



BUILD A FOUR-CHAMBER NURSERY BAT BOX DIY INSTRUCTIONS

Adapted from Tuttle, M. D., M. Kiser and S. Kiser (2005). *The Bat House Builder's Handbook: Second Edition*. Bat Conservation International, Austin, Texas.



VIDEO TUTORIAL

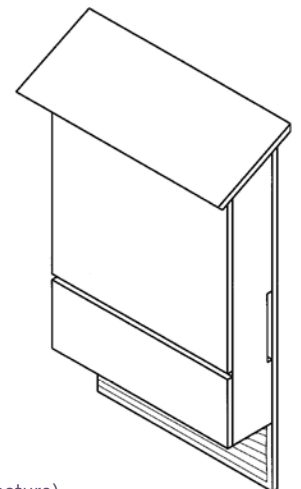
To see these instructions in action, follow along with our **Building a Bat Box: How-To Guide** video at naturealberta.ca/support-urban-nature

MATERIALS - MAKES TWO HOUSES (A AND B)

- One (1): Half sheet (4' x 4') 1/2" outdoor grade plywood
 - One (1): Half sheet (4' x 4') 3/8" outdoor grade plywood
 - One (1) piece: 1" x 6" (3/4" x 5 1/2" finished) x 8' pine or cedar
 - Eight (8) 1" x 1" x 4' wood stakes/strips
 - One (1) pound coated deck or exterior grade wood screws, 1 5/8"
 - 20 to 25 exterior grade wood screws, 1"
 - One (1) quart (0.946 L) dark, water-based stain, exterior grade
 - Two (2) quarts (1.89 L) dark, flat water-based combo paint/primer or stain/primer, exterior grade
 - One (1) tube paintable latex caulk or exterior grade wood glue
- Optional:*
- Black asphalt shingles or galvanized metal
 - 12 to 20 roofing nails, 7/8"

RECOMMENDED TOOLS


- Table saw (or circular saw)
 - Compound mitre saw
 - Variable-speed reversing drill
 - Screwdriver bit for drill
 - Tape measure
 - Medium bar clamps
 - Chisel
 - Caulking gun
 - 1 1/2" hole saw or spade bit
 - Paintbrushes
- Optional:*
- Sander
 - Hammer
 - Tin snips





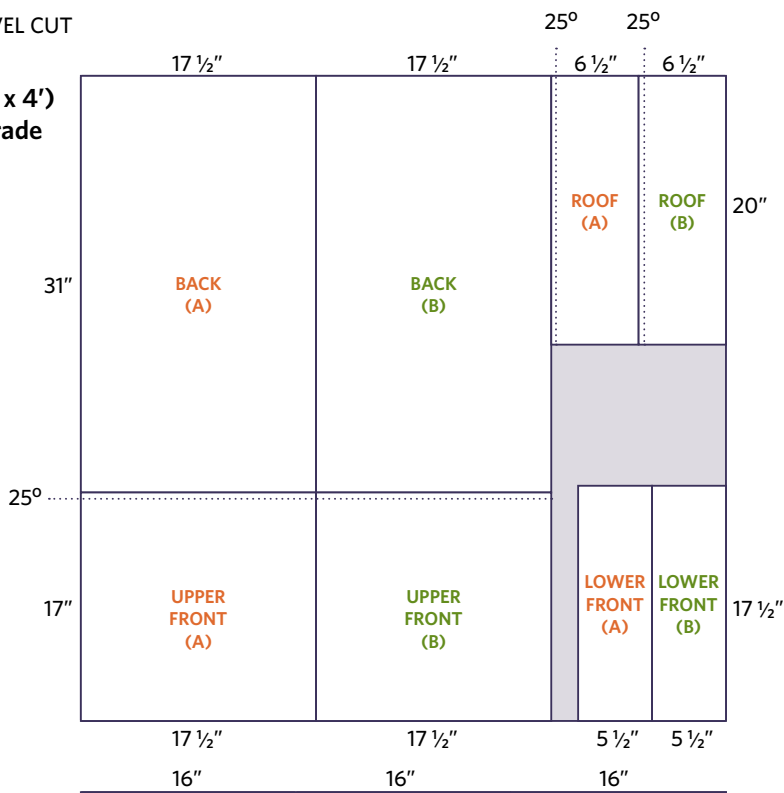
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CUTTING GUIDE DIAGRAMS - MAKES TWO HOUSES (A AND B)

