

# Spad Extra



**by Arlie Conner**

Type: Sport/Aerobatic

Wingspan: 54"

Weight: 6 lbs.

Wing Loading: 23 oz. sq./ft.

Length: 48"

Engine: .46 - .60 2-stroke

Radio: 4 CH w/ 5 servos

This plane was inspired by the Somethin' Extra and has almost the same flight characteristics. It is a bit heavier than it's balsa cousin but flies great in spite of that. It is not recommended for the beginner Spad builder but anyone who has mastered the basics will have no problem building this plane.

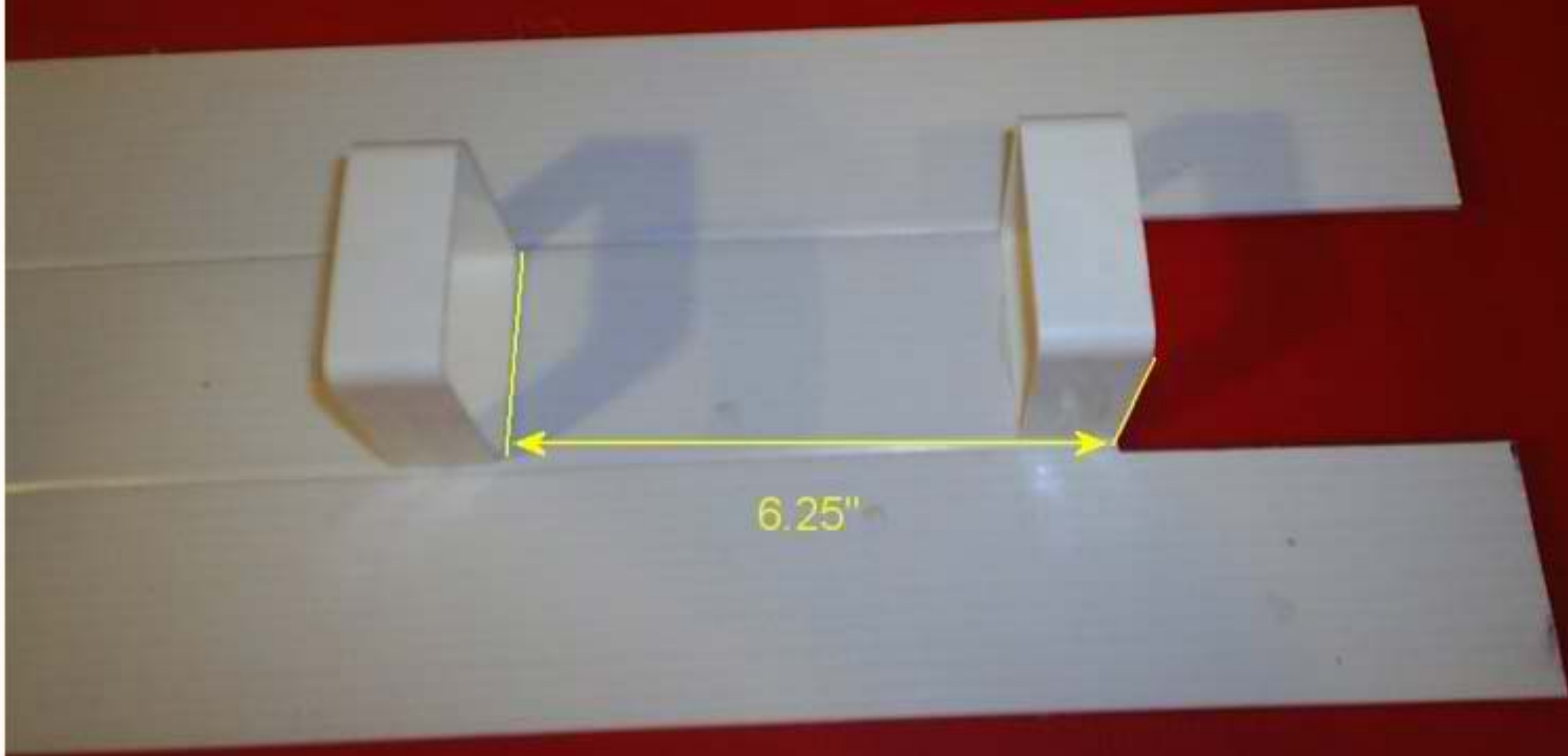
If the plans are followed and the same materials used you should have a good flying airplane. Any design improvements or ideas are greatly encouraged and please share them with the rest of the SPAD community.

**DISCLAIMER:** The builder assumes all responsibility for safe operation and airworthiness of this model!



cut 2 pvc formers 1"





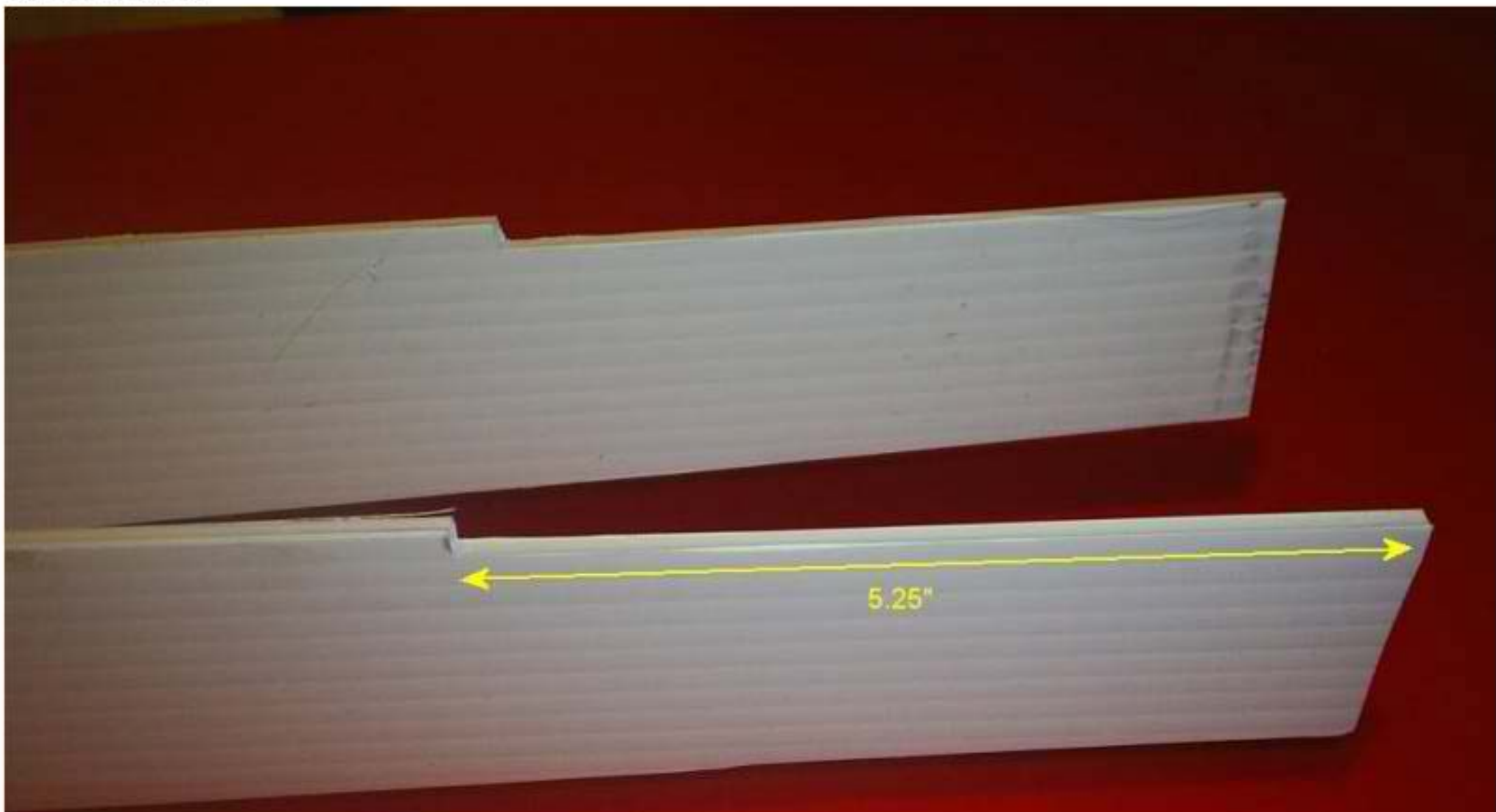
6.25"



fold sides and glue

tail section





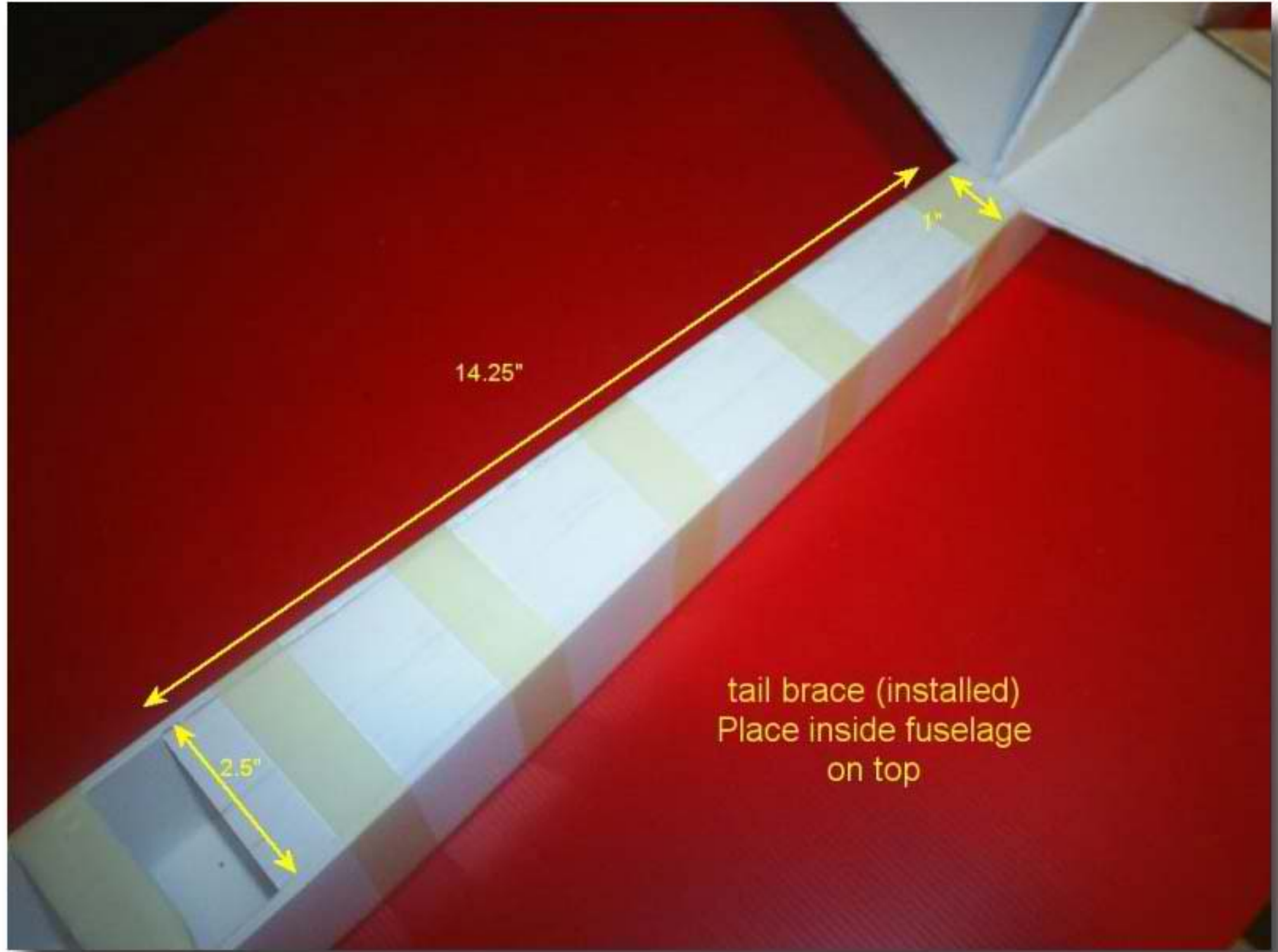
5.25"

