

PVC is A-OK

A Virginia boatyard known for innovation likes the boats it is building using polyvinyl chloride

By Larry Chowning

Since 1938 when Addison Cockrell Sr. started Cockrell's Marine Railway in Heathsville, Va., diversification has been the boatyard's trademark.

Cockrell was a commercial pound-net fisherman with several fishing boats. When local boatyards started

courting the owners of pleasure boats and discouraging watermen from bringing boats in to be repaired, Cockrell built a marine railway. There he worked on his own boats as well as boats of other fishermen.

When the pound-net fishery declined in the 1950s and '60s, Cockrell focused more on the marine railway business. Today, four generations of Cockrells have worked in the boatyard, on Virginia's Northern Neck.

Whenever one element

of the business went soft the family found some other way to generate income. For instance, only the most innovative yards around Chesapeake Bay have had on-site sawmills. Cockrell's was one of those and still cuts lumber for both boatbuilders and the marine construction business. It's a vital part of the boatyard's business.

Besides running the sawmill and railway for commercial fishermen, Cockrell's Marine Railway has a full-service marina with most of the slips filled.

Addison Jr. is the patriarch of the family but has been dealing with health issues, so his son Andy and grandson Myles have taken over.

Like most railway brats, they got their ABCs in boatbuilding during the wintertime, watching and helping build wooden skiffs.

Throughout Chesapeake Bay, winter has always been the slow time for anyone

operating a marine railway. At Cockrell's and other boatyards, winter projects filled that otherwise slow time. It might be an order for a new boat or building one on spec to sell in the spring. Either way, it was a good time for a boy to learn how to build a boat.

And that's how Andy and Myles picked up their boatbuilding skills, along with the sense that embracing change is what has kept their boatyard in operation. So, it was no surprise that the father and son diversified their business by offering 20-foot-and-over boats built out of polyvinyl chloride, commonly known as PVC.

The Cockrells first saw the boatbuilding possibilities for PVC in a sailboat constructed with PVC planks. "It was a replica of a small Chesapeake Bay sharpie, an oyster dredge boat," says Myles. "We looked at it and came to the conclusion that PVC would be a good boatbuilding

Rob Krause (left) and John West are using Krause's 20-foot PVC skiff to plant oysters in a Rhode Island spawner sanctuary.





After building several PVC skiffs, Myles Cockrell (left) and his father, Andy, figure PVC is a tough enough material that they are going to build themselves a 28-footer for gillnetting.

material for a powerboat.”

It was apparent to them that PVC doesn't rot and doesn't soak up water like wood. And since they could use the same tools to build a PVC skiff that they used for wooden boats, they wouldn't have to buy a bunch of new equipment.

“We cut it just like wood but it is a lot different from wood in that we glue it all together,” says Andy. “We use 316 stainless steel screws to pull the edges together so the glue sticks better.” Though he adds that the gluing part can be “tricky.”

The screws are left in the boat, but Myles says from a structural standpoint they aren't necessary. He has taken the screws out of a boat and operated it without any adverse effects.

“We build the deadrise skiff just about like we build a wooden deadrise skiff,” says Andy. “We shape the hull from stem to stern by bending the sides around [wooden] stretchers [molds].

“We cut the deadwood in the bow out of PVC and install it

just like on a wooden deadrise skiff. The difference between wood and PVC is that you can twist the PVC, which helps us shape the deadrise in the bow a little easier,” Andy says.

(Some Virginia boatbuilders refer to wooden staving strips used for the V-shaped deadrise angle in the bow as “dead wood.” There is a belief that the term originated from the fact so much wasted wood was generated when cutting staving that the wood thrown away was called deadwood. Over time, the term was used to describe both the discarded wood and the installed staving. The term is used extensively by Virginia's Northern Neck boatbuilders.)

“On a wooden deadrise skiff, you can

see the staving seams of each strip, but on the PVC skiff you can't tell it has staving in there,” says Andy. “It's smooth like a fiberglass skiff. It makes a beautiful job.”

For large panels, glue is used that dries in 30 minutes, giving them more time to screw the panels together. Myles describes the glue for these panels as “super glue,” but refrains from giving out the brand name. Since glue is a key ingredient in holding the boat together, he doesn't want to release too many secrets.

Sanding each glued seam and coating it with an epoxy faring compound gives the boat a smooth finish. The boat is then painted inside and out with white epoxy paint.

Before building with PVC, Andy and Myles relied on fiberglass and wooden

skiffs in their marine construction work and in the spring and fall Chesapeake Bay gillnet fishery. The boats take a beating.

“We need a tough skiff for what we

do,” says Andy. “PVC can stand more impact than fiberglass. The problems we've had with fiberglass skiffs are that once the core cracks, then the foam fills up with water and the thing sinks.”