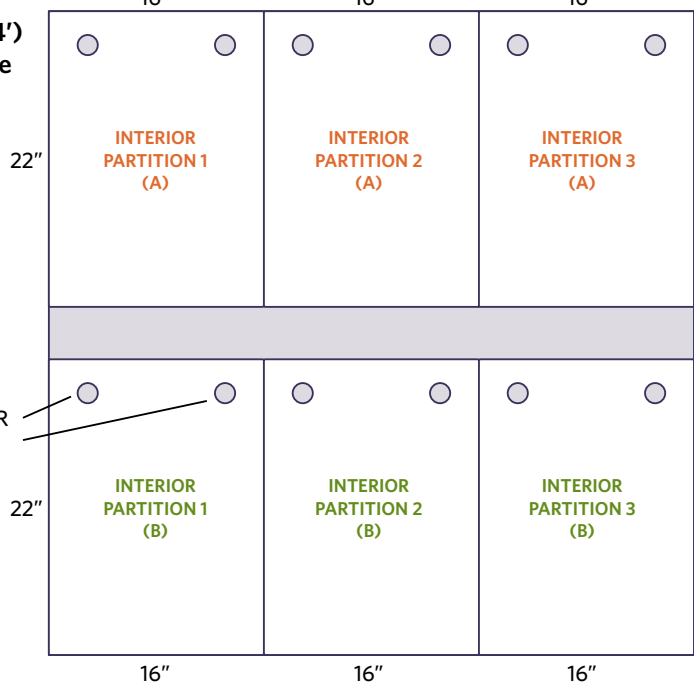
 EXTRA MATERIAL TO BE CUT AWAY

..... 25° BEVEL CUT

1a Half sheet (4' x 4')
1/2" outdoor grade plywood



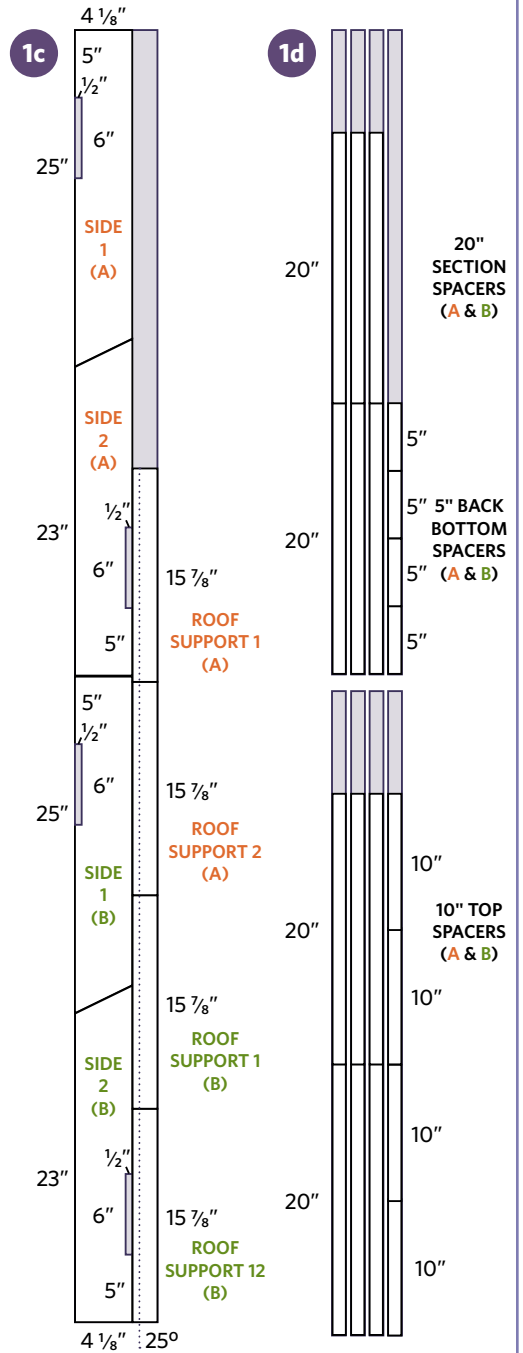
1b Half sheet (4' x 4')
3/8" outdoor grade plywood



