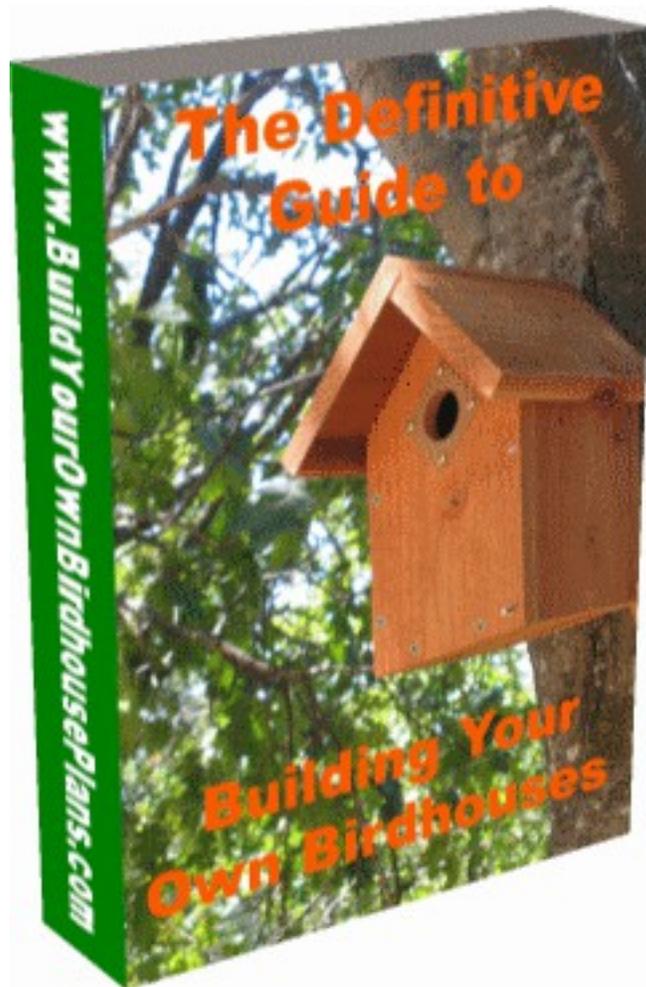


# The Definitive Guide to Building Your Own Birdhouses

By Larry Jordan



## Copyright Notice

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical. Any unauthorized use, sharing, reproduction, or distribution is strictly prohibited.

© 2010 BuildYourOwnBirdhousePlans.com

# **The Definitive Guide to Building Your Own Birdhouses**

**Turn Your Backyard or Garden Into  
A Beautifully Tranquil Paradise and Be The Envy of All Your Friends!**

Welcome to your "Definitive Guide to Building Your Own Birdhouses". I have created this guide because I have seen so many mistakes made by people who just want to build a simple, effective birdhouse that the birds will be attracted to and use year after year. I have been building birdhouses for over 25 years and I wanted to make an easy to use guide that would lead you step by step through the process of building your own birdhouses. These birdhouse plans with diagrams and pictures will show you each step along the way so that you know exactly how to complete your project.

I call this a complete guide because I have also included information on how to find which species of birds live in your area, what those birds are looking for in choosing a specific birdhouse and what materials you should use to build a safe and effective birdhouse. I have also included tips on everything from the best tools to use for making your houses to what types of feed your birds want and how to protect them from predators.

I hope you enjoy this book as much as I enjoyed writing it. The information you will get and the skills you will learn from this book will help you get more enjoyment out of your backyard and your life while helping your fine feathered friends live longer healthier lives too!

Your Backyard Birdman,



## Table of Contents

- Chapter 1 - Important Things to Consider – How many birdhouses should I put up? Where should I place them and how far apart?
- Chapter 2 - Birds In Your Area – How do I know which bird species are found in the area where I live? Which birds do I want in my yard?
- Chapter 3 - What You Need to Get Started – What tools will I need? What kind of wood and fasteners should I use?
- Chapter 4 - Birdhouse Dimensions For Various Bird Species – Specification table for various bird species
- Chapter 5 - The Most Basic and Easiest Birdhouse to Build – This is the basic birdhouse built from one six foot 1" x 6" board
- Chapter 6 - The Alternate Bluebird, Flycatcher, Titmouse and Nuthatch Plans – This is a great alternative style birdhouse I really like
- Chapter 7 - The Alternative Wren House Plan – This is an alternative plan to the basic plan for smaller birds like the wren and they love it
- Chapter 8 - The Basic Robin, Phoebe and Barn Swallow House Plan – This is an open sided birdhouse plan for these species
- Chapter 9 - The Basic Owl House Plan – This birdhouse plan is excellent for the Barred Owl and Screech Owl as well as the American Kestrel
- Chapter 10 - The Basic Wood Duck House – This rather large house can be made from two six foot 1" x 12" boards
- Chapter 11 - Bird Baths, Feeders and Nesting Materials – Other essential things needed to keep your birds healthy and happy

## **Chapter 1**

### **Important Things To Consider When Building Your Birdhouse**

Providing houses for cavity nesting birds is a popular hobby for people who enjoy wildlife around their homes. Building birdhouses according to proper specifications, placing them in the “best” habitat and maintaining the houses regularly can benefit both the birds and us. However, if not built and placed properly, you might have no visitors at all.

Natural cavities in trees will always be important homes for wildlife. But in some locations, intensive forest management, firewood cutting and the replacement of wood with metal fence posts has reduced the supply of natural cavities. In these and similar situations, nest boxes (birdhouses) can be helpful for many cavity nesting species. Birdhouses are especially useful around fields and farmsteads where the limited number of natural cavities have, in most cases, been taken over by starlings and house sparrows. Nest boxes can be designed and placed so that use by these more aggressive species is minimized. Building, placing, and maintaining nest structures should be considered a technique for enhancing existing habitat and adding to our personal opportunities to see and enjoy wildlife.

Many birds establish territories where they will not tolerate other birds and some allow other species of birds to share their territory. Still other birds, such as Tree Swallows or Purple Martins, love to have lots of other birds of the same type around. To help decide how many birdhouses to put up, check the chart below for information about many common North American birds that use birdhouses. You can put up several houses for different types of birds.

Mount birdhouses with the hole facing away from the prevailing winds to keep as much rain out as possible. I like to mount my birdhouses on the East side of a tree so they get some morning light but are out of the hot afternoon sun. In Northern California, where I live, it can get well over 100 degrees in the summer.

Type of Bird	Height of House from Ground	Placement	Territory size
American Kestrels	15' – 30'	Open fields or near the edge of a forested area	Several hundred acres
Bluebirds	5' – 10'	Facing open areas or fields	2.5 – 5 acres
Chickadees	6' – 15'	Near trees and open areas	9 – 10 acres
Ducks	When on land: 10'+, when box is over water: 4'+	Facing lakes, streams, marshes	None
Finches	4' – 10'	Can be anywhere, usually near your house	Area near birdhouse
Flycatchers	8' – 20'	Near the edge of a forested area	Unknown
Nuthatches	10' – 20'	Wooded areas or mixture of open fields and forested areas	20 – 50 acres
Owls	10' – 30'	Forested areas	Varies by type of owl
Purple Martins	10' – 20'	Near your house, preferably with a pond, stream, birdbath nearby	Near their hole of the martin community
Swallows	8' – 15'	Open fields	Area near nest
Titmice	6' – 15'	Mixture of open fields and forested areas	2.5 – 5 acres
Woodpeckers and Flickers	10' – 20'	Forested areas	Varies by type of woodpecker

Purple Martins, mergansers and wood ducks do not defend territories around their nests. Therefore, Martins should be provided with “apartment type” houses. Duck and Merganser boxes can be clustered in groups of two or four. Houses for other bird species should be spaced far enough apart to reduce territorial conflicts. Bluebird houses need 100-yard spacing.

Some birds will inspect several houses before deciding on a particular one. You may wish to give the birds a few to look over in your yard, knowing that only one will be occupied.

## Chapter 2

### Birds in Your Area

When you succeed in attracting resident birds to your yard the benefits are two fold. First, birds like swallows eat several times their weight in mosquitoes and other insects, including garden pests! Second, your family will have the pleasant and educational experience of observing bird families go through their seasonal cycle from mating to rearing their young.

The types of birds that will nest in your yard or property are determined partly by the habitat that you have. Many trees and dense shrubs in your neighborhood and yard will attract the forest-loving birds while open expansive fields will attract different ones. Obviously, no matter how wonderful a house you build for flickers, they will not set up their home in your yard if you live on a treeless prairie. If you have a mixture of habitats, you may be able to attract a great number of birds to your houses as well as to your feeders.

Start planning your birdhouses by determining which species are most likely to become residents. The birds you are able to observe yourself is a start but don't assume that they are the extent of the local bird population. Check with your local Audubon Society or wildlife club for a rundown of birds you may attract and information on what dates they arrive from their seasonal migrations. A great source for this information in North America is the National Geographic Society's "**Field Guide to the Birds of North America**". You can purchase this great field guide by clicking this link:

[National Geographic Society's Field Guide to the Birds Of North America](#)

If you are interested in a comprehensive guide to birds of the world click here to purchase the Birds Of The World by Les Beletsky:

[Birds of the World](#)

## **Here Is A List Of North American Birds That Prefer To Nest In Cavities:**

American Kestrels, Eastern Bluebirds, Mountain Bluebirds, Western Bluebirds, Snow Buntings, Black-capped Chickadees, Mountain Chickadees, Boreal Chickadees, Carolina Chickadees, Siberian Chickadees, Chestnut-backed Chickadees, Brown Creepers, House Finches, Great Crested Flycatchers, Ash-throated Flycatchers, Purple Martins, Common Mergansers, Hooded Mergansers, Brown Headed Nuthatches, White-breasted Nuthatches, Red-breasted Nuthatches, Eastern and Western Screech Owls, Common Barn Owls, Barred Owls, Northern Saw-whet Owls, Northern Hawk Owls, Pygmy Owls, Boreal Owls, Barrow's Goldeneyes, House Sparrows, Tree Swallows, Violet-green Swallows, Tufted Titmouse, Oak Titmouse, Juniper Titmouse, Bewick's Wrens, Carolina Wrens, House Wrens, Buffleheads, Common Goldeneyes, Wood Ducks, European Starlings, Downy Woodpeckers, Golden-fronted Woodpeckers, Hairy Woodpeckers, Northern Flickers, Nuttall's Woodpeckers, Red-bellied Woodpeckers, Red-headed Woodpeckers and Yellow Bellied Sapsuckers.

