Vertical Garden

Brighten up your balcony or deck with this space-saving plant tower.

DIMENSIONS: 27" W × 27" D × 46¼" H

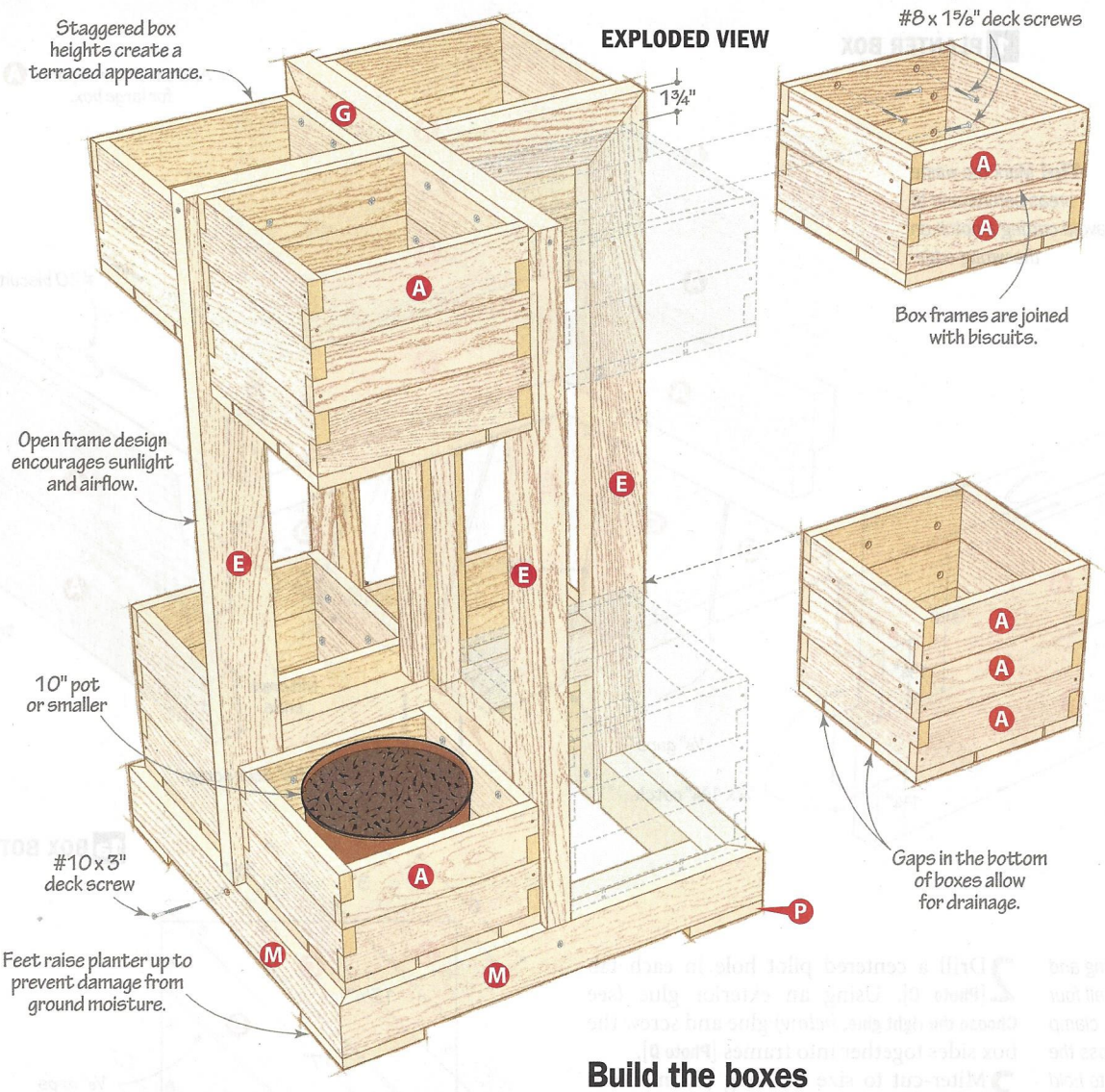
Approximate materials cost:

$290

Lumber and screws

5.5

sq. ft. of growing area

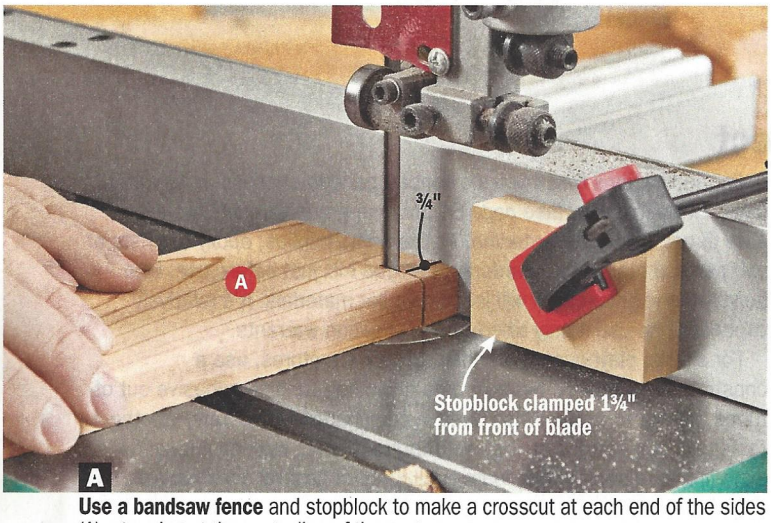


Use this planter for ornamental plants or to stage your own herb garden. The boxes are sized to hold ceramic pots or plastic containers, making watering and plant maintenance a breeze.

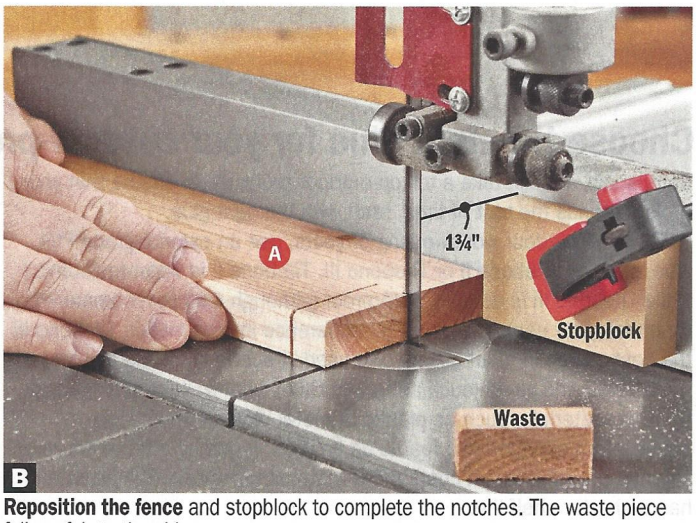
Build the boxes

1 Cut to size the box sides (A) [**Materials List**]. (We used Western red cedar, but cypress or pressure-treated lumber will also work.) Using a bandsaw or jigsaw, notch both ends of the box sides [**Drawing 1, Photos A, B**].

Note: *If your cedar is rough-sawn on one face (like ours), orient the pieces with the smooth face out.*

