

The success of bat boxes has opened up a new dilemma. All wood structures require maintenance. To reduce maintenance concerns, research is focusing on methods to make boxes more durable. The aluminum shell is a step in that direction. This design has proven successful in recent trials.

The design uses an aluminum shell, although steel would likely work too. The advantage of using aluminum is that it resists corrosion and should last a long time.

Bats enter through the bottom of the box. Four inches extend from the bottom for a landing plate.

You'll need to find a welding/machine shop or individual to construct the shell. When you receive the shell, it is likely that the dimensions will not be exact. There will probably be some minor variations that will require modifying the interior measurements. For this reason, measurements specified are a guide. Other variations could be yours. If different thickness of plywood are used, modifications will need to be made to insure that the roost provides for 3/4" (+/- 1/8") roosting crevices.

Preparation of Shell- The shell needs to be treated to allow it to absorb heat, reduce light in the roost, and protect the exterior.

1. Spray paint the interior with a light coat of black paint to reduce light reflections inside the structure.
2. Paint the top exterior black so that it absorbs heat. A durable material that could be used is plastic truck bed lining material available from automotive stores. Insure to treat the exterior of the back.
3. Paint the lower exterior a light color to provide cooler roosting environments on hot days. Insure to treat the back exterior.
4. Cut out the wooden interior roosting structure parts as indicated in the diagram. Use exterior grade yellow pine or spruce plywood. Do not use luan plywood. Modify the dimensions if necessary so that, once assembled, it will slide into the shell. Cut grooves in 4- 2X4's for baffle hangers.
5. Once all parts are cut out, Spray a light coat of black paint or brush a light coat of black latex stain over the wooden parts. This will help to keep the interior dark.
6. After painting, score the wood with a sharp edge to provide secure roosting holds for the bats. You should be able to easily walk your fingers up the wood using your finger nails. Scratches should be ~1/4" apart. This is an important, labor intensive part of bat box construction.
7. Using a staple gun, staple a 10" high X 1'-11" long piece of fiberglass window screening to the bottom of the back. This creates a stable landing platform for returning bat pups coming back to the roost when learning to fly.
8. Once the wood is good and rough, begin the assembly by attaching the baffle hangers to the plywood back with wood screws or galvanized drywall screws.
9. Install the roosting baffles. Every other crevice has a closed top. This provides heat conserving crevices for bats to group together on cool, cloudy days. Use 3/4" X 1" strips of board to sandwich 2 baffles together. Start with the longer baffle in the back. Cut and attach the top strip with screws first. Measure the side strips to fit snug on top of baffle hangers.
10. Lay the wood interior assembly next to the shell. You want a 1/2" to 3/4" space at the top of the roost baffles so that bats can move over the top of the roost baffles and get against the metal roof. This is a highly desirable spot on cool but sunny days. By laying the assembly beside the shell you can estimate how much of the roosting baffle needs to be above the upper baffle hangers. This will vary with each baffle since the roof has slope to it.
11. Once the wood interior is assembled, slide it into the metal shell. The bottom of the back should align with the bottom of the shell. Drill holes through the back, and using 1/2" screws, attach the back to the shell. Determine where the baffle hangers are located and drill holes in the shell to secure the hangers to the shell with 1" screws. Make certain the baffle hangers do not block the vent holes in the shell. Touch up exterior screws with paint.
12. Erect by drilling holes in the 2" top extension of the shell and also through the lower wood back / bottom portion of the shell.
13. Place where it gets plenty of sun on a pole or building. Orient the front of the box in a southerly direction. Preferred orientation is to the SE so that it warms up quickly in the morning. Box should get at least 7 hours of direct sun. Place within 10-20 yards of cover, such as trees. Bats prefer to dive into cover after exiting the roost to avoid predation. If erecting on a pole, the bottom of the box should be at least 10' off the ground.
14. Just add bats!

Metal Shell (Aluminum) 7-Chamber Bat Box. Capacity: ~300 Bats