notch out for horizontal stab

1/16 plywood  
trim to fit servo bay



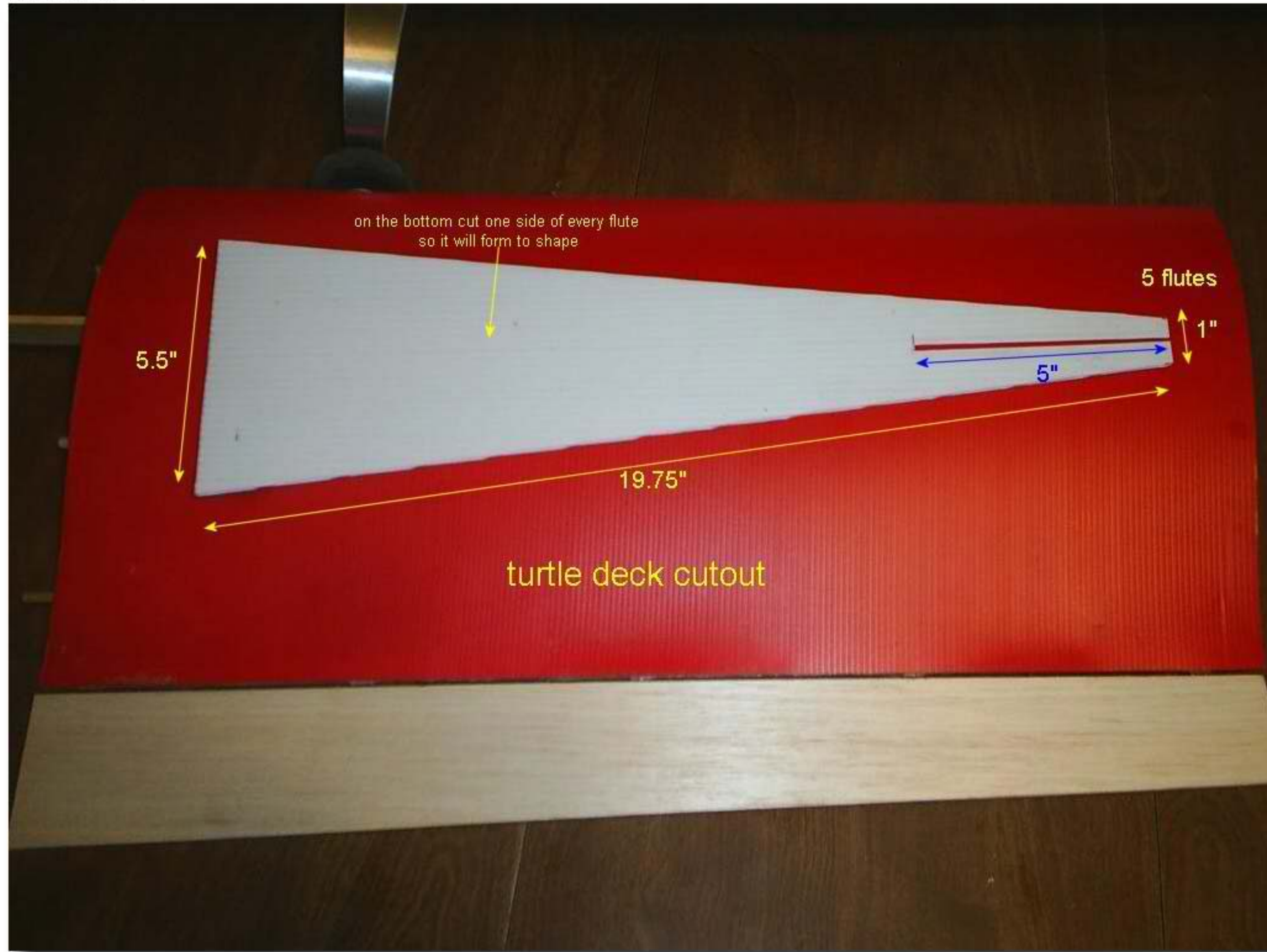




14.25"

2.5"

tail brace (installed)  
Place inside fuselage  
on top



on the bottom cut one side of every flute  
so it will form to shape

5.5"

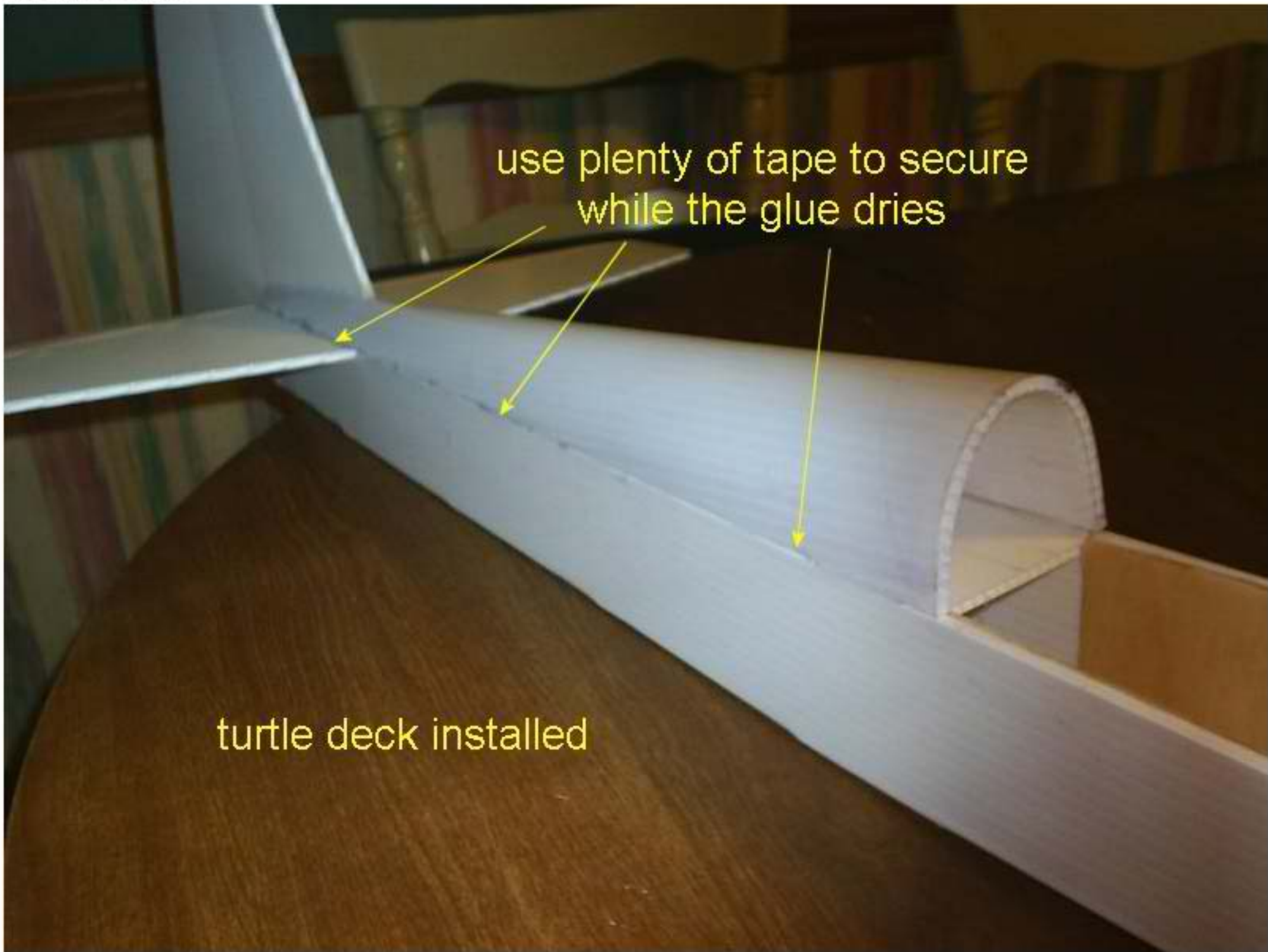
19.75"

turtle deck cutout

5 flutes

1"

5"



use plenty of tape to secure  
while the glue dries

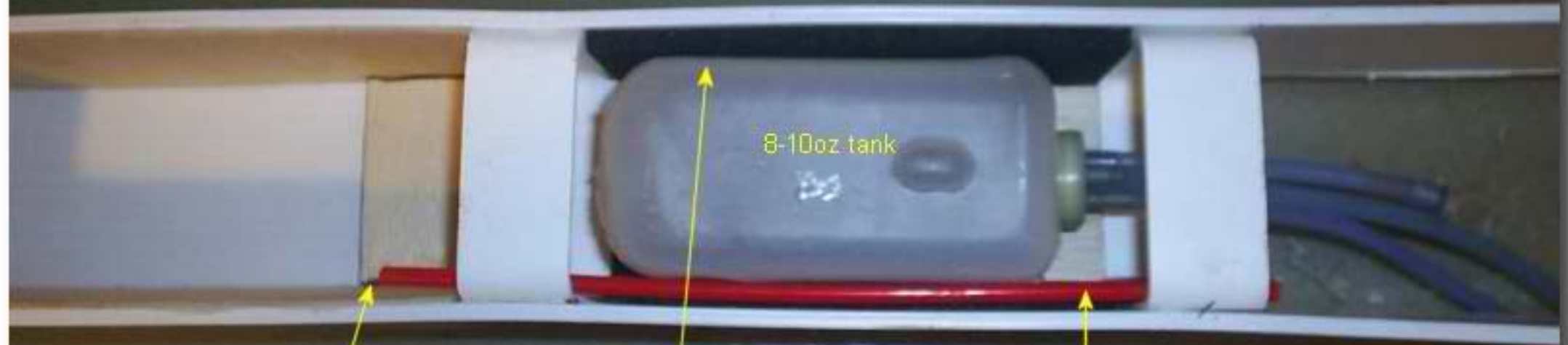
turtle deck installed



turtle deck end cap  
cut to fit inside



### fuel tank installation

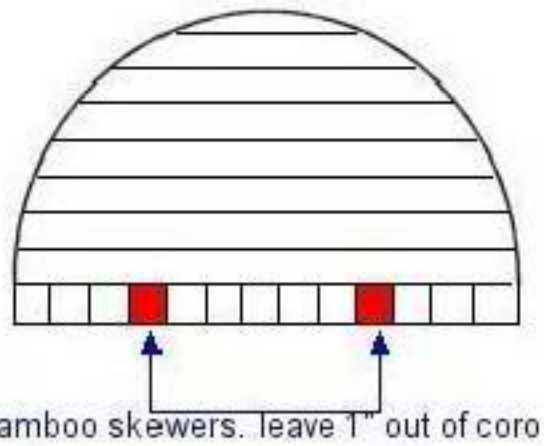


landing gear support  
1/4 ply

foam padding  
(cheap mouse pad from wal-mart)

