Figure 3.

Four-chamber Nursery House

Materials (makes two houses) • Diagrams on pages 12 & 13

¾ sheet (4' x 4') ¾" AC, BC or T1-11 (outdoor grade) plywood
¾ sheet (4' x 4') ¾" AC or BC (outdoor grade) plywood
Two pieces 1' x 6' (¾' x 5½' finished) x 8' pine or cedar
One lbs. coated deck or exterior grade screws, 1½'
20 to 25 coated deck or exterior grade screws, 1¼'
20 to 25 exterior grade screws, 1¼'
One quart dark, water-based stain, exterior grade
One quart water-based primer, exterior grade
Two quarts flat water-based paint or stain, exterior grade
One tube paintable latex caulk
Black asphalt shingles or galvanized metal
12 to 20 roofing nails, ¾"

Recommended tools
Table saw or circular saw
Variable-speed reversing drill
Screwdriver bit for drill
Tape measure or yardstick
Caulking gun
1½" hole saw or spade bit
Paintbrushes
Hammer (optional)
Tin snips (optional)
Bar clamp (optional)
Sander (optional)

Construction

1. Measure, mark and cut out all wood according to the sawing diagrams on pages 12 and 13.
2. Roughen interior and landing surfaces by cutting horizontal grooves with sharp object or saw. Space grooves ⅓ to ½" apart, cutting ⅛" to ½" deep.
3. Apply two coats of dark, water-based stain to interior surfaces. Do not use paint, as it will fill grooves.
4. Attach side pieces to back, caulk first. Use 1¼" screws.
5. Make sure top angles match.
6. Attach 5" and 10" spacers to inside corners per drawings on page 12. Use 1¼" screws. Roost chamber spacing will be 1½" (front to back). Do not block side vents.
7. Place first roosting partition on spacers even with bottom edge of roof. Place 20" spacers on partition and screw to first spacers (through partition), using 1½" screws.
8. Place front to sides, top piece first (caulk seams). Be sure top angles match (sand if necessary). Leave ⅛" vent space between top and bottom front pieces. A bar clamp may be useful if sides have flared out during construction.
9. Attach roof supports to the top inside of front and back pieces with 1½" screws. Don't let screws protrude into roosting chambers.
10. Caulk around all top surfaces, sanding first if necessary to ensure good fit with roof.
11. Attach roof to sides and roof supports with 1½" screws.
12. Paint or stain exterior three times (use primer for first coat).
13. Cover roof with shingles or galvanized metal.

Optional modifications

1. These nursery house dimensions were chosen to permit construction of two bat houses per half-sheet of plywood. Increasing house width to 24½" or more adding partitions benefits bats and attracts larger colonies. Additional spacers are required to prevent warping of roof partitions for houses more than 24½ wide.
2. Taller bar houses provide improved temperature gradients and may be especially useful in climates where high temperatures fluctuate widely.
3. Bar houses 3' or taller should have the horizontal vent slot 1' from the bottom of the roosting chambers.
4. Two bar houses can be placed back-to-back mounted on poles. Before assembly, a horizontal X" slope should be cut in the back of each house about 10" from the bottom edge of back piece to permit movement of bats between houses. Two pieces of wood, 1" x 4" x 10½", screwed horizontally to each side, will join the two boxes. Leave a ⅛" space between the two houses, and roughen the wood surfaces or cover the back of each with plastic mesh. One 2" x 4" x 40" vertical piece, attached to each side, over the horizontal pieces, blocks light but allows bats and air to enter. Use a 2" x 6" vertical piece if securing boxes with U-bolts to metal poles. A galvanized metal roof that covers both houses protects them and helps prevent overheating. Eaves should extend about 3½" in front in southern areas and about 1½" in the north.
5. Ventilation may not be necessary in cold climates. In that case, the front of the bat house should be a single, 23½-long piece. Far-northern bat houses may also benefit from a partial bottom to help retain heat. Slope the sides and bottom at an angle of 45° or greater to reduce gnat buildup. Leave a ⅛" entry gap at the back and be sure the bottom does not interfere with access to the front crevice. A hinged bottom is required to permit annual cleaning.
6. Durable plastic mesh can be substituted for roughening. Attach mesh to backboard, landing area and one side of each partition after finishing interior, but prior to assembly. Use ½" or ¼"-inch HDPE plastic mesh [such as Internet product #1672 (1-800-328-8456; www.internetmesh.net)] and attach every two inches with ½" Monel® or stainless steel staples.
7. Make partitions removable by attaching small cleats with thumb-screws to the bottom of side pieces for support. Spacer strips are unnecessary if grooves for partitions are cut in the side pieces with a router or dado saw blade.
FIGURE 5
Four-chamber Nursery House Sawing Diagrams

![Diagram of Four-chamber Nursery House Sawing Diagrams]

- Extra material
- 25 degree bevel

20" 31"
17 1/2" 17 1/2"
front (upper) front (upper)

20" 17 1/2"
17 1/2" 17 1/2"
front (lower) front (lower)

4' x 4' x 1/2" plywood
* 19' if mounted between two poles

15 3/4" 15 3/4" 15 3/4"
partition 1 partition 2 partition 3

1 1/4" diameter passage holes

4' x 4' x 3/8" plywood

Spacers:
5" spacers = back bottom
10" spacers = back top
20" spacers = others

1" x 6" x 8' board