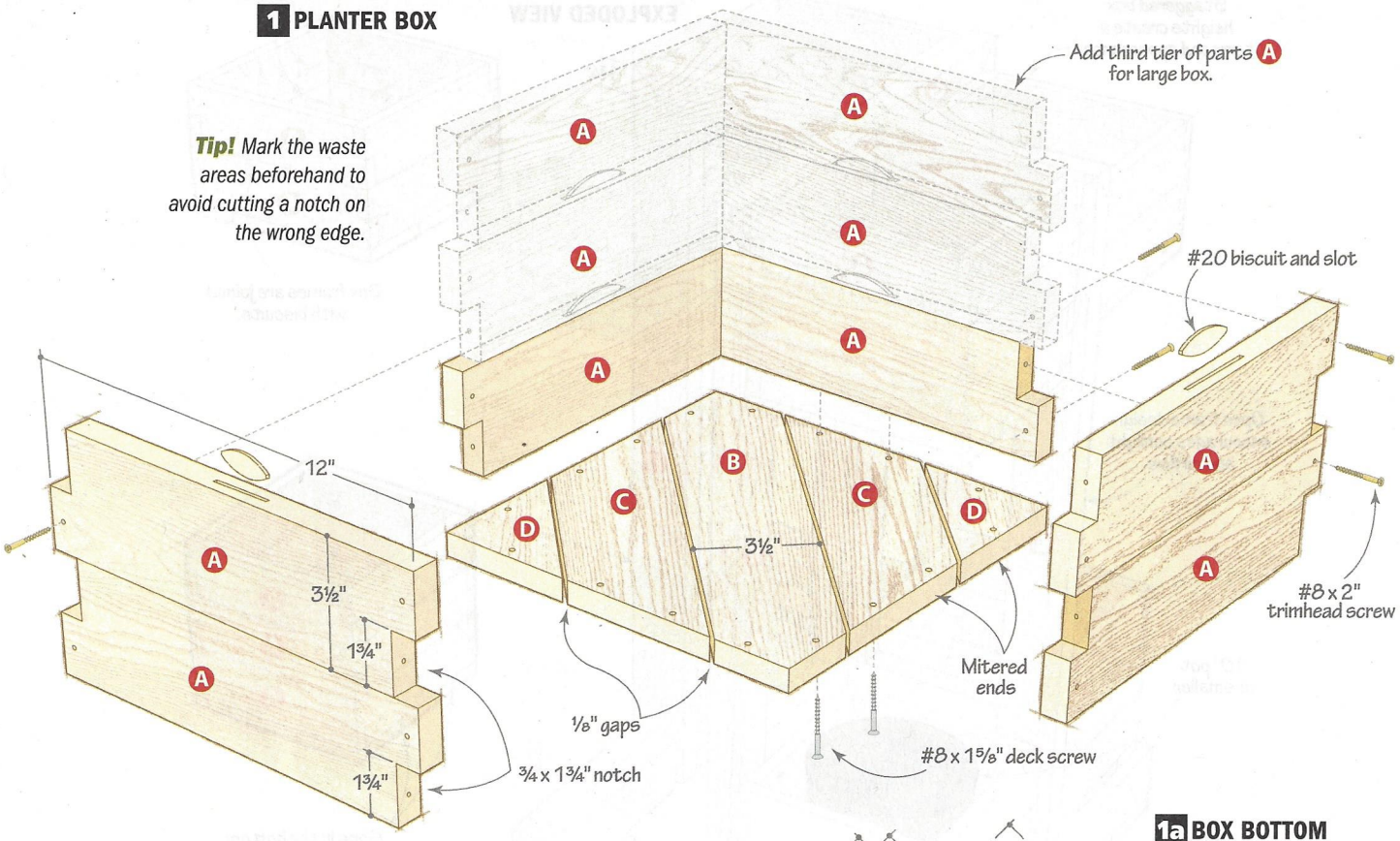


Use a bandsaw fence and stopblock to make a crosscut at each end of the sides (A), stopping at the centerline of the part.



Reposition the fence and stopblock to complete the notches. The waste piece falls safely to the side.