For both gillnetting and their construction business, the Cockrells built a 20-foot, flat-bottom skiff with PVC panels rather than PVC planks. One-inch-thick panels were used for the bottom and sides, and 1¼-inch PVC in high-stress areas. All the pieces are cut out of panels 4-feet wide and 20-feet long.

The boats have many of the structural features of standard wooden skiffs. There is a 1" x 3" PVC bilge clamp at the chine and a 1" x 3" clamp under the 6-inch-wide washboards. They run the length of

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— Andy Cockrell
BOATBUILDER



The Cockrells constructed this 20-foot barge out of PVC for a Virginia oyster farm.



Once glued and finished, seams in a PVC skiff are difficult to see. Screws are used to pull the edges tight but could be removed once the glue sets up, Andy Cockrell says.

the boat.

On the bottom are two 3" x 4" keels, 28-inches apart. The PVC keels are reinforced with several layers of mat and woven roving. “The double keels make it nice and stable, plus it gets up on those things and runs,” notes Andy.

Four transverse stringers stiffen the hull. They are made up of four-pieces of PVC, laminated together with fiberglass and then screwed and glued to the floor.

Two layers of 1-inch PVC laminated together make up the transom. “This stuff is strong but it's limber so we had to use fiberglass to stiffen it up,” says Andy.

“The [PVC] skiff works good for gillnetting,” adds Myles.

“It doesn't blow around like a fiberglass skiff. We also made sure all the edges are smooth to keep the net from hanging. We don't put any ribs in it, and the boats don't seem to need it,” notes Andy.

The Cockrells built a 20-foot deadrise skiff for Rob Krause of Charlestown, R.I. He uses the boat for oyster farming and commercial fishing for striped bass and summer flounder.

Krause also owns Ninigret Oyster Farm in Charlestown. When oystering, he works his boat in shallow, rocky waters. So he needed a skiff with shallow draft and a tough finish.

Since Krause wasn't familiar with PVC as a boatbuilding material, he was concerned about how the material would react to freezing weather. To find out, he took a panel of PVC and froze it in a freezer. “I took it out and beat the heck out of it with a hammer,” says Krause. “It held up just fine and I'm very pleased with the boat.

“I was looking for a low-maintenance, speedy boat that could carry 50 bushels

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of oysters and it proved to be just what I needed.” Krause has been using the boat for several months.

His skiff has a rounded coaming and very little forward deck. The smooth coaming allows pot lines to drag across it without snagging. The open boat allows Krause to use the entire skiff as a work platform.

“When you are working gillnets or pots, you need to be able to walk all the way up to the bow,” says Andy. “A lot of deck just gets in the way. On our flat-bottom skiff that we built, we put too much deck in the bow and when gillnet season comes around we will probably cut it out.”

Krause powers his skiff with a 50-hp Yamaha. Myles says the skiff can get up to 25 mph. There is a seat in the stern for the helmsman, which, Andy says, gives structural support to that part of the boat.

The skiff has a false bottom and a 15" x 3" keelson is under the false bottom.

Andy and Myles like the false bottom in Krause’s boat better than the bottom in their flat-bottom skiff. The four transverse stringers along the floor of the flat-



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Though it has the smooth look of a new fiberglass boat, this is one of the Cockrell’s PVC skiffs. The boat was built with 1-inch and 1 1/4-inch PVC panels that are held together with glue.

bottom skiff get in the way of shoveling fish and cleaning out the boat. “I think we are going to end up putting a false bottom in our skiff,” says Andy. “It covers up all those supports.

However, Myles feels there is an advantage to having the support beams open in

the bottom. “The advantage is that fish don’t slide around in the bottom when we are underway, but the braces get in the way when we clean and shovel,” he says.

A brass guard protects the stem, and a brass guard also runs along the outside

edge of the washboards. One cleat is installed in the bow and two on the stern, port and starboard.

The Cockrells are going to build a 28-footer they can use as a gillnetter. “We need a little more room in the boat when working gillnets. We also fish out in the Chesapeake Bay and it can get rough. We’ve seen how this PVC works and it looks very good to us,” says Myles.

PVC can be used in other types of boats as well. The Cockrells recently delivered a 20' x 8' PVC barge to Chapel Creek Oyster Co. in Mathews County, Va. A 60-h.p. E-Tech Evinrude outboard engine powers the barge.

The barge is used to plant and harvest oysters in cages. A crane is mounted on a pipe bolted to the deck platform to raise and lower the cages.

“We can build a 50-foot deadrise boat out of PVC,” says Andy. “We can build anything out of this that can be built out of wood.”

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