



**COMPLIMENTARY  
WOODWORKING PLAN**

**PURPLE MARTIN CONDO  
BIRDHOUSE PLAN**

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# Purple Martin Condo Plans

*D. Roy Woodcraft*  
ideas in wood

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Attract birds with a voracious appetite for mosquitos!



## Features:

- Proven Design
- 16 compartments
- Simplified Construction
- Hinged Fronts
- Removeable Floors
- Easy access using winch
- Weathervane

## Tools Needed:

Table Saw  
Jigsaw or Bandsaw  
Drill  
Belt Sander (not essential)  
Basic Handtools

## Included in Package:

- 2 full sized computer plots showing actual sized parts
- Parts List
- Cutting Diagrams
- 3D assembly drawings
- Step by step instructions



## Parts List:

No.	Quant.	Description	Dimensions
1	2	postbox sides	48 X 5 1/4 X 3/4
2	2	postbox sides	48 X 3 3/4 X 3/4
3	8	spacer blocks	5 1/4 X 1 1/2 X 2 1/4
4	4	Bellsupports	cut template as per contour diagram
5	4	backs	cut template as per contour diagram
6	8	sides	cut template as per contour diagram
7	4	1st floor	6 X 7 3/4 X 1/2
8	8	back cleats	3/4 X 3/4 X 14 5/8
9	12	floor support cleats	3/4 X 3/8 X 8
10	8	triangles	cut as per contour diagram
11	4	roof cleat	Cut from 30" 2 X 4 (see step 4)
12	4	fronts	cut template as per contour diagram
12a	4	crowns	cut from part 12
13	4	2nd floor	8 1/4 w X 7 3/8 d X 1/4 thick (notch to fit back cleats)
14	4	3rd floor	8 5/8 w X 8 3/8 d X 1/4 thick (notch to fit back cleats)
15	4	4th floor	9 1/8 w X 9 3/8 d X 1/4 thick (shape as per contour diagram)
16	16	balcony bottom	7 X 2 1/4 X 3/8 (angled cut as per step 6)
17	16	balcony rail	8 1/4 X 1 1/4 X 3/8 (round over ends)
18	8	roof slab	cut template as per contour diagram
19	4	roof dowel	3/8 dia X 36
20	1	post extension	3 1/4 X 3 1/4 X 20
21	2	flat iron strips	1 X 9 X 3/16
22	1	pulley	3 1/2 dia. 1/2" bore
23	4	skirt blocks	Cut from 36" 2 X 4 (see step 10)
24	1	weathervane base	1 1/2 thick X 5 1/4 dia.
25	1	weathervane post	1 1/2 dia. X 8
26	1	weathervane	3 X 21 (shape as per contour diagram)
27	4	weathervane dowels	1/2 X 18
28	1	main post	14' or 16' 4 X 4
29	2	post mount irons	2 1/2" X 1/4" angle iron 84" long
30	1	light duty winch	
31	30 feet	light duty steel cable	
32	1	heavy eye bolt	woodscrew thread, 1/4" or 5/16"

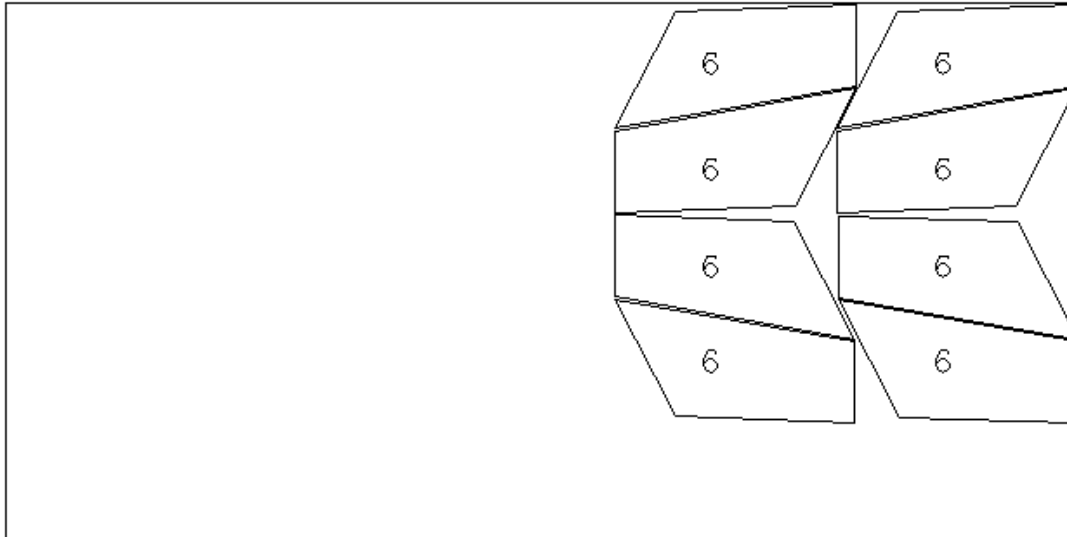
## Note:

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## Step 1:

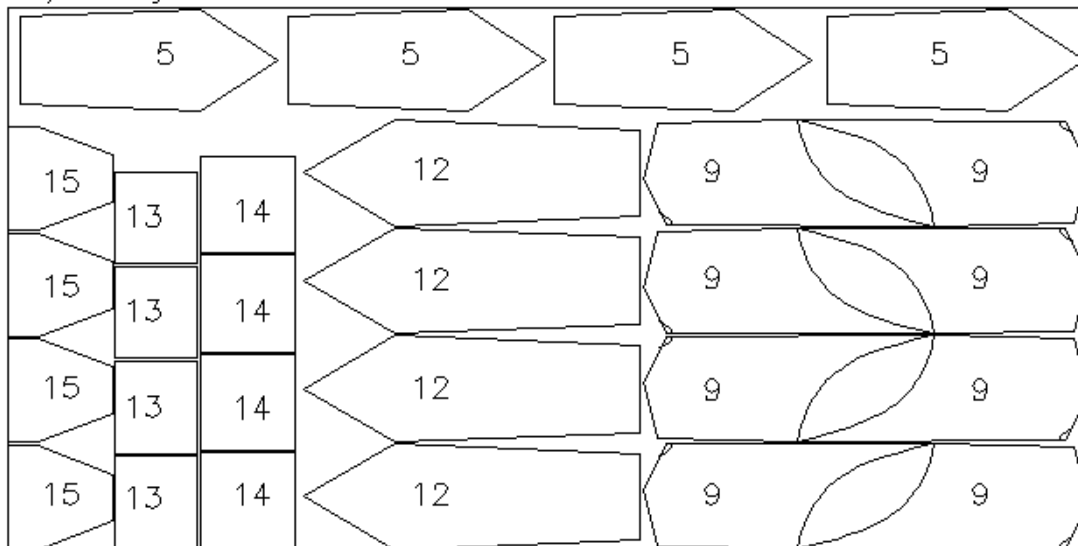
Transfer the shapes from the contour diagrams onto sheets of clean, straight corrugated cardboard or onto some surplus sheeting material. If using grid diagrams, refer to the last page of

1/4" or 3/8" plywood

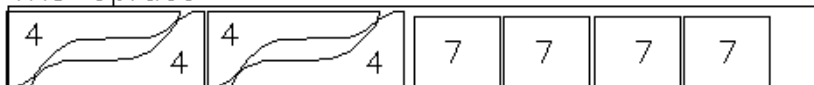


the plan for instructions. Cut these tracings into tracing templates and use them to trace the parts out onto the plywood in the pattern shown. Cut out all the parts.