1 PLANTER BOX



Tip! *Mark the waste areas beforehand to avoid cutting a notch on the wrong edge.*

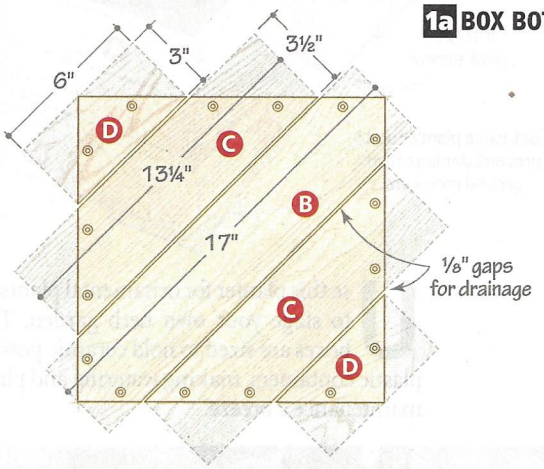
Tip! *After gluing and screwing all four corners, clamp diagonally across the frame assembly to hold it square as the glue dries.*

2 Drill a centered pilot hole in each tab [**Photo C**]. Using an exterior glue (see **Choose the right glue**, *below*) glue and screw the box sides together into frames [**Photo D**].

3 Miter-cut to size the long (B), medium (C), and short bottoms (D) [**Materials List, Drawing 1a**]. Glue and screw the bottoms to the frames [**Photo E**].

4 Sort and stack the frames into three groups: top frames, middle frames, and

1a BOX BOTTOM



Choose the right glue for your outdoor project

Rain, snow, and ice take a toll on outdoor projects. To ensure that your project stands the test of time, start with the right glue.

For most outdoor woodworking projects, use an exterior-grade PVA glue, such as Titebond II or Titebond III. Titebond II is water-resistant, while Titebond III is actually waterproof (although it's not recommended for underwater use). The negligible difference in cost makes Titebond III the best choice in most cases. (We used Titebond III for the planter.)

Polyurethane glues (such as Gorilla Glue) work well for joining wood to other materials, such as plastic or metal. Polyurethane glue squeeze-out expands and foams as it cures, requiring a fair amount of cleanup after it dries. It costs more than exterior-grade PVA glues and has a shorter shelf life.

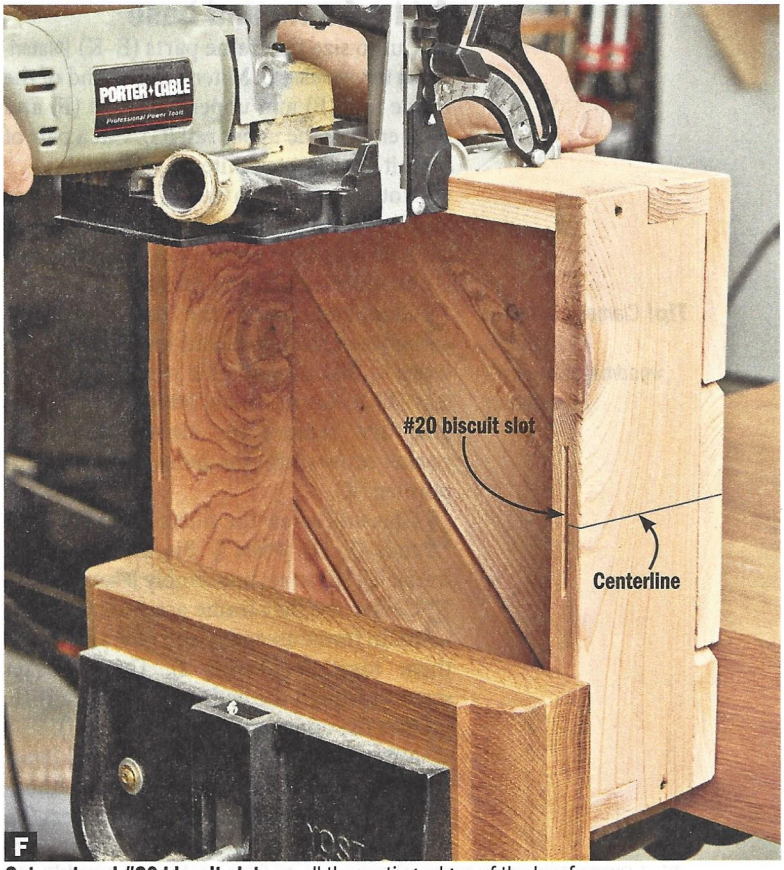
For applications that involve extended periods of exposure to water, use a two-part epoxy (see *page 64*). Marine-grade versions are even safe to use below the waterline. As the name implies, epoxy consists of two parts, a resin and a hardener, that you mix just before use. Like polyurethane glue, epoxy will join dissimilar materials. It's relatively expensive, so use it only where the application warrants.

