The following summary is provided to detail the fabrication of a 100 gallon galvanized oval downspout planter for use in residential stormwater management. A list of tools required for construction, summary of materials needed, and the steps to build the planter are provided below.

**Tool List**

- Power Drill
- Utility knife
- Hole saw (2-3/8)
- Tape Measure
- Safety PPE
- Drill bits (3/8” or larger)
- Pipe wrench
- Jig saw (w/plastic cutting blade)
- Marker and pencil
- PVC hand saw

**Material List**

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
<th>Cuts Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>stock tank</td>
<td>(1) 100 gallon</td>
<td>NA</td>
</tr>
<tr>
<td>2” sch40 PVC pipe</td>
<td>(1) 4’ pipe</td>
<td>(1) length to be determined during build</td>
</tr>
<tr>
<td>4” PVC drainage pipe</td>
<td>(1) 10’ pipe</td>
<td>(6) 12”</td>
</tr>
<tr>
<td>4” flat PVC caps</td>
<td>6</td>
<td>NA</td>
</tr>
<tr>
<td>PVC perforated 3/16” sheet</td>
<td>(1) sheet</td>
<td>(1) cut to fit inside tank</td>
</tr>
<tr>
<td>2” female trap adapter</td>
<td>(1)</td>
<td>NA</td>
</tr>
<tr>
<td>2” flush cleanout tee</td>
<td>(1)</td>
<td>NA</td>
</tr>
<tr>
<td>2” atrium overflow drain</td>
<td>(1)</td>
<td>NA</td>
</tr>
<tr>
<td>2” EPDM gasket</td>
<td>(1)</td>
<td>NA</td>
</tr>
<tr>
<td>3/4” hose bib ball valve</td>
<td>(1)</td>
<td>NA</td>
</tr>
<tr>
<td>sediment fabric</td>
<td>(2) 5’ sections</td>
<td>(2)</td>
</tr>
<tr>
<td>spray foam can</td>
<td>(1)</td>
<td>NA</td>
</tr>
<tr>
<td>Teflon plumbing tape</td>
<td>(1)</td>
<td>NA</td>
</tr>
<tr>
<td>PVC glue</td>
<td>(1)</td>
<td>NA</td>
</tr>
<tr>
<td>Oval head drilling screw</td>
<td>(12)</td>
<td>NA</td>
</tr>
</tbody>
</table>
Fabrication Instructions

1. Take two 46" 5/4" x 6"s and two 24" 5/4" x 6"s and stand them on edge. Place the short and long pieces at right angles (perpendicular) to form a rectangular frame with the 46" lengths abutted inside the 24" lengths. Attach clamps to hold the pieces together on edge. The frame should measure 24"x48".

2. Lay the 24"x48" plywood piece on top of the frame. This will be the bottom of the box. Make sure the edges are all flush.

3. Starting in a corner, drill a pilot hole through the plywood into the frame.

4. Drive a deck screw into the pilot hole so the head of the screw is flush with the surface of the plywood. Continue this around the perimeter of the bottom. There should be four screws in each long side and three screws in each short side for a total of fourteen screws.

5. Create three additional rectangular frames from the remaining 5/4 x 6s. There will be no plywood component to these three frames. One of these additional frames will be constructed from two (46") 5/4" x 6"s and two (24") 5/4" x 6"s (as in Step 1), and the other two frames will be constructed from two (48") 5/4 x 6s and two (22") 5/4 x 6s. Drill pilot holes into each corner and secure with two 3" deck screws. Make sure each frame measures 24" by 48". This step requires (24) 3" deck screws.

6. Once the frames are stacked and flush, the corners of the planter box must be reinforced with the 22" 2x2s. One 2x2 should be attached to each corner of the box; 8 screws should be used to drill each 2x2 to the 5/4 x 6 frames of the box as shown in the photo. Be sure to pre-drill each hole as in the steps above. This step requires (32) 3" deck screws. (An angled cut at the top edge of the 2x2 supports is shown). For the 2'x4' and 1.5 'x.4' boxes, insert a 20 1/2" brace in the middle of each of the 4' sides.

7. The cleats should be drilled into the top interior of the planter using 2" screws and pilot holes.

---

Galvanized Steel Downspout Planter

Fabrication Guide

1. Lay perforated PVC sheet on flat surface and place tank bottom side down as a template on the sheet. Using a marker, transfer the template dimensions to the perforated sheet (Figure 1).

2. Cut approximately ¼ to ½ inch inside the line using a jig saw with appropriate blade to reduce melting (designed for cutting plastic). Place perforated sheet to the side for use later.

3. Take 4" perforated PVC drainage pipe and cut 12" long sections (6 for 100 gallon tank). Then, using PVC glue, attach 4" cap on one side of each of the sections (Figure 2a).

