Pileated Woodpecker House

Woodworking plans: cut list, glue-ups, drawings, and step-by-step assembly

This is the biggest woodpecker box on the list: a 4" entrance on an 11 1/4" square floor with 24" of depth, built from 1 1/2"-thick boards and packed full of tamped sawdust. Use is rare, but a box like this helps where large dead trees are missing. The walls and roof are wider than a 2x12, so three parts are edge-glued from two boards. One side panel swings open on two pivot nails for cleaning and refilling.

Design Specs

Spec	Measurement
Board thickness	1 1/2" (2x lumber)
Entrance hole	4" round, top of hole about 2" below the roof
Floor (inside)	11 1/4" x 11 1/4"
Depth (inside)	24" (floor to underside of roof, measured at the front)
Mounting height	15 to 20 ft, on a tree trunk
Spacing between boxes	330 ft
Habitat	Deep in mature hardwood forest
Fill	Packed full of tamped sawdust

Materials

Item	Qty	Notes
2x12 board, untreated (actual 1 1/2" x 11 1/4")	1 @ 8 ft, 1 @ 6 ft	Sides, floor, and the main boards of the front, back, and roof
2x4 board, untreated (actual 1 1/2" x 3 1/2")	1 @ 6 ft	Ripped to 3" for the front and back glue-up strips
2x6 board, untreated (actual 1 1/2" x 5 1/2")	1 piece, 16" or longer	Ripped to 5" for the roof glue-up strip
Exterior wood glue (waterproof)	1 bottle	Edge glue-ups
3" exterior screws (coated or stainless)	About 30	Main assembly, plus 1 for the door latch
16d galvanized nails (3 1/2")	2	Door pivots
3/8" lag screws with washers	2	Long enough to pass through the 1 1/2" back and well into the trunk
Sawdust	About 1 1/3 cu ft	Tamped in up to the bottom of the hole; tamping takes more

Tools

Circular saw or miter saw • Table saw or circular saw with rip guide • At least 3 bar or pipe clamps, 16" capacity or more • Drill/driver • 4" hole saw • 3/16" and 3/8" bits • Socket wrench for lag screws • Speed square • Tape measure • Hammer • Sandpaper or hand plane

Step One: Edge-Glue the Wide Parts

Three parts are wider than a 2x12, so each is made from a 2x12 plus a ripped strip, glued edge to edge. Rip the strips first, joint or sand the mating edges so they meet with no gaps, spread glue on both edges, and clamp with at least three clamps, alternating over and under the panel to keep it flat. Leave the clamps on overnight. Then cut each panel to its final length.

Glue-up	Main board	Strip	Glued width	Final size
Front (D)	2x12, 11 1/4" wide	2x4 ripped to 3"	14 1/4"	14 1/4" x 25 3/4"
Back (E)	2x12, 11 1/4" wide	2x4 ripped to 3"	14 1/4"	14 1/4" x 34"
Roof (F)	2x12, 11 1/4" wide	2x6 ripped to 5"	16 1/4"	16 1/4" x 15"

Cut each main board and strip about 1" longer than the final size before gluing, then trim both ends square after the glue dries. On the front, put the strip on the side away from the hole so the hole is cut through solid 2x12.

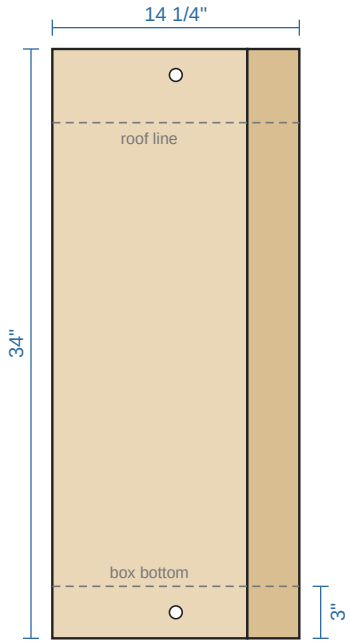
Cut List

Part	Qty	Size	From	Notes
A Floor	1	11 1/4" x 11 1/4"	2x12	Clip each corner 1/2" for drainage
B Fixed side	1	11 1/4" wide; 25 3/4" front, 26 3/4" back	2x12	Top cut at about 5 degrees
C Door side	1	11 1/4" wide; 25 1/2" front, 26 1/2" back	2x12	1/4" shorter than B for a vent gap
D Front	1	14 1/4" x 25 3/4"	Glue-up	Bevel top 5 degrees; 4" hole; kerfs inside
E Back	1	14 1/4" x 34"	Glue-up	Extends above and below the box for mounting
F Roof	1	16 1/4" x 15"	Glue-up	Bevel back edge 5 degrees