For sheds, playhouses, or other outdoor structures, use a construction adhesive. Squeeze this thick, non-running adhesive out of tubes, similar to caulk. When used in conjunction with screws or other fasteners, it creates a strong, weatherproof bond, making it ideal for installing subflooring, rigid foam insulation, or general construction.

Use a fence and stopblock to position each box side when drilling the ⅛"-dia. pilot holes.

Clamp the box sides in a vise while driving the screws.

To prevent splitting the ends, drill countersunk screw holes in the box bottoms before driving the screws.



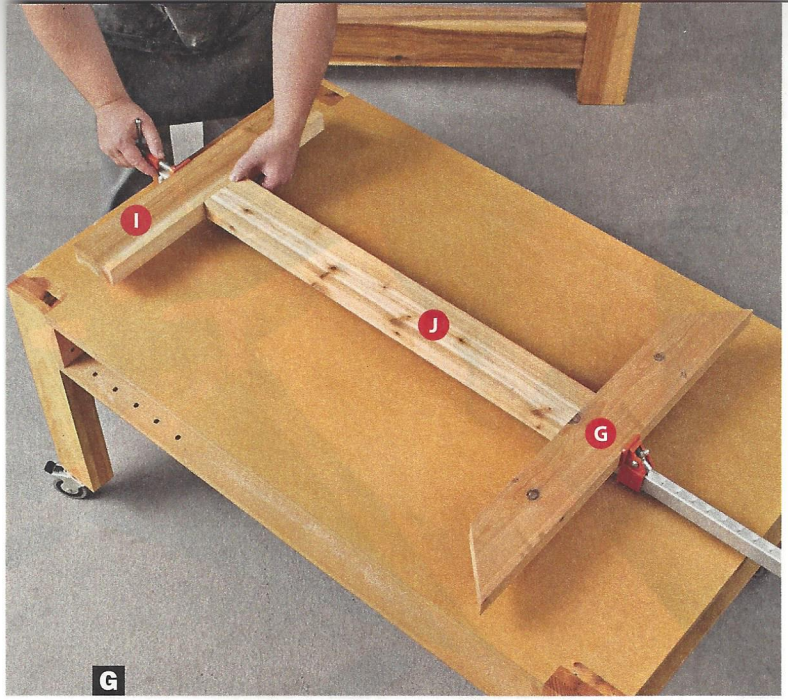
Cut centered #20 biscuit slots on all the mating edges of the box frames.

Tip! *If you don't own a biscuit joiner, use dowels to reinforce the glue joints and align the frames during assembly.*

