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Nova Scotia

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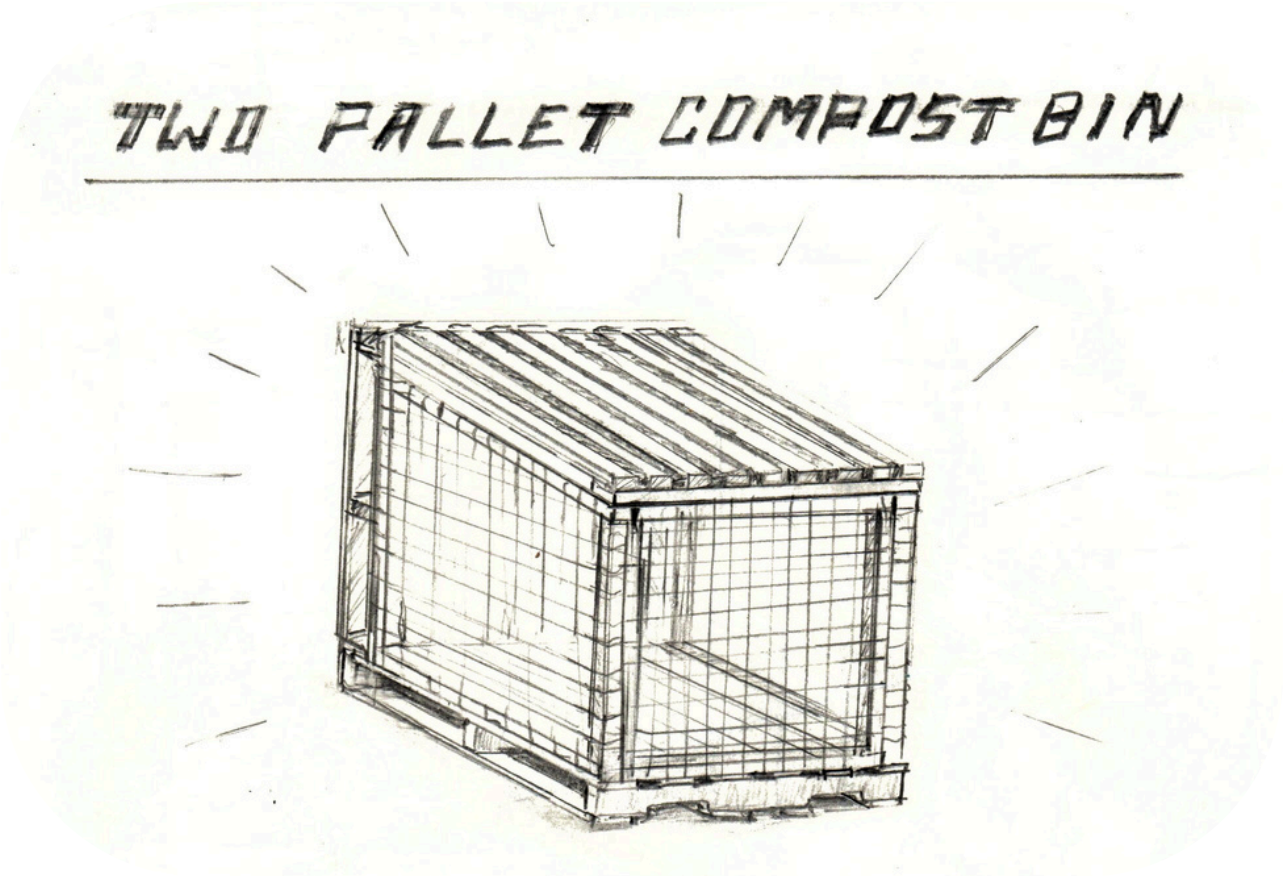
Two-Pallet Compost Bin

A step-by-step design for a vermin-proof cubic-meter compost bin for fresh kitchen waste and scraps.

TWO PALLET COMPOST BIN



This is a modular design, allowing you to construct a sturdy and durable compost bin with the use of an often ‘free’ resource: the common shipping pallet! No special tools are required, but some carpentry experience is recommended.

