# VERY WINDY
## by
## Dick Sarpolus

Technology sure changes things, model airplanes among them. When our engines went from ignition to glow plug, our RC gear got smaller, lighter, and more reliable. Efficient electric motors and super capable batteries were introduced. Different building materials came along and all those things impacted the way we build our models.

For many many years I was a balsa wood chips and sawdust guy. When foam core wings arrived they were okay as the sheeting was still balsa, but as the plastic foams arrived balsa wood was seen less and less.

With the electric power revolution came the widespread use of a variety of plastic foams, and today many modelers are comfortable working with a several different building materials.

Sheet foam is now a staple at the hobby shops, alongside the balsa wood and plywood.

For park flyer sized electric airplanes these days I enjoy working with the foams for their ease and speed of construction, light weight, and easy to repair characteristics.

Some years ago I made a new airplane, an electric R/C aerobatic profile foamy, calling it the Too Windy, as it was intended to be flown when it was too windy for most other aircraft to fly.

One of the things done to get better windy weather capability was to go from a sheet foam flat plate wing to a hot wire cut foam wing core with a "real" airfoil.

I figured I'd update that airframe, using the same well proven wing along with some better construction techniques and some new styling. A new airplane has to have a new name, so now it's the Very Windy.


Still an easy to build and fly electric profile foamy, with a 36" wingspan, 350 square inches of wing area, and a 150 watt electric motor power system. It's aerobatic, low cost, and can be flown almost anytime. This stuff is fun.

Profile models have long been popular as a construction technique. The realism lost with the slim profile fuselage is a good trade for the ease and speed of building the model.

This profile foamy is easy to build using any of the commonly available sheet foam materials and the hot-wire-cut foam wing panels.

Several 5mm or 0.25in thick sheet foams can be used. Depron is available by mail order from a number of suppliers. Midwest Cellfoam 88 can be had at many hobby shops or outlets. The blue or pink house insulation foam, sold by your local Home Depot, Lowe's or Menards. Or the construction foam sold by BP Hobbies.

I've used all of these foams and they work. If you don't hot wire cut your own foam wing cores, there are many foam cutters out there to do it for you. The Core House, Phil Cartier, offers a box of four sets of these wing cores, computer hot wire cut, at a good price.

I cut the sheet foam parts out using a sharp scalpel-type modeling knife and with the aid of a metal straightedge. The profile fuselage is reinforced with a strip of ¼" by ½" basswood and 1/32" plywood doublers on the forward section.

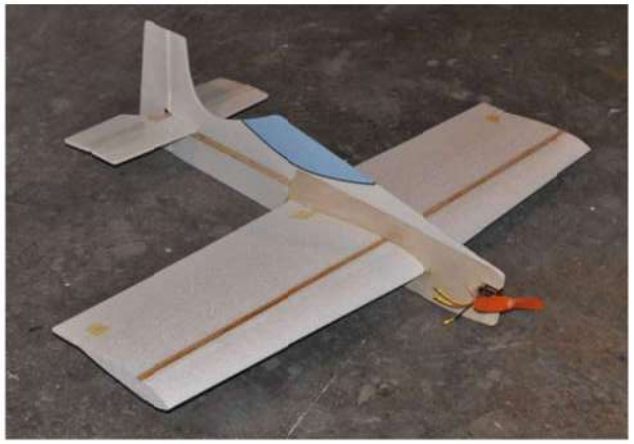
I use 5 and 15 minute epoxy for most of my building because it seems I'm always in a hurry. Epoxy sticks well to most sheet foams, but the types with thin sheet plastic covering on them will need to have a bunch of pinholes punched

through the plastic skin so the epoxy can get to the foam underneath. A friend of mine uses foam-safe CA for his assembly work, and his models always turn out lighter than mine.

The standard foam wing cores sold by The Core House are 24" long, so you can cut them off at the tips for whatever wing span and wing area you would like to have. With a full 48" span, the plane will be a more gentle flier as the extra wing area will enable slower, more relaxed flying. I cut the cores to a 38" span, for faster, more lively aerobatic flying.

I use 1/8" by 3/8" basswood spars in the foam wing panels, but hard balsa would also be fine. The basswood is available at hobby and arts and craft stores. The two wing panels butt up against the sides of the fuselage, so the only cut needed through the fuselage is the slot for the 1/8" plywood wing joiner.

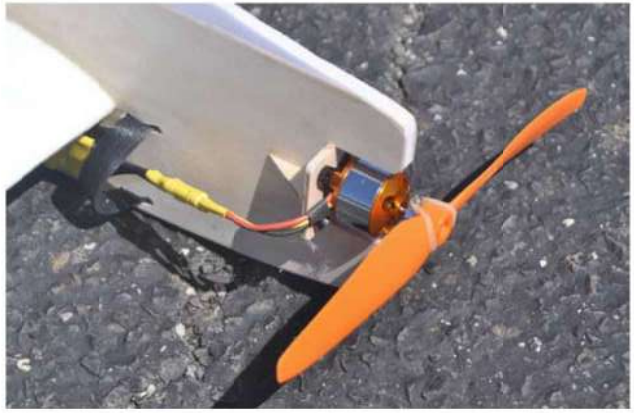
This makes the fuselage stronger and wing installation easy. Any low temperature iron-on film covering will work on the foam wing panels to add a little strength, keep the foam clean, and provide an easy to paint surface.