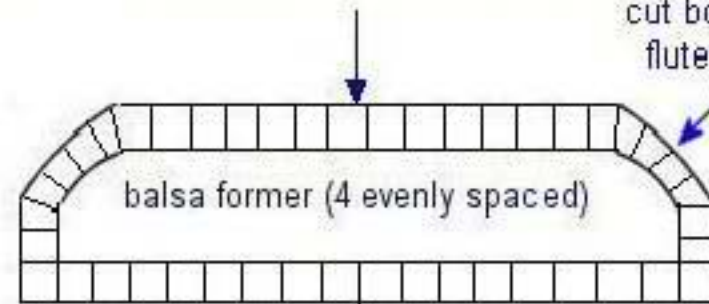
8-10oz tank

I use a piece of  
balsa to keep  
tank from moving  
forward

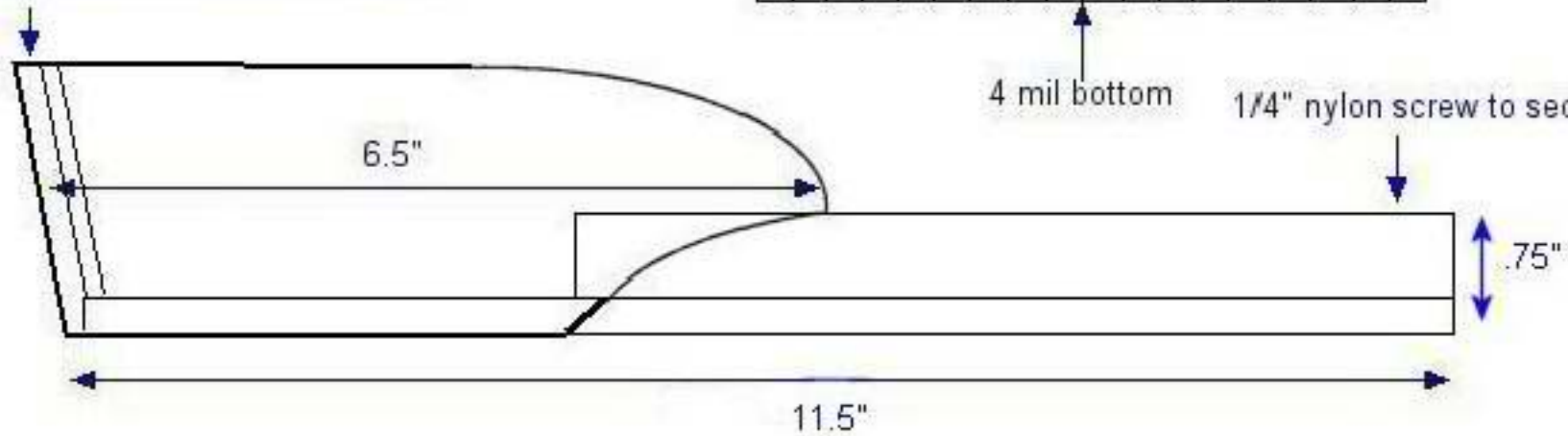


4 mil top cut flutes to curve over the formers

cut bottom side of flutes at corners



canopy 1/4" past backplate to overlap turtledeck



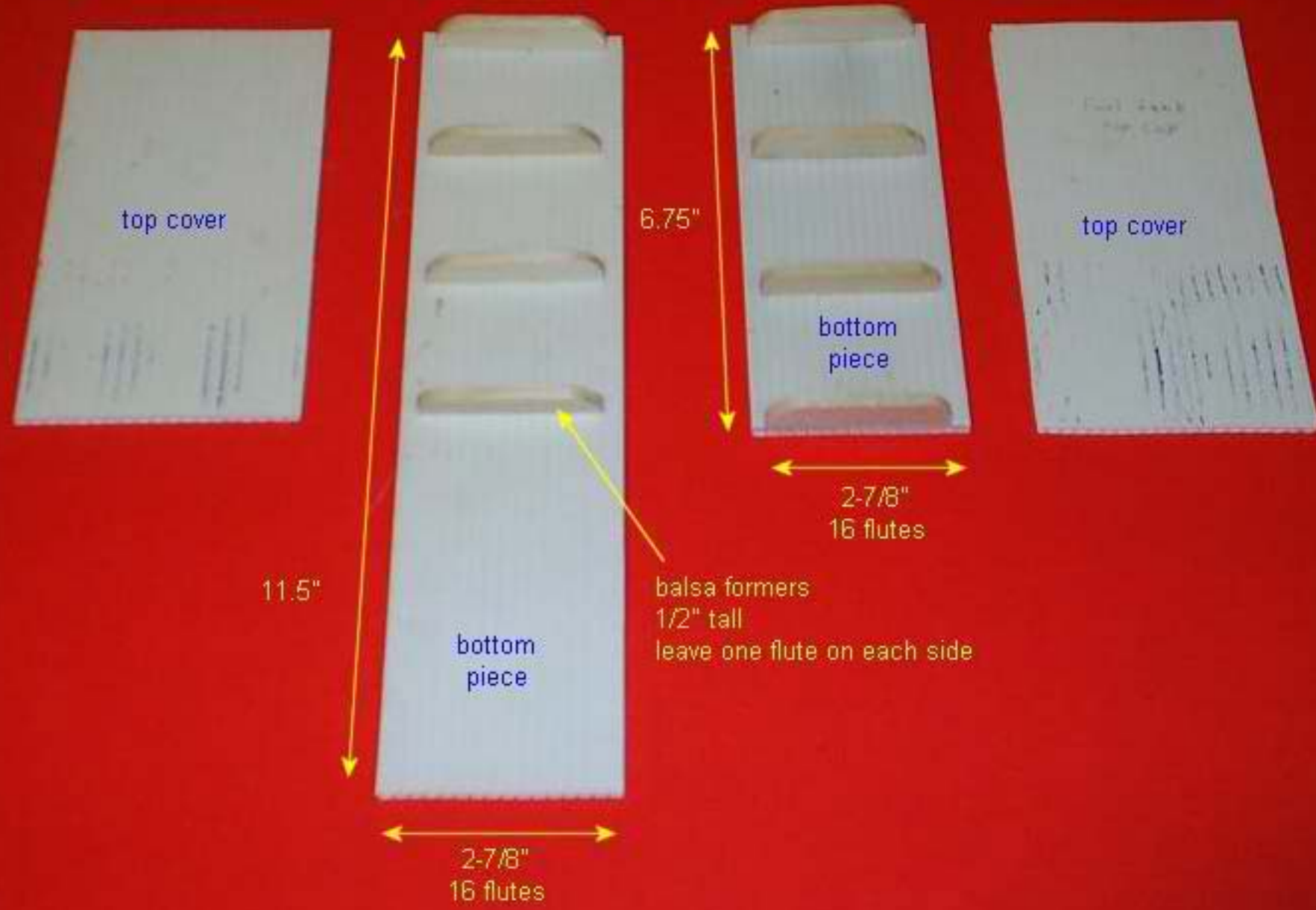
canopy is made from 2 litre soda bottle. cut to fit.  
it takes a little trial and error so be prepared to  
mess up a few times

servo bay and fuel tank cap cutout  
(top cap which bends over the balsa formers)



### top cap cutouts

(you can cut one long piece measuring from firewall to turtledeck and then cut in half at the center of the rear former)





If the top cap will not fit flush on top  
you need to make cut outs over the PVC formers

1/16 ply for support



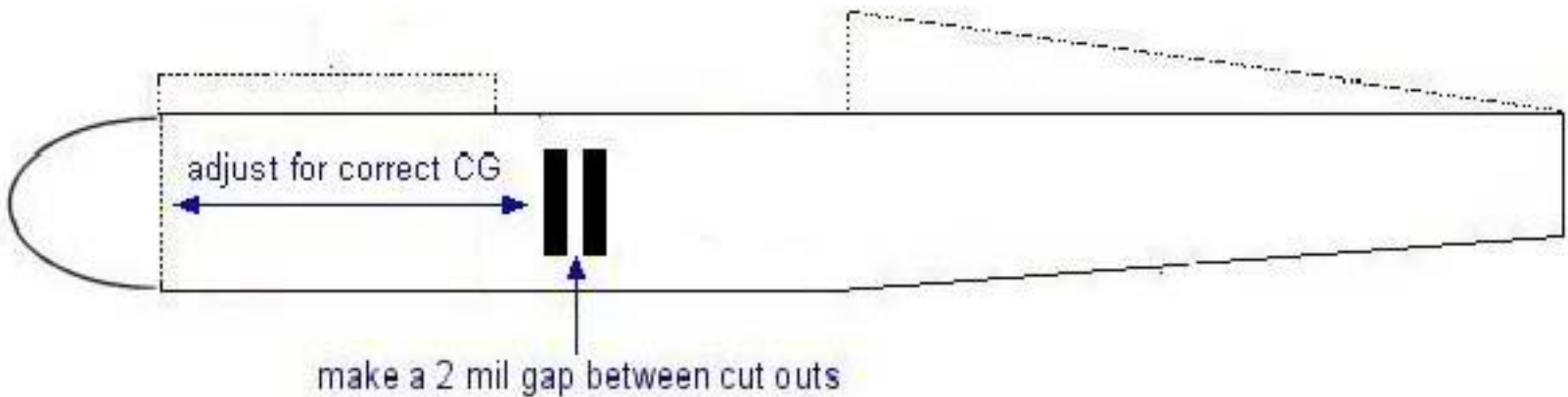
I used a 10 oz. tank which was too tall to fit inside the fuse so I cut out the bottom of the top cap so it would fit