## **Chapter 3**

### **What You Need To Get Started**

Before you get started building your birdhouses, make sure you have the required materials and the right tools. The materials for each plan are listed for you before the building instructions. There are some basic “rules” that will apply for all birdhouses so I will give those to you right now.

#### **THESE ARE IMPORTANT!**

- ❖ DO NOT use any type of pressure treated wood. It is toxic to birds.
- ❖ If you use recycled wood, make sure it was not treated with creosote or painted with paint containing lead. If in doubt don't use it!
- ❖ DO NOT put perches on any birdhouse. Only house sparrows and European starlings prefer perches. If you have a house with a perch, remove the perch.
- ❖ Provide a hinged side or roof so the house can be easily checked and cleaned each season.
- ❖ At least four 1/4 inch diameter drain holes should be drilled in the bottom of every house.
- ❖ The top-front edge of a bird house should overhang at least two inches to help protect the entrance hole from wind-driven rain and to keep cats from reaching in from above.
- ❖ At least two 1/4 inch holes should be drilled near the top of the right and left sides of all bird houses – except duck boxes and winter roost boxes — to provide ventilation. Providing adequate ventilation is especially important for small bird houses.
- ❖ Use galvanized nails to build houses if necessary, but remember that they loosen up as wood expands and contracts in extreme weather conditions. I use 1 5/8” exterior screws for a long lasting birdhouse.

- ❖ The sides of a bird house should enclose the floorboard; don't nail them to the top of the floorboard. This arrangement prevents rain from seeping between sides and floor and then into the nest. Recess the floorboard 1/4" up from the bottom of the sides to help prevent deterioration caused by moisture.
- ❖ Do not use tin cans, milk cartons or metal as nest box materials. Metals heat up in direct sun, overheat the eggs, and kill the young. However, commercial martin houses made from aluminum are acceptable. Commercial plastic wood duck houses are also acceptable, but should be placed in shady locations.
- ❖ Wood is the best material for houses. Three-quarter-inch boards are the easiest to work with. Softwood such as pine is fine for smaller nests, but cedar, redwood or cypress should be used for larger boxes.
- ❖ Keep in mind these houses are for the birds. You can paint and decorate it to look like a Swiss chalet or a Frank Lloyd Wright home but birds don't care and may even be repelled by such gaudiness. Exterior finishes are a matter of personal preference. In fact unfinished structures made of cedar, redwood, pine, spruce or exterior plywood will turn gray and last for years. The simpler, the better! If you want a colored structure, semi-transparent oil-base stains are best. They will penetrate the wood. A single application will last three years on a smooth surface, longer on a rough one. Select a stain that does not contain pentachlorophenol preservative.
- ❖ Make sure your construction will not injure the birds. No protruding screw or nail points.

## Necessary Tools

There are a few tools you will need to build any of the birdhouses shown here.

There are a variety of choices for you but here is a list of the basic tools needed.

- ❖ **Hammer** – You don't need a heavy framing hammer. A finishing hammer will do.
- ❖ **Screwdriver** – I suggest screwing your birdhouses together rather than nailing them. This creates a much stronger structure that will last much longer. As you will see I have some birdhouses that are over 25 years old! You can use a standard or Phillips head screwdriver. I prefer the Phillips head because they are easier to use and you can use a power or cordless drill to drive the screws if you want to.
- ❖ **Drill and Bits** – You will need a drill to make the entrance hole and ventilation holes for your birdhouses. You will also need to pre-drill holes for nails and screws to prevent the wood from splitting. The part of the drill that actually makes the hole is called a bit. You will need a 1/4" bit to make the holes for drainage and ventilation and a 1/2" bit for the hole to hang the house from. You will also need some smaller bits to pre-drill the holes for the nails or screws. Because the entrance holes are various sizes I suggest using a hole saw to cut the entrance holes. Hole saws come individually or in a set from most any hardware store. Make sure if you buy a set that it has the saw size you need to cut the entrance hole for the birdhouse you are making.
- ❖ **Saw** – Most people will want to use a circular saw to cut the wood to size. You may, of course, use a hand saw if you wish. If you are only making one or two birdhouses this is a very feasible option. If you are making several birdhouses or large birdhouses you may want to use a power saw. A table saw is another option. If you have a table saw obviously it is the quickest and easiest option. Make sure if you use any type of power saw that you follow the manufacturer's precautions and always wear safety

glasses. You want to make sure you will be able to see all those beautiful birds that will be visiting your backyard when you are finished!

- ❖ **T-square** – A T-square or framer’s square is a large ruler used to make straight lines and angles in woodworking. It is essential if you want to make straight cuts so your birdhouse fits together properly.
- ❖ **Tape Measure** – You can use your square for your measurements but I think most people find it easier to use a metal tape measure.
- ❖ **Screws, Nails, Hinges and Fasteners** – You can use either screws or nails to put the birdhouses together. I believe the advantages of using screws instead of nails far outweighs the extra time it takes to build your new birdhouses with screws. As stated before, screws will build a sturdier, longer lasting birdhouse that will save you repair time later when a nailed birdhouse will need attention. The screws will hold the wood more securely as it ages and weathers. You will want to use galvanized screws and nails to prevent rusting. I use 1 5/8” Phillips head exterior screws and 4d, 1 1/2” galvanized nails when needed. I use 6d, 2” duplex nails to hold the hinged side of the birdhouse in place.

## **Materials**

Birdhouses can be built out of most any kind of wood, including exterior plywood. Bark slabs are an inexpensive and attractive choice if they are available. Birds don’t shun knotted, chipped or what you might consider scrap wood. Cedar, redwood and cypress are durable and need no protective finish. These would be my recommendation for building birdhouses and most of the birdhouse plans in this book use these dimensional boards. Remember that the width and depth of lumber purchased at lumber yards is smaller than its standard description. For example, a 1” x 6” board is actually 5/8” by 5 3/8”.

## **Chapter 4**

### **Birdhouse Dimensions for Various Bird Species**

Certain types of houses are suited to certain species of birds. Factors such as the size of the entrance hole, the height of the hole from the bottom of the house, the dimensions of the house and the location and height at which the house is mounted all vary from species to species. The accompanying chart and details listed below for specific birdhouses will tell you what you need once you have determined what birds to expect.

Birdhouses must be located in safe places. If it doesn't look safe to the birds, they won't move in. Squirrels or cats will smash eggs and kill young birds so they must be kept away. One safe place for your birdhouse is atop a metal pole or pipe, far enough from buildings and trees so cats can't jump onto them. A wooden pole or tree can also be fitted with anti-predator devices. These would include a tin sleeve around the trunk or a horizontal, circular baffle (this is what I personally use).

Some birdhouses can be hung from a horizontal tree limb if you use two wires to keep it from spinning in the wind. Robins and phoebes and some sparrows will make nests on simple shelves nailed under the eaves or roof overhang of buildings.

Don't crowd your birdhouses. Most birds are territorial creatures and don't like to live in colonies with the exception of purple martins. Tree swallows may also tolerate several houses placed close together. If you are planning for less than an acre, don't put up more than a few houses and no more than two of the same type, since bird competition is sharpest among members of the same species.

Put your birdhouses out in early spring, before the birds have arrived for summer. If you put them out after birds already have begun building nests, the houses are likely to be ignored.

## Birdhouse Specifications Table

Species	House floor (inches)	House depth (inches)	Hole above Floor (inches)	Diameter of Hole (inches)	Height above Ground (feet)
Bluebird	5 X 5	8	6	1 1/2	5-10
Chickadee	4 X 4	8-10	6-8	1 1/8	6-15
Titmouse	4 X 4	8-10	6-8	1 1/4	6-15
Nuthatch	4 X 4	8-10	6-8	1 1/4	12-20
Crested Flycatcher	6 X 6	8-10	6-8	1 1/2	8-20
House Wren	4 X 4	6-8	4-6	1-1 1/4	6-10
Bewick's Wren	4 X 4	6-8	4-6	1-1 1/4	6-10
Carolina Wren	4 X 4	6-8	4-6	1 1/2	6-10
Violet Green Swallow	5 X 5	6	4-6	1 1/2	10-15
Tree Swallow	5 X 5	6	4-6	1 1/2	10-15
Purple Martin	6 X 6	6	2	2 1/2	10-20
Prothonotary Warbler	6 X 6	6	4	1 1/2	2-4
Flicker	7 X 7	16-18	14-16	2 1/2	6-20
Golden-fronted Woodpecker	6 X 6	12-15	9-12	2	12-20
Red-Headed Woodpecker	6 X 6	12-15	9-12	2	12-20
Downy Woodpecker	4 X 4	9-12	6-8	1 1/4	6-20
Screech Owl	8 X 8	12-15	9-12	3	10-30
Saw-whet Owl	6 X 6	10-12	8-10	2 1/2	12-20
Barn Owl	10 X 18	15-18	4	6	12-18
American Kestrel	8 X 8	12-15	9-12	3	10-30
Wood Duck	10 X 18	10-24	12-16	4	10-20
Robin	6 X 8	8	(1+ sides open)		6-15
Barn Swallow	6 X 6	6	(1+ sides open)		8-12
Phoebe	6 X 6	6	(1+ sides open)		8-12