1/4" Plywood

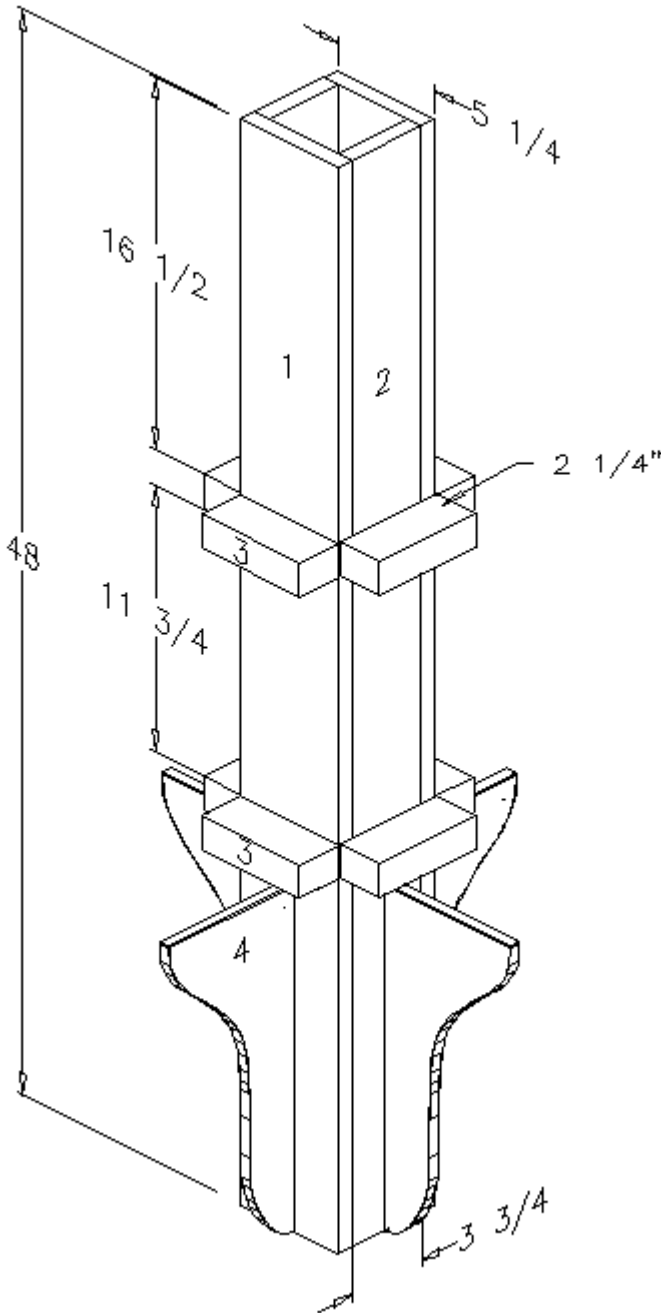


1X8 Spruce



Note that the second sheet is only half used and that greater economy can be achieved by buying a half sheet or by using leftovers of whatever you have around the shop. Although the sides (part 6) can be cut from 1/4" plywood for a lighter project, later installation of hinges and the roof halves will be simpler using 3/8" thick sides. Make sure your plywood is exterior grade but don't use treated wood to avoid poisoning the birds you are trying to attract.

## Step 2:



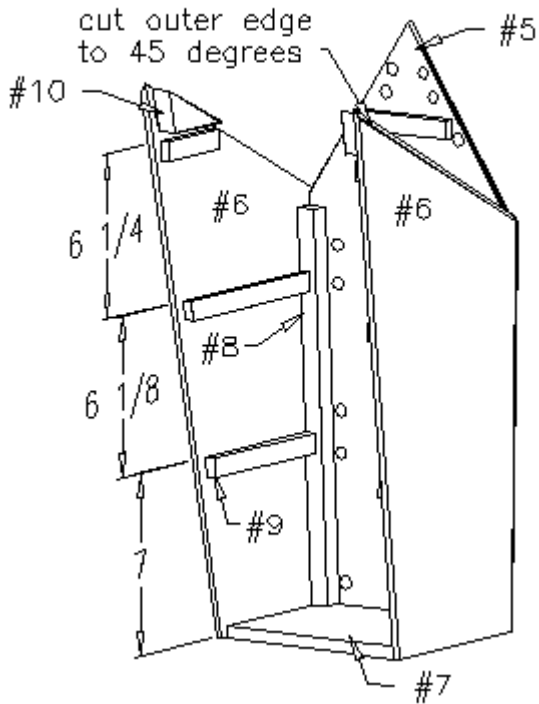
Install the spacer blocks to the postbox sides as shown using glue and screws from the inside. Waterproof glue is advised for this project. Ensure that the space created is 2 1/8" and not 1 1/2". Repeat for all four sides.

Install the four bell supports in the same manner.

Assemble the postbox sides into a box as shown using plenty of screws. Predrill the screwholes to prevent splitting. I leave out the glue here to make future repairs or adjustments possible.

Check that a piece of 4 X 4 slides easily through the cavity.

View From Front



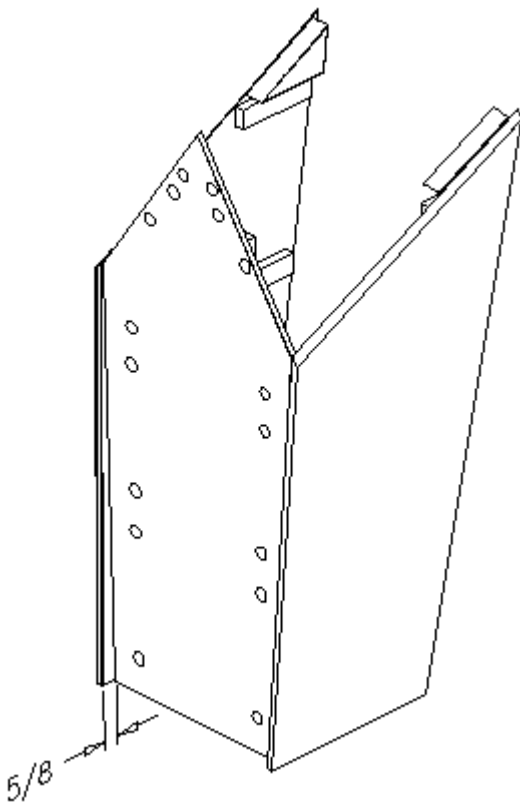
## Step 3:

Determine the good side of the side pieces (part #6) and pair them. Good sides should face out. On the OUTER faces, cut or sand the top edges to 45 degrees to allow the roof to sit flush.

Referring to the contour diagram #1, transfer all the markings to the inner sides and back. The bottom floor pieces (part #7) can be cut from any scrap wood you may have around, as long as it is at least 3/8" thick. Allow the actual thickness of your bottom floor when marking locations of the back cleat (part #8). Note that the back is recessed by 5/8" at the bottom and that it forms a 90 degree angle with the BOTTOM, not the sides. Drill the vent holes into the back.

Nail the back cleats (part #8) to the sides using glue and 1" brads. Nail or screw the back (part # 5) onto the back cleats using glue. Nail and glue the bottom (part #7) into place, being sure to recess the front.

View From Behind

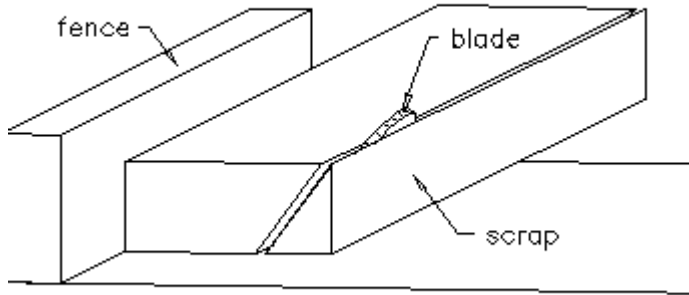


Cut the floor supports (parts #9) to the correct lengths as required and attach to the sides using 1/2" brads and glue. Make sure to place them BENEATH the floor lines and to recess the front edges. Attach the triangles (part #10) to the sides as shown using glue and C clamps. Be sure to recess the front edges.

### Brad Driver:

If you don't yet own a brad driver, this project is the perfect excuse to pick up one of these handy tools. The brad is held magnetically and pushed in by hand very quickly and easily. As you may have noticed, using a hammer on a 1/2" brad is tough on the fingers! An 18 gauge air operation nail gun is even better if you can afford it.

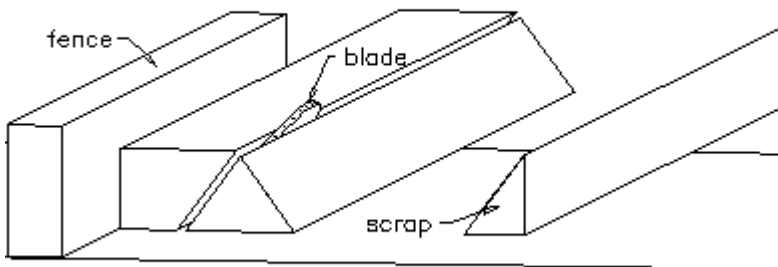
Roof Cleat  
Saw Pass #1



### Step 4a:

Start with a piece of 2 X 4 cut to 30" length. Set the table saw blade to an angle of 37 degrees. Set the fence as required to leave a piece 3 1/2" wide at top. Saw off the triangle and set it aside as scrap.