3 1 1/2" DIAMETER PASSAGE HOLES

1" x 6" x 8' pine or cedar plank

1" x 1" x 4' strips/stakes

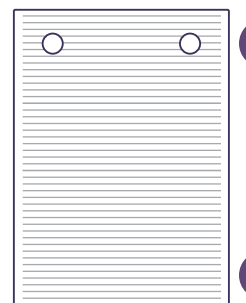




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CUTTING AND ASSEMBLY

- 1 Measure, mark, and cut all wood as per the cutting diagrams (page 2). The materials listed are enough to build two bat houses (noted as houses A and B). A table saw and compound mitre saw are needed for this project, but if you don't have these, many hardware stores can cut the pieces for you. A steady-handed carpenter can probably also make do with a circular saw (especially if using a fence).
 - a. Start with the 1/2" plywood. Mark and cut:
 - Two (2): 17 1/2" by 31" back pieces
 - Two (2): 17 1/2" by 17" upper front pieces
 - Two (2): 5 1/2" by 17" lower front pieces
 - Two (2): 6 1/2" by 20" roof pieces (remember to set your saw blade to 25 degrees to cut the roof segments)
 - b. On the 3/8" plywood, mark and cut six (6) 16" by 22" interior partition pieces (each bat house will use three interior partition pieces to make the four chambers).
 - c. Use your 1" x 6" x 8' board for the side pieces and roof spacers.
 - Set your saw blade to 25 degrees and rip a 4 1/8" section lengthwise down the board. It's easier to rip if the 8' board is cut into two 4' lengths first. Reset to saw blade to zero degrees and slice the angled edge off the 4 1/8" board so it's flat.
 - Using the compound mitre saw, cut the 1" x 1" piece of board with the angled edge into four (4) 15 7/8" long roof spacers.
 - Setting the mitre saw to 25 degrees, cut the side pieces to 25" in length (the long, back edge of the side piece will be 25", the short front edge will be 23").
 - Mark a 6" by 1/2" vent notch into the long side of the side pieces, 5" from the bottom. Moving back to the table saw, set the blade height to 1/2" and make a series of cuts to cut out the side vents. Remove any remaining rough areas with a chisel. You can notch both side pieces at the same time by clamping them together.
 - d. With the other 1" x 1" x 4' strips/stakes, we'll make the interior spacers. Mark and cut:
 - Twelve (12): 20" lengths (6 for each house)
 - Four (4): 10" lengths (2 for each house)
 - Four (4): 5" lengths (2 for each house)
- 2 Notch grooves into all inside chamber panels of the bat nursery so the bats can grip onto the interior. Set your table saw blade height to 1/8" and make blade-width notches every 1/2" horizontally along both sides of all partition pieces, and the inside of the back and front pieces.
- 3 Remember to cut two 1 1/2" passage holes through the interior partitions using your hole saw or spade bit. Position the holes so that the chamber spacers will not block the holes.
- 4 Apply one or two coats of dark, water-based, exterior grade stain to all interior surfaces (interior front and back panels, chamber partitions, side spacers, and interior roof). Do not use paint, as it will fill the partition grooves. Let dry.