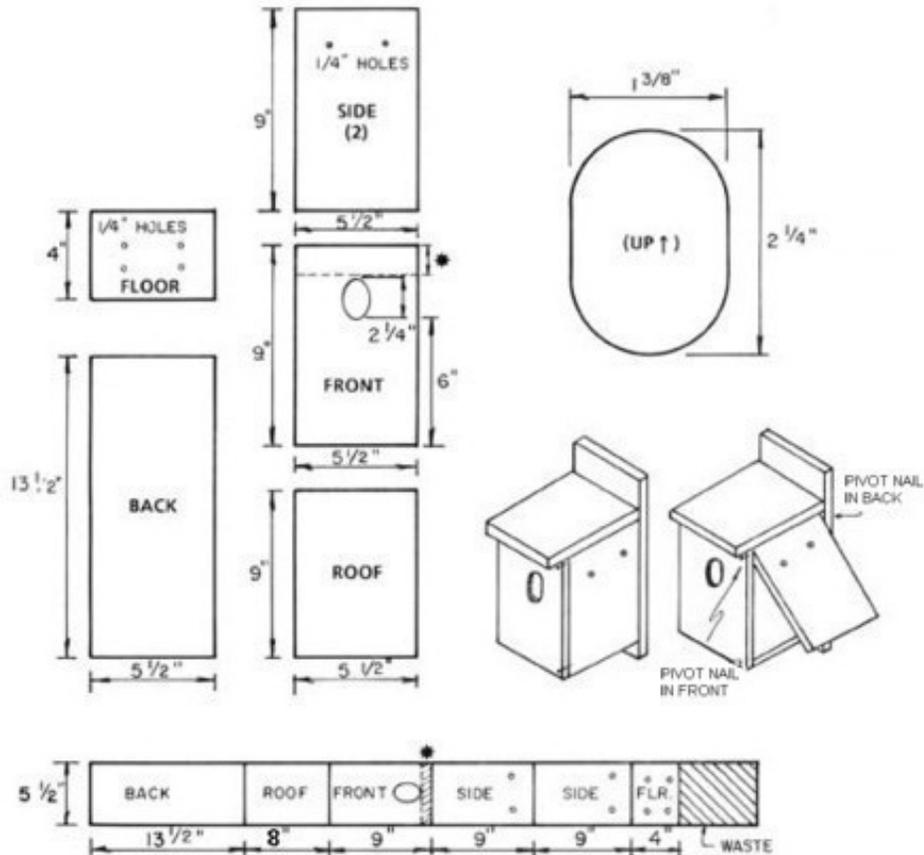
## Chapter 5

### Your Basic Birdhouse Plan

This basic bluebird nesting box is a great way to get started making birdhouses. This entire project is made from one six foot 1" x 6" fence board. Since it is so simple it is a great project for kids and seniors of all ages ;-)

#### Materials Needed:

- 1 – six foot cedar fence board (actual dimensions) 5/8" x 5 1/2" x 6'
- 14 – 1 5/8" exterior (galvanized) screws or use 4d x 1 1/2" galvanized nails
- 2 - 4d x 1 1/2" nails for pivot nails on side door



\* **Note:** If an oblong hole is not used, either drill a 1 1/2" hole or try a slot entrance. When given a choice, bluebirds build more nests in boxes with a front slot entrance, than in boxes with circular entrances. If a slot entrance is used the front will measure 5 1/2" x 7 1/2". Leave the opening at the top.

## Construction:

1. Cut the board using the dimensions in the diagram above. Start by removing



any bad wood from the end of the board. Use your T-square to mark a straight line across your board. You can use a table saw if you have one, a circular saw or a hand saw. Make sure if you are using any type of power saw that you follow the manufacturer's instructions



and ALWAYS wear safety glasses! Once you have cut off any bad wood, you can begin making your measurements from the end of the board.



Use your T-square and tape measure to mark the correct length for your first cut for the back of the birdhouse. This will be 13 1/2". When you are ready to cut the board, make sure you take the width of the saw blade into account. You want the board to measure 13 1/2" after it is cut. I like to use



a simple clamp to clamp my work to the bench when I cut.

This will keep the work from moving when you cut. Next,

measure 8" and make the cut for the roof. The next step is to cut the front of the

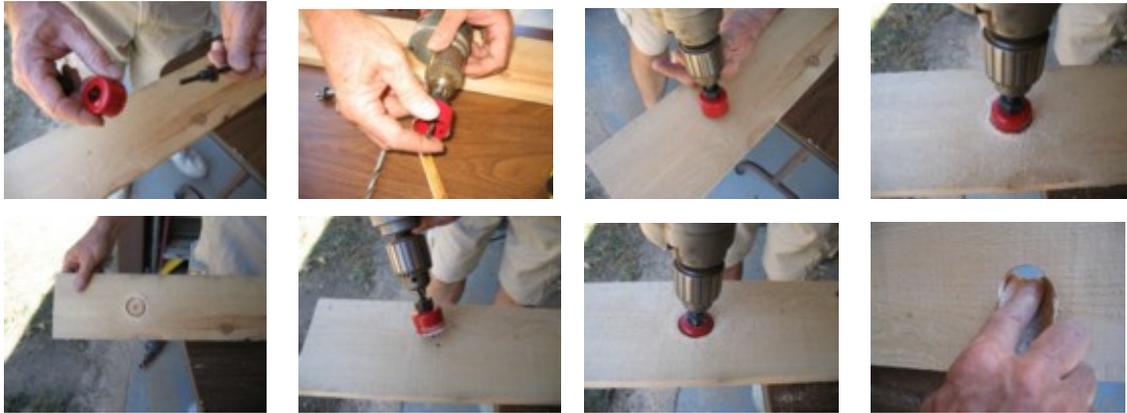


birdhouse. If you are making a round or oblong entrance hole, drill the hole before cutting the front to length. For this house I am drilling a 1 1/2" entrance hole for the Western Bluebird. Measure from the bottom 6 3/4" and make a mark. Then measure 2 11/16" from the side



to mark the center of the hole. Drill the 1 1/2" hole.





When using a hole saw start with the center drill bit at your center point and drill half way through the board. Then turn the board over and place the center bit in the hole from the other side and finish drilling through the board. Once that's done, sand the hole smooth with sandpaper.

If you are using the oblong hole measure up 6" from the bottom and make a mark. Then measure up 8 1/4" and make your second mark. Measure 2 11/16" from the side to find your center and draw a line between the top and bottom mark going down the center of the board. Draw vertical lines 11/16" on either side of your center line making a rectangle 1 3/8" wide and 2 1/4" high. Placing your 1 3/8" hole saw on the center line with the edge of the cutting blade just touching the bottom line, cut that hole part way through. Then line up the saw in the center line with the edge just touching the top line and cut the overlapping hole. You will then have to remove the two triangular shaped sides of the entrance hole left using a coping saw or a hand held hole saw. For this reason I suggest using the 1 1/2" entrance hole or the slot.

Now you can cut your front piece to length. If you are using the slotted entrance, cut the length to 7 1/2", otherwise it will be 9" long. Cut the two sides each 9" and the floor piece 4". We are now ready to pre-drill the holes for our screws and start assembling the birdhouse!

2. Pre-drill holes for the screws or nails. Make sure you choose a bit that's one size smaller than the shaft of the



screw or nail and set the bit into the drill so that the holes you drill will be as deep as the screws are long.



Measure along the edge of the back 1 1/2" and 7 1/2"

from the bottom for the location of the screws. You can measure in 1/4" from the edge or you can use a piece of your board to eyeball where to pre-drill the two holes to attach the back to the first side of your birdhouse. Once you have the two holes drilled in the back, line up the edges of the back piece and the side piece and drill the holes through the back into the side piece to the length of the screw.



Start driving the screws into the back of the back piece



so that just the tip of the screw comes through the board. Then line up the tips of the screws with the pre-drilled holes in the side piece and drive



them in. Place the house on its back and get ready to attach the front piece to the side piece. You can place the floor and other side of the house where they will go

to help stabilize the house while you pre-drill the holes for the front. Place these



screws about an inch from the top and bottom. If you are using the slot entrance make sure you place the slot at the top of the house. Notice in the picture above that the floor



will be slightly recessed. This is a good time to place the

pivot nails for the opening side of the birdhouse. Take your T-square or tape measure and make a mark about 2" from the top of the opening side of the house on the front and the back pieces. Make sure they are even with each other so

that the door will swing freely. With all parts in alignment pre-drill the two holes for the pivot nails and put them in.



Now we want to attach the floor and then finally the top. As noted before it is a good idea to recess the floor slightly. At this point the floor should fit snugly into



place. Pre-drill the holes and secure with six screws, each placed about 1 1/4" from the edges of the house, two from the front, two from the back and two from the stationary side. Make sure you don't put any screws through the opening

side of the house. Before we place the top, we want to drill all the drain and ventilation holes. Drill five 1/4" holes



through the floor, evenly spaced.

Then space four holes along the top

of each side for ventilation about an inch apart and 3/4"

from the top. Finally we will

place the top on our new

bluebird house. Attach the top with two screws through the top into the front piece and two screws through the



back into the top piece. Now all we need to do is drill the hole through either the front or back to lock the opening side in place with a 6d duplex nail and drill a 1/2" hole, 1 1/4" down from the top of the back in the center to mount the house.



## Chapter 6

### The Alternate Bluebird, Robin, Flycatcher, Titmouse, Tree Swallow & Nuthatch Plans

This is another simple design that you can use for any species by following the specifications table in Chapter 4. Choose the size of dimensional lumber you need to cut the size floor you need and to cover the two side pieces that overlap the floor. So if the floor is to measure up to 4 1/2" x 4 1/2" you could use a 1" x 6" board. If the floor measures up to 6" x 6" you could use a 1" x 8" board, up to 10" x 10"+ you could use a 1" x 12" board.