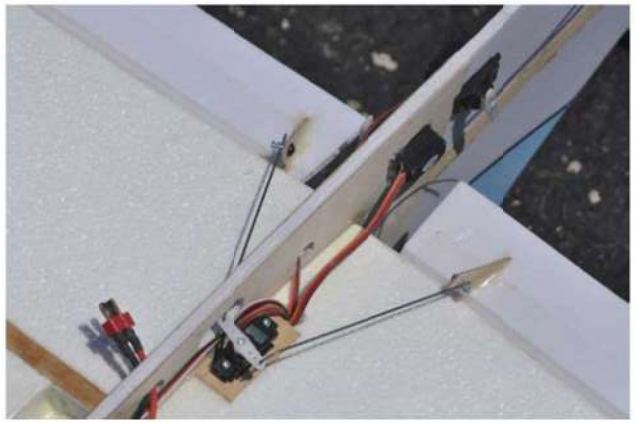
If you want to paint the airframe, I like the SLC covering material sold by The Core House. It's light and accepts almost any kind of paint.

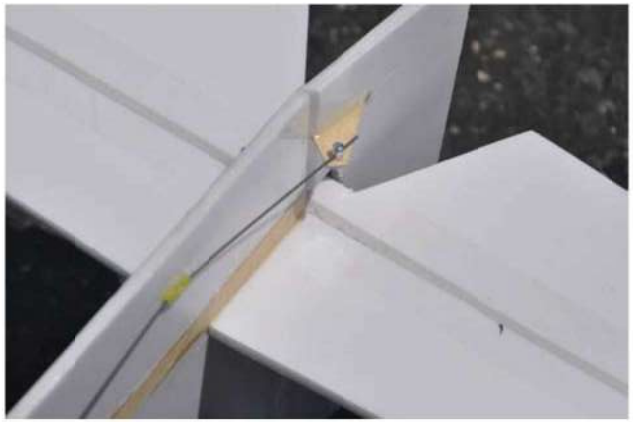

Hinging the ailerons, elevator, and rudder is done with 2" wide plastic packaging tape in the usual foamy model manner. The leading edges of the ailerons, elevator, and rudder are cut and sanded at an angle, the tape applied to the upper surfaces first. Then, with the control surfaces folded upward, the tape is applied to the bottom, pushing it into the hinge gap and sealing it to both edges. This provides free movement and a strong, completely sealed hinge gap.

To mount the electric motor, a 1/8" plywood firewall is epoxied into the notch in the front end of the fuselage, reinforced by two 1/8" plywood braces epoxied behind it. The motor is held in place with four small screws.



The servos are mounted by cutting holes in the foam so the servo is a push fit, and it is secured in place with a few dabs from a hot glue gun. Slots are cut into the control surfaces and the 1/16" plywood control horns are epoxied in place. I use .047" wire for all the pushrods, with a z-bend on one end and DuBro's Mini E/Z link on the other end.





I hot glue short pieces of nylon tubing to the fuselage sides to keep the pushrods from flexing. The ESC, receiver, and LiPo battery are mounted to the fuselage with hook-and-loop material. For the battery, I cut slots through the fuselage and use a hook-and-loop strap for security.

On a sport/aerobatic model like this, it's not really necessary to paint it. The plane can be trimmed with strips of colored plastic packaging tape or stick-on colored vinyl cut to any trim shape.

Sharpie felt-tip marker pens can be used to add detailing. The canopy area can be painted on using water-based acrylic craft paint. If you want to paint the whole model, the water-based acrylic craft paint works fine, applied with a low cost airbrush.


I used a different pattern on the bottom of the wing to help with orientation in flight. The next photo shows that it even fits in the trunk of my Corvette.

The specific flight hardware I like to use is BP Hobbies' 2212-13 motor, their 18 amp ESC, an 1800 to 2200 mah 3-cell LiPo battery pack, and a 9 x 5 propellor. A more complete set of specifications is at the end of this article.

Here are several flight photos to give you an idea of the capabilities of the model.




This plane flies easily out of an underhand swing arm launch, and will climb steeply into the air. You can adjust the control surface throw, and/or use the low/high rate settings on your transmitter, to get the control response you prefer.

This plane is not a basic trainer, and it's a bit too heavy for the wildest 3-D kind of flying, but it's an easy to handle, fun aerobatic machine.

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## ***VERY WINDY***
## ***SPECIFICATION SHEET***

Type - Plans-built sport/aerobatic electric profile foamy

Skill level - Intermediate

Construction - sheet foam, plywood, hot wire-cut foam wing

Wing Span - 39"

Wing Area - approx. 350 sq. ins

Weight - approx. 21 ozs

Wing Loading - approx. 9 ozs./sq. ft.

Length - 28"

Power - Brushless outrunner motor 125 to 150 watts, with appropriate ESC

Battery - 11.1V 3-cell 1800 to 2200 mah LiPo

Propeller - 9 x 5 electric

Radio - 4 channel, micro receiver, three micro servos