finished servo bay cover w/out canopy

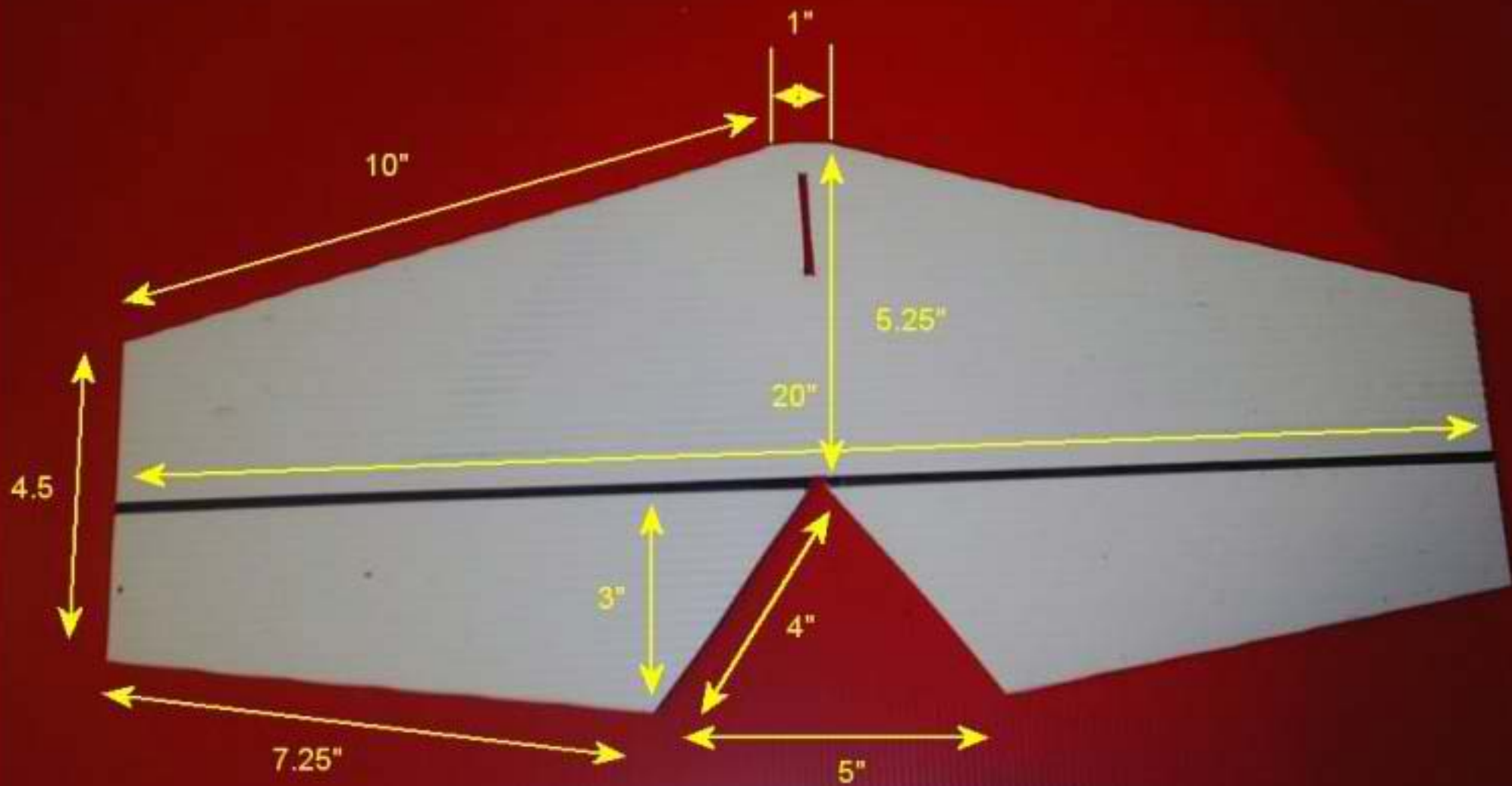
## wing plug cut out

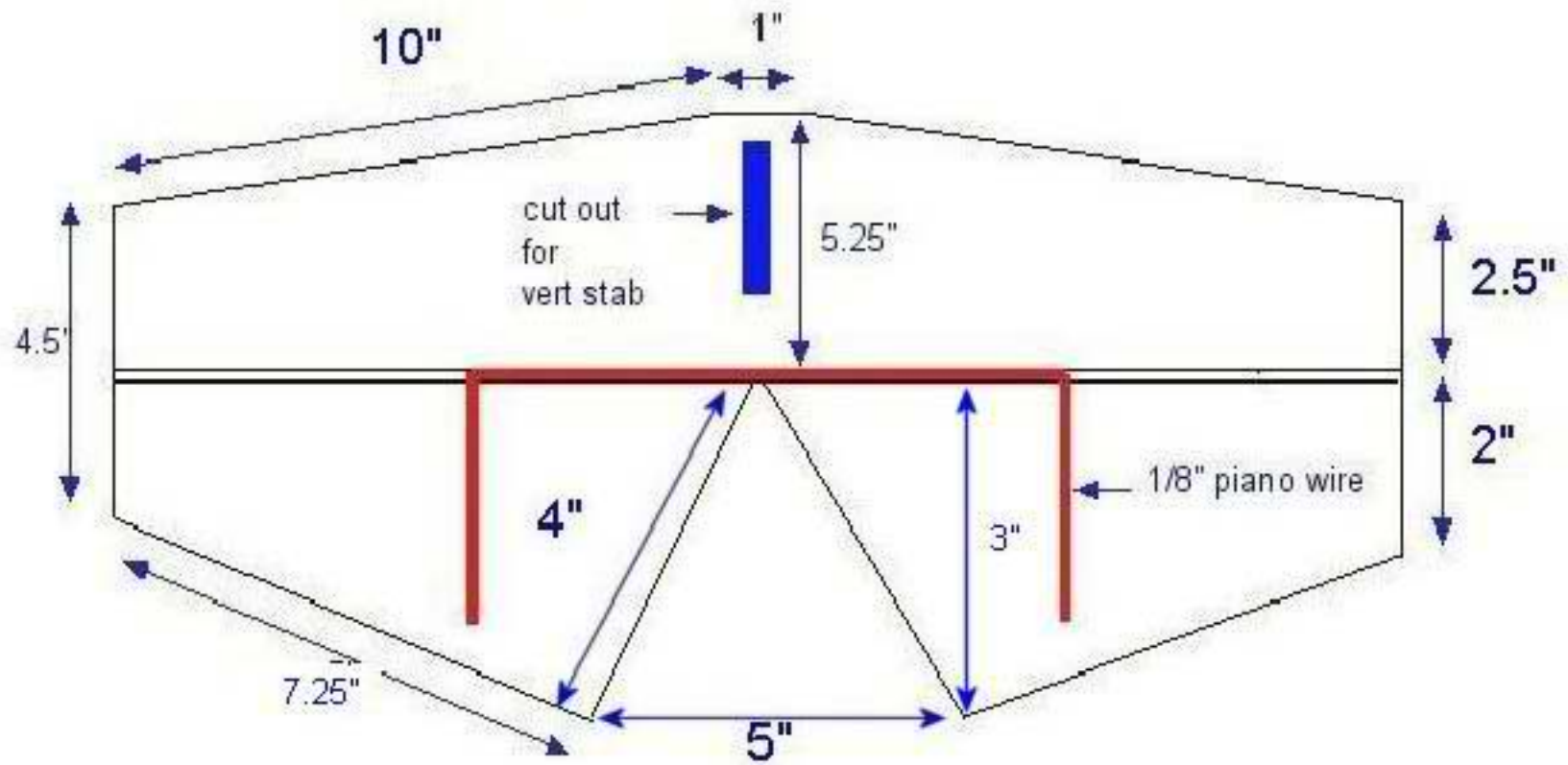


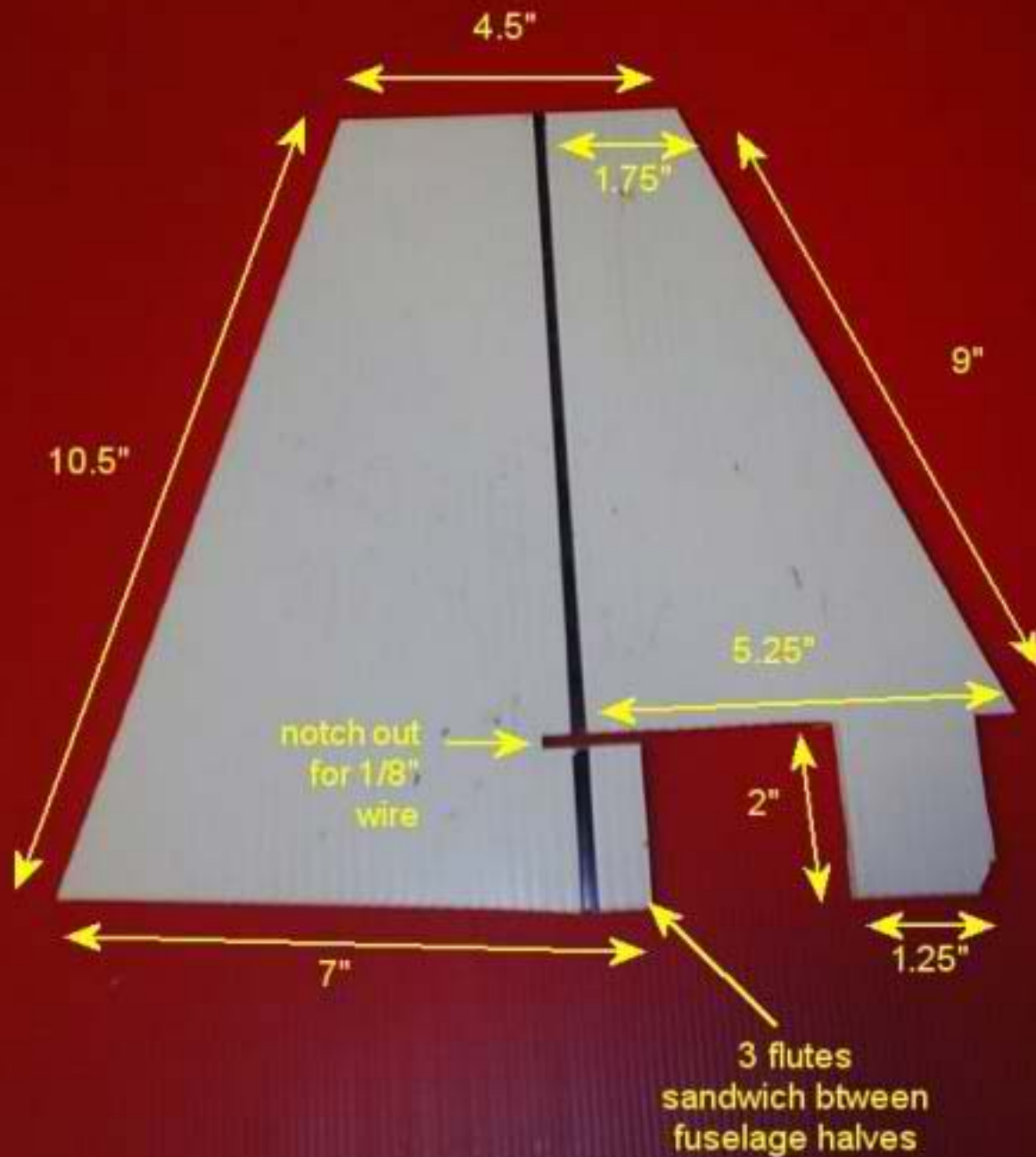
the cut outs should be a tight fit for the lattice