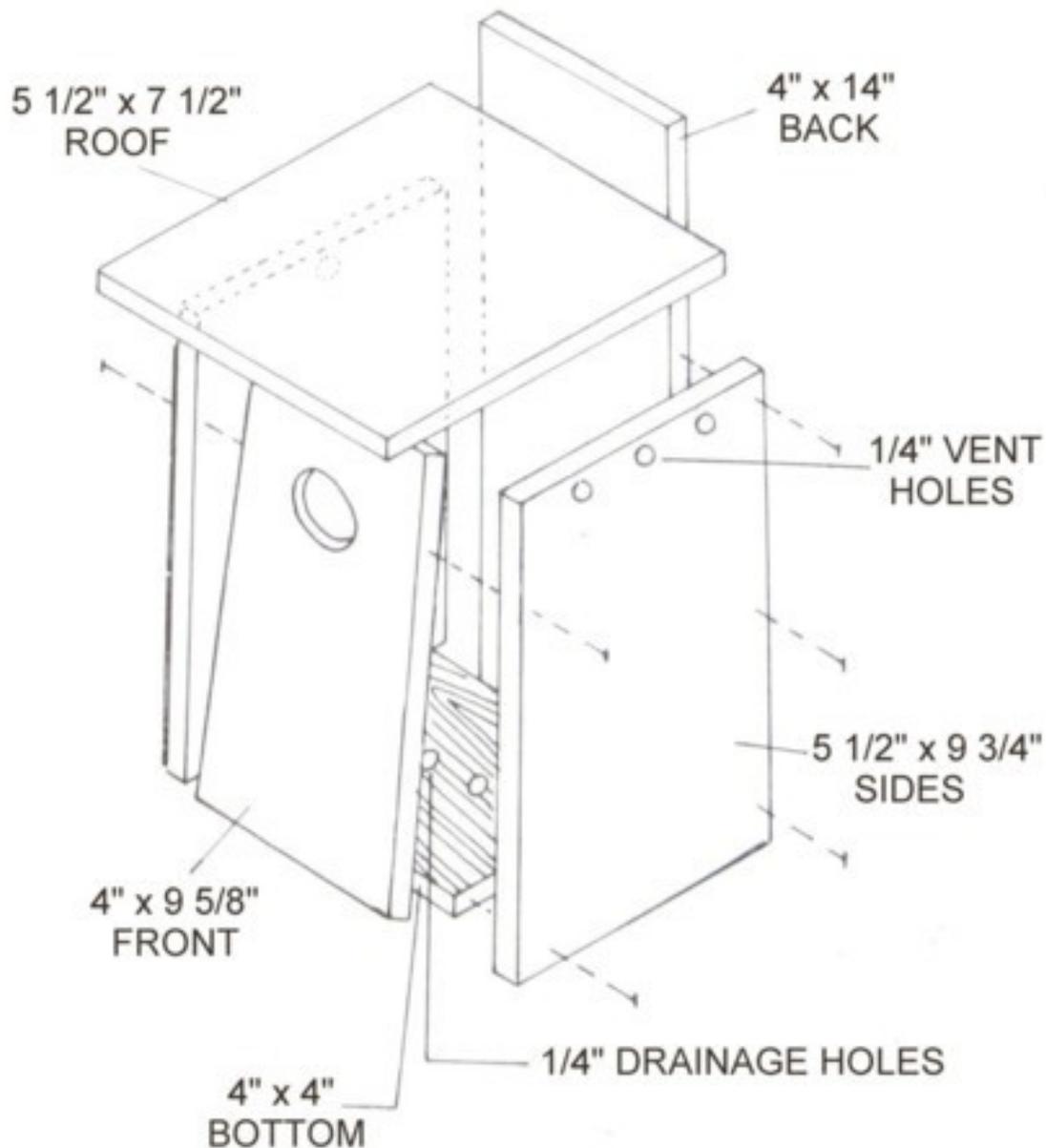
I really like this alternate plan because you can use it for any size house you want and it is also very simple to build. It uses the front piece as the opening side to clean out the birdhouse. I like the way it looks because the roof overhangs the box on three sides instead of just the front. The photo to the right is another 25 year old birdhouse I built out of T1-11 plywood siding. You can tell from this picture it is well used and even has moss growing in the groove along the front of the roof. As you can see from the photos below, the birds really like it too. This is a series of photos I took of an Ash-throated Flycatcher looking over a different birdhouse of the same style. He and his mate decided that they liked it and moved in to build their nest.



#### Materials Needed:



- 1 – six foot cedar fence board (actual dimensions) 5/8" x 5 1/2" x 6' for this diagram. If you use these measurements the roof on this house will only overhang the front but it allows the use of the smaller board.
- 14 – 1 5/8" exterior (galvanized) screws or use 4d x 1 1/2" galvanized nails
- 2 - 4d x 1 1/2" nails for pivot nails on front door



**Construction:**

This alternative birdhouse design is built much the same as the basic plan in Chapter 5 with a few slight differences. These measurements are for a house with a 4" x 4" floor. This would be fine for the Chickadee, Titmouse, Nuthatch or Downy Woodpecker. You would just have to change the depth of the house for the Wren. You will notice from the diagram above that the front and back pieces are the same width as the floor and the side pieces overlap the front and back. You can also cut a roof from a wider board to make the roof overhang on three sides.

1. Cut one piece 5 1/2" x 7 1/2" for the roof
2. Cut two pieces 5 1/2" x 9 3/4" for the sides
3. Cut a 28" length of board for the remaining three pieces. These three pieces will all be 4" wide so you will want to rip your 5 1/2" board to measure 4" wide after the cut then:
4. Cut one piece 4" x 4" for the floor
5. Cut one piece 4" x 9 5/8" for the front
6. Cut one piece 4" x 14" for the back
7. Measure 2" down from the top edge of the front piece to center the 1 1/8" hole (for the Chickadee). Drill the five 1/4" drainage holes evenly through the floor and four 1/4" vent holes in each side piece 3/4" from the top.
8. Pre-drill the holes like we did in Chapter 5 starting with the back again but we are going to attach the back to the floor first with this house. Measure up 3/4" from the bottom of the back piece and 1" in from each edge and drill the holes for your screws. Line up the pre-drilled holes to the middle of the edge of the floor piece (so the floor is slightly recessed) and make sure the back piece and floor piece are flush on both sides. Now drill through the back piece into the floor and put in those two screws.
9. With the house on its side, line up one of the sides so it is flush with the back piece and pre drill 4 holes. The two holes into the floor should be

1 1/4" from each edge and the two holes drilled into the back piece should be 2" and 8" from the bottom.

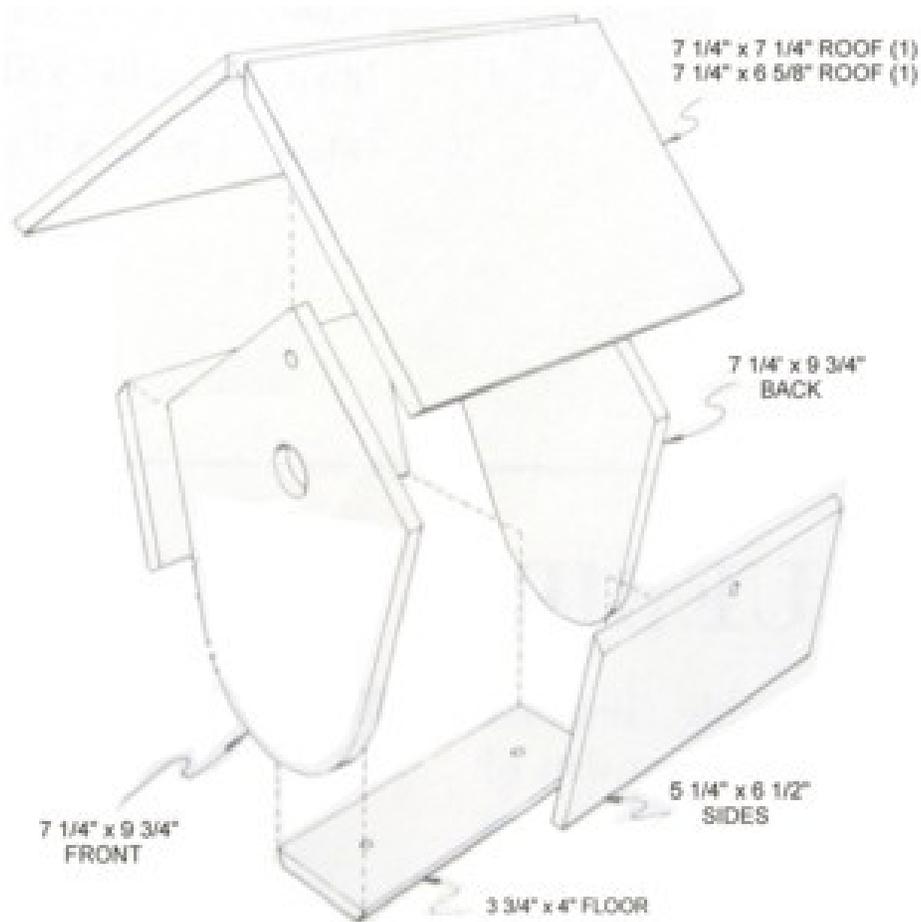
10. Flip the house onto the other side and repeat for this side.
11. Next, with the front piece temporarily in place, center the roof on top and pre-drill two holes each 4 1/2" from the back and screw the top into the side pieces. Set the house on its front with the top overhanging your table and pre-drill two holes through the back into the top, each hole 1" in from the edge of the back piece.
12. Now we'll put the front on with two nails as the pivots. Measure 3" down from the top of the side piece on each side and pre-drill your nail holes (you can also place your square across the front of the house to make sure the holes are directly opposite each other so the opening front piece won't bind). If the front piece is too tight, sand down one side by placing a piece of coarse grit sandpaper on the table and moving the front piece back and forth on the sandpaper, checking it often until it fits snugly.
13. Drill a hole through one of the sides into the front piece 2" up from the bottom for the duplex nail to hold the front piece closed.
14. Drill a 1/2" hole, 1 1/4" down from the top in the center of the back to mount the house.

