

STEP-BY-STEP GUIDE

Foot-pump Handwashing Station

Designed by Steve Abbott <http://designchoice.org/>

2020 | APRIL



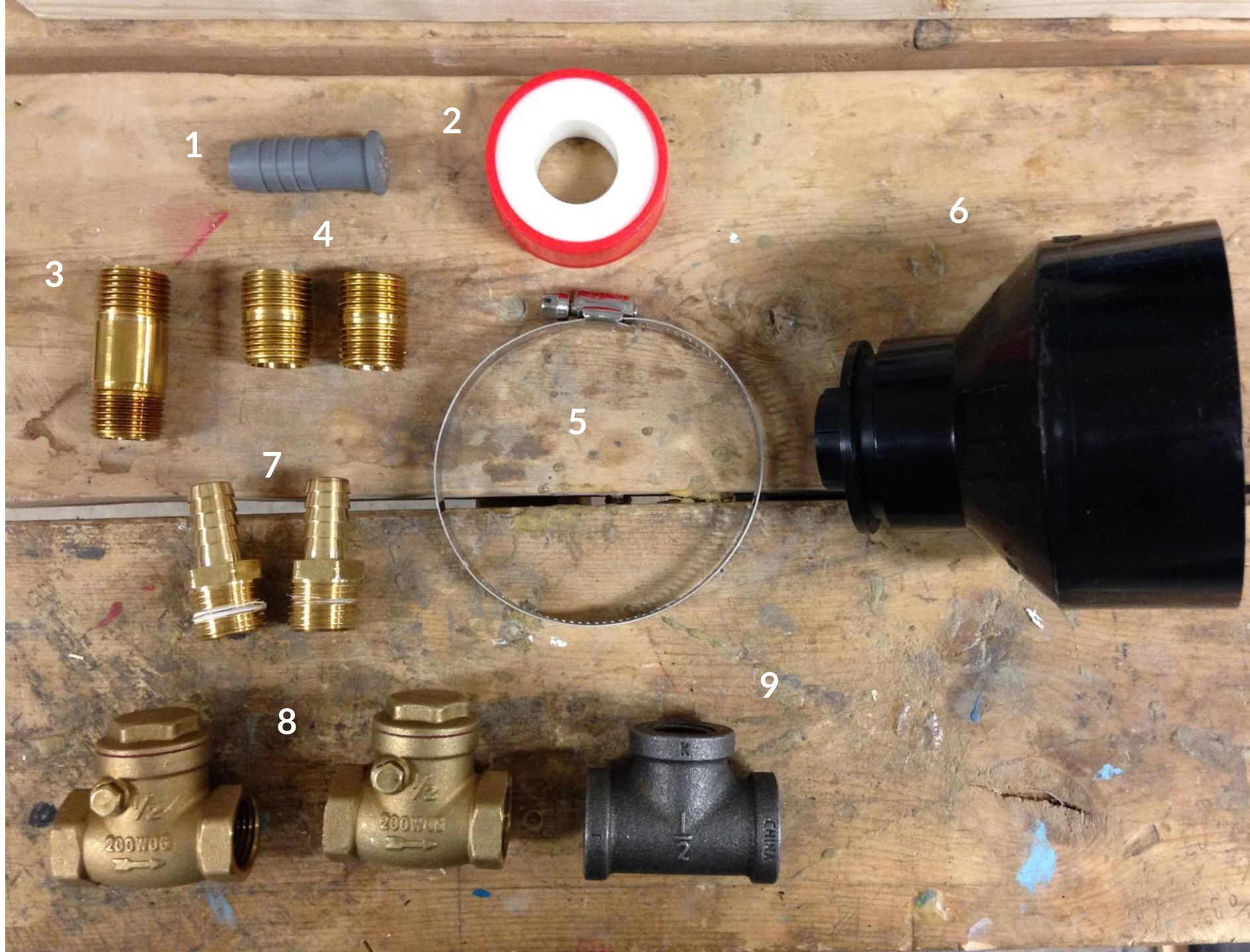
Materials



Materials:

1. ½" barbed plug
2. Plumbers' tape
3. ½" x 2" nipple
4. Two ½" nipples
5. 3" clamp
6. ½" threaded connected to 3" reducer * these are glued together. See next slide
7. Two ½" hose barbs
8. Two ½" check valves
9. ½" galvanized tee
10. Wood screws (not in picture)

Note: It is NOT necessary to use brass or GI parts. If plastic parts are available these will reduce costs and work just as well.