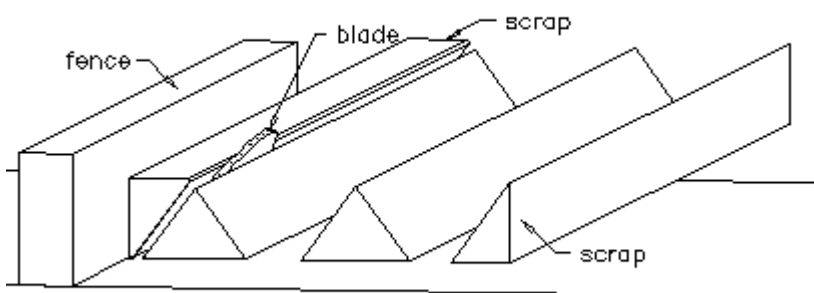
Roof Cleat  
Saw Pass #2



### Step 4b:

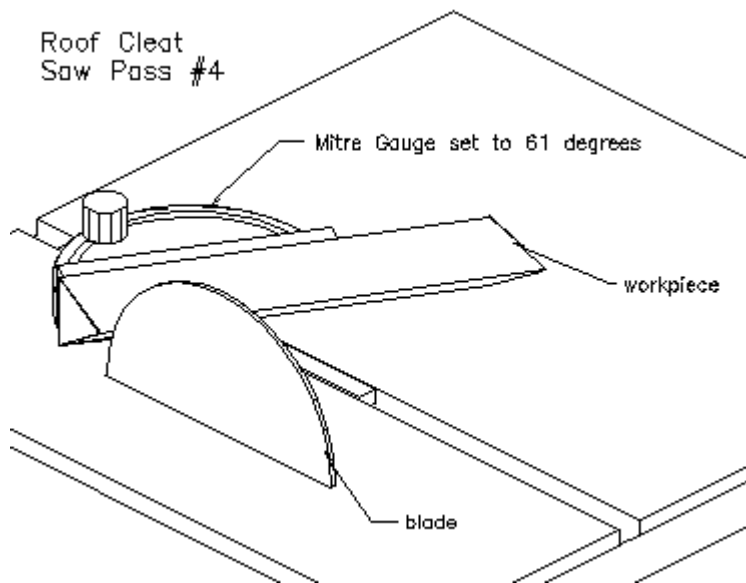
Invert the workpiece as shown. Readjust the fence to leave the maximum possible size of flat surface on the left side of the blade. Cut the triangular piece free and set it aside for further cutting later.

Roof Cleat  
Saw Pass #3



### Step 4c:

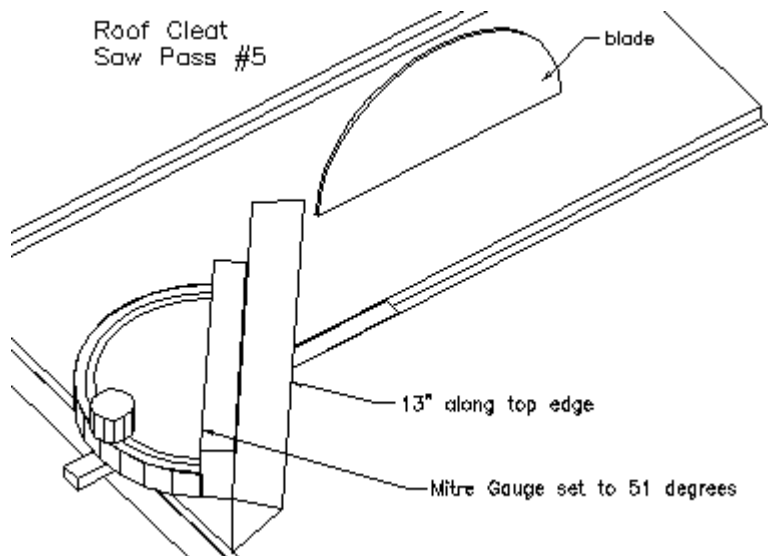
Invert workpiece once again. Reset the fence to cut off the maximum size triangle that can be done safely. Make sure there is a small flat left at the base of the scrap piece to the left of the blade. This flat should be wide enough to be supported by the saw table throughout the cut. The triangle cut free may be a little smaller than the first but can still be used.



### Step 4d:

Reset the saw blade to 90 degrees. Cut each of the 30" triangular pieces in half to make 15" pieces. Set the mitre gauge to 62 degrees and place in the slot on the LEFT side of the blade. Hold the BASE of the triangle firmly against the mitre gauge and cut the right end to 62 degrees. (The base of the triangle is the one edge that is still a planed surface.)

Repeat for all four pieces.

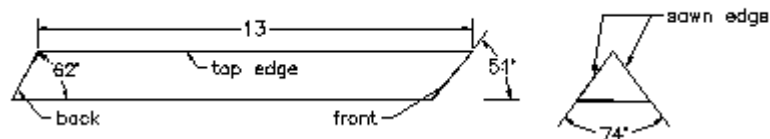


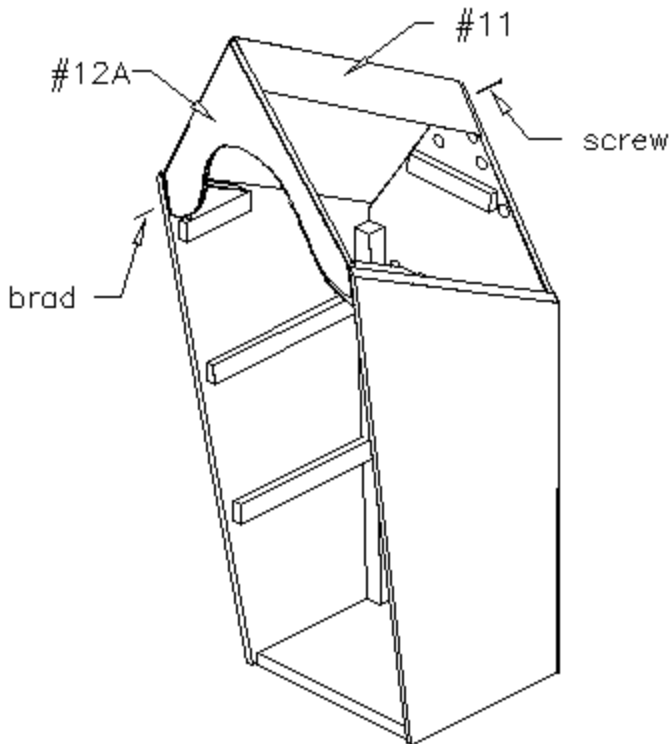
### Step 4e:

Measure from the fresh cut 13" along the top edge and mark it. Reset the mitre gauge to 51 degrees, in the opposite direction and place it in the RIGHT slot. Hold the BASE of the triangle firmly against the mitre gauge and cut the other end to an angle of 51 degrees. Repeat this step for all four pieces.

The pieces are now complete and should be checked against the finished dimensions as indicated. Note that small variations of 2 or 3 degrees or 1/8" in length will still be acceptable due to the flexibility of 1/4" plywood.

Roof Cleat Finished Dimensions



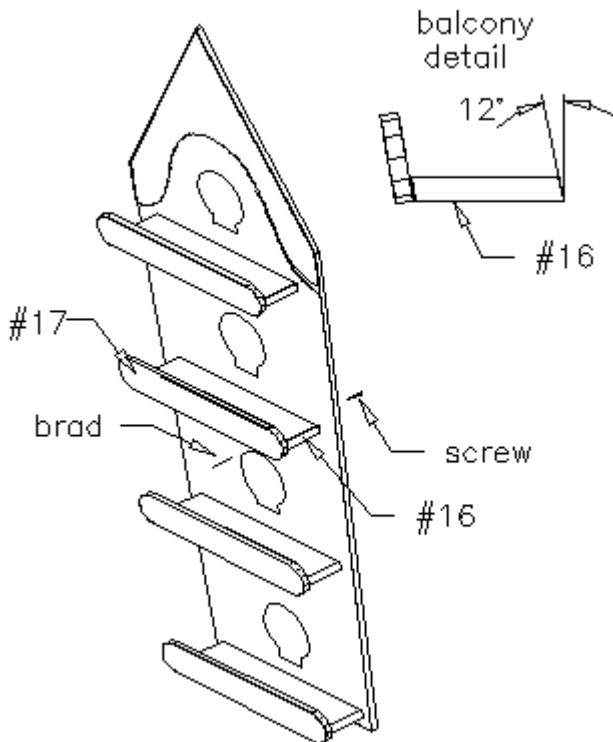


## Step 5:

Drill or cut the entrance holes on the front (part 12). The keyhole extensions at the bottoms of the openings are optional. These allow the birds to enter without stepping over a high sill.