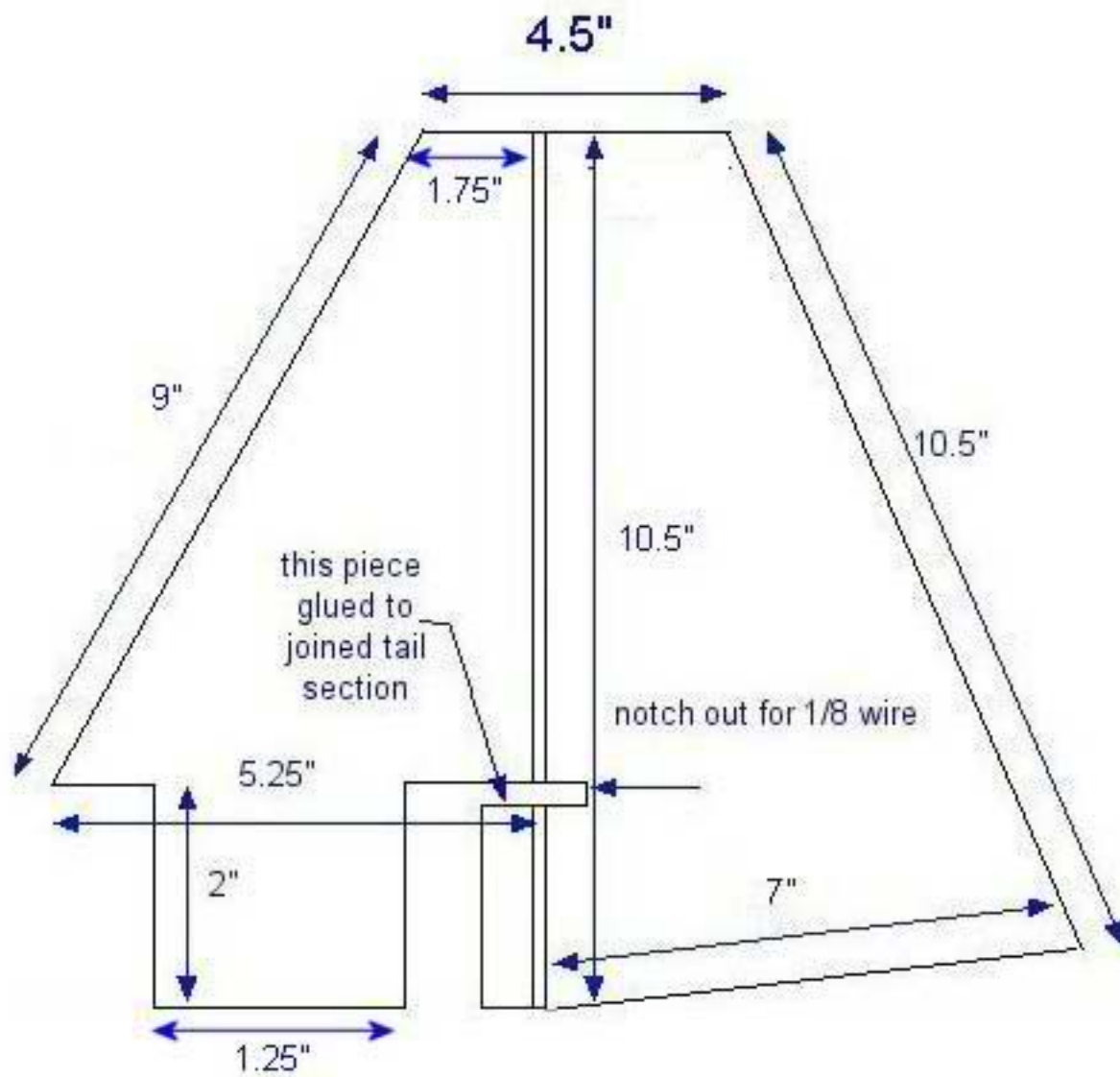
mark and drill the nylon bolt holes after the lattice spars are fit into the fuselage to ensure proper incidence which is 0 degrees

**Balance Procedure:** after engine and radio gear are installed join wing halves together and tape to bottom of fuse. then locate spot where cutouts need to be when plane balances on spar

