



Self-watering Planter

I love to grow fresh salad greens, tomatoes and herbs. But growing veggies during high summer means daily watering, which becomes a problem when we go away for vacation. In the past, we've hired the neighbor kid—sometimes he remembered, and sometimes we came home to withered veggies.

Last summer I decided to build “self-watering” veggie planters that I could leave for a week without watering. The results were amazing. The planter boxes themselves were gorgeous, they kept rabbits and other critters from munching on my greens, and I went for weeks on end without having to water. I watered three times all summer long (no kidding), and we had garden-fresh salads until frost. In this article, I'll show you how to build one for yourself. The secret is in the perforated drain pipe.

Build a raised planting bed and have tonight's salad at your fingertips!

by Elisa Bernick

editors@thefamilyhandyman.com





Top 8 reasons to build this planter:

1. It saves your back and knees.
2. You'll have fewer weeds.
3. It waters your plants while you're away.
4. It saves water.
5. You'll have fresh veggies steps from your back door.
6. It's easy to create the perfect soil.
7. It protects your veggies from hungry critters.
8. It's a handsome addition to your patio.

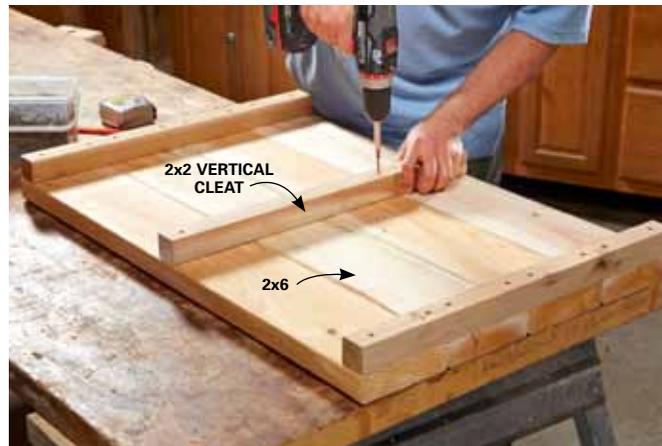
Self-watering planters are sometimes called “sub-irrigated planters” or SIPs, because your plants get to “sip” water whenever they want. Our version uses inexpensive perforated drain pipe with a fabric sleeve in the bottom of the planter. Once you fill the drain pipe reservoirs, they allow air to circulate and water to wick up to your plants’ roots whenever they need it.

When plants are watered from below, the roots stay consistently moist, there's less evaporation and you don't need to water as much. The vinyl tubing allows any overflow water to drain. There are many commercial self-watering planters available—the EarthBox is one (earthbox.com). But you can easily make your own.



BUILD YOUR PLANTING BOX

Photos 1 – 6 show you how to build a handsome wood planter box. The total cost of my 3 x 6-ft. cedar planter was \$330. If you use treated wood, the price would drop to about \$250. And I used a thick EPDM pond liner, which cost \$120. You can buy thinner versions at home centers for about \$35. To give the box



1 SCREW THE BOX ENDS TOGETHER

Pick the straightest 2x2s for the corner cleats. Align the parts with the corner of your worktable to keep the assembly square.

a nice finished look, we routed the boards and sanded the faces and cap. We left the cedar unfinished, but you could seal yours. After we built the basic box, we moved the planter to its final position and then added the self-watering system, soil and plants. Even without the soil and plants, this planter is heavy!

Photos 7 and 8 show you how to construct the self-watering system. Once you're ready to plant, add a soilless mix to just below the top of the planter.



2 CONSTRUCT THE BOX SIDES

Straighten bowed boards with a clamp. The top boards need to be straight so the cap will go on straight and tight.

BUILDING TIPS

- When assembling the box ends (Photo 1) and sides (Photo 2), leave gaps between the planks to allow for expansion and contraction. I used 1/16-in. washers as spacers.
- To determine where to put your planter floor (Photo 4), add together your soil depth, the flooring thickness and the height of the drain pipe and add an inch to that so the soil level will sit an inch below the top of the box.



3 SCREW THE BOX TOGETHER

Clamp the edges together and press firmly with the other hand when screwing each plank so everything comes together tightly.