## Chapter 7

### The Alternative Wren House Plan

Wrens are highly inquisitive and they are also industrious insect eaters, two great reasons to have them in your backyard. They are not overly particular in their choice of houses but a partly sunlit spot about six feet off the ground is best. The entrance hole should be either a 1" diameter circle or a 1" high by 3" wide horizontal slot. The horizontal slot will actually allow the wrens to carry in the twigs they favor for nesting material more easily.

Once again, I like using 1" dimensional lumber for all my birdhouses but you can use exterior plywood as well. This plan is a little bit more difficult to build than the previous plans because of the angles involved but I believe it is fairly easy to do with a circular saw or table saw.



## Materials Needed:

- 1 – six foot cedar fence board (actual dimensions) 5/8" x 7 1/4" x 6'
- 20 – 1 5/8" exterior (galvanized) screws or use 4d x 1 1/2" galvanized nails

## Construction:

1. First cut two pieces, one each for the front and back, 7 1/4" x 9 3/4". Place your T-square at the top that you are making a 90 degree triangle which will be the peak of your roof, with the peak to the edge.



center of the front piece so each slope measuring 5" from the peak to the edge. Then find the middle of the front on the bottom and measure 1 1/2" toward each edge and make a mark. This will give you a 3" wide bottom and when you measure from where your roof meets the edge, to your mark on the bottom, you should have about 6 3/8" sides. Make the same measurements and cuts for the back piece.

2. Measure 3 1/2" from the peak of the front piece to center the 1" diameter entrance hole. If you want to cut the 3" wide horizontal slot, measure 1 1/2" to each side of the center and 1/2" above and below the center to form the rectangle for your slotted entrance. Drill a 1" diameter hole, with the edge of your hole saw touching the lines of the rectangle you drew, on each side of the slot. Then, using a coping saw or keyhole saw, cut the top and bottom of the slot to connect the holes and sand them smooth.

3. Next, cut two 6 1/2" x 5 1/4" side panels and bevel the upper edges to match the angle of the roof. This can be done by holding any straight edge along the roof line and making a mark on the edge of the side panel. Then set the angle of your saw to match the mark you made for the cut. This angle should be the same for each side. Don't worry, it doesn't have to be exact.

4. Cut two roof pieces, one will be 7 1/4" x 7 1/4" and the other will be 7 1/4" x 6 5/8". The larger piece will overlap the smaller piece when we attach them.

5. Cut one 3 3/4" x 4" piece for the floor and bevel the 3 3/4" sides to match the angle of the sides of the front and back pieces using the same method as above.

6. To assemble the house, begin by attaching the side panels to the front and back pieces with four screws through each side. Pre-drill the holes and screw the sides on. Drill four 1/4" ventilation holes, 3/4" from the top in each side.

7. Next drop the floor piece down into the box until it is snug. It should be slightly recessed from the bottom. Attach with two screws each through the front and back pieces, pre-drilling each hole. Drill five 1/4" drain holes evenly through the bottom.

8. Now attach the smaller roof piece with four screws through the top of the front and back pieces so that it is flush with the back and peak and the 7 1/4" side overhangs the front of the birdhouse. The square 7 1/4" roof piece will now cover the edge of the smaller roof piece and overhang the front and sides symmetrically. If you are nailing your birdhouses together instead of screwing them, you need to attach this larger roof piece with screws. This will be the piece that is removable to clean out this style of birdhouse. Drill a 1/2" hole about 1 3/4" down from the peak through the back to hang the house from.

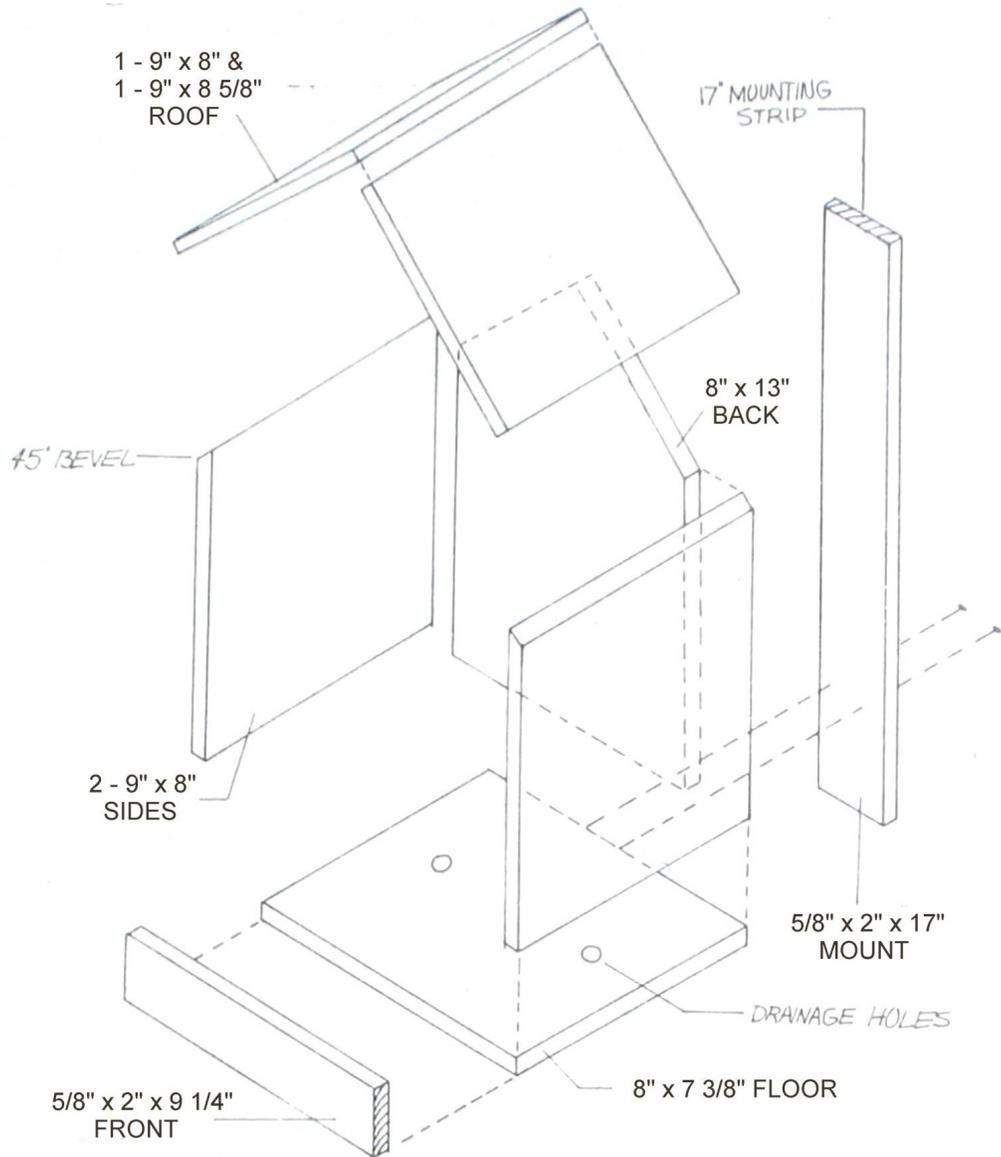


On the left is the new house I just made with the slotted entrance  
On the right is a 26 year old Wren House with the circular entrance

## Chapter 8

### The Basic Robin, Phoebe and Barn Swallow House Plan

Robins, barn swallows and phoebes favor simple ledges or three sided boxes to build their nests. Robins don't mind being close to houses, so you can mount the nesting ledge under eaves, on a ledge or in a tree. It should be mounted 6 to 15 feet high and it is important that it face away from prevailing winds.



This can be made from one 5/8" x 11" x 6' board (1x12x6') except for the mount

One of America's most abundant backyard birds is the American robin. It is a welcome sight in the spring, its song is beautiful, and it provides great enjoyment for people as it raises its young each summer. Their grassy nest is lined inside with mud, and the eggs are bright blue. A robin nesting shelf can be placed on a wall by a window where the robin family can be easily seen. Or, the nesting shelf can be placed on the trunk of a tree about 6 to 10 feet above the ground. The nesting shelf can be left unpainted, or it can be painted an earth tone.

Barn swallows are a common inhabitant of farmsteads where they frequently nest on the rafters of barns and other outbuildings. Their mud nests are usually stuck onto the sides of rough-sawn rafters. These beautiful birds eat flying insects and are characterized by iridescent bluish-black backs, reddish breasts and deeply forked tails.

The eastern phoebe is a small gray songbird which usually feeds on insects while flying over water. Phoebes sit on low branches overhanging the water of a pond or creek, then make a short abrupt flight out over the water to catch their prey. Phoebes often build nests on nesting shelves under the eaves of lake homes or cabins. The delicate nest is a beautiful cup-shaped structure made of mosses and lichens. The phoebe's call is a distinctive buzz-like "free-bee."

### **Materials Needed:**

- 1 – six foot cedar fence board (actual dimensions) 5/8" x 11" x 6'
- 1 – 1" x 2" or 1" x 4" x 17" board for mounting
- 28 – 1 5/8" exterior (galvanized) screws or use 4d x 1 1/2" galvanized nails

### **Construction:**

1. Cut one piece 8" x 13" for the back. Place your T-square at the top center of the front piece so that you are making a 90 degree triangle which will be the peak of your roof, with each slope measuring 5 3/4" from the peak to the edge (see the photo at the top of page 23).
2. Cut two pieces 9" x 8" for the sides. Bevel one 8" edge of each piece on a 45 degree angle.



3. Cut one piece 8" x 7 3/8" for the floor. Remember, you always want to enclose the floor with the front, back and sides.
4. Cut two pieces for the roof, one 9" x 8" and one 9" x 8 5/8" to overlap the smaller piece at the peak.
5. Cut a 9 1/4" length from one of the 2" wide pieces of scrap you have for the front of the house.
6. Cut a 17" length of a 1" x 2" or a 1" x 4" board for mounting the birdhouse.