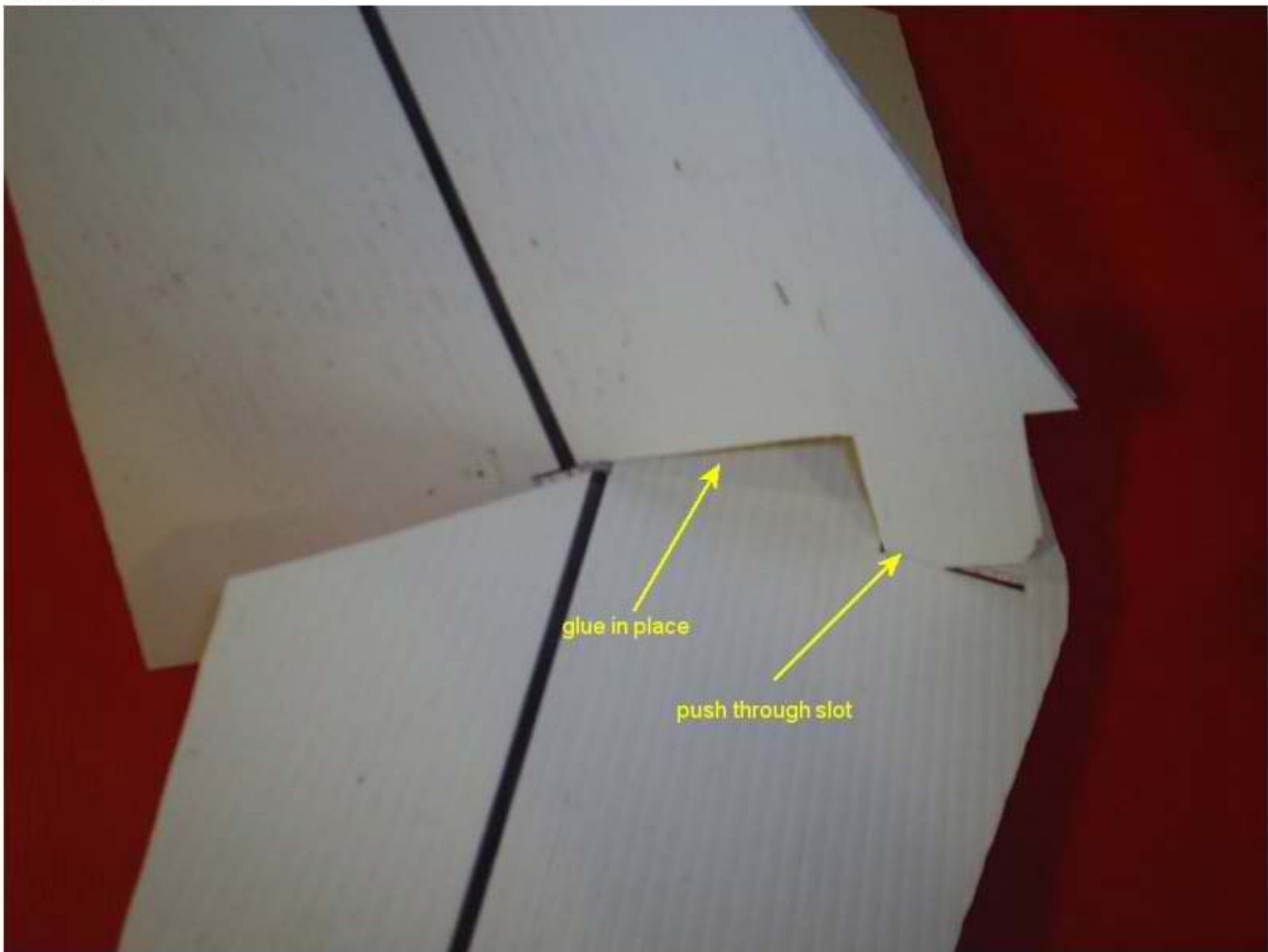






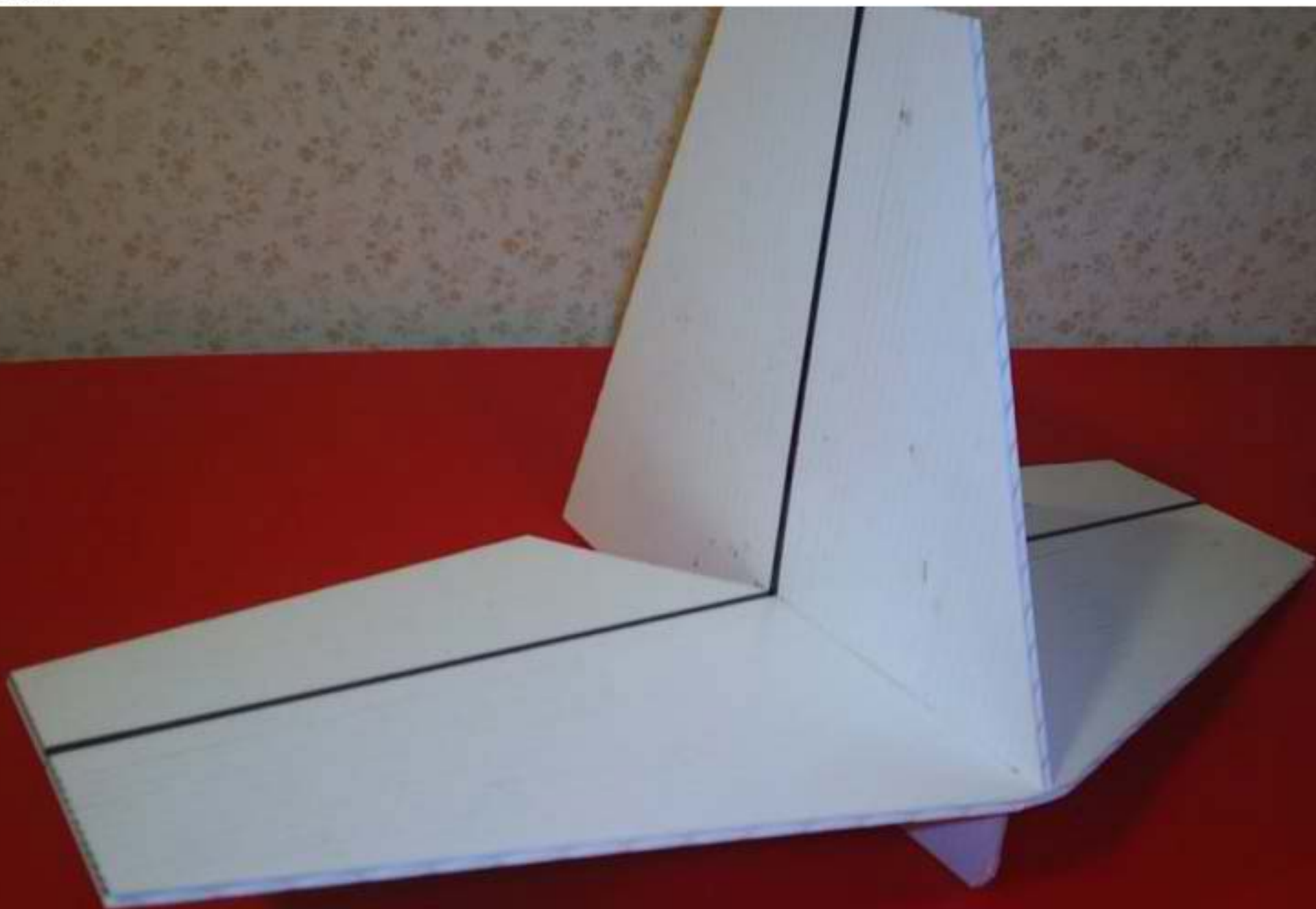






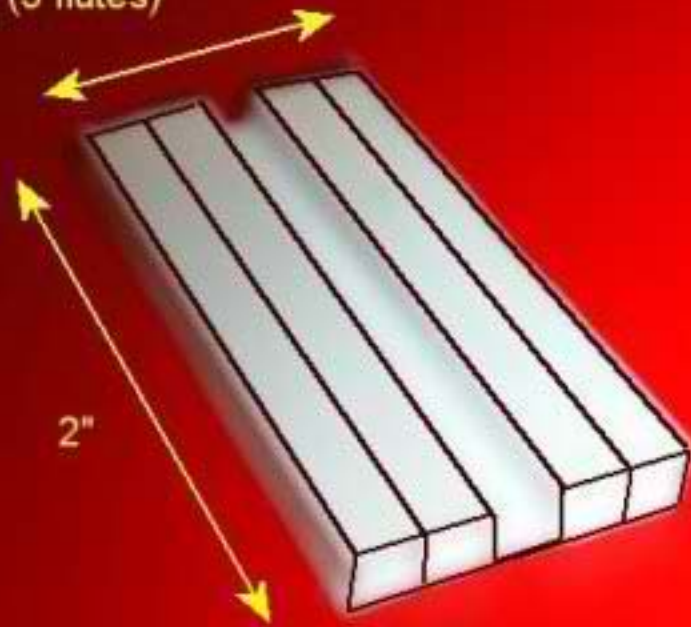
glue in place

push through slot



completed  
tail section

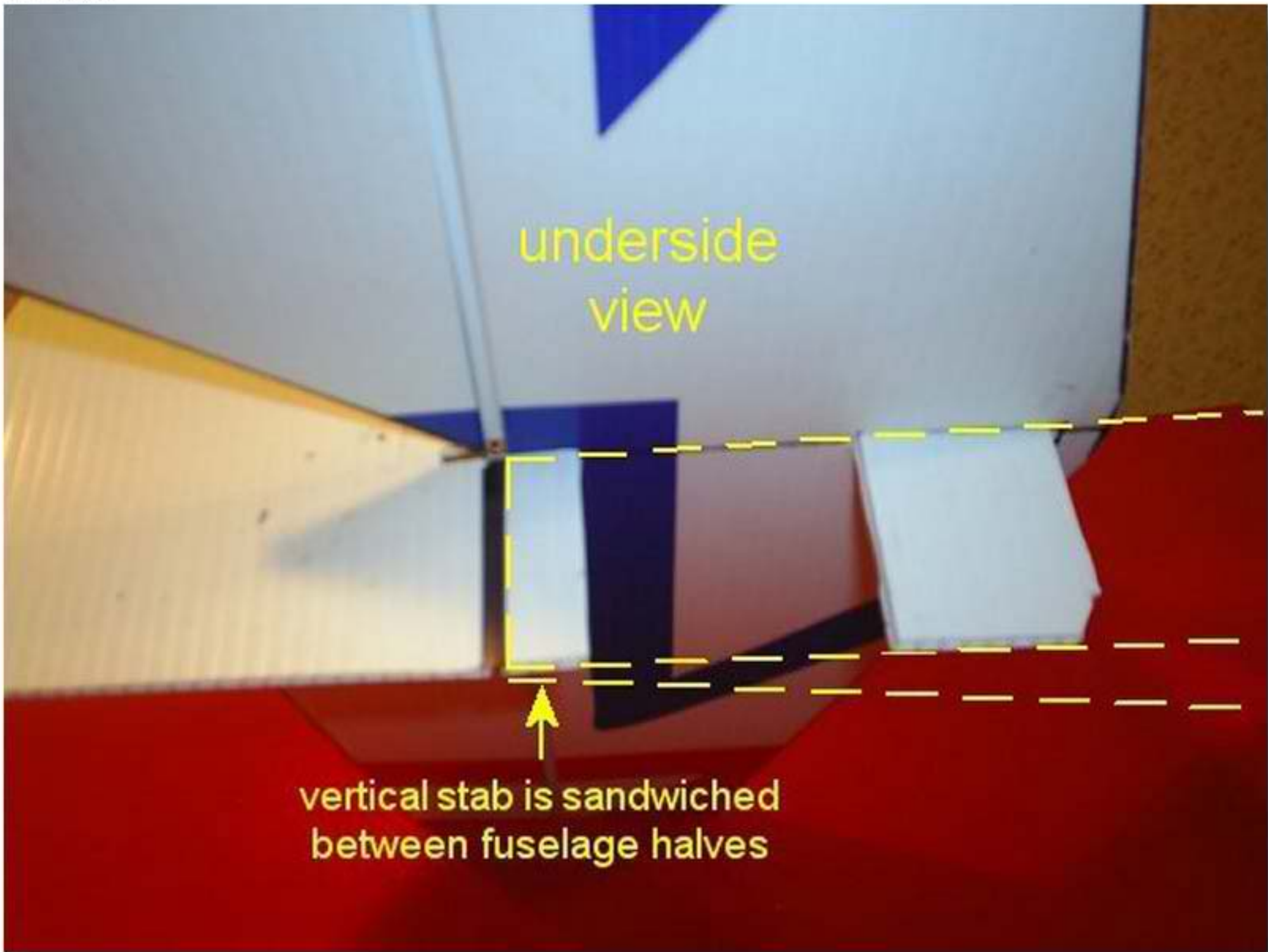
3/4" (5 flutes)



vertical stab brace



completed tail section  
with vert. stab brace

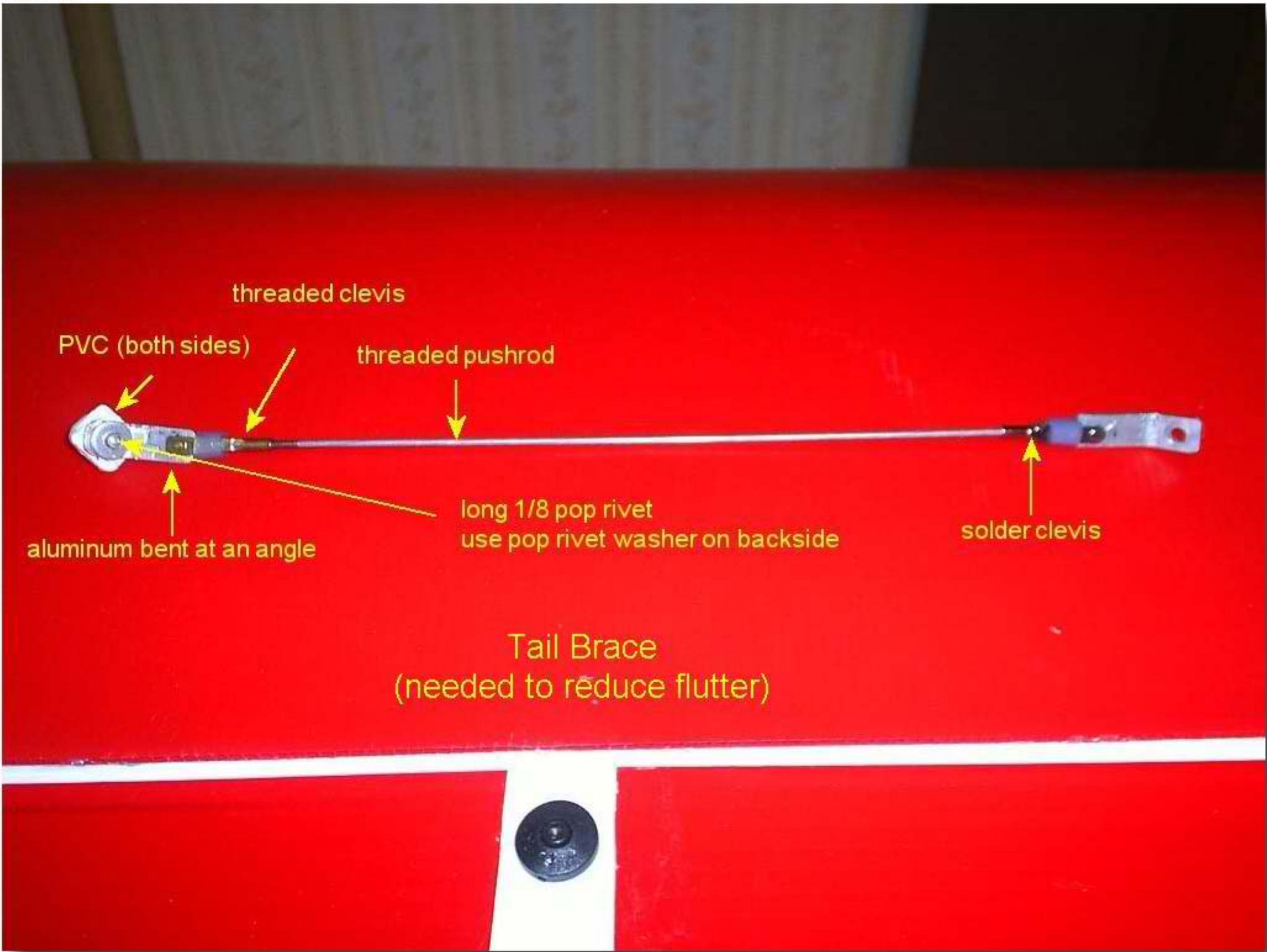


underside  
view

vertical stab is sandwiched  
between fuselage halves



completed tail  
with balsa tail feathers



threaded clevis

PVC (both sides)

threaded pushrod

aluminum bent at an angle

long 1/8 pop rivet  
use pop rivet washer on backside

solder clevis

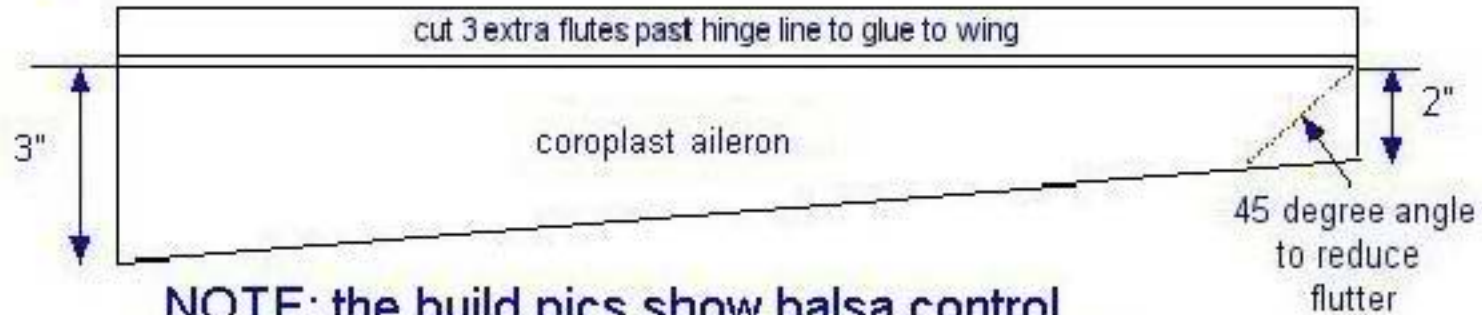
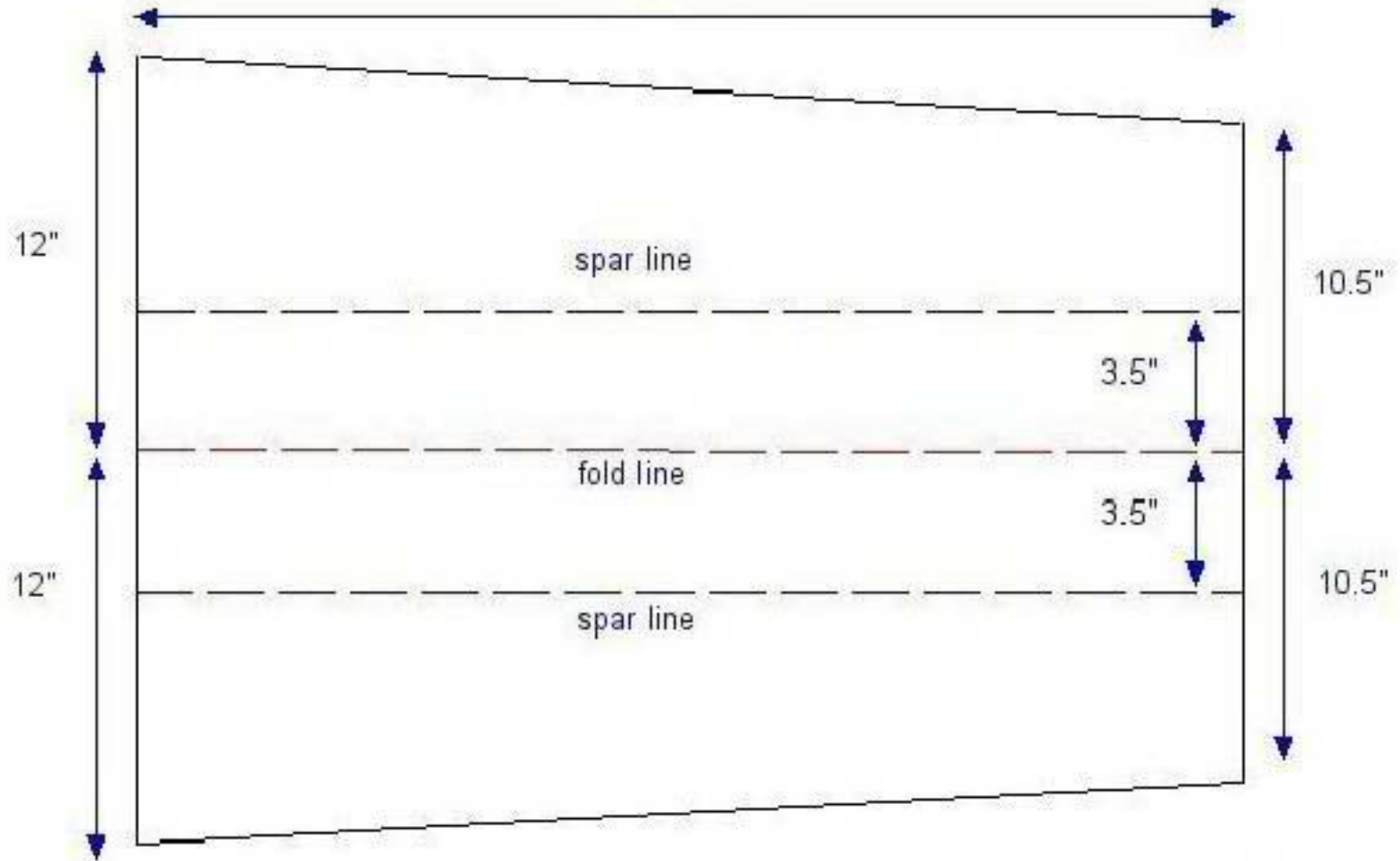
Tail Brace  
(needed to reduce flutter)