Design by: Wes Johnston, Forest Operations Coordinator Ne'ata'q Food Forest

Tools Required

- Mitre saw, and a table saw (optional)
- Drill and driver
- Hammer
- Staple gun
- Wire snips
- Gloves for handling wire mesh
- Rasp or file, and handsaw/pullsaw

Material Checklist

- 3 foot width hardware cloth / wire mesh 1/2" x 25' roll
- 3 foot width hardware cloth / wire mesh 1" x 25' roll
- 1lb galvanized staple (nail type)
- 1 pack of 12 or 14mm staples
- 2" deck screws (100 count)
- 3" deck screws (100 count)
- 3 galvanized T hinges (4")
- A few washers

Lumber

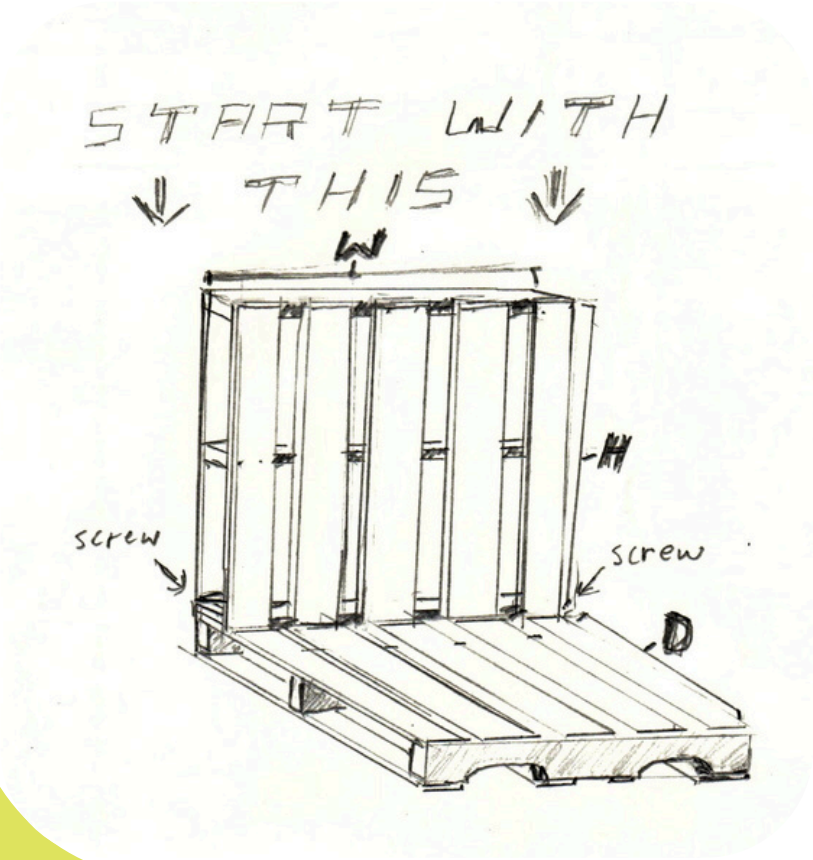
- 2x3" x 12' lengths x 4
- 1x3" x 8' lengths x 6

This design will be more robust with rough-sawn/milled wood if you are able to find it. Hemlock, Cedar, or Tamarack are ideal for longevity, but Spruce, Pine, or Fir are fine as well.

Getting Started

The basic measurements of the composter will be dependent on the size of the pallets you use. The standard dimensions of a pallet in North America is 40" H x 48" W. A shorter pallet is better than long. 40"-44' W" is ideal. This one is made with a 44" W pallet. As long as the top slats on the pallets span across the width of the bin including the wire mesh, you can build it with a larger pallet and expect an overhang on the sides

The important dimension is the 40" side, which will determine the height (H) and depth (D) as illustrated on the right.



Step 1

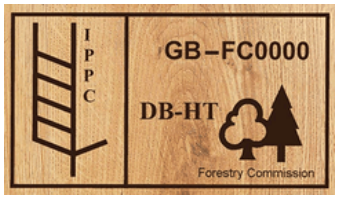
Selecting the pallets

Pallets are everywhere, and businesses and warehouses are typically happy for you to take them away! **Here are a few things to look out for:**

- **Pallet quality:** Often, pallets are in pretty rough shape after their shipping adventures. Look for ones that are not cracked or splintered, with joins intact, and have fewer protruding nails, etc.
- **Pallet design:** Make sure the pallet has some space between slats for air circulation, but not too wide spacing—this is especially important for the base pallet.
- **Type of wood:** Most pallets are softwood, but if you happen to find a hardwood pallet, way to go! Use this for the base, and it may last a little longer. A common but not surefire way to tell is that it will be heavier than a softwood.
- **Type of chemical treatment:** All modern pallets are treated to avoid the introduction of organisms to new environments. Use the letters below to identify the types of chemical treatment to use or avoid.