- For greater strength, use 2x2 horizontal cleats (33 in. long for our planter) for each end and 2x4s for the center two joists.
- Don't miter the top cap—miter joints open with changes in humidity. Butt joints will look neater than miter joints over time.
- Wedging the ends of the drain pipe against the planter will prevent potting mix from getting into the pipes.
- Wedge the CPVC fill tube tightly into the top of the drain pipe. It should be long enough to poke out of the top of your soil once your container is planted (Photo 7).



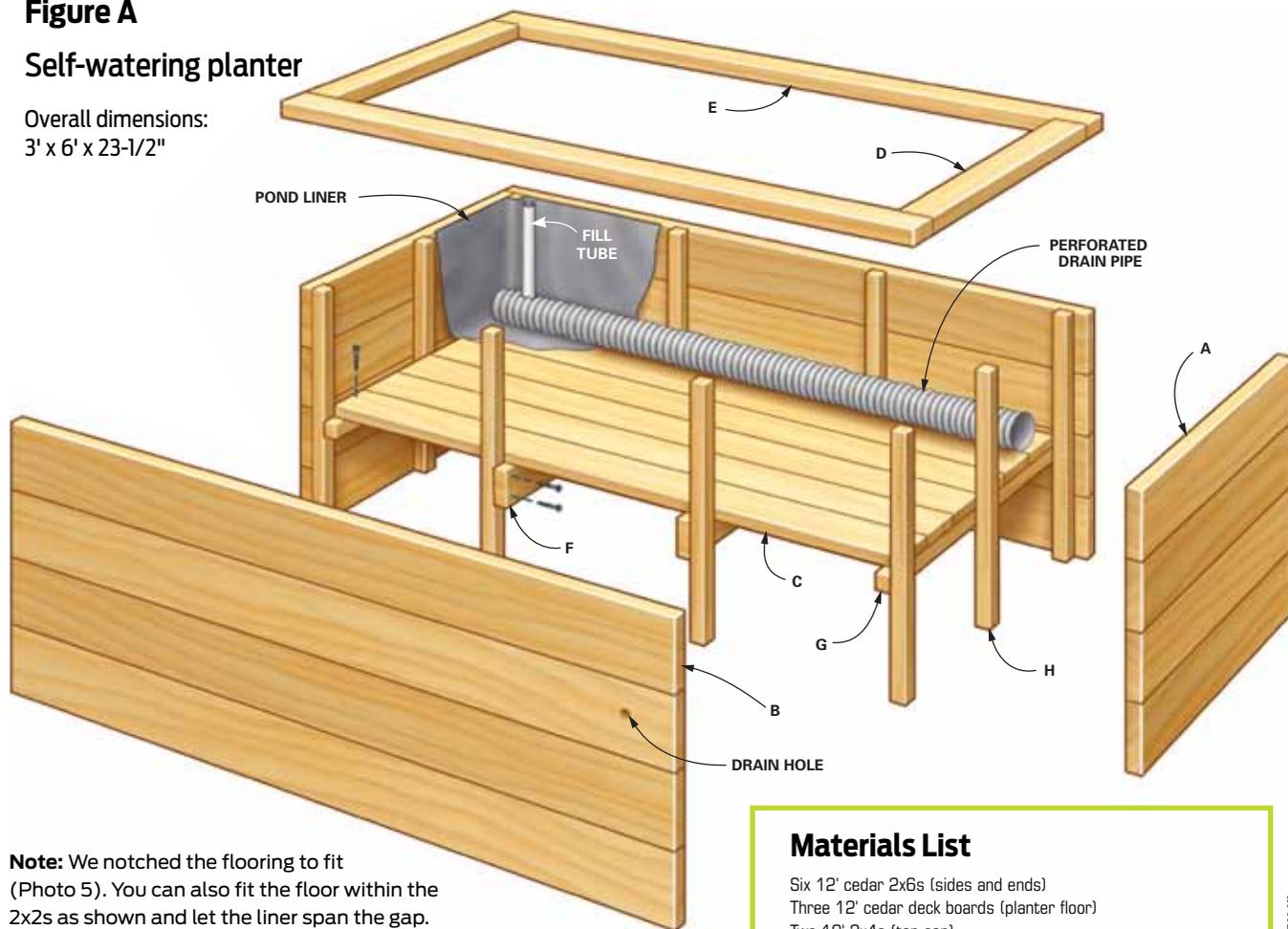
4 MARK FOR THE DECKING JOISTS

Determine the floor depth (see "Building Tips" above), and cut a block that length to mark the locations of the horizontal cleats and joists.