To make item #6 on the previous slide you need:

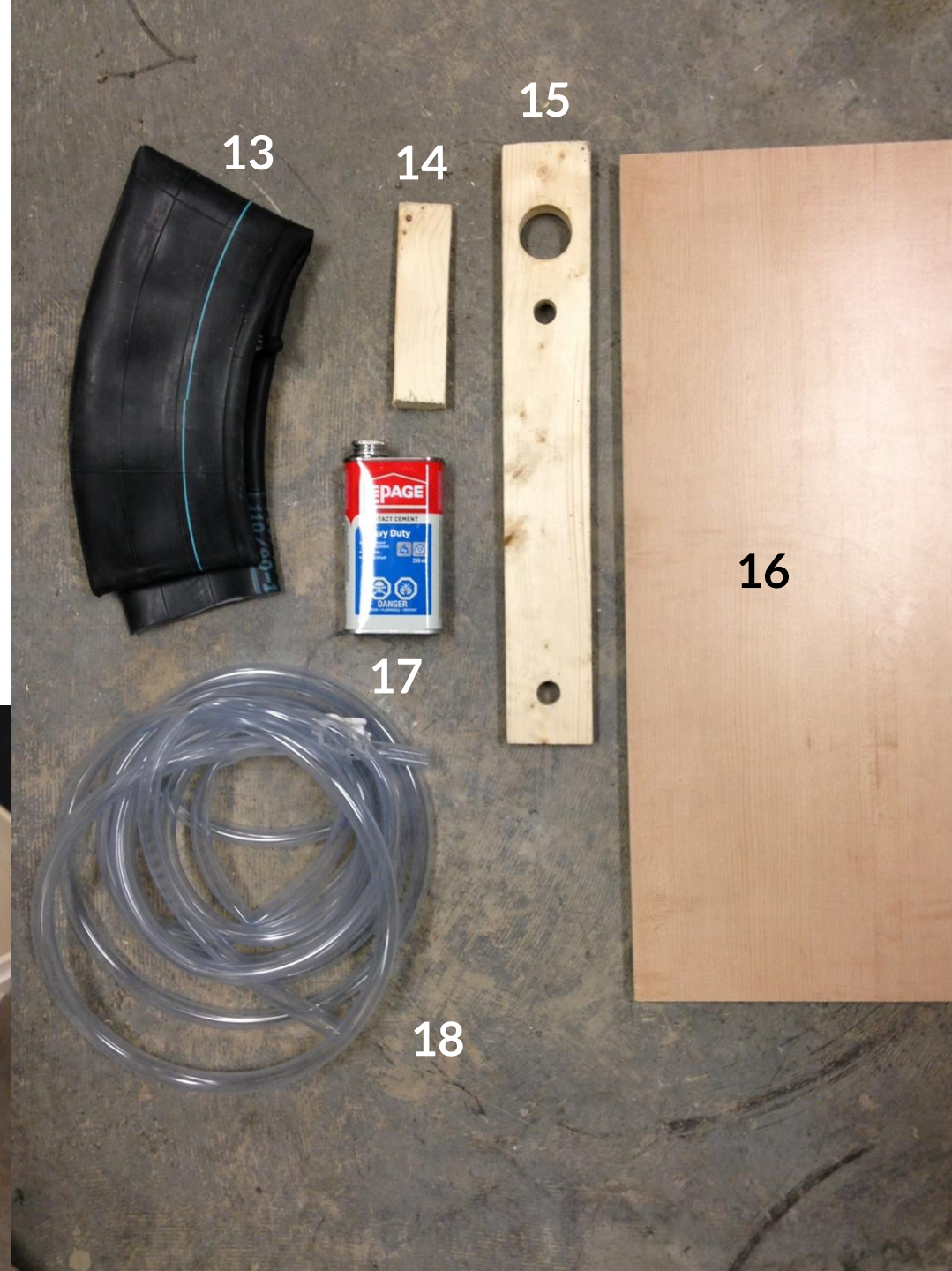
- A. 1½" to ½" threaded connector
- B. 3" to 1½" reducer
- C. Glue together with ABS cement



- 10. Plastic buckets x 4*
1 bucket to store clean water, 1 bucket for greywater, 2 buckets for the stand.
- 11. Lids for buckets x 2
- 12. Plastic bowl with several holes drilled into the bottom