# wing cut out

24"

(2 mil wing) you can also use 4mil  
I have built and flown one with 4 mil wing

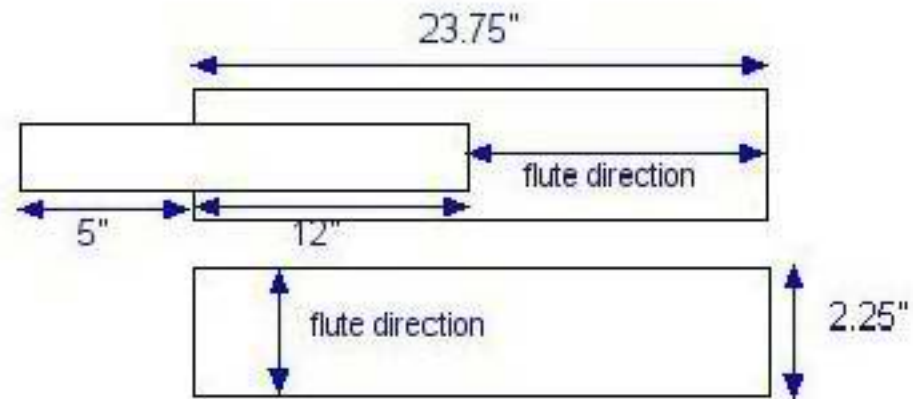


**NOTE: the build pics show balsa control surfaces as alternate ( flies great with coro)**



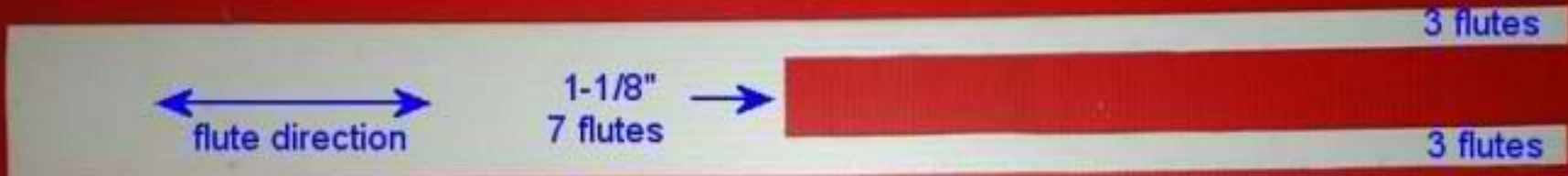
## wing spar

4 mil coro, two pieces with flutes running opposite directions  
1-1/4" lattice 17" long