  ✕ Avoid **MB** (methyl bromide) or **SF** (sulphuryl fluoride).

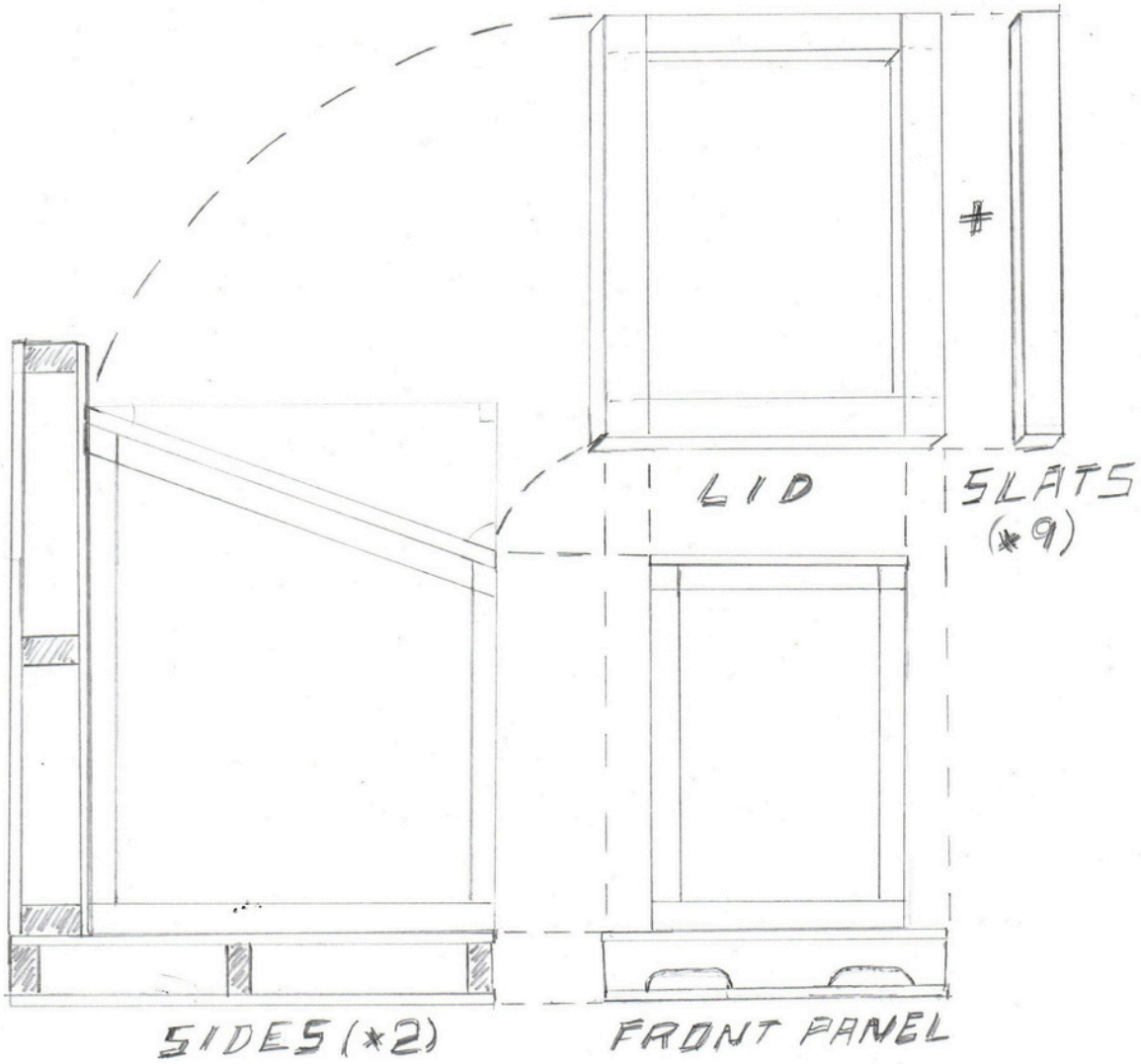
  ✓ **HT** (heat treated), **KD** (kiln dried), and **DB** (debarked) are all safe to use.



