip is in between, consider replacing the handle or modifying it to fit.
- ⇒ **If the trowel handle grip size is *too small for your hand***, you can apply a tool sleeve or use a padding kit to increase the grip size. Wearing gloves may also help since they typically reduce your effective grip size. Depending on the materials and products you are working with a specific type of glove may be recommended or required to avoid skin disorders, such as burns and dermatitis. *Note: some workers have reported a reduced sense of touch and needing a stronger grip to hold on to tools when wearing gloves. Using a hand tool with a non-slip grip area or adding an anti-slip material may help.*
- ⇒ **If the trowel handle is *too large for your hand***, you might be able to sand down a wood handle to a smaller grip size. But be careful, sanding too much off could affect the strength of the handle and increase the chance of the handle breaking.
- ⇒ **If you already have a hand/arm injury or condition such as tendonitis, arthritis, or carpal tunnel syndrome**, the smallest, lightest weight trowel for the job would be the best choice.

Example:

Worker Hand Measurements = hand size (length) of about 7-1/4" (or 7.25"), with a grip diameter of about 1-2/5" (or 1.4"), a grip size of about 4-3/5" (or 4.6"), and a palm size of 3".

Choices:

11" brick trowel with a tapered wood handle, 4-3/4" (or 4.75") grip at its widest point, a 6" handle length, and a total weight of roughly – 1 lb 3 oz (or 19 oz).

Or

10" Brick Trowel with a tapered wood hand, 4-3/8" (or 4.375") grip at its widest point, a 6" handle length, and total weight of roughly –1 lb (15.6 oz).

What the worker in this example should consider:

- ⇒ The 11" trowel weighs more and will be too large for the worker's grip size. Using this size handle will add to the worker's fatigue and risk of injury. If this size trowel is considered the best for the job or the only option, the worker could replace the handle with a smaller one that is closer to his/her grip size, or modify the handle to narrow the grip as described earlier.
- ⇒ The 10" trowel weighs less and reduces the risk of hand fatigue and injury. The handle size will be smaller than the worker's grip size, so he/she might need to replace it with a larger size handle closer to his/her grip size or modify it to increase the grip size as described earlier. Wearing gloves may also make the grip size fit better, as well as (depending on the materials being worked with and type of glove) protect the worker's skin from chemicals and cold.

To learn more, visit www.choosehandsafety.org for information on how to determine your hand-size, use this information when selecting tools, examples of hand tools, and other ways to protect your hands.

Photos: Tools supplied for photos courtesy of the Masonry r2p Partnership (BAC, ICE and IMI).

Research for this Fact Sheet was funded by CPWR – The Center for Construction Research and Training, using grant U60 OH009762 from the National Institute of Occupational Safety and Health (NIOSH). The contents are solely the responsibility of the authors and do not necessarily represent the official views of NIOSH.

CPWR is a 501(c)(3) nonprofit research and training institution created by the Building and Construction Trades Department (BCTD), AFL-CIO, and serves as the research arm of the BCTD. CPWR provides safety and health research and information for the construction trades and industry. For more information, visit www.cpw.com.