

GOOD OLD BOAT™

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Paul Rezendes took this photo while cruising the coast of Maine. He and Paulette Roy had anchored in Carver Cove when *Jewel* arrived late in the day. The next morning, Paul went rowing in the calm water and caught the cutter living up to her name.



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Defining a pilothouse

Shelter and a helm station are key features

BY ROB MAZZA

It's a challenge to define what we mean when we refer to a pilothouse on a sailboat. Is inside steering a definite requirement? What about the distinction between a sailboat with the option of inside steering and a true motorsailer that has the primary (and often only) steering station inside the pilothouse? For this discussion, let's narrow our focus to production sailboats with raised saloons surrounded by enlarged windows that could possibly be used for inside steering.

Today when the term pilothouse is used in reference to a sailboat, most people envision an open aft cockpit adjacent to an enclosed raised pilothouse. The purpose of this pilothouse might not be that of command center. More often than not it provides an elevated seating area that gives occupants a view of the world at eye level through large windows. In today's market the combination of shelter from the elements and a better view of the surroundings has big appeal. The same level of accommodation could be achieved belowdecks but, short of mounting large fixed ports in the hull, the view outside is severely constrained.

The primary attraction of pilothouse sailboats may be that they dispel the feeling of being entombed in the bowels of the boat. But even if an inside steering station is not installed, it is still possible to steer from this sheltered area with the help of an autopilot remote control.

I know it's not a direct evolution, but it is interesting to plot the transition or graduation in house shape from conventional trunk cabin, to doghouse, to raised-saloon, to low pilothouse, to hard dodger, and finally to true primary pilothouse. It's instructive to look at these configurations to better define each and what it achieves.

Doghouse – A doghouse as understood today is a portion of the trunk cabin that's raised to create an area of increased headroom below. In traditional wooden boatbuilding, a doghouse was in fact a raised part of the house that sheltered

Brunch, at top of page, a Pearson 36 Pilothouse owned by Brian and Caroline Coffay, is a handsome example of a pilothouse sailboat from the early 1980s.



the sliding companionway hatch. The term now describes the whole raised area of the aft portion of the house. This doghouse configuration first became popular on smaller boats. It was seen in a subtle form in the Morgan 34 (featured in July 2013) and is most obvious in the famous Alberg 30 (featured in March 2006). There is seldom a change in levels in the cabin sole below and usually no attempt to use this added space for anything but greater headroom, usually in the galley, and possibly to admit more light by fitting the larger ports, usually fixed, allowed by the increased height of the cabin sides. The forward accommodations may have less than full standing headroom.

Raised saloon – In a raised-saloon configuration, the cabin sole and the seating areas are both raised in the area beneath an enlarged doghouse. This allows views outside at sitting as well as standing eye level through large, usually fixed, ports in the house sides. While forward-facing fixed ports sometimes give the appearance of a windshield, no attempt is made to steer or command the boat from this region. It is purely

an improvement in the living spaces. This was a common approach in the many Hunter designs I worked on in the mid-1990s. This design incorporated windshield-style fixed Plexiglas ports in the slanted portion of the deck between the forward house and the area of house above the raised settee. The Hunter 336 and 376 are good examples from that period, even though the head and galley were more often than not located in this area of increased headroom and there was no corresponding step up in the sole height. So much for consistency!

Low pilothouse – When the forward windshield of the raised-saloon configuration becomes larger and more vertical and can be used for steering from a raised helm seat, you have the beginnings of a pilothouse. This inside steering station, however, is definitely the secondary, bad-weather helm location used for operation under power. The primary steering station used when sailing is still outside in an aft cockpit. The interior helm station usually has engine controls and gauges as well as a wheel.

Hard dodger – This configuration provides a sheltered area at the forward end of the cockpit, not unlike that achieved

with a larger removable fabric dodger. The hard dodger is permanent, often providing greater (sometimes standing) headroom than a fabric dodger. In a motorsailer configuration, especially a traditional layout from the 1930s and '40s, the primary and only steering station may well be under this fixed dodger or open pilothouse.

Pilothouse – In my view, the proper pilothouse configuration houses a helm station that is equal, if not superior to, the aft steering station. The cabin sole in the area of the pilothouse is raised to the extent that sitting eye level is now at window level and the windows are substantially larger than in any other house configuration. The ultimate pilothouse configuration, of course, would encompass the primary, and possibly only, steering station, something that is not uncommon in motorsailers.