Cut the arch along the line at the top of part 12 as per the contour diagram. Mark or number the crowns (parts 12A) to keep them together with their respective fronts. Place the crown upon the edges of the support triangles, using the rest of the front to gauge it's position. The arched gap should be at least 1/16" to allow the hinged front to swing freely. Check also that the crown does not interfere with the insertion of the top floor. Attach the crown to the triangles using glue and 1" brads.

Place the roof cleat (part 11) into position and drill pilot holes into the ends to prevent splitting. Apply glue and drive 1 1/2" #8 screws into the ends.



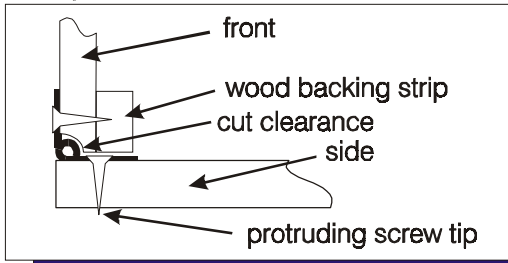
## Step 6:

The balconies are not merely decorative as they serve to keep the young Purple Martins from falling when they first step out of the house, still unable to fly.

Note when cutting the balcony bottoms (parts 16) that the edges are cut at a 12 degree angle to allow the balcony to appear level. Many of these houses have been built with these edges being square, with the result that the balconies point slightly downward.

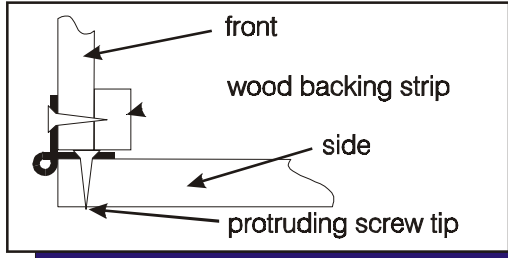
Assemble the balconies by attaching the balcony rails (parts 17) to the balconies (parts 16) using glue and 1" brads. Mark the floor positions on the front and attach the balcony assemblies using glue and 3/4" #6 screws. Keep the balcony bottoms from splitting by placing a C clamp over the area that is about to accept a screw.

## Step 7: Doors



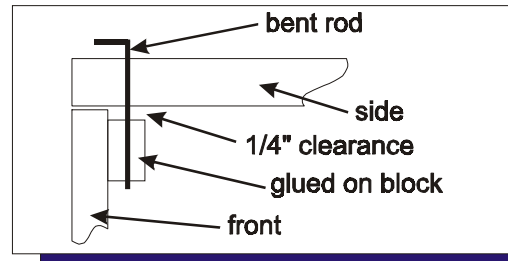
### Conventional Hinge:

Mounting the door using conventional hinges requires the front (the door) to be trimmed with a chisel to allow clearance for the hinge pin. The screws will likely be longer than the thickness of the plywood and will tend to protrude. The screws going into the door should be backed with a strip of scrap wood and those going through the side should be filed or ground off flush with the surface before painting.



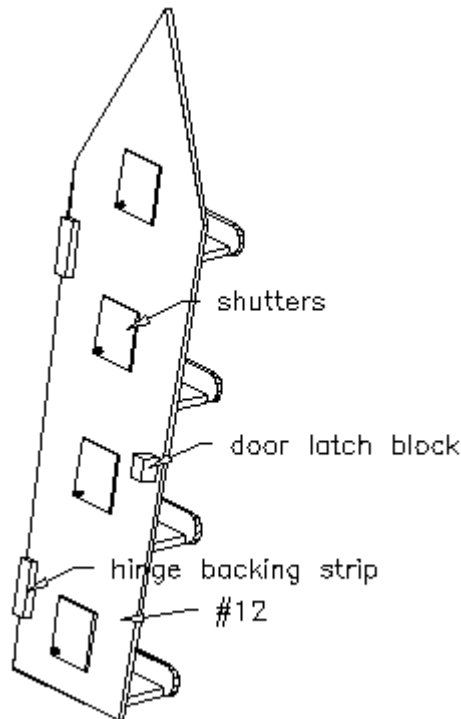
### Piano Hinge:

A simpler and cheaper way to hinge the doors is to buy a 24" light duty piano hinge (stainless or brass). Piano hinge has the ability to be folded around backward allowing the pin to protrude beyond the door. This eliminates the need to chisel out clearance for the pin. Cut the hinge into 3" strips. Again, the screw tips need to be dealt with as with regular hinges.



### Door latch:

An inconspicuous and free door latch can be made by hammering a sharp bend into a 1 1/2" piece of bicycle spoke. Glue a small block of wood to the inner face of the door. Drill through the side into the block, sizing the hole for a snug fit. Enlarge the hole in the block of wood one drill size to make it easier to "find" it when latching.

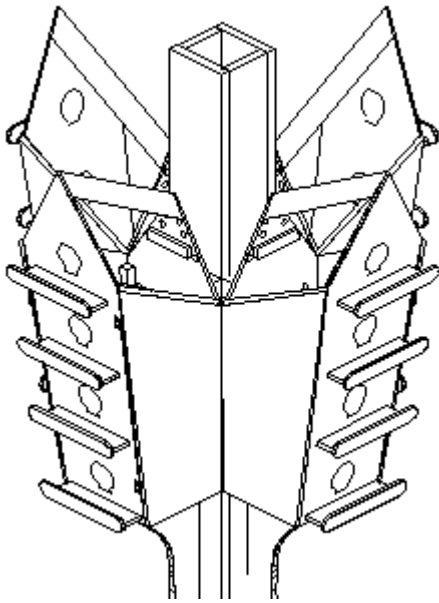


### Shutters:

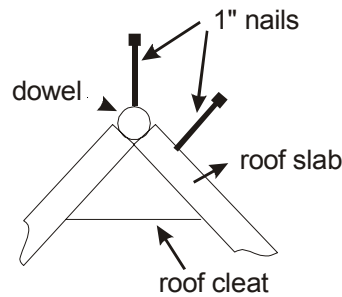
The optional shutters are used to keep unwanted bird species out of the house during the off season. To make them, cut out small squares of sheet metal or plastic, sized to cover the holes. Drill a hole in the corner of each shutter to allow a small woodscrew to be driven into the inner face of the door. Screws should be SHORT to prevent them from penetrating through to the finished front, or protruding tips could be ground off flush. You will have to experiment to see into which corner of each shutter to install the screw, allowing the shutter to swing completely clear of the entrance hole. The screws should be tight enough to hold the shutter in any position.

## Step 8:

Install the four modules onto the post box by driving a 1 1/2" #8 screw through the back, into each spacer block. This will be 2 screws holding each module, 8 screws total. Start by installing two modules on opposite sides of the post. The remaining two may overlap the first two slightly and there may be a slight gap behind them. If this is the case, be sure not to distort or break the back by overtightening the screws.