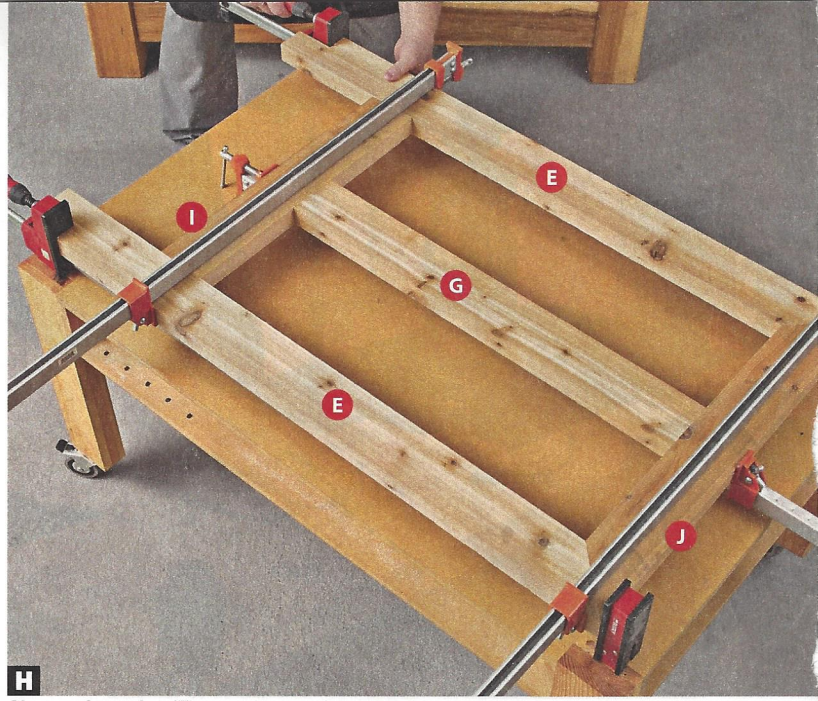
bottom frames. Mark a centerline on each outside face, and cut biscuit slots in the bottom of the top frames, the top of the bottom frames (A–D), and both the top and bottom of the middle frames [**Photo F**].

5 Glue up the frames into box assemblies [**Drawing 1**], using biscuits to keep the frames aligned. With the glue dry, sand the outside faces of each box to 150-grit and ease the corners with a sanding block.

▶Learn about biscuit joiners. woodmagazine.com/biscuitjoiners



G **Center the center stile (J)** on the upper and lower rails (G, I) while gluing and clamping it in place.



H **Clamp a frame leg (E)** to each side of the assembly, pulling the miter joints together tightly.

Add a frame and base

1 Cut to size the frame parts (E–K) [**Materials List, Drawing 2**]. Miter-cut one end of the frame legs (E) and upper half-rails (F) and both ends of the upper rail (G). Cut a pair of biscuit slots in each mitered end.

2 Notch the bottom end of the frame legs (E) [**Drawing 2**]. Drill pocket-screw holes in the half-rails (F, H), lower rail (I), center stile (J), support leg (K), and fillers (L).

Tip! *Clamps too short? Try this trick: woodmagazine.com/extendreach*

3 Glue and clamp the center stile (J) between the upper and lower rails (G, I) [**Photo G**]. Biscuit and glue two of the frame legs (E) to the assembly [**Photo H**]. With the glue dry, remove the clamps and drive pocket screws into the holes. Add the support leg (K).

4 Glue and screw the fillers (L) to the half-rails (F, H) [**Photo I**]. Biscuit and glue a frame leg (E) to each assembly [**Photo J**].