Performance expectations

Accompanying this transition from the conventional full-length house to a full pilothouse configuration is a transition in emphasis from performance under sail to performance under power. Changes may also take place in the sail plan and in the underwater configuration. The sail area may decrease due to reduced rig dimensions or through the use of in-mast furling mainsails (with their reduced roach) and smaller furling headsails. The underwater configuration, with shoaler-draft keels and larger-diameter three-blade fixed props, may become less oriented toward upwind sailing. The transition from sailing yacht to motorsailer naturally includes everything in between.

The classic designs of William Hand, Jr. are, to this day, the finest embodiment of the motorsailer concept. The Northeast 400 and Bruckmann 50 from Mark Ellis Design are more contemporary composite-built examples. From the point of view of good old boats, true motorsailers are few and far between. They do exist, though, and a review of that small but distinct community may well be in order in the future. For present purposes, let's look at the challenges involved in the pilothouse configuration and see what compromises have to be made. In the November issue, we will look at comparative numbers to see how a selection of pilothouse boats compare.

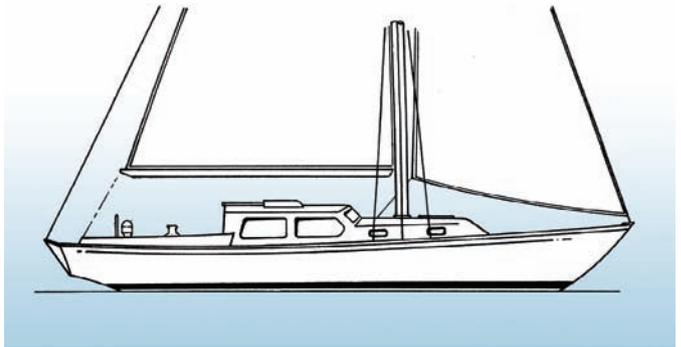
Pilothouse parameters

What distinguishes a true pilothouse from a raised saloon is the presence of an operational and functional inside steering station. As autopilots and joystick steering grow in popularity, it is possible that what actually constitutes a steering station might change. Furthermore, if inside steering is the requirement for a pilothouse configuration, then the view forward through the windshield in the pilothouse has to be acceptable.

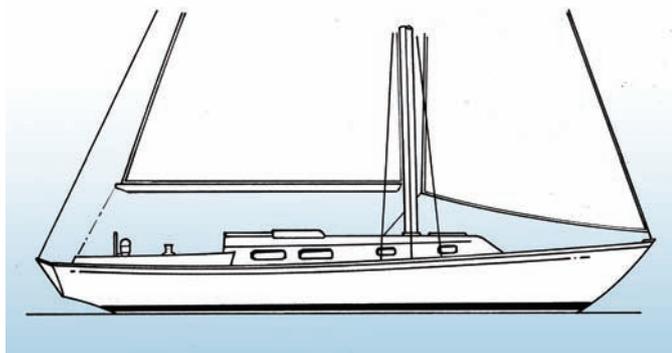
The primary goal of a pilothouse is to provide a dry and sheltered steering station inside a vessel. During the Great

Age of Sail, all vessels were steered and commanded from aft on a raised quarterdeck where the helmsman and the officers of the watch had an unencumbered view of the sails and the vessel's direction. In some cases, a small wheelhouse was added to protect the helmsman from pooping seas but, generally, everyone on watch was exposed to the elements.

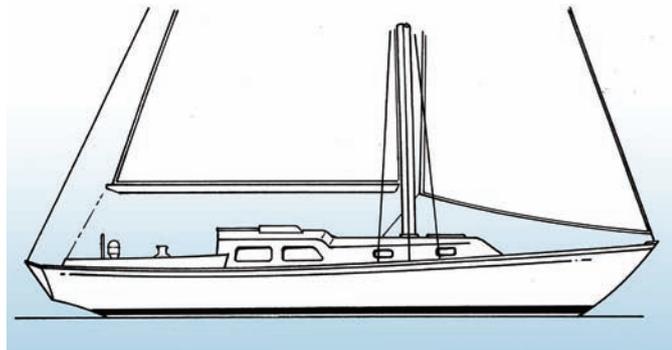
It was only with the introduction of steam that the command center moved forward to the "bridge" between the port and starboard paddle boxes. From there, the officers of the watch had a better view of the vessel, especially when docking or maneuvering through locks. Pretty soon,



Raised saloon – The cabin sole and seating are raised to provide a view. Inside steering and better visibility forward could make this a low pilothouse.