### **Assembly:**

1. Line up one of the sides to the back piece with the 45 degree bevel aligned with the roof peak (see photo above). The bottom of both pieces should be flush. Pre-drill three holes through the side into the back piece evenly spaced along the back edge and attach with screws. Repeat this procedure for the opposite side.
2. Line up the floor with the back and sides, flush on the bottom. Pre-drill three holes through the back and two holes through each side, evenly spaced, and secure the bottom with seven screws.
3. Line up the front piece flush with the bottom and sides and pre-drill two holes through the front piece into the bottom and one through the front into each side. Attach with four screws.
4. To attach the roof, line up the smaller roof piece with the 8" side flush with the back of the house and the peak. This will allow for the larger roof piece to overlap the smaller one at the peak. Pre-drill 2 holes, one 1 1/2" from the peak and one 4 1/2" from the peak, through the roof into the back piece. Attach this roof piece to the back with two screws. Take the larger roof piece and overlap the smaller one to form the peak of the roof, once again, flush with the back piece. Pre-drill two holes as before and attach with two screws through the roof into the back piece. Pre-drill two holes, 2" from the back and 2" from the front of the overlapping roof piece into the smaller roof piece and screw together with two screws. Now pre-drill four holes through the two roof pieces into the sides of the house. Be very careful when doing this step as not to drill through the wall of the side pieces. If you use 1" screws for the attachment of the roof to the sides, you are less likely to

go through the side walls and you can drill your holes perpendicular to the roof line into the side pieces. Attach with four screws.

5. Take your 17" mounting board and center it vertically over the back piece so that you have about 1 1/2" sticking out above the roof peak and below the floor. Pre-drill four holes, two through the mount into the floor piece and two through the mount into the roof pieces. Drill 1/4" holes centered through the mount piece 3/4" from the top and bottom for mounting with nails or screws to a tree or building.



Note the dragonfly standing on the peak of this new robin house.

## Chapter 9

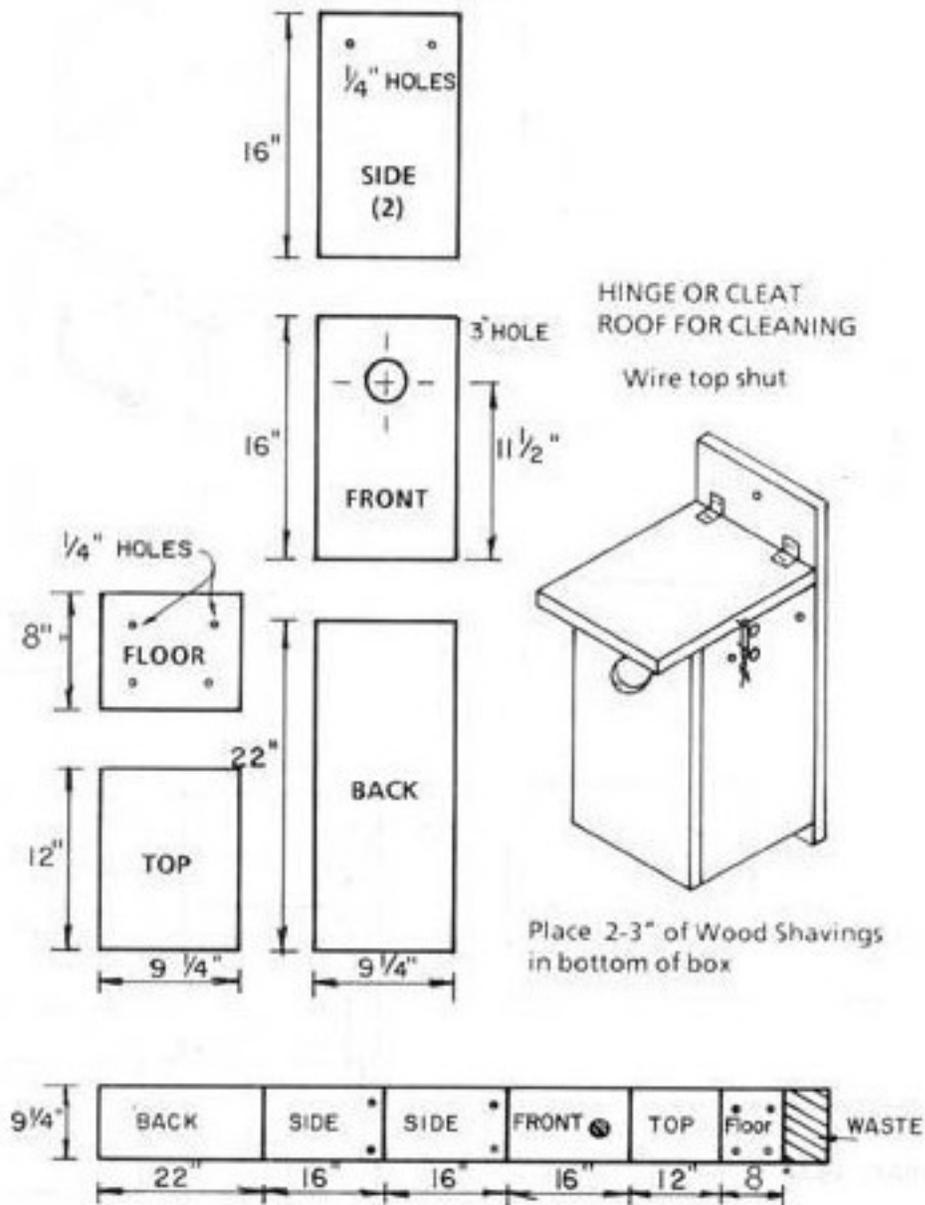
### The Basic Owl or American Kestrel House Plan

The American kestrel is our smallest falcon and is abundant in agricultural areas which are characterized by scattered woodlots, scattered trees, shelterbelts, meadows, highway rights-of-way, pastures and hay fields. This species is valuable because of the large numbers of rodents and insects eaten. Kestrels are frequently seen sitting on power lines along highways or hovering above the grassy roadside ditches in search of their prey. An adult kestrel is about the size of a mourning dove.

Locate the box along a fence row between crop fields, in a meadow, or in similar open country. Place the box 10 to 30 feet high on a tree, utility pole, the back of a billboard or sign or on your own post. Kestrels like a high perch near their box so pick a site within 100-200 yards of utility wires or a tall tree. The 3 inch diameter entrance should face in a south or easterly direction. The flight path to the entrance should be branch free. Cover the bottom 2 or 3 inches of the box with wood shavings or pine needles.

Screech owls are small gray, brown or reddish owls with ear tufts that are found along forested ridges, in farm woodlots, in orchards and in wooded stream corridors. They are only about 8 inches high and resemble a miniature version of the more common great horned owl. The nest box for this owl should be placed at least 10 feet high in a hardwood forest. Preferred habitat seems to be on the edge of woods adjacent to fields or wetlands.

Research in Louisiana suggests that "The ideal screech owl cavity would be a box located under a limb in a living tree with . . . [vines], and with the box entrance facing north." Perhaps all owls prefer darker cavities. About 2 to 3 inches of wood chips should be placed in the bottom of the box.



**Materials Needed:**

- 1 – eight foot cedar fence board (actual dimensions) 5/8" x 11" x 8'
- 28 – 1 5/8" exterior (galvanized) screws or use 4d x 1 1/2" galvanized nails

**Construction:**

1. I like to cut the roof of this birdhouse to overlap on three sides. If you want to make the overlapping roof, measure from the "dog eared" end of the cedar fence board 13" and cut that end of the board for your roof. This piece will measure 11"

x 13" and will overlap on three sides of the birdhouse (see photo). If you don't care to overlap the sides you can cut all pieces 9 1/4" wide.

2. Rip the length of the board so that it measures 9 1/4" wide after the cut.

3. Cut one 22" piece for the back, three 16" pieces for the front and sides and one 8" piece for the floor.

4. Measure 11 1/2" from the bottom of the front piece and 4 5/8" in from the edge to center your 3" diameter entrance hole. You can use a 3" hole saw or draw a 3" circle and make four overlapping holes with the 1 1/2" hole saw touching the edges of the 3" circle you drew, then use a coping saw to cut out the remaining wood for your entrance. Then sand the hole smooth.

5. Set the two side pieces on edge with the 8" width of the bottom piece as a spacer on the table. Line up your front piece flush with the top and bottom of your side pieces. Pre-drill four holes, evenly spaced through the front, into each side piece. Screw the front onto the side pieces with eight screws.

6. Set the bottom between the side pieces so that it is recessed about 1/4" from the bottom. Pre-drill three holes through each side piece into the bottom and attach with six screws.

7. Set the back piece on flush with the sides with at least 3" extending above the side pieces. This is for mounting the birdhouse. Pre-drill four holes, evenly spaced through the back, into each side piece. Screw the back onto the side pieces with eight screws. Pre-drill one hole through the center of the back and one through the center of the front piece into the bottom piece. Attach the front and back pieces to the bottom piece with one screw each.

8. Drill four 1/4" ventilation holes through the top of each side piece, about 1" from the top and spaced evenly about 2" apart. Then drill five 1/4" holes through the bottom, evenly spaced for drainage.

9. There are two ways to attach the roof. I just pre-drill two holes through the roof into each side and screw the roof down. This requires you to take the house down every year and unscrew the roof to clean out the house. You may also hinge or cleat the roof as shown in the drawing and wire the roof down.

10. Drill a 1/2" hole centered through the top of back piece for mounting. You may also drill a 1/4" hole through the bottom of the back piece to make this rather large birdhouse more stable on its mount.



Those dragonflies really love these birdhouses don't they!

## Chapter 10

### Bird Baths, Feeders and Nesting Materials

When you are regularly feeding birds in your yard or garden, you need to have a continuous supply of water available for them. Birds don't require as much water in their diet as we do, especially the insect eating birds, however the seed eating birds attracted to most feeders need water the most. This can be accomplished by providing a simple bird bath or you can go as far as to dig a pond or put a fountain in your yard. We built a beautiful water feature in our yard and it was amazing how quickly the wildlife showed up to visit!