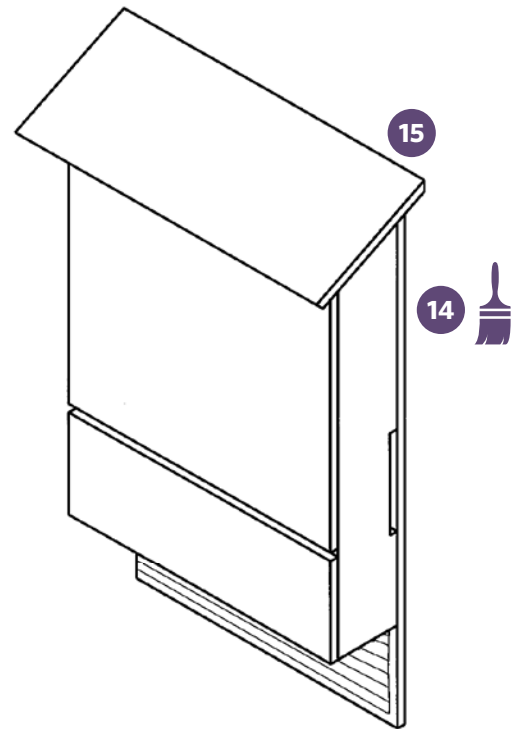
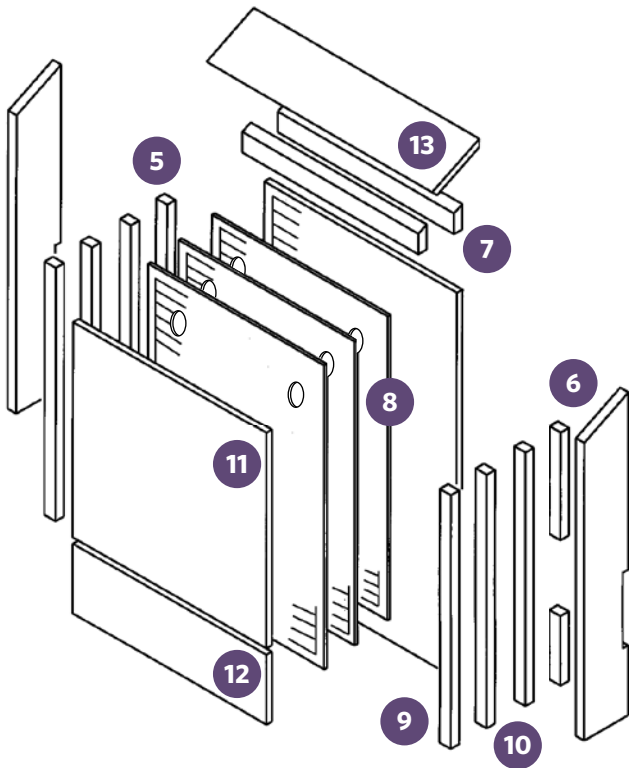




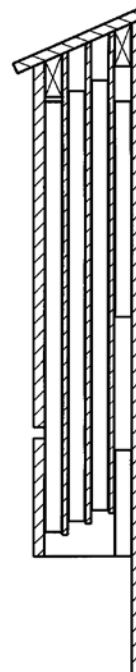
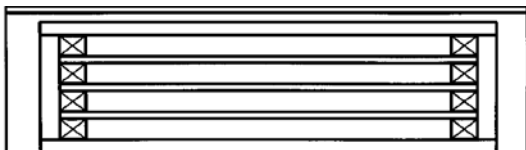
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ASSEMBLY DIAGRAMS



Bottom View
(looking up into interior)



Side View
(without side panel)



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- 5 Attach the side pieces to the back, with the angled ends flush with the top. Glue or caulk them on, apply clamps to hold in place, then screw them into place (through the back of the back piece) using 1 5/8" screws. Make sure all sides and corners are flush.
- 6 Attach the 5" and 10" spacers flush with the opening of the side vents using 1" screws (through the side pieces). Roost chamber spacing will be 3/4" (front to back). It's important to drill pilot holes before inserting the screws to avoid splitting the small pieces of wood.
- 7 Attach the first roof spacer to the back piece using 1" screws. It should be flush with the top of the back piece and the angle of the side pieces (not protruding over the side).
- 8 Mount the first interior partition on the spacers, making sure the top is flush with the slope of the roof (not protruding over the side) so the roof will sit evenly. Apply a small bead of glue or caulk, then attach the partition using 1" screws.
- 9 Attach 20" spacers flush with the bottom of each partition using 1" screws (through the side pieces). Attach roof spacer to the partition using 1" screws.
- 10 Continue mounting partitions and spacers to create four chambers.
- 11 Attach the upper front piece to the side pieces, flush with the slope of the roof. Apply glue or caulk, then screw into place (through the front of the front piece) using 1 5/8" screws.
- 12 Attach the lower front piece flush with the bottom of the side pieces. This should leave a small ventilation gap between the two front pieces. Apply glue or caulk, then screw into place using 1 5/8" screws.
- 13 Attach the roof. Apply caulk or glue to all top surfaces, sanding first if necessary to ensure a good fit. Screw the roof into the side pieces using 1 5/8" screws. Make sure no screws protrude into the roosting chambers. Caulk around roof seams to prevent leaks and drafts.
- 14 Apply two coats of dark, flat, exterior grade, water-based combo primer/paint or primer/stain to all exterior surfaces.
- 15 *Optional:* Cover roof with shingles or galvanized metal.



VIDEO TUTORIAL

Get tips on where to position your new four-chamber nursery bat box in the video at naturealberta.ca/support-urban-nature