Trunk cabin – A low profile allows the best visibility from the helm. A collapsible fabric dodger can be added to shelter the area around the companionway.



Doghouse – A raised area of the trunk cabin is often employed on smaller boats to allow greater headroom in the galley (where it's needed most).

the wheel was moved forward to this location and, as the importance and dependence on sail decreased, and the use of steam power became more reliable and dominant, the bridge was enclosed and housed both the maneuvering and command center of the ship. The aft steering station was only maintained as a possible backup in case the primary steering in the bridge was damaged or destroyed.

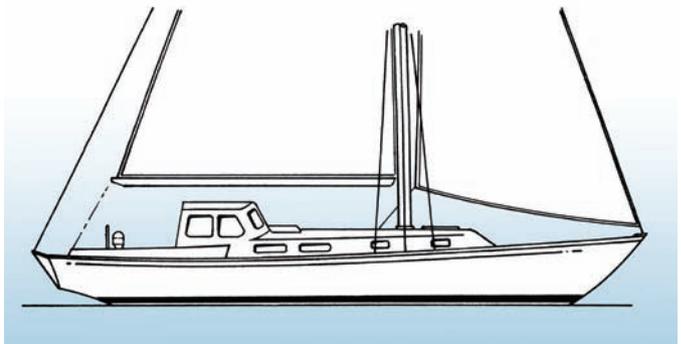
On a recreational sailboat, it's still important to be able look up and see the sails, even with acres of Bimini canvas protecting us from the sun. There is also no doubt that an aft steering station gives you a much better feel for the motion and direction of a vessel, not to mention access to sheets, halyards, and reefing lines.

Oh, for a pilothouse!

Having said that, I have sometimes wondered — while powering along in the pouring rain, with water leaking down the neck of my foul weather gear and my glasses in my pocket because in the rain I could see better without them (and that isn't very well) — whether there wasn't a better way . . . especially when I would see a powerboat glide by with everyone inside, dry and warm. It is at times like this, and while anchored in chilly northern climes at the beginning and end of the season, or on damp drizzly days, when a dry and warm inside accommodation with good all-around visibility seems mighty attractive. Enter the pilothouse.

Nothing on a sailboat comes without a price, so let's look at the competing goals that must be resolved in a good pilothouse design.

Visibility – The problem when steering from an inside steering position while under sail is that the sails are not easily visible. Furthermore, since the inside steering station is inevitably to one side, when that side becomes the leeward side, the heeling hull will completely obstruct the view to weather and the genoa may well block all visibility to leeward — not a good combination. Let's assume, therefore, for the sake of this discussion, that sailing is the preferred mode of propulsion, that sailing is performed best from a



Hard dodger – Although open at its aft end, the dodger provides shelter over a steering station. It's rare in production boats other than a few motorsailers.

separate aft steering position, and that powering (especially in bad weather) is best done from an inside steering position.

Herein lies the conflict. To allow good visibility from the aft helm, the pilothouse should be as low as possible. Otherwise, it obstructs the line of sight forward from the cockpit, especially if you're looking through the windows of the pilothouse itself. A low pilothouse is less than ideal for visibility from the inside steering station, due simply to the lower line of sight and the smaller area of the windows and windshield. It's necessary to get the balance right between the height of the aft cockpit and the height of the pilothouse in order to achieve good visibility from the inside and outside steering stations while maintaining an attractive and well-proportioned profile. As with all things aesthetic, size does matter. The bigger the boat, the easier it is to achieve this attractive profile. Pilothouse configurations always are more attractive on 40-footers than 35-footers.

It is possible to achieve a lower pilothouse by eliminating the forward house completely and opting instead for a flush deck forward of the pilothouse. In the 30- to 40-foot boats, freeboard will have to be increased substantially to achieve standing headroom forward of the pilothouse, perhaps resulting in a rather slab-sided chunky-looking vessel. This approach could also result in compromised visibility forward.