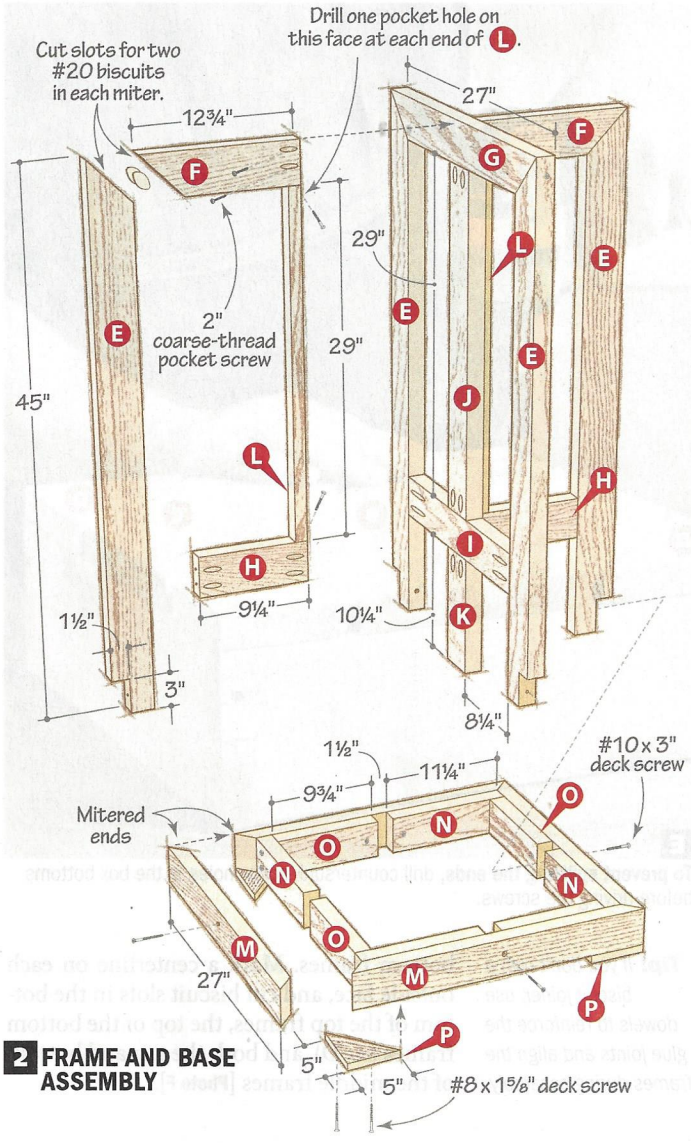
5 Center the half-frame assemblies on the main frame assembly and glue and clamp them together [**Drawing 2**]. Drive pocket screws through the ends of the half-rails (F, H) into the upper and lower rails (G, I).

6 Miter-cut to size the base sides (M) [**Drawing 2**]. Glue and clamp the sides together.

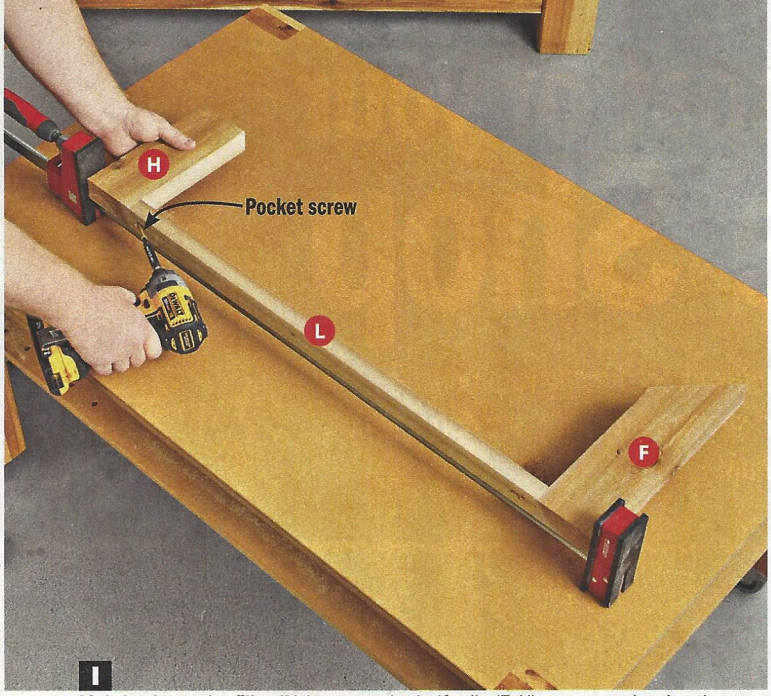
7 Cut to size the long and short spacers (N, O) [**Drawing 2**]. Glue and screw the spacers together to create four L-shape assemblies.

Tip! *Clamp the spacer assemblies to the base and test the fit of the frame before gluing the spacers in place.*

8 Glue and clamp the spacer assemblies to the inside of the base. Cut the triangular feet (P) to size and shape, and glue and screw them to the base.



2 FRAME AND BASE ASSEMBLY



I

Lightly clamp the filler (L) between the half rails (F, H) to prevent bowing the assembly. Drive a pocket screw at each end.

J

Clamp a frame leg (E) to the half rails (F, H) to lock everything together. Clamps pull the miter joint tight.