- 13. Motorbike inner tube
- 14. Piece of scrap wood (17cm x 4cm x 2cm)
- 15. Cross bar for stand (42cm x 6cm x 2cm, two holes 5/8" dia for plastic tube, one hole for stand)
- 16. Board (60cm x 25cm x 2cm)
- 17. Contact cement
- 18. Plastic tubing 1/2" inner diameter (3 m)

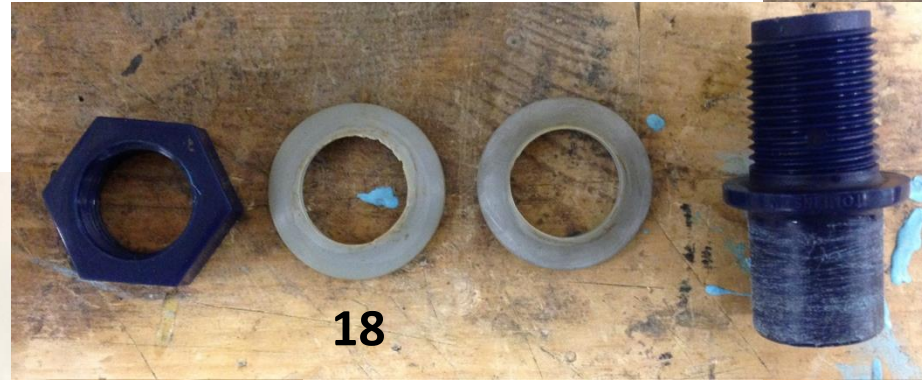
Note: Use buckets of the same volume for the storage and drainage water



18. Bulkhead fitting

19. Stand for outlet tube

You can use anything you'd like. We used an old bucket and concrete to make a base for the wooden pole and cross bar



Tools

- Wood saw
- Pipe wrench
- Drill and drill bits
- Tape measure
- Screw driver
- Wire cutters
- Clamps



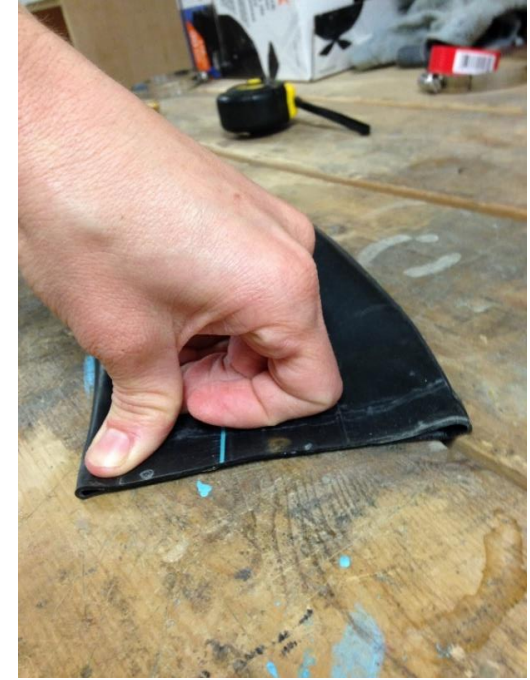
Assembly



1. Cut a piece of inner tube approximately 30 cm long



2. Apply contact cement to the inside part of the tube



3. Press together

4. Apply contact cement to both sides of the glued end



5. Fold the tube over twice and clamp to hold (clamping is not necessary, you can just press it down)



6. Once set, fasten the inner tube to the board with 2 wood screws and the scrap wood. Be careful not to puncture the tube with the screws.



8. Apply plumbers tape to all threaded parts



9. Join all parts and tighten with a pipe wrench



10. Connect hardware to the inner tube and secure with the clamp



11. Drill holes into a plastic bowl to create a basin
Note: The bowl must be large enough to be held up by the rim of the greywater bucket

12. Stack the buckets to create a stand



13. Cut 2 lengths of plastic tubing:

- Approximately 80 cm to connect the storage bucket to the pump
- Approximately 175 cm – to connect the pump to stand
- If you use a different configuration for the stand, you may need more or less tubing



14. Attach the tubing to the storage bucket. You may want to use tie wire to make sure it is secure

15. Prop up storage bucket on another bucket, or use something else for a stand.
Note: the storage bucket must be elevated above the pump to have enough head to fill the pump