Lumber plan: From the 8 ft 2x12, cut the two sides, the floor, and the roof's main board. From the 6 ft 2x12, cut the main boards for the front and back. From the 2x4, rip the two 3" strips; from the 2x6, rip the 5" roof strip.

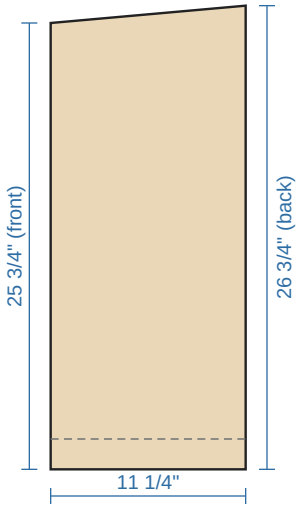
Before you build: Use cedar 2x lumber if you can find it; untreated pine works too. Never use pressure-treated wood. Leave the inside unfinished and skip the perch. 2x boards vary, so measure yours before cutting.

Part Drawings

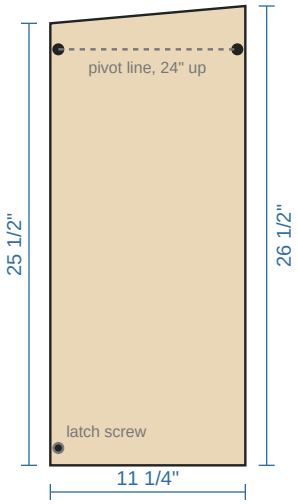


E Back

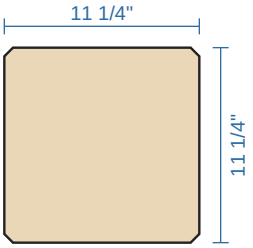
3/8" holes, 1 1/2" from ends



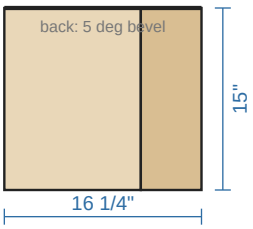
B Fixed Side



C Door Side



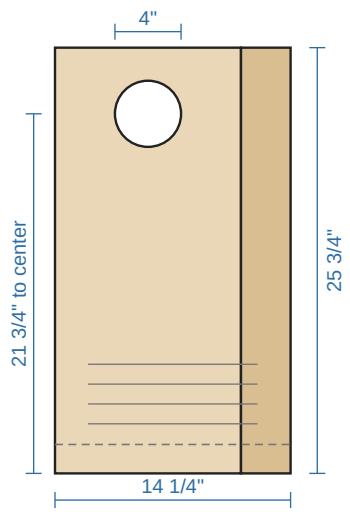
A Floor



F Roof (70% scale)

Drawings are to scale except where noted. Darker wood tone marks the glued-on strip. Dashed lines show where other parts meet. The front panel and entrance are on the next page.

Part D: Front Panel and 4" Entrance



D Front (strip on right)

Hole: Center it over the 2x12 part of the glue-up, 5 5/8" in from the edge without the strip and 21 3/4" up from the bottom edge. That puts the top of the hole 2" below the top edge, where the roof sits. Cut it with a 4" hole saw: drill until the pilot bit pokes through, then finish from the other side.

Fledgling ladder: On the inside face, cut four shallow horizontal saw kerfs (about 1/16" deep) below the hole.

Why off-center: Keeping the hole in solid 2x12 keeps the glue line away from the cut. The hole still sits over the inside of the box, since the 1 1/2" sides cover the outer edges.