Nest building is a very labor intensive activity for birds. They must first select a nesting site, find all the materials they need to build their nest, carry those materials back to the site and then construct their nest. They must do all this work while they go about their daily business of finding food and water. You can help them out by placing nesting materials out for them to readily use for their nest construction. You can put these materials out on the ground if they are somewhere they won't fly away or you can put them in suet cages so the birds can find them easily. Here is a list of things you can put out:

- Thin twigs
- Dog, cat or horse hair (we get lots of hair from our dog and cats)
- Human hair
- Thin strips of cloth about an inch wide and six inches long
- Feathers
- Long dried grasses
- Yarn, thread or string cut into four inch lengths
- Lint from your dryer
- Spanish moss
- Pine needles

Bird feeders will help attract birds quickly and easily to your yard. There are several types of feeders available including tube feeders, tray feeders, caged feeders, decorative feeders, gazebo feeders, hopper feeders, sock feeders and window bird feeders. In addition to seed feeders there are several ways to supply suet or peanut butter which will provide protein for the grub eating and insect eating birds. Chickadees, titmice, nuthatches, creepers, wrens and downy and hairy woodpeckers will all display their acrobatic skills on these hanging type feeders. Suet feeders can be anything from a wire cage suspended by a length of chain to a 3 or 4 inch diameter log with large holes drilled through it for the suet to live.

To get my newest birdhouse plans and learn how to monitor your birdhouses please go to my resource page here:

[www.TheBirdersReport.com/resources](http://www.TheBirdersReport.com/resources)

For more information on wild birds, how to attract birds to your backyard and all things about birding please visit my blog at:

[www.TheBirdersReport.com](http://www.TheBirdersReport.com)

So I hope to see you out there with the birds and until next time...

**Happy Birding!**

A handwritten signature in blue ink that reads "Lanny Jordan". The signature is written in a cursive, flowing style.

## Bonus Material

As a bonus for purchasing my book today, I am giving you some easy plans for a couple of simple bird feeders that the birds will love and you can make yourself! I am also giving you the plans for one of my favorite birdhouses and that's not all! You are also getting the plan for making your own predator guard!

### **BONUS #1**

#### Simple Tray Feeder

A bird table feeder does not need to be fancy or complicated. The birds are only interested in a good supply of food in a safe, sheltered place. Use wood that will not split or disintegrate when it gets wet. Exterior grade plywood, 1/2" thick will work as well as 5/8" dimensional lumber.

For this example I will use scrap wood that I found around my house. I have a 14" x 24" piece of 1/2" exterior plywood that I will use for the table and 3/8" x 1 1/2" wide pieces of cedar left over from building birdhouses. You can rip a 1" x 4" (5/8" x 3 1/2") board for the rim pieces for the table feeder if you want. Cut two rim pieces 24" long for the long sides of the feeder and cut two pieces 1 3/4" shorter than the short side of the feeder. In this case they will measure 12 1/4" long. This is so there is a gap in each corner for water to run out. This gap should be about 1/4" wide in each corner. I cover the gaps at the corners with a small piece of window screen stapled to the end of the feeder to keep the feed in and let the water out.

Layout the four rim pieces on a table and place the plywood on top of it with the long sides flush on the outside edge and the shorter inside pieces flush with the outside edge and centered between the other rim pieces leaving your 1/4" gap at each corner. Pre-drill 5 holes along each long side and four holes along the short sides through the bottom into the rim pieces. Secure with 1 5/8"

exterior screws. Staple your small pieces of screen on each corner if you choose to.

You may hang this feeder or place it on a post with a guard. To hang the feeder, drill four holes, each one about 1 1/4" from each corner, through the long rim pieces about 1" from the top. You can hang this feeder with heavy nylon cord, wire or chain. To keep it from spinning the chain needs to be hung from more than one point. Make loops of the chain or wire at either end of the table and hang it from a horizontal branch.

You can attach the feeder to a wooden post using four brackets screwed into the table itself. Make sure that you use screws short enough so that they don't come through the top of the table feeder and endanger the birds. You can also mount it on a metal post with mounts made for that purpose. Either way you want it to be four to six feet off the ground. Whichever way the post is fixed it must be firm. Bird feeder tables can also be attached to window ledges with angle brackets, chains or angled supports depending on the site.



## **BONUS #2**

### **Another Super Simple Birdhouse**

Bluebirds are valuable because three quarters of their diet consists of crop destroying insects. This includes grasshoppers, all kinds of caterpillars, beetles, corn borers and other pests. As tenants, bluebirds are not very particular about the houses they settle into. They like abandoned orchards and will use houses placed on trees as well as posts. If you use a tree or wooden post, install predator guards first.

An open sunny spot is best and the houses can be placed as low as 5 feet off the ground. Some people have observed that if you place the house 3 feet off the ground, bluebirds still will use them but sparrows will not. It has also been observed that although some houses were not occupied until June, bluebirds sometimes bred twice in one summer!

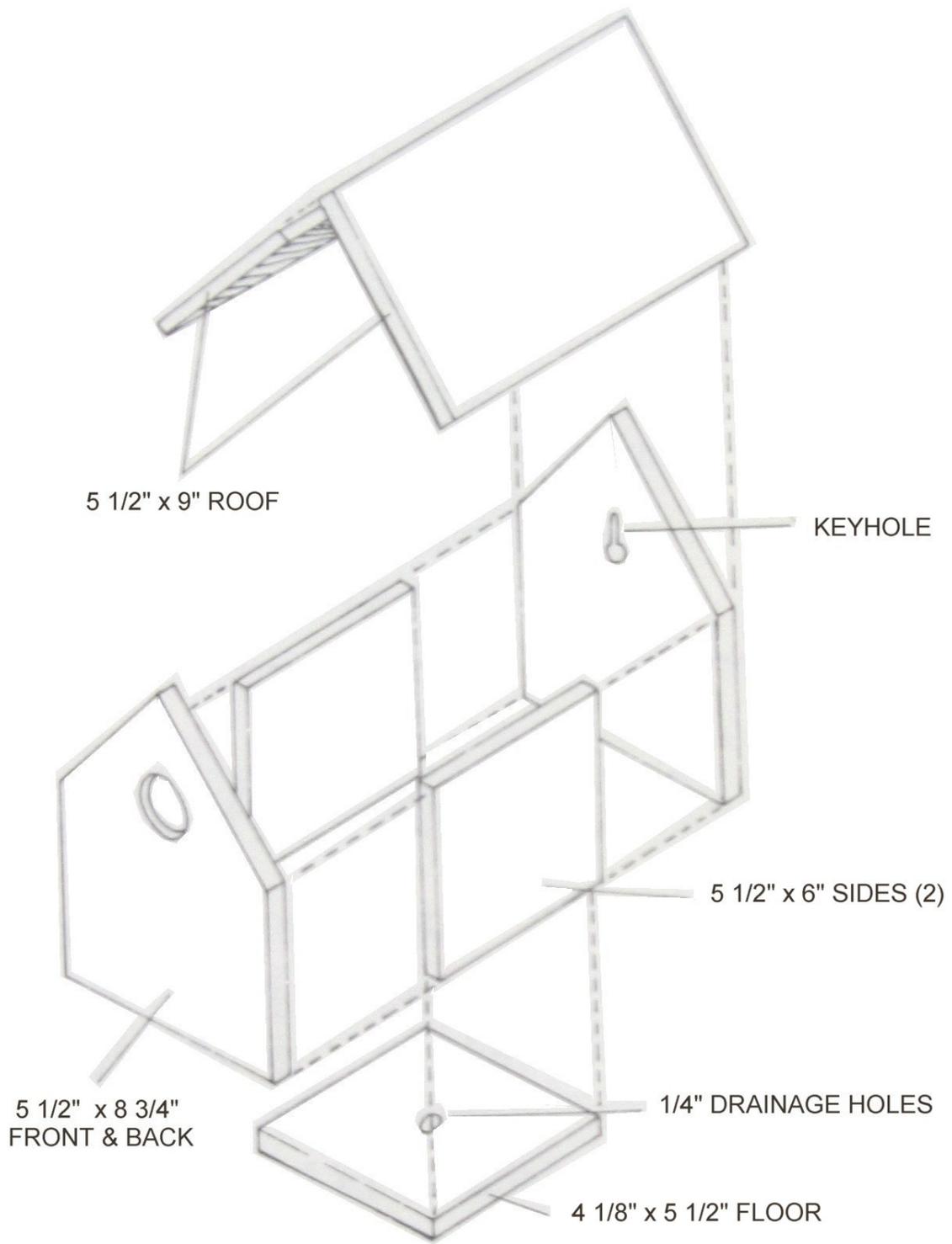
Once again this house is made from one six foot 1" x 6" cedar fence board. You can use this plan down for nuthatches, chickadees, titmouse and wrens also. Check the specifications on page 12 for entrance hole size.

#### **Materials Needed:**

- 1 – six foot cedar fence board (actual dimensions) 5/8" x 5 1/2" x 6'
- 19 – 1 5/8" exterior (galvanized) screws or use 4d x 1 1/2" galvanized nails
- 2 - 4d x 1 1/2" nails for pivot nails on side door

#### **Construction:**

1. Cut two pieces 9" long for the roof.
2. Cut two pieces 8 3/4" long for the front and back. Cut a 90 degree peak at one end leaving 6" sides.
3. Cut two pieces 6" long for the sides.
4. Cut one piece 4 1/8" long for the bottom.