### Roof Detail

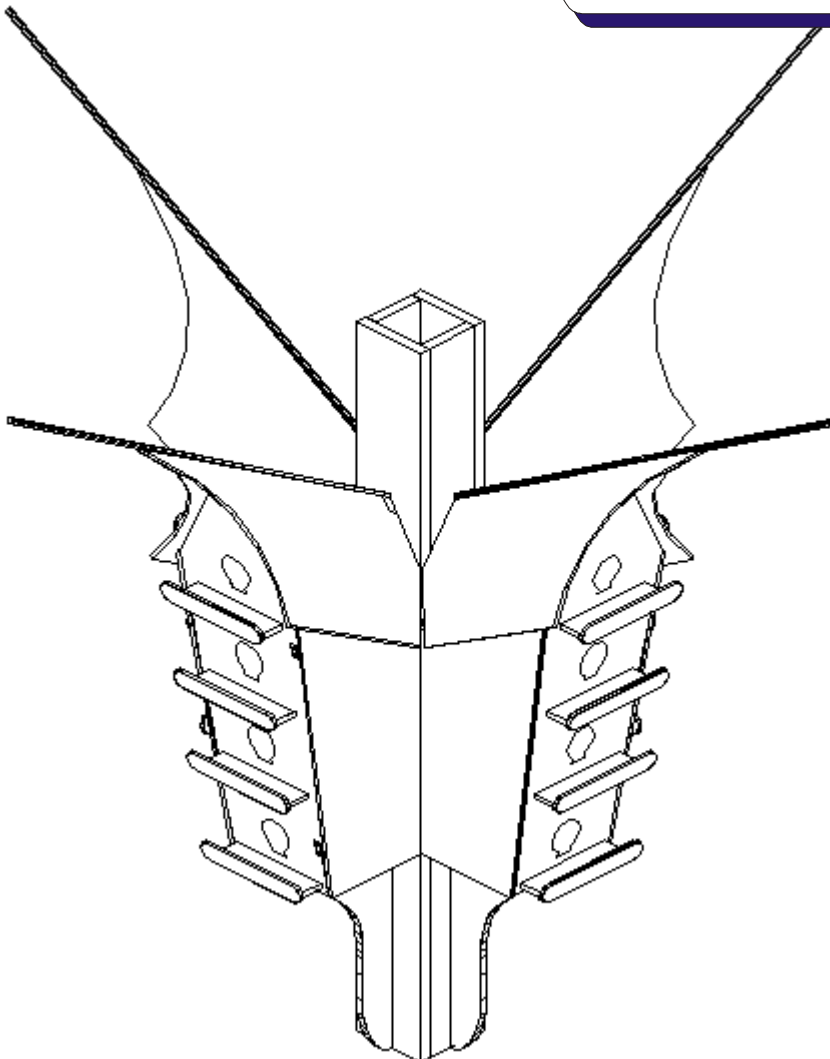


Install roof slabs and roof dowel as shown. Use glue and 1" nails into the roof cleat and into to the sides at the bottom of the roof slabs. Glue the dowel and fill the gaps with caulking to make it weatherproof.

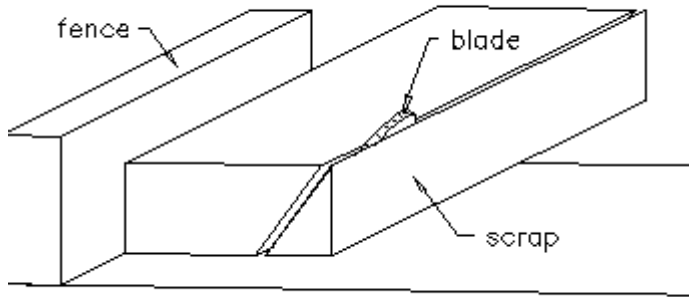
## Step 9:

Install the roof slabs (parts #18) and the roof dowels (parts #19) as shown in the detail above.

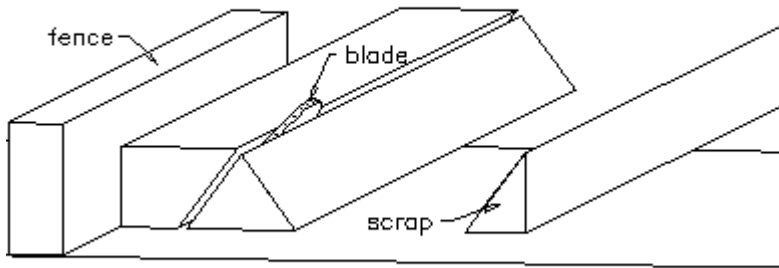
Start with the same two opposite modules that you installed first in step 8 above. The remaining two sets of roof slabs may require a slight adjustment with a sander or bandsaw to get them to fit precisely. Avoid the temptation to fill in gaps between modules with caulk, as the modules need to be removable for transport and maintenance.



Roof Cleat  
Saw Pass #1



Roof Cleat  
Saw Pass #2

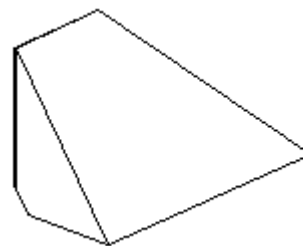
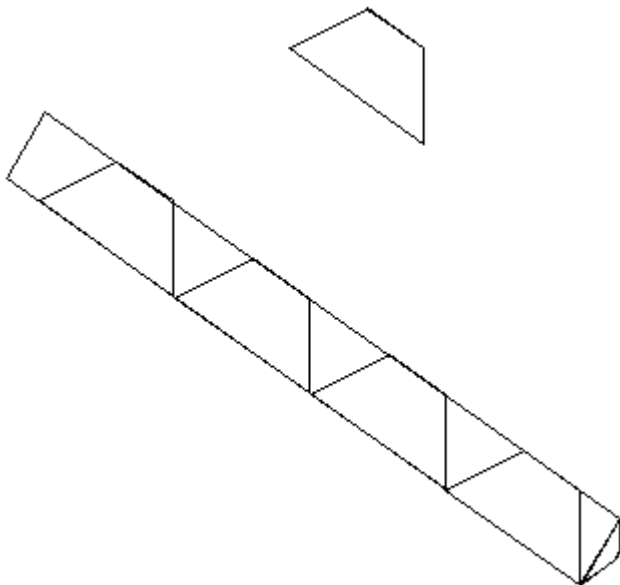


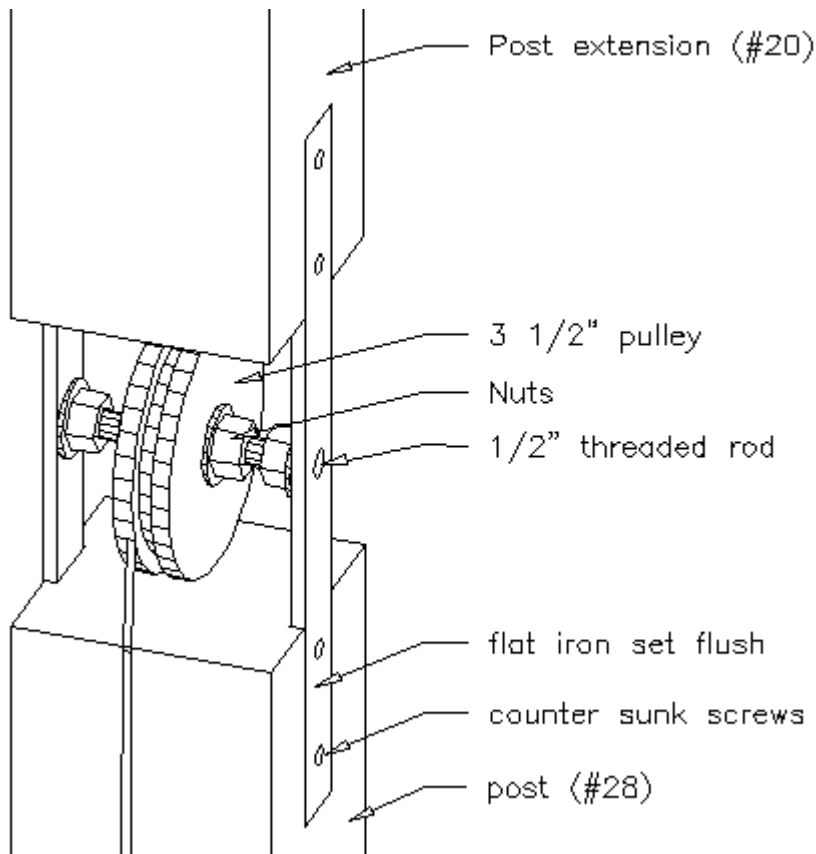
## Step 10:

To make parts #23 (skirt blocks) start with a piece of 2X4 36" long. Set the table saw blade to an angle of 45 degrees. Adjust the fence to cut the edge as shown. With the fence in the same position, invert the board and cut the second edge to 45 degrees as well.

## Final Cut Outlines:

Mark and cut the four skirt blocks as shown. Making these cuts is tricky on the table saw so use a hand saw or a band saw if you have one. The length of the short edge should be 3 1/4" to match the width of a 4X4 post. This is the only critical dimension on this part.