A quick look at the sections

Take a moment with the drawing below to visualize how the four panels/sections will fit together. The front panel fits within the two side panels, and the lid is flush to all outer edges of the sloped top side. The lid will hinge to the top edge of the backstop (vertical) pallet.

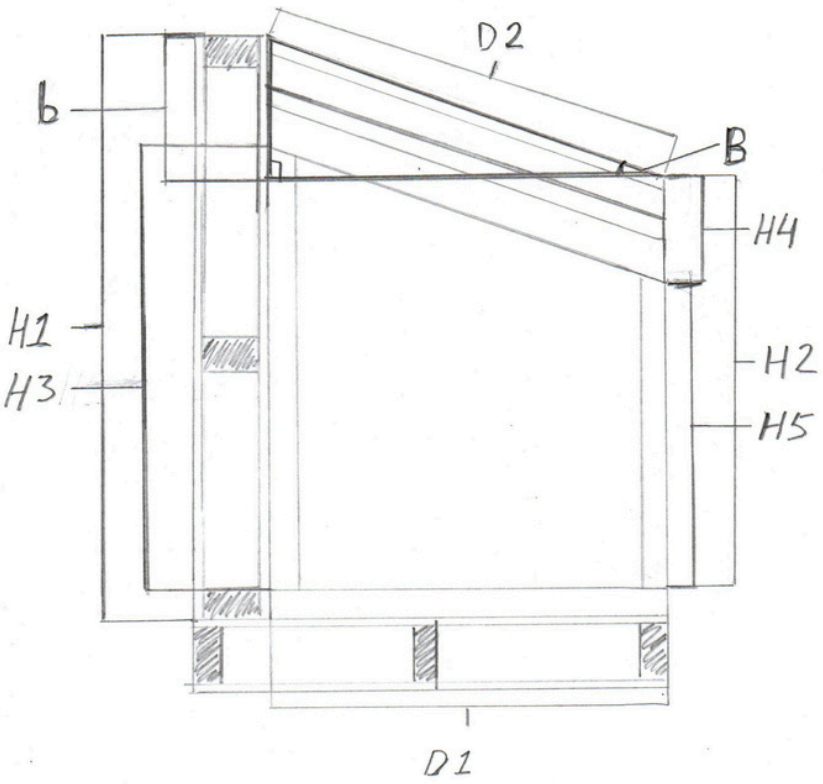
On the next page, we'll help you find the measurements so you can make a cut list.



Step 2

Calculating lengths

If you have 40" wide standard pallets, skip this step and **go to the next page using the pre-calculated lengths for that size**. This page may be useful if you need to troubleshoot or have scaled it up or down.



Cut List notes

b, H1, H2, H4 are immaterial values, just used to find measurements for the cut values: H3, H5, and D2.

W2 (refer to illustration on next page) is variable, based on the desired width of the bin. Its maximum length would be the width of the pallet.

Cut List

S1 = thickness of the frame stock
S2 = thickness or the slat stock

H1 = height of the backstop pallet (40" is standard)

D1 = depth of the base pallet minus the thickness of the backstop pallet (thickness is usually about 4.25 - 5" but can vary quite a bit—be sure to measure)