5. Take the front piece and measure up 6" from the bottom to center the 1 1/2" entrance hole. Measure to the same spot on the back piece to cut the keyhole for hanging the house. You can drill a 1/2" round hole for mounting if you wish.
6. Line up one of the side pieces so that it is flush with the 5 1/2" side of the bottom piece. Pre-drill two holes through the side piece into the bottom piece about 1 1/2" from each edge. Attach the side to the bottom with two screws.
7. Line up the front piece so that it is flush with the bottom and side pieces. Pre-drill four holes through the front piece, two into the bottom and two into the side piece. Attach the front to the bottom and side with four screws.
8. Line up the back piece with bottom and side and do the same thing to attach the back.
9. The other side piece will be the hinged side for cleaning out the house. With the house lying on its back, place the remaining side piece into place, flush with the front, back and bottom. Measure up about 4 1/2 inches from the bottom on the front and back pieces for your pivot nails as we did on pages 16 and 17. Make sure they are even so the side doesn't bind when opening and closing.
10. Line up one of the roof pieces with the peak and making it flush with the back of the birdhouse, pre-drill four holes through the roof into the front and back pieces. Note that the tops of the sides are not beveled which allows a ventilation space between the sides and the roof. Attach the roof piece with four screws.
11. Overlap the other roof piece making it flush with the back and pre-drill four holes into the front and back pieces and one into the center of the other roof piece. Attach with five screws.
12. Drill a pilot hole through the front or back piece into the hinged side, about 1" up from the bottom, for the duplex nail that locks the hinged side in place.



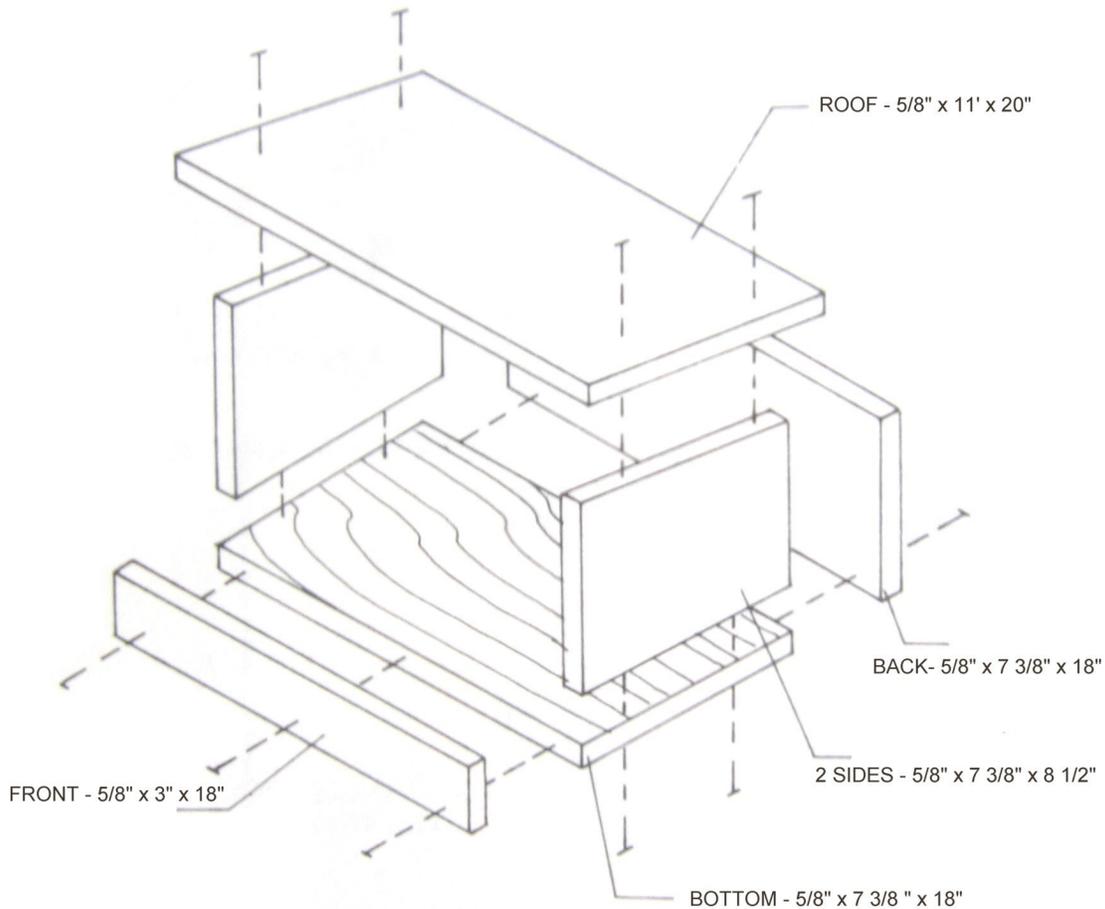
Notice that these two houses have portal guards on them. The bluebird house on the left has a slate guard and the redwood nuthatch house on the right has a powder coated flat steel plate protector. You can make your own guard out of wood by drilling the entrance hole size for your house through another piece of wood and cutting that piece into a 2 to 3 inch square (see photo below). Then simply screw that protector over the regular entrance. The predator guard increases the distance (and reach) required to do harm to eggs or fledglings. Over time, even the best made bird houses age and wear. The entrance, or portal, often is enlarged by squirrels trying to move in during a cold winter. Worse yet, critters are often found trying to get at young nestlings in unprotected boxes.



## BONUS #3

### Covered Bird Feeder

Some of the best projects are very basic. This simple feeder is very easy to build and it's covered! I made it in less than an hour with scrap materials from mostly 1" x 8" boards with the roof made from a piece of 1" x 12" board.



#### Materials Needed:

- 1 – six foot cedar fence board (actual dimensions) 5/8" x 7 3/8" x 6'
- 1 – 5/8" x 11" x 20" piece of cedar board for the roof
- 23– 1 5/8" exterior (galvanized) screws
- 2 – screw eyes and wire for hanging (or attach to post with brackets)

**Construction:**

1. From the 1 x 8 cedar fence board, cut one bottom and one back 7 3/8" x 18" and two sides 7 3/8" x 8 1/2"
2. Cut a 20" length of 1 x 12 for the roof.
3. Cut an 18" long piece from a 1 x 3 or rip a 1 x 4 down to 3" wide for the front.
4. Clamp the two sides together and cut a slope across the 8 1/2" edge so that the ends are 8 1/2" high on the front and 6 3/4" high in the back.
5. Pre-drill four holes through the short sides of the bottom into the side pieces about 2 1/2" from the front and back and attach the bottom to the sides with four screws.
6. Line up the back piece flush with the bottom and mark the angle of the roof line on the back piece. Cut a bevel on the back piece to match the roof line.
7. Pre-drill eight holes through the back piece into the bottom and sides, four into the bottom and two into each side piece. Attach the back piece with eight screws.
8. Align the roof flush with the back and so that it overhangs each side equally. Pre-drill six holes through the roof into the sides, three in each side, and three holes through the roof into the back piece. Attach the roof to the sides and back.
9. Line up the front piece flush with the bottom and sides, pre-drill six holes through the front piece, two into each side and two into the bottom. Attach the front piece with six screws.
10. Two screw eyes and a length of 12 gauge wire can be used to fasten the feeder to a tree or brackets can be used to attach it to a post.



## **BONUS #4**

### **Predator Guard**

If you have cats or if your yard is visited by raccoons or squirrels you will need to install predator guards on the posts or trees that you mount your birdhouses in. You can purchase these guards or you can make your own for far less money and they are easy to make.

The one shown below will fit any size wooden post and can be modified to fit smaller tree trunks. If you mount your birdhouses on metal posts you don't need the guards as most predators can't climb metal posts. I have most all my birdhouses in trees and all you need to do to adapt this guard to tree trunks is to measure the distance around the tree and divide that by 3 to get the diameter of the center hole of the guard. If your tree is 36" around (circumference), the hole in the middle of your guard would be 12" across (diameter).

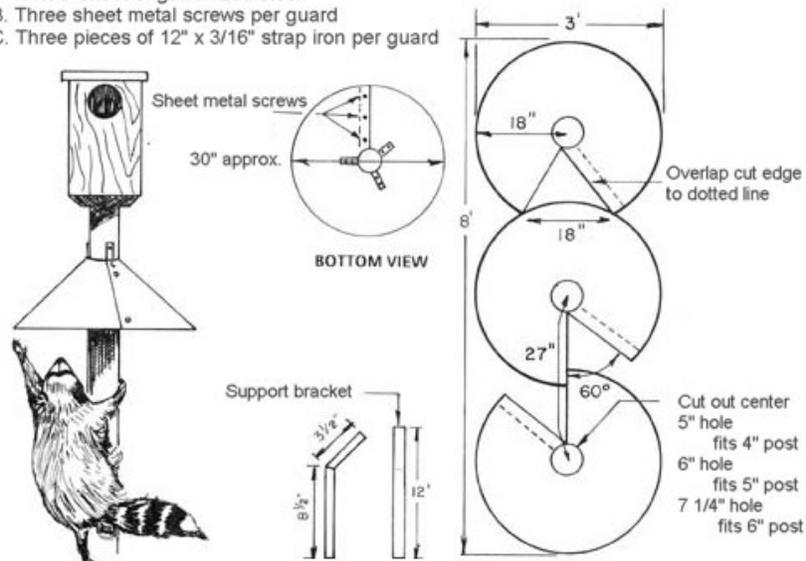
I try to mount all my birdhouses in trees with a circumference of 36" or less. This makes it easier to "fit" the predator guards to the trees. Once you cut the center hole to the diameter you need, make some 1" cuts from the center hole towards the edge of the guard (like fringes around the center circle) every couple of inches. This will also make it easier to fit the guard to the uneven surface of a tree trunk. You can also use these "tabs" (the fringes) to nail the guard to the tree trunk with roofing nails. The guards should be four to five feet off the ground.

**Make sure you wear a good pair of gloves, preferably leather, when cutting sheet metal. The cut edges are very sharp. BE CAREFUL!!**

## PREDATOR GUARD

### MATERIALS NEEDED:

- A. Three guards can be cut from one 3" x 8" sheet of galvanized steel
- B. Three sheet metal screws per guard
- C. Three pieces of 12" x 3/16" strap iron per guard



Here are some pictures of the predator guards in place. The photo on the left shows the guard at the base of my bat house. The bat house is positioned atop a 20 foot 4 x 4 post (by the way, a single bat can eat up to 1,000 mosquitoes per hour!). The center photo is a close up of the guard and the photo on the right shows a guard placed around a tree below a tree-mounted nuthatch house.