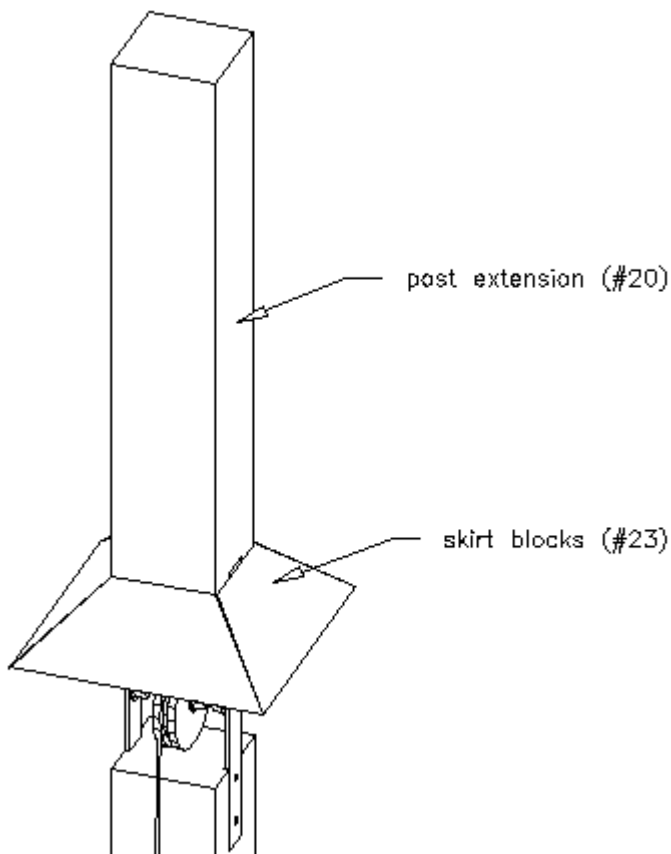
## Step 11:

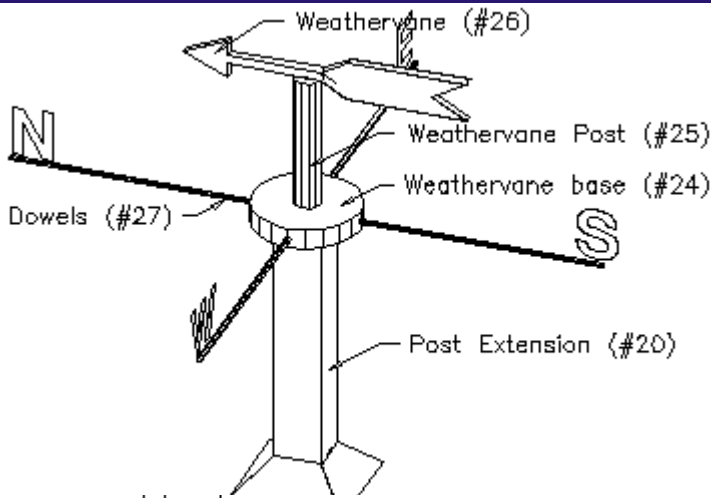
Cut two strips of 1" flat iron to 9" length. Drill a 1/2" hole in the centre of each. Mark off the position of the post 2" to either side of the centre hole. You need to create a gap of 4" between the posts. Drill and countersink two screwholes on either end of each strip. Place the strip in position over the post extension and trace the outline. Cut a slot into the post with a chisel. The flat iron must sit flush with the post.

Mount the pulley (part#22) onto a 3 1/4" length of 1/2" threaded rod using nuts and washers. By using an assortment of jam nuts and washers, the pulley can be made solidly attached to a rod that spins, or the rod can be snug with a pulley that spins. The only critical point is that the rod must not protrude much beyond the flat iron or it will interfere with the sliding of the post box.

Insert the completed pulley assembly between the two flat iron strips and screw them into place on the post extension using 1 1/2" #8 screws (or stronger). Do not mount to the end of the main post yet.

Attach the skirt blocks (#23) to the post using screws. Do not use glue as they must be removable for possible future access to the pulley. The bottom of the skirt should be even with the bottom of the post extension.





### Step 12:

Attach the weathervane post (#25) to the weathervane base (#24) using a screw from underneath. Attach the direction letters to the dowels (#27) using glue and 1" brads. Drill holes into four positions around the base (#25) and glue the dowels into place.

Drill a hole through the arrow to allow a loose fit for a 2" galvanized nail. The arrow should spin freely but should not be a sloppy fit. Test drill sizes in scrap wood if necessary. Pre-drill a small pilot hole into the end of the post (#25) to guide the pivot nail.

Place a small washer between the arrow and the post. Sanding the end of the post to a slight crown will lessen the chance of interference. Attach the completed weathervane to the top of the post using a couple of screws.

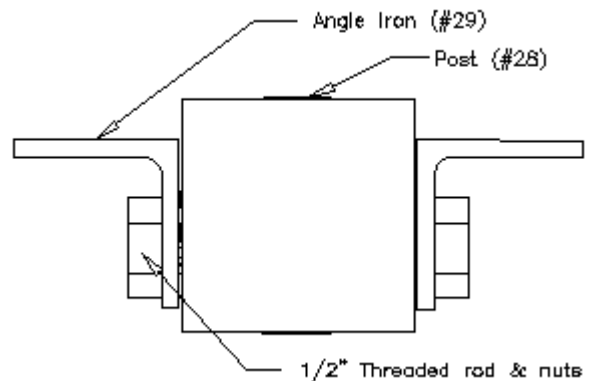
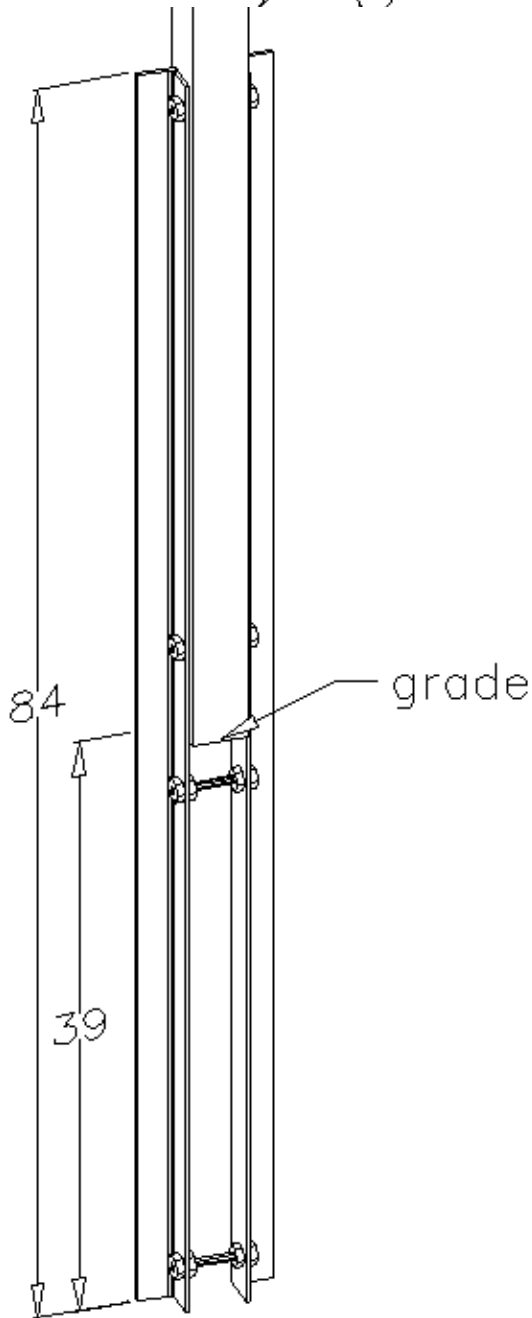
### Step 13:

Notch the top of the main post (#28) to accept the flat irons (#21). Attach the two steel mounts (#29) to the bottom of the post using C clamps. Drill four 1/2" holes through the steel and wood as shown and bolt the steel to the post through the two upper holes. Install bolts of threaded rod through the two bottom holes using inner jam nuts to prevent the angle irons from pulling together.

Remove the post from the angle irons, leaving them bolted together at the bottom. Dig a post hole in the desired location and cement the angle irons into it using concrete. Ensure that the post will be plumb and that the bottom of the wooden post will be about 1" above the ground to allow it to swing down on its lower bolt. Take care to orient the angle irons in the direction that the post is to swing downward.