D2 = D1 x 1.064

b = D1 x 0.364

H2 = H1 - b - thickness of the stock

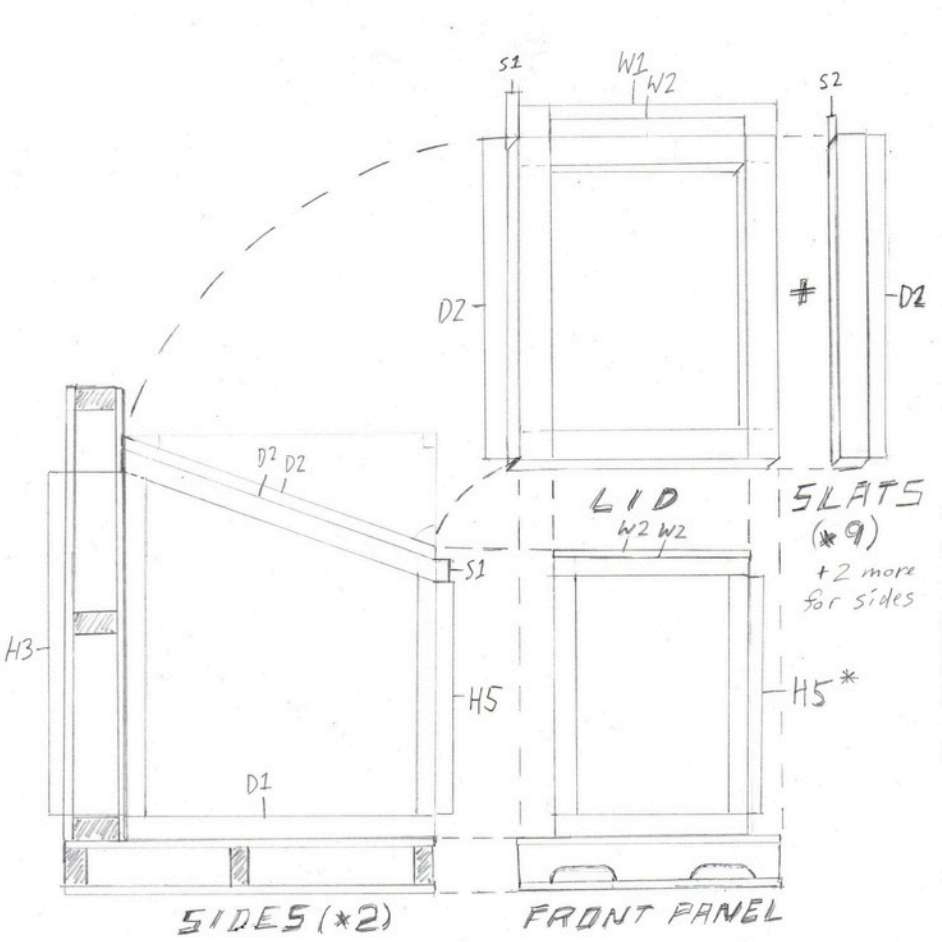
H4 = (the stock thickness for x2 and the slat thickness x2) x 1.064 - 0.5"

H5 = H2 - H4

H3 = H1 - H4 - thickness of the stock

W2 = space between the two side panels as positioned on the pallet, or W1 - the width of the frame stock (wide edge X2)

Now back to the previous drawing with our values/lengths:



Step 3

Assembling panels

1. Use two 3" deck screws to secure each join (alternately, 3" galvanized spikes would add strength, if on hand). Depending on the wood you are using, a pilot hole may be useful.

   Note that the lid is assembled with the frame stock flat, the bevels should correspond to this (see photos of a built compost bin for visual reference on page 9).

2. Lastly, save three short offcuts (about 18-24") for the backstops and lid handle.

Cut List

For a 40" wide pallet

If H1 is 40"', D1 is 35", S1 is 2" and S2 is 1":

then,

b = 12.74
H2 = 25.26
H4 = 5.88
(non-cut values)

H3 = 32.12 or 32 1/8"
x 2 pieces, one edge tapered 20° inward

H5 = 19.38 or 19 3/8"
x 2 pieces, one edge tapered 20° outward, along the wide edge
x 2 pieces, one edge tapered 20° outward, along the narrow edge

D2 = 37.24 or 37 1/4"
x 4 pieces, both edges tapered 20° parallel, along the wide edge
x 11 pieces (slat stock), both edges tapered 20° parallel, along the wide edge

W2 = 34"
x 4 pieces (optional: if you have a table saw, you can rip a 20° bevel on one side of 3 of these pieces for a very snug/ continuous line)
x 1 piece (slat stock)

