

Carolina Wren Nest Box Plans

Thryothorus ludovicianus

Building for the Carolina Wren brings one of the most charismatic and vocal songbirds right to your porch or garden. Their curious nature and penchant for nesting in human-made structures make them the ideal species for a first-time DIY birdhouse project equipped with an AI nature cam.

Nest Box Specifications

Entrance hole	1.5 inches (38 mm)
Floor dimensions	4 x 4 inches (102 x 102 mm)
Interior depth	7 inches (178 mm)
Mount height	5-10 feet (1.5-3.0 m) above ground
Facing direction	East or Northeast to avoid the intensity of the hot afternoon sun and prevailing westerly winds.

Mount the box in a site with high structural complexity, such as near a brush pile, thicket, or under a porch eave. Unlike many birds, Carolina Wrens are comfortable nesting very close to human activity as long as there is dense cover nearby for a quick escape. Avoid open, windy fields and ensure the box is at least 30 feet away from other nesting pairs.

Cut List

From a 1x6 x 6 ft

Panel	Dimensions	Qty	Notes
Front	5.50" x 8"	1	Drill 1.5" entrance hole 6" from the bottom, centered horizontally.
Back	5.50" x 14"	1	Provides 3" mounting tabs at both the top and bottom.
Side (Fixed)	5.50" x 8"	1	Angled top: 8" at back, 7" at front to shed water.
Side (Door)	5.50" x 7.75"	1	Shortened by 1/4" to allow for easy swinging on hinges for cleaning.

Roof	7.25" x 9"	1	Cut from 1x8 stock to create side eaves; mount with a 2" front overhang.
Floor	4" x 4"	1	Ripped to 4" width to fit between 3/4" sides; clip corners for drainage.

The main chassis (front, back, and sides) fits on a single 1x6. The floor must be ripped down to 4 inches wide to account for the thickness of the side walls. Using a 1x8 for the roof is critical as it protects the side-opening door from rain penetration.

Materials & Construction

Wood: 3/4-inch (19 mm) untreated Western Red Cedar or Cypress for maximum weather resistance. Avoid plywood or pressure-treated lumber.

Boards: One 1" x 6" x 6' and one 1" x 8" x 1' untreated cedar board will provide all necessary panels with room for errors.

Hardware: 20x 1-5/8" galvanized deck screws, 2x 1-1/2" exterior brass hinges, 1x brass hook and eye, 2x 2-1/2" stainless steel mounting screws

Ventilation: Leave a 1/4-inch gap between the top of the side panels and the roof to allow hot air to escape.

Drainage: Clip 1/2-inch off each corner of the floor panel and drill four 1/4-inch holes to ensure the nest stays dry.

Predator guard: Use a 24-inch stovepipe baffle mounted on a 4x4 post to deter climbing raccoons and snakes. Because wrens often nest near houses, ensure no overhanging branches allow squirrels to leap onto the roof.

Materials Checklist

- 1x 1" x 6" x 6' cedar board
- 1x 1" x 8" x 1' cedar board (for roof)
- 20x 1-5/8" galvanized deck screws
- 2x 1-1/2" exterior brass hinges
- 1x brass hook and eye latch
- 1-1/2" hole saw or spade bit
- Drill with 1/8" and 1/4" bits
- Measuring tape and carpenter's pencil
- Miter saw or handsaw

80-grit sandpaper
Exterior wood glue (optional)
Stovepipe baffle for post mounting

Seasonal Timeline

Install: Install by late January in the Southeast and early March in the Northeast to accommodate early-season pair bonding.

Nesting start: In the Southeast, nesting can begin as early as March. In the Northeast and Midwest, pairs typically begin building in mid-to-late April. They are prolific breeders and may raise up to three broods in a single season if the climate is mild.

Clutch size: 3-7 eggs (usually 4-5)

Incubation: 12-14 days

Fledging: 12-16 days after hatching

Cleaning: Remove old nesting material immediately after a brood fledges. Carolina Wrens prefer a clean box for subsequent broods, and this reduces parasite loads.

Regional Considerations

Carolina Wrens are found throughout the Eastern United States, from the Atlantic coast to the Great Plains, and as far north as Southern Ontario. They are permanent residents and do not migrate, though their northern range fluctuates based on winter severity.

In the deep South, breeding begins in early spring and can continue into August. In northern latitudes or higher elevations, the season is shorter, typically concluding by July to allow the birds to store fat for the winter.

Raccoons and rat snakes are the primary threats. A proper baffle is essential, and keeping the entrance hole exactly 1.5 inches prevents larger competitors like Starlings from entering.

Camera Placement

Carolina Wrens build 'domed' nests with a side entrance, which can make interior viewing a challenge. For the best results, mount a small, wide-angle USB or Wi-Fi 'cube' camera in the top rear corner of the box, angled toward the entrance hole. This allows you to see the parents entering the dome and feeding the chicks.

Because these wrens are highly active during the day, ensure your camera has a high frame rate to capture their quick movements. Since the interior of a wren box is quite dark, a camera with invisible 940nm IR (Infrared) LEDs is essential to see inside the nest without disturbing the birds' circadian rhythms.

Exterior monitoring is also highly rewarding for this species. A battery-powered smart camera (like a Blink or Arlo) mounted on a nearby post or wall about 4 feet away will capture their frequent 'teakettle' singing and the energetic 'changing of the guard' during incubation.

Route all cables through a small notch in the back panel or the ventilation gap. For an all-in-one DIY solution, a small 2MP or 4MP USB camera module mounted to the ceiling is the gold standard for high-definition streaming on EverydayEarth platforms.

Powering with a USB solar panel

Mount a 5V USB solar panel with a built-in battery 1-2 ft above the box on the same post, angled 30-45 degrees from vertical and facing south. Run the USB cable down the post inside split loom conduit (squirrels will chew unshielded wire), enter the box through the same grommeted hole as the camera cable, and seal with exterior silicone. Choose a panel with a 5-10 Ah battery buffer so the camera runs through cloudy days.

Common Problems & Solutions

House Wren competition: House wrens may fill the box with sticks to 'claim' it. Remove unlined stick nests early in the season before eggs are laid.

Box remains empty: Move the box closer to thick cover or a brush pile. Carolina Wrens dislike crossing open spaces to reach their nest.

Wet nesting material: Check the roof overhang and ensure the side door is tightly latched. Ensure drainage holes are not clogged with debris.

Blowfly larvae: If you notice lethargic chicks, check for parasites. Clean the box thoroughly between each of the three potential annual broods.

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