Figure A

Self-watering planter

Overall dimensions:
3' x 6' x 23-1/2"



Note: We notched the flooring to fit (Photo 5). You can also fit the floor within the 2x2s as shown and let the liner span the gap.

SELF-WATERING PLANTER BASICS

- Choose a spot that gets at least six hours of sun. If your planter is against a wall, you can get by with less sun because of the reflected heat.
- A 4-ft.-wide planter is ideal for harvesting from both sides. Keep it to 3 ft. wide if you're placing your planter against a wall or fence.
- Line your planter with a "fish-safe" rubber membrane. It will prolong the life of the wood without leaching chemicals into the soil (and your food). You can buy fish-safe pond liners in different thicknesses and materials at home centers, garden centers and online retailers.
- Don't use garden soil or a heavy potting soil in your raised garden. Use a light, fluffy "soilless" blend that will retain moisture without compacting or becoming waterlogged. You can also buy potting soil specifically formulated for self-watering planters.
- Mulch your containers to keep weeds down and to slow evaporation.
- For more great ideas for building sub-irrigated planters (SIPs), visit insideurbangreen.org.

Materials List

- Six 12' cedar 2x6s (sides and ends)
- Three 12' cedar deck boards (planter floor)
- Two 10' 2x4s (top cap)
- One 8' 2x4 (joists)
- Four 8' 2x2s (cleats)
- 24' of 4"-diameter perforated drain pipe with sleeve
- Pond liner (rubber or poly)
- Exterior screws
- Soilless potting mix
- 1/2" vinyl tubing (drainage)
- 1" CPVC (fill tube)

Cutting List

| KEY | QTY. | SIZE & DESCRIPTION |
|-----|------|---|
| A | 8 | 1-1/2" x 5-1/2" x 33" (ends) |
| B | 8 | 1-1/2" x 5-1/2" x 72" (sides) |
| C | 6 | 1" x 5-1/2" (floor; cut to fit) |
| D | 2 | 1-1/2" x 3-1/2" x 30" (end cap) |
| E | 2 | 1-1/2" x 3-1/2" x 73" (side cap) |
| F | 2 | 1-1/2" x 3-1/2" x 33" (joists) |
| G | 2 | 1-1/2" x 1-1/2" x 33" (horizontal cleats) |
| H | 10 | 1-1/2" x 1-1/2" x 22" (vertical cleats) |

Good choices for containers

| Vegetables and Herbs | Soil Depth |
|--|--------------------|
| Chives, lettuce, radishes, salad greens, basil and coriander | 4 - 5 in. |
| Bush beans, garlic, onions, Asian greens, peas, mint and thyme | 6 - 7 in. |
| Pole beans, carrots, chard, cucumbers, fennel, leeks, peppers, spinach, parsley and rosemary | 8 - 9 in. |
| Beets, broccoli, potatoes, tomatoes, summer squash and dill | 10 - 12 in. |

Once your plants are in, fill the drain pipe reservoirs through the fill tube until water runs out the drainage hole (this can take a while). The water will slowly wick out of the perforated pipes into the potting mix packed around it and eventually up into the potting mix and plant roots above.

You'll have to experiment to see how long your planter will

stay moist. Fill the drain pipes whenever the soil feels dry 2 or 3 in. down. When I set mine up, I filled the drain pipes and gave the plants an initial surface watering and then mulched around them. After that, and despite a record hot summer, I refilled the pipes only three times over the summer and I had herbs and greens growing until the first frost!



5 ATTACH THE JOISTS AND LAY THE FLOOR
Screw the horizontal end cleats in place first and then the center joists. Notch your deck boards to fit around the vertical supports.



6 STAPLE THE RUBBER MEMBRANE IN PLACE
Fold the pond liner at the corners and staple it around the perimeter. Trim the excess.



7 POSITION THE DRAIN PIPE AND THE FILL TUBE
Space the drain pipes evenly along the deck floor; wedging the ends tightly against the short sides of the planter. Pack potting mix around the pipes to keep them straight. Stick a fill tube in the top end of one of the outside drain pipes.



8 DRILL A DRAIN HOLE AND FIT THE TUBING
In the end of the planter opposite your fill tube, drill a drainage hole just above the height of the pipe. Run vinyl tubing from the drain pipe to the drainage hole.