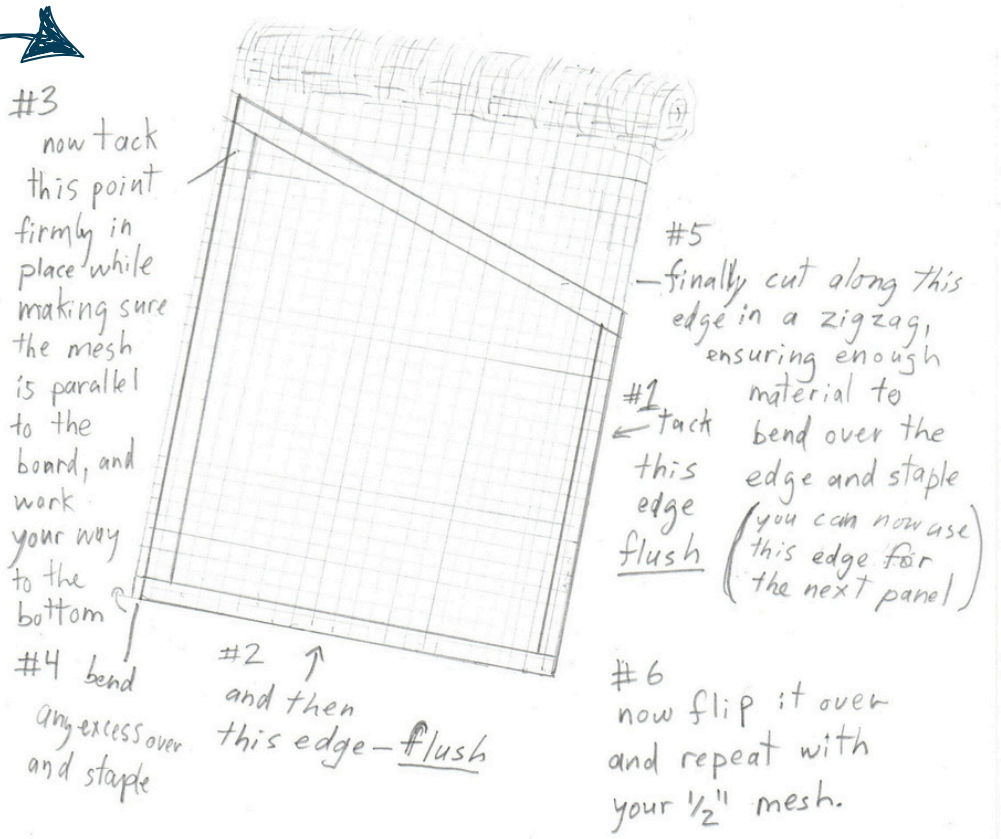
Step 4

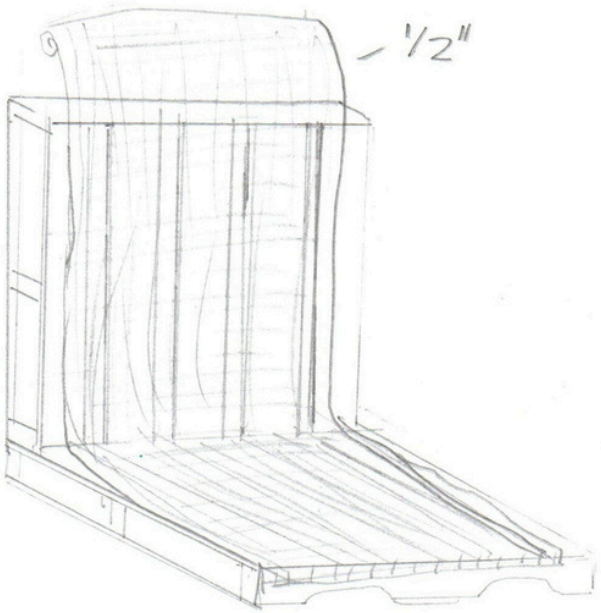
Adding wire mesh and squaring up panels

Side Panels

1. Start with the side panels and with the outer 1" mesh. By following the sequence on the right, you'll be able to square up the panel. **Don't forget to reverse the mesh on the second panel**—you want each panel to have the 1" mesh side facing out.

2. On the outer edges you'll use the nail staples, as they are much more secure and stable. For the inside edges that will be hidden, ok to use standard staples.