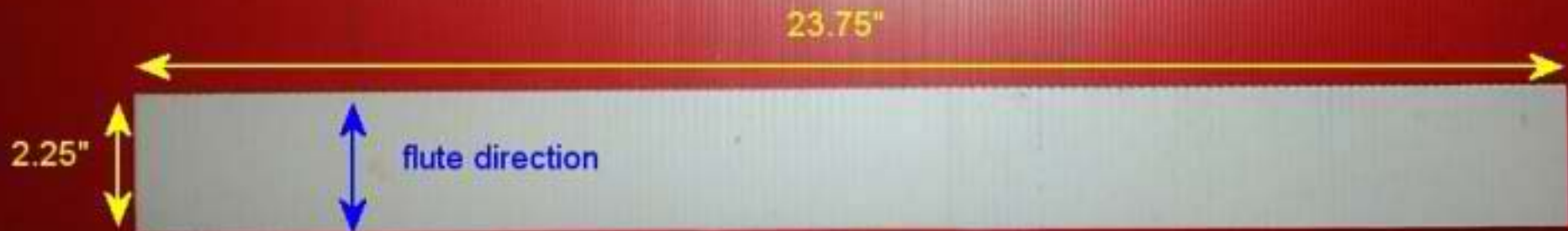


use 1-1/8 lattice for spar: yardsticks are too weak

### wing spar cut out



cut out two of each



cut out two of each



spar cutout

wing spar (2)  
wood spar is 1-1/8" lattice  
yardsticks are too flimsy





spar installation

hold both spars together and place on glue line  
to get proper alignment

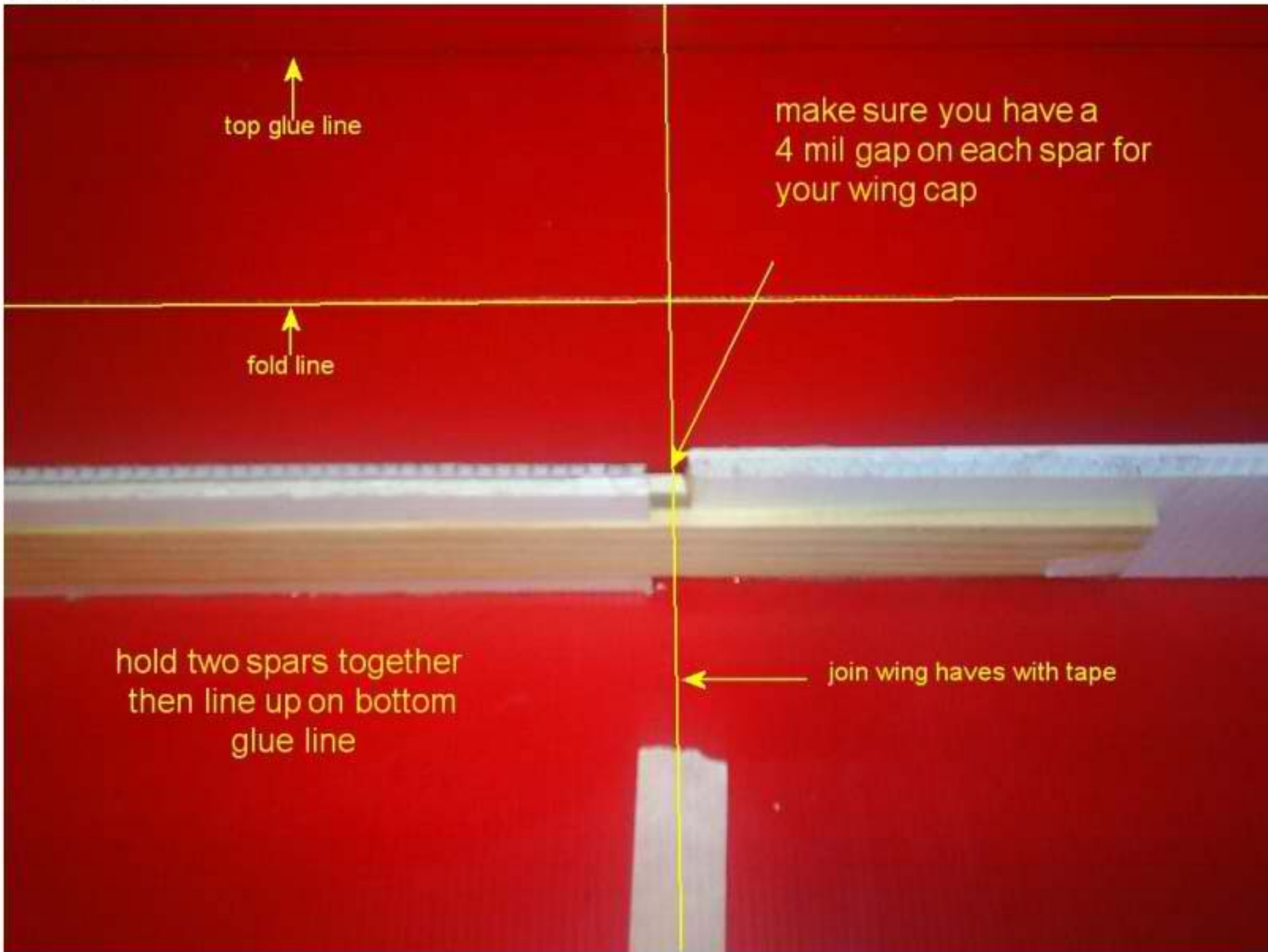
↑  
top glue line

↑  
fold line

make sure you have a  
4 mil gap on each spar for  
your wing cap

hold two spars together  
then line up on bottom  
glue line

← join wing halves with tape



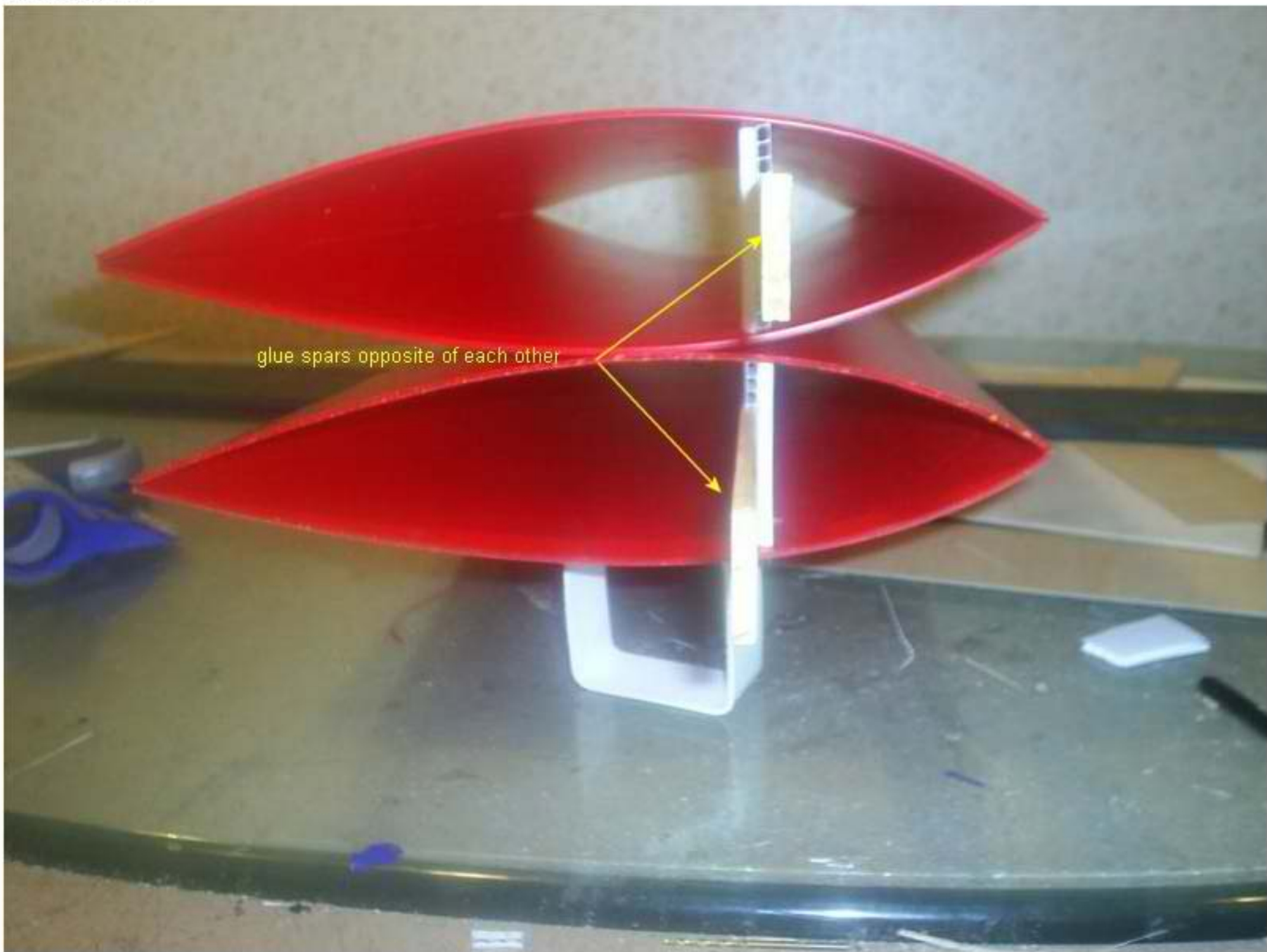


leave a 4 mil overhang on each end  
for the wing caps

completed wing half



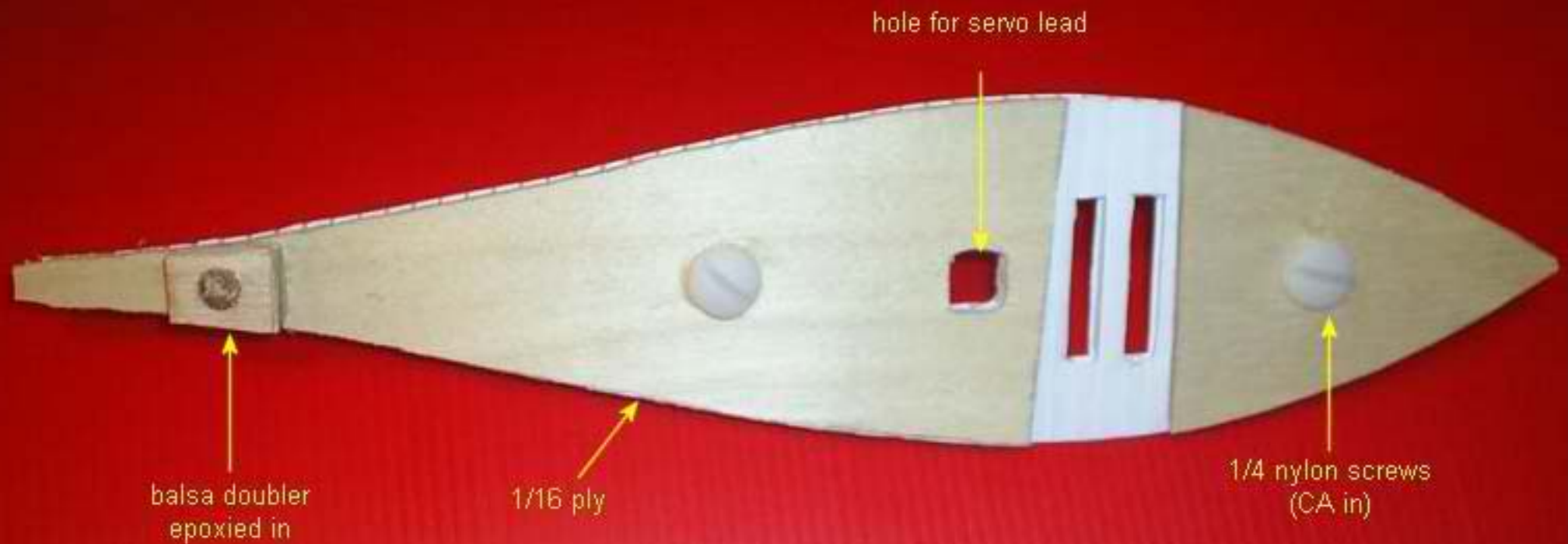




glue spars opposite of each other



inner wing cap  
(front and backside)



hole for servo lead

balsa doubler  
epoxied in

1/16 ply

1/4 nylon screws  
(CA in)

inner wing cap  
(inside)



1/4 in. dowel

inner wing cap  
(outside)

## wing cap installed



cut a piece of stock 4 mil larger than wing outline then cut out your spar slots.  
then slide onto spar and butt up to wing.  
then trace the outline of the wing and cut 2 mil smaller to fit inside wing.  
Glue in place.

Make two cutouts identical. One for each wing and you will have the same root on each side.



3/16 balsa sandwiched between wing halves

this is for balsa ailerons only

aileron attached





screw or pop rivet

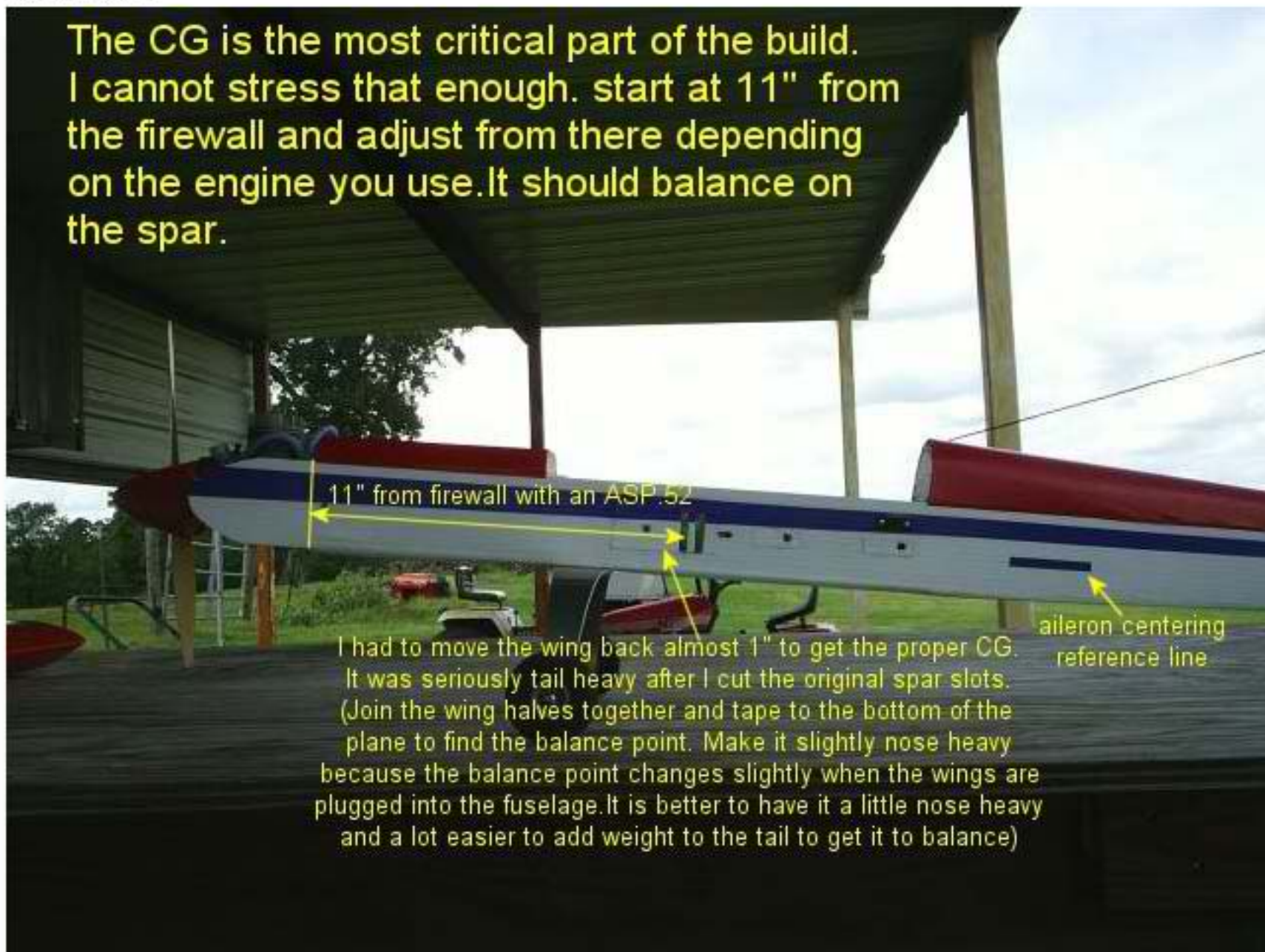
PVC both sides

bamboo skewers

### coro aileron version



The CG is the most critical part of the build. I cannot stress that enough. start at 11" from the firewall and adjust from there depending on the engine you use. It should balance on the spar.



I had to move the wing back almost 1" to get the proper CG. It was seriously tail heavy after I cut the original spar slots. (Join the wing halves together and tape to the bottom of the plane to find the balance point. Make it slightly nose heavy because the balance point changes slightly when the wings are plugged into the fuselage. It is better to have it a little nose heavy and a lot easier to add weight to the tail to get it to balance)

aileron centering reference line



## servo bay layout

battery is behind the aluminum cover plate

(note: you can arrange the servo bay any way you desire; just be aware of where the spars run through and that you can put the nuts on the wing bolts)

throttle servo

wing bolt hole

make sure you have clear access to your wing bolts

place the switch harness where it will clear the wing when installed

engine mounted

I used a piece of PVC to cover the front top cap









Tail rudder servo  
and linkage



bamboo skewers every other flute  
to keep gear from crushing coro

mount landing gear all the  
way to the front of the servo bay



tail bottom  
view





Finished plane  
Start it up, go fly and  
have fun!!