4. Begin to attach each 12" section of pipe with flat cap to the bottom of the perforated sheet using (2) ¾” oval head stainless steel screws per pipe section (Figure 2b). Pipes should be placed in a similar pattern as shown in Figure 3.
1. Take two 46" 5/4" x 6"s and two 24" 5/4" x 6"s and stand them on edge. Place the short and long pieces at right angles (perpendicular) to form a rectangular frame with the 46" lengths abutted and the 24" lengths inside the 24" lengths. Attach clamps to hold the frames together on edge. The frame should be the bottom of the box. Make sure each frame measures 24" by 48".

2. Lay the 24"x48" plywood piece on top of the frame. This will be the bottom of the box. Make sure the edges are all flush.

3. Starting in a corner, drill a pilot hole through the remaining 5/4 x 6s. There will be no plywood into the frame.

4. Drive a deck screw into the pilot hole so the head of the screw is flush with the surface of the plywood. Continue this around the perimeter of the 24"x48" plywood. Make sure each frame measures 24" by 48". This step requires (24) 3" deck screws.

5. Create three additional rectangular frames from the 46" 5/4" x 6"s and two (22") 5/4" x 6"s (as in Step 1), and the other two frames will be constructed. One of these components to these three frames. One of these corners of the planter box must be reinforced with the 22" 2x2s. One 2x2 should be attached to the planter using 2" screws and pilot holes.

6. Determine area where overflow pipe will be located (based on site conditions) and drill hole using 2 3/8" hole saw approximately 20 3/4 " from the bottom of the tank to the midpoint of the hole (Note: Allow 1" gap between the top of the planter and inlet of atrium grate). Some adjustment may be required based on site conditions and tank dimensions.

7. Locate side of the tank where overflow will be plumbed and mark perforated sheet with 2" PVC pipe to extend through. Cut along marked line with jig saw or 2 3/8" hole saw and test pipe fitment.

8. Measure length of vertical 2" pipe needed for overflow subtracting 2" to allow pipe to float off the bottom of the tank.

9. Place all 2" plumbing for overflow into position for test fit. Perforate the 12" bottom portion of the PVC pipe extending through the perforated sheet with approximately 8 evenly spaced holes on 2 sides of the pipe. The hole size should be 3/8" or larger (Figure 4).

Figure 3. Orientation of PVC support sections

Figure 4. Overflow riser and through planter connection
1. Take two 46" 5/4" x 6" s and two 24" 5/4" x 6" s and stand them on edge. Place the short and long pieces at right angles (perpendicular) to form a rectangular frame with the 46" lengths abutted inside the 24" lengths. Attach clamps to hold the pieces together on edge. The frame should measure 24"x48".

2. Lay the 24"x48" plywood piece on top of the frame. This will be the bottom of the box. Make sure the edges are all flush.

3. Starting in a corner, drill a pilot hole through the plywood into the frame.

4. Drive a deck screw into the pilot hole so the head of the screw is flush with the surface of the plywood. Continue this around the perimeter of the bottom. There should be four screws in each long side and three screws in each short side for a total of fourteen screws.

5. Create three additional rectangular frames from the remaining 5/4 x 6" s. There will be no plywood component to these three frames. One of these additional frames will be constructed from two (46") 5/4" x 6" s and two (24") 5/4" x 6" s (as in Step 1), and the other two frames will be constructed from two (48") 5/4" x 6" s and two (22") 5/4" x 6" s. Drill pilot holes into each corner and secure with two 3" deck screws. Make sure each frame measures 24" by 48". This step requires (24) 3" deck screws.

6. Once the frames are stacked and flush, the corners of the planter box must be reinforced with the 22" 2x2s. One 2x2 should be attached to each corner of the box; 8 screws should be used to drill each 2x2 to the 5/4 x 6 frames of the box as shown in the photo. Be sure to pre-drill each hole as in the steps above. This step requires (32) 3" deck screws. (An angled cut at the top edge of the 2x2 supports is shown). For the 2'x4' and 1.5 'x.4' boxes, insert a 20 1/2" brace in the middle of each of the 4' sides.

7. The cleats should be drilled into the top interior of the planter using 2" screws and pilot holes.

10. Place EPDM gaskets on either side of the overflow pipe through the tank (Figure 5).

11. Finally, glue joints once everything has been confirmed for fitment.

12. Fit hose bib ball valve into existing threaded bung for drainage. Use Teflon tape on ball valve threads prior to attachment. Ensure fitting is tight and valve is on top. Set valve opening with 1/8" gap and removed valve handle and replace castle nut.

13. Finally, use spray foam to seal edges of perforated sheet to metal tank. For larger gaps, a buildup of foam may be required (Figure 6). Allow 8-10 hours to dry before moving and 24 hours before placing soil mixture.

Figure 5a. Overflow riser installed with atrium grate

Figure 5b. Overflow riser installed with atrium grate

Figure 6. Perforated sheet with spray foam installed