16. Drill several holes in the plastic plug



17. Assemble the stand



18. Thread tubing through the cross bar and jam the plastic plug into the end of the tube

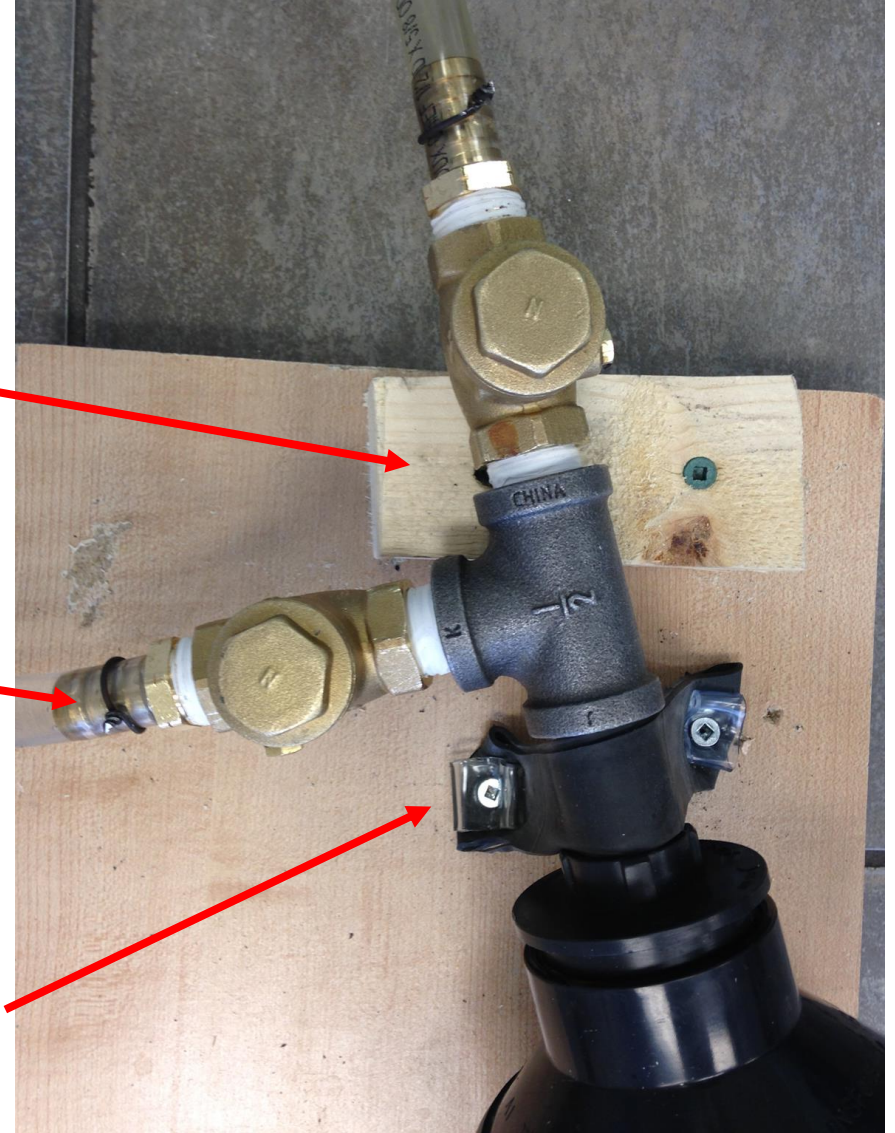


19. Attach the plastic tubing from the bucket to the pump, and from the stand to the pump

Chunk of wood to support valve

Tie wire to secure tubing to hose barbs

Pump is strapped to board with extra piece of inner tube



20. Make sure the check valves are level. We supported the top valve with an additional piece of wood. Secure the pump to the board if necessary

20. Arrange the stand, storage bucket, basin, and foot pump in the proper configuration, so it is easy to use.

21. Provide soap - the storage bucket makes a convenient stand





21. Fill the storage bucket with water, and give it a try!

REMEMBER!

- Make sure check valves are pointing the right direction (look at the arrow on the valve), and ensure valves are level once installed
- The grey water bucket will have to be emptied manually once full. Don't forget!
- It's important to provide soap at the handwashing station.
- This handwashing station was designed by Steve Abbott at Appropriate Design Choice. You can get more information at <http://designchoice.org/> on different types of handwashing stand configurations, as well as information on shallow well pumps and hand dug wells.



Make sure the check valve is pointed the right way

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THANK YOU!