

Overview:

Flat Trowels vary in length and width and have a metal blade (photo 1). Floats also vary in length and width and are made out of different materials including wood, stainless steel, and molded rubber (photo 2). Although these two tool categories are used for different purposes, the location of the handle is similar and influences the way the tool is used.



Photo 1 – Flat Notched Trowel.



Photo 2 – Grout Float

Both have handles positioned on top of the blade that can cause pressure on the palm and increase the need to bend the wrist to perform work. Working with your wrist bent while putting downward pressure on the palm of your hand can lead to numbness or pain in your hand. Overreaching either out in front of you or above your head can lead to hand, wrist, and arm strains. In addition, users of flat trowels that hold them from the stem (or shank — photo 3), create pressure on the base of their palm near the carpal tunnel, increasing their risk for carpal tunnel syndrome.



Photo 3 - Flat Trowel – Source: Tip Sheet: Concrete Trowel Handles – produced under CPWR Agreement #1020-005-56

Tips for what to look for:

⇒ **Grip size & shape.** The grip should match or be close to your grip size. In addition, since the handle is positioned over the blade or float, you also need to make sure that there is enough clearance between the underside of the handle and the float or trowel for your knuckles, while still having a comfortable grip. Handles that are slightly tapered under the middle of the handle or curved may help.

- ⇒ **Length.** The handle should extend beyond the end of your palm (be longer than your palm size) or be cushioned to reduce injuries and discomfort caused by the handle cutting into the base of your palm.
- ⇒ **Handle position.** Floats with screwed on handles or built-in adjustable handle features can be repositioned to reduce the amount of time you need to work with your wrist bent and reduce the risk of injury.
- ⇒ **Material.** Flat trowel and float handles are available in different materials including wood and cushioned handles. As noted in the discussion of grip and length, the best handle material is the one that will reduce pressure on your palm, the amount of time you need to work with your wrist bent, and exposure to cold.

Applying the tips:

You may be able to **modify or replace the grip:**

- ⇒ **If the handle grip size is *too small for your hand*,** you can apply a tool sleeve or use a padding kit to increase the size of the handle grip. 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 your palm size is too big** and the tool handle is digging into your palm, you may be able to:

- ◇ Replace the handle with a longer one;
- ◇ Apply a tool sleeve or padding; or
- ◇ Use a cushioned handle.

⇒ **If you grip your flat trowel from the stem** (photo 3) you can also use padding to create a cushion that will reduce the pressure on your palm and change the angle between the handle and stem to position your wrist in a more comfortable and less hazardous position (photo 4)*



Photo 4 - Flat Trowel – Source: Tip Sheet: Concrete Trowel Handles – produced under CPWR Agreement #1020-005-56

If you already have a hand/arm injury or condition such as tendonitis, arthritis, or carpal tunnel syndrome, the smallest, lightest weight flat trowel or float for the job is best.

Example:

Worker Hand Measurements = hand size (length) of about 7-1/2" (or 7.5"), with a grip diameter of about 1-1/2" (or 1.5"), a grip size of about 4-7/10" (or 4.7"), and a palm size of 3".

Choices:

11"x4-3/4" Flat Trowel with wood handle, 5-3/8" (or 5.375") grip at its widest point, a 4-1/2" handle length in wood, and a total weight of 12.9 oz.

OR

11"x3-3/8" Flat Trowel with wood handle, 5-1/8" (or 5.125") grip at its widest point, a 4-1/2" handle length in wood, and a total weight of 12.5 oz.

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.

*Tip Sheet: Concrete Trowel Handles – produced under CPWR Agreement #1020-005-56

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