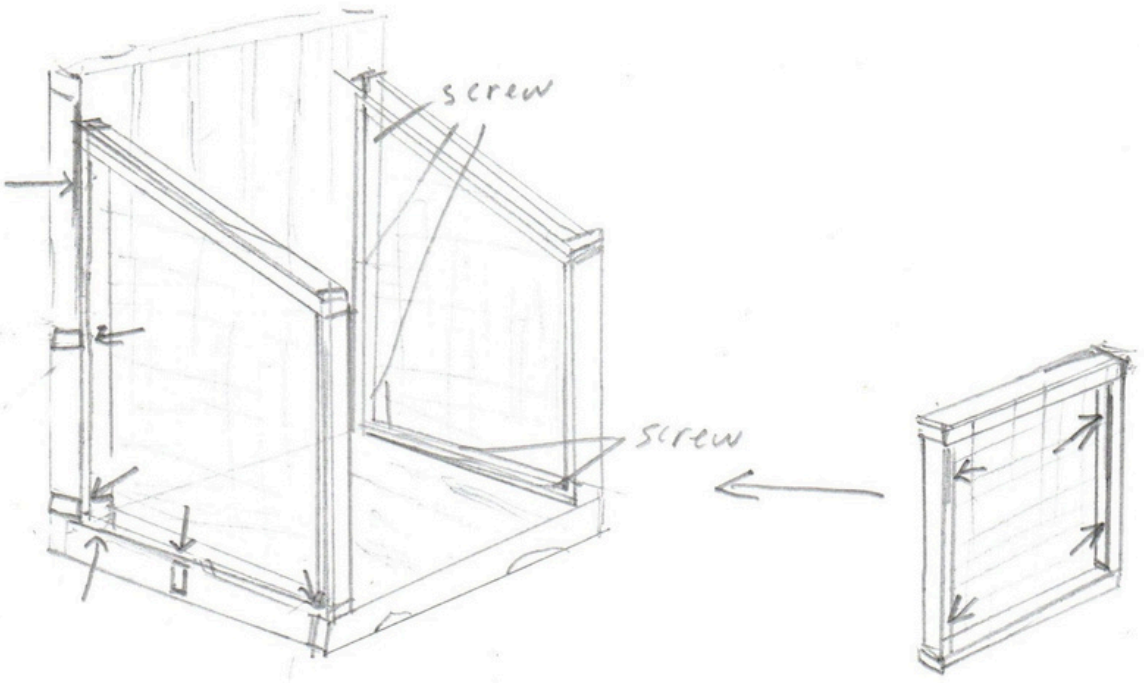




3. Repeat the same process as above for the front panel. Since this panel is designed to be removable for turning and removing the compost, you will want to trim and/or tightly affix the wire mesh on the sides so it is easy to insert and remove without snagging.

4. Once the side and front panels have mesh on both sides, screw in the slats on the top sides of all three—this conceals any jagged edges along the top opening. Finish up with snips and a rasp or file to remove any sharp burrs or wire poking out.

Step 5
Putting it all together



1. Use 3" screws tie in the two side panels, ensuring that they firmly grip the studs of in the pallets. Pilot holes are very useful here as you'll need to drive them in at an angle from the outside, across the 1" mesh.

2. At the top and anywhere there is no stud to drive into, drive a 2" screw through the back, at an angle, through the pallet slat into the frame stock. Here, pilot holes are necessary to prevent splitting the slat wood.

3. Check the fit with the front panel before securing the second side panel. You want it to be snug, but not so much that removing and replacing the front panel is a stressful experience. Once you have the correct spacing, mark it at the base, and secure the second side panel. Now you can secure the front panel with four 3" screws at an shallow angle through the 1" mesh along each side. If you are still finding it hard to place, use the hammer or rasp to flatten and smooth any snags. You can also gently pull apart the two panels at the top to ease it in.

4. Now you can affix the lid with x2 T-hinges. Use 3" screws for the T side going into the pallet stud, and 2" screws for the strap side, going into the lid. Once again, pilot holes are the friend. Start by attaching the T sides with the round hinge proud of the top edge, then place the lid on top, square it up with the bottom edge of the bin, and attach the straps through the top. Refer to photos for a visual reference. Extra hands are useful for this part!

5. Finally, referring to the images of the finished bin, affix the two backstops and the lid handle. A birdsmouth cut on the end of the handle makes it easier and more stable to prop —a handsaw is a great tool for this job!

And just like that, you have a compost bin!

Garden Climate Actions

Waste Reduction & Circular Systems: In the garden we can compost, reduce food waste, and create closed-loop garden systems.

Habitat Creation & Biodiversity: Gardens support pollinators, soil organisms, and wildlife, emphasizing the role of biodiversity in climate resilience.

A closer look...

A heavier top helps it keep out critters.

Make sure your bin has a way to safely prop the top while adding or mixing.