When the concrete is set, install the post (#28) using the lower bolt. Before swinging the post into its vertical position, install the postbox assembly and the completed post extension /

weathervane assembly using screws. Swing the post upright and install the upper bolt.

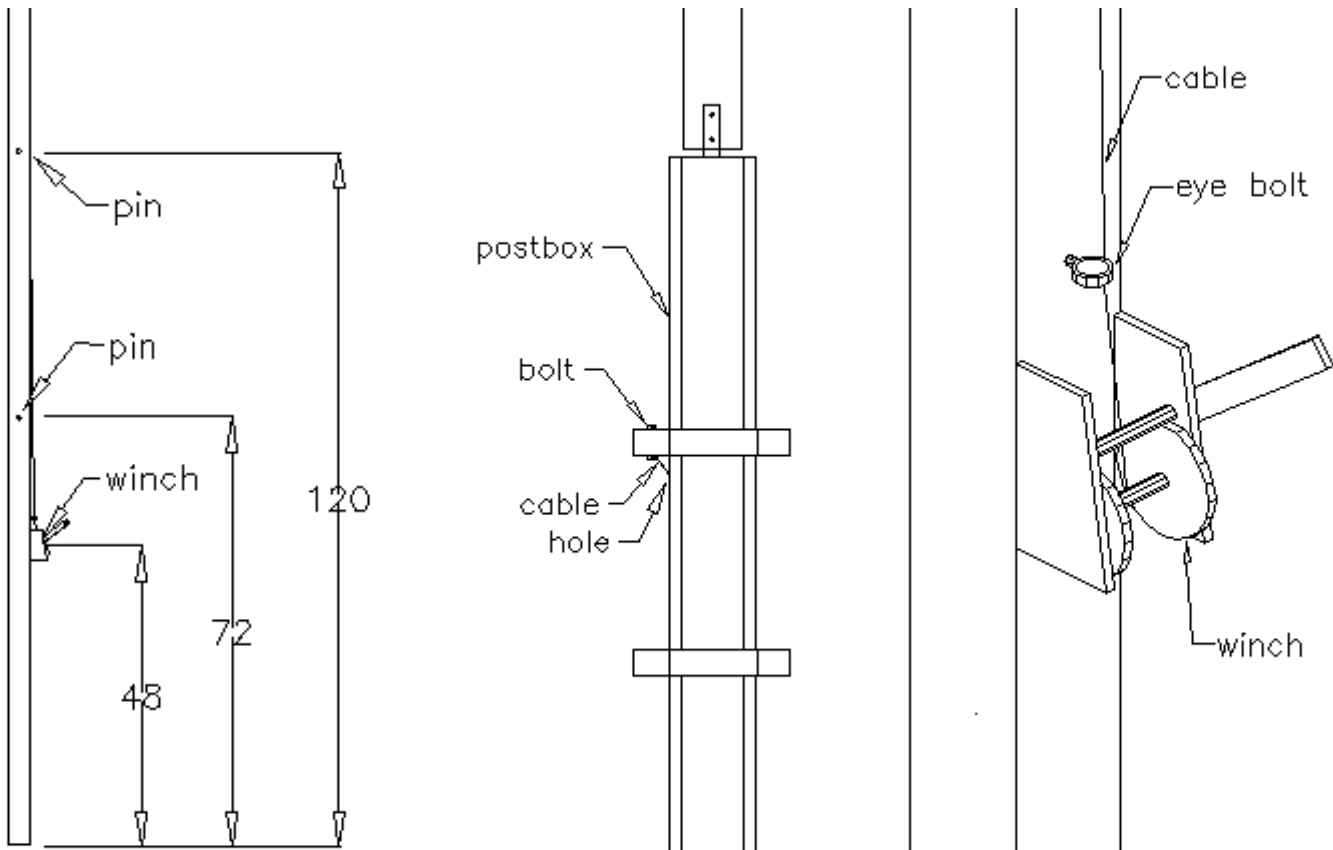


## Step 14:

Mount an inexpensive boat winch on the side of the pole at a comfortable operating height using carriage bolts or lag bolts. Drive in the eye bolt (part #32) just above the winch, predrilling the hole.

On the side of the post box opposite the side of the winch, drill a 3/8" hole just below the upper spacer block, as shown. Drill a hole through the spacer block and bolt the end of a 30 foot length of cable solidly in place using washers. Feed the other end of the cable through the hole, up over the pulley, through the eye bolt, and connect it to the winch. Hoist the post box up and down the pole to test it.

At a height just above head level, drill a hole through the main post and insert a piece of metal rod or broomstick to serve as a safety device in the event of winch failure. A second pin can be used at the top of the pole to allow the weight to be taken off the winch in case someone messes with it. The disadvantage to this upper pin is that a ladder would be needed to remove it and lower the house. You may elect not to use it, but drill the hole in case you need it later.



Reinstall any house modules that you may have removed to get the post erected and the cable installed.

Your Purple Martin Condo is now complete. If you have not already done so, paint it with good quality primer and paint, inside and out. The inside should be painted white to discourage use by Starlings. Avoid painting the roof with an overly dark color to prevent excessive heat buildup.

## Management of Your Condo Development:

Your new Purple Martin Condo requires management to be successful. For this I strongly encourage you to seek out books on the subject or get in touch with your local bird watchers group or naturalist society. Many cities now have specialty stores that cater to bird enthusiasts and can either provide you with information or can at least tell you where to find it. The Internet provides excellent resources from other Purple Martin enthusiasts.

Your greatest task in managing your condo development is keeping unwanted tenants out. Sparrows and Starlings are the two greatest nuisance species that can take over the nesting cavities and keep the target species out. Purple Martins are less attracted to the house if there are Sparrows present and will avoid it completely if only one cavity is occupied by Starlings. Both of these species are not native to North America but have taken over the available naturally occurring nesting cavities much to the detriment of native species such as the Purple Martin. Since either of these non native species will build a nest just about anywhere, you will do them no harm in tearing their nests out of your birdhouse. There are theories that the Purple Martin would certainly be an endangered species without carefully tended man made nesting cavities such as yours.

During nesting season, you should lower the house at least every few days to remove the unwanted nests. Since a Sparrow can completely rebuild a nest in 24 hours, some will argue that it should be done more frequently. The winch greatly simplifies this task and makes the job enjoyable. In the process of opening the house to remove unwanted nests, you can watch the development of your Purple Martins. Once again, research must be emphasized. Although human contact and even handling of the young birds does not cause the parents to abandon the young, there is a danger of driving the fledglings out of the nest before they are able to fly. Examinations should not be done within the last few days before they leave. Research will help you to recognize the stages in their development as well as recognizing which nests belong and which don't.

After nesting season is over and the Purple Martins have flown south in the late summer, lower the house and clean out all of the nests, including the Martin nests. The Purple Martins are more likely to return if the house is clean. Close the entrance shutters (if you have them ) to keep Sparrows from moving in during the winter. Often they will use a house for shelter during the winter and will already be well established when the Purple Martins arrive in the spring. Some people will also leave the house in the lower position during the off season or even remove it completely. Shuttering the holes is sufficient.

Don't consider the month of April as a deadline for installation of the Condo. The Purple Martins will often take 2 or 3 years to discover your house, especially if there are no other Purple Martins nesting in the neighborhood. Martins will be scouting out new nesting cavities in the summer, after nesting is complete and will return to favourable locations in the spring.

## Choosing a Location for Your Condo Development:

Ideally, the Condo should be mounted at least 10 feet above the ground, no nearer than 15 feet away from any trees. Oddly enough, the Purple Martins actually prefer a nesting site that is near human buildings. A residential back yard is ideal. You are also more likely to successfully attract Purple Martins if there is open water within a mile or so. This is less important, however, and Martins will still nest if the water is farther away. Of course, having another Purple Martin house in the vicinity definitely helps make yours more attractive.