Bring it all together

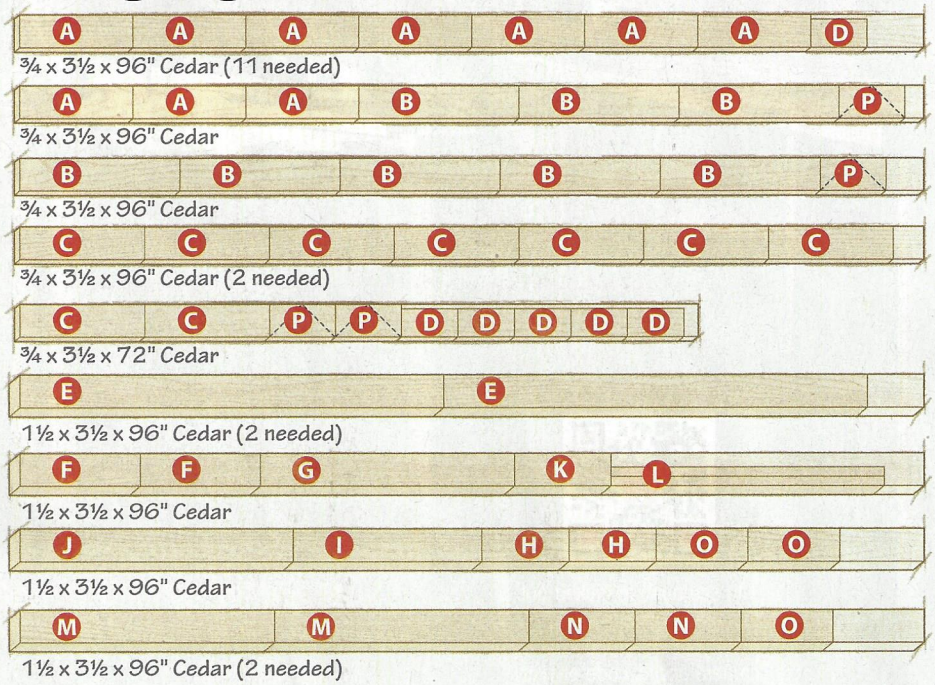
1 Glue and screw the frame assembly to the base assembly [**Exploded View**].

2 Glue and screw the boxes to the frame and base assembly [**Exploded View**].

3 We chose to leave the cedar unfinished so it would weather naturally. (If you prefer, apply an exterior stain of your color choice.) Add some potted containers and enjoy your blooms.

Produced by **Vincent Ancona** with **John Olson** and **Brian Bergstrom**
Project design: **John Olson**
Illustrations: **Roxanne LeMoine, Lorna Johnson**

Cutting Diagram



Materials List

Part		FINISHED SIZE T	W	L	Matl.	Qty.
A	box sides	¾"	3½"	12"	C	80
B	long bottoms	¾"	3½"	17"	C	8
C	medium bottoms	¾"	3½"	13¼"	C	16
D	short bottoms	¾"	3"	6"	C	16
E	frame legs	1½"	3½"	45"	C	4
F	upper half rails	1½"	3½"	12¾"	C	2
G	upper rail	1½"	3½"	27"	C	1
H	lower half rails	1½"	3½"	9¼"	C	2
I	lower rail	1½"	3½"	20"	C	1
J	center stile	1½"	3½"	29"	C	1
K	support leg	1½"	3½"	10¼"	C	1
L	fillers	1½"	1"	29"	C	2
M	base sides	1½"	3½"	27"	C	4
N	long spacers	1½"	3½"	11¼"	C	4
O	short spacers	1½"	3½"	9¾"	C	4
P	feet	¾"	3½"	7"	C	4

Materials key: C-cedar
Supplies: #8×2" trimhead screws, #8×1⅝" deck screws, #10×3" deck screws, 2" coarse-thread pocket screws, #20 biscuits.
Bits: ⅛" drill bit, pocket screw bit.