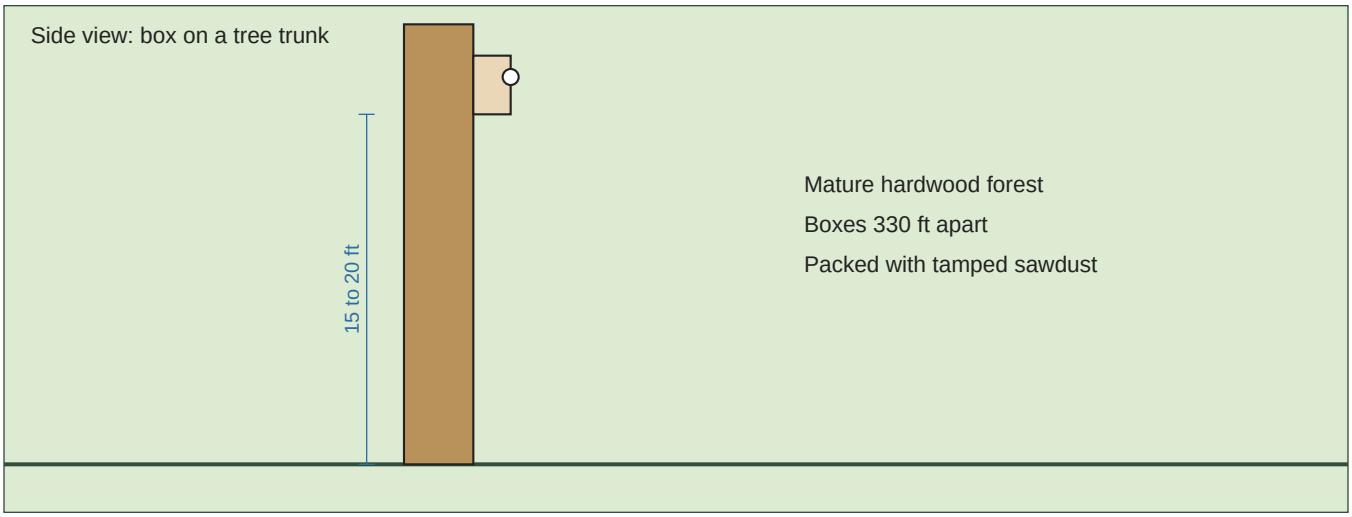
Assembly

1. **Make the three glue-ups** (front, back, roof) and let them dry overnight. Trim to final size.
2. **Cut the remaining parts.** Cut the 5-degree slope on both side tops, bevel the top edge of the front, and bevel the back edge of the roof. Clip the four floor corners 1/2".
3. **Cut the 4" hole and the kerfs** in the front.
4. **Attach the fixed side (B) to the back (E),** side bottom 3" up from the back's bottom end, flush with one long edge. Drill pilot holes and drive 4 screws through the back.
5. **Install the floor (A)** against the side and back, raised 1/4" above the bottom edge. Drive 3 screws through the side and 3 through the back.
6. **Attach the front (D),** kerfs facing in, bottom flush with the fixed side. Drive 4 screws into the side's front edge and 3 into the floor edge.
7. **Attach the roof (F).** Butt the bevel against the back so it overhangs the front about 2" and each side about 1". Drive 3 screws into the side, 3 into the front, and 3 through the back into the roof.
8. **Hang the door (C),** bottom flush with the box bottom. At 24" up, drive one 16d nail through the front and one through the back into the door edges, lined up. Near the bottom, drive one 3" screw through the front into the door as the latch.
9. **Drill two 3/8" mounting holes** in the back, centered, 1 1/2" from each end.
10. **Pack in the sawdust.** Open the door and fill the box with sawdust, tamping it down as you go, up to the bottom of the hole.

Where to Put It

Put this box up deep in mature hardwood forest, on a tree trunk 15 to 20 ft high, and keep boxes 330 ft apart. Use is rare, but it helps where large dead trees are missing.

Placement	Guideline
Habitat	Deep in mature hardwood forest, where large dead trees are missing
Mount on	A tree trunk
Mounting height	15 to 20 ft
Spacing	Keep pileated woodpecker boxes 330 ft apart



Mounting Tips

- Fasten the box to the trunk with two 3/8" lag screws and washers through the holes in the back.
- Packed with sawdust, this box is very heavy, and it goes up 15 to 20 ft. Work with at least one helper and a properly secured extension ladder, or hire someone with the right equipment.
- Mount the box level. The sloped roof sheds rain forward, past the entrance hole.
- To clean and refill, open the side door, remove the old material, and tamp in fresh sawdust.