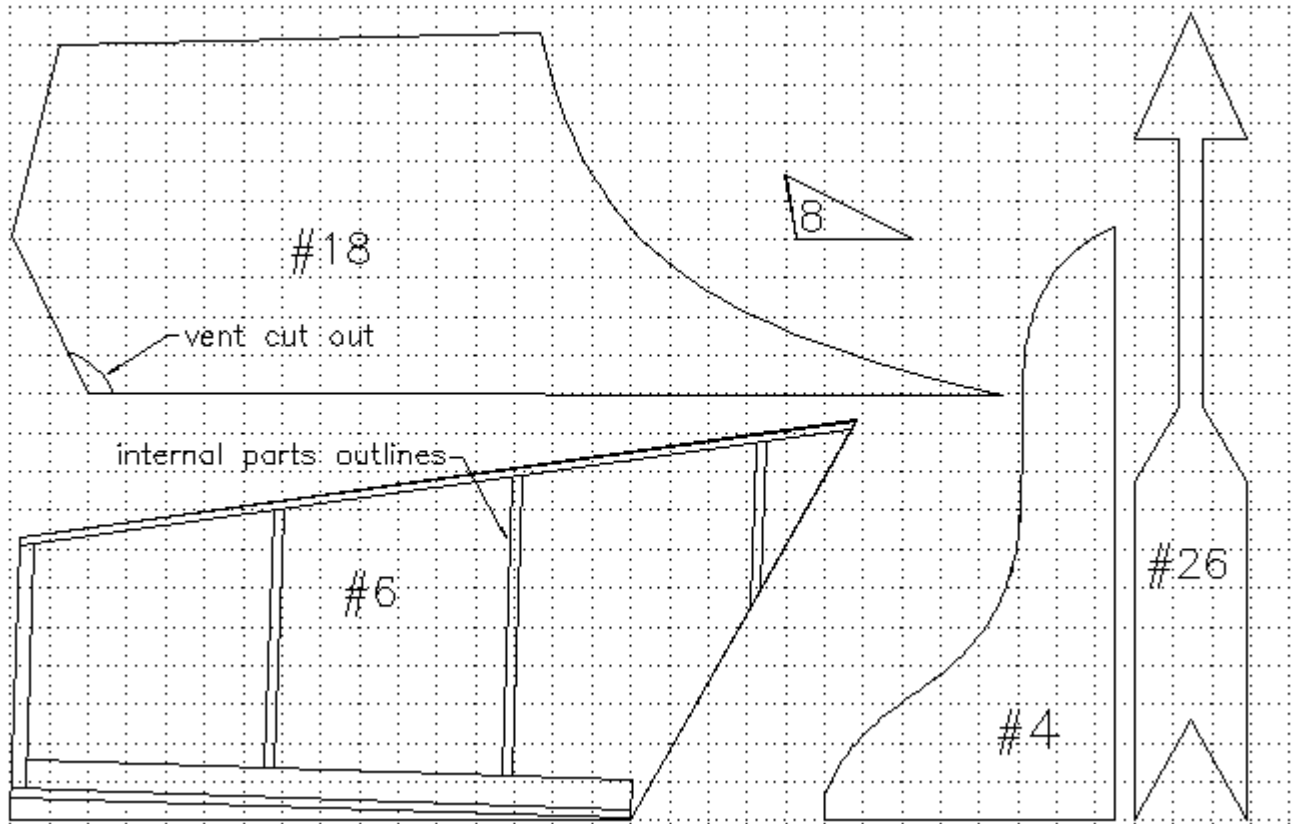
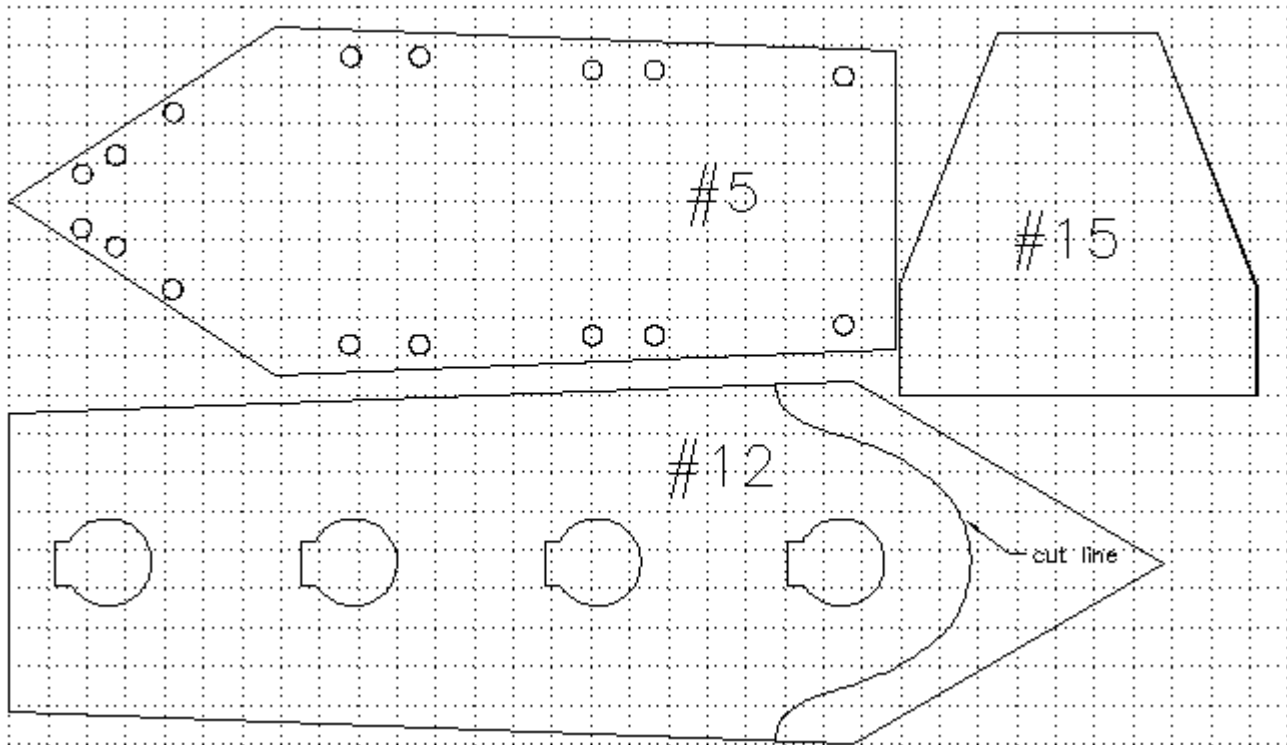
# Purple Martin Condo

15

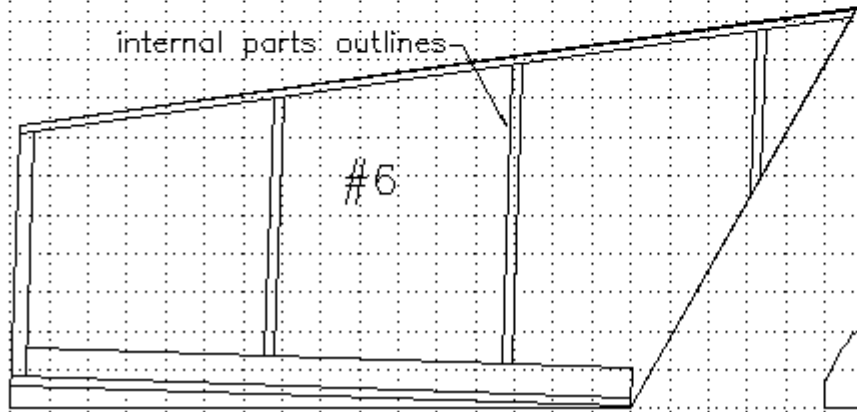
D. Roy Woodcraft  
ideas in wood  
© Denis Roy 2003

3/8" vent holes

Entrance holes 2 1/8" dia.



internal parts outlines



## Contour Diagram:

Create full sized templates for tracing your contoured parts using this grid diagram. If building multiple condos or if you wish to save templates for future re-use, trace the contours onto stiff cardboard or onto 1/8" thick hardboard. You can also draw the grid directly onto your stock, then using the parts as templates.

Start by drawing your grid onto the template stock in pencil. Plot a series of dots at the points where the object line crosses the grid line. Keep track of which grid line you are at with one hand while you plot your points with the other hand. It can be helpful to number every 5<sup>th</sup> grid line on both the drawing and on the template grid to help you keep track of your position.

When you have the series of dots that represent the outline, connect them either freehand or by tracing french curves around the dots. Cut the letters out with scissors and use them as templates for the weathervane. Feel free to come up with your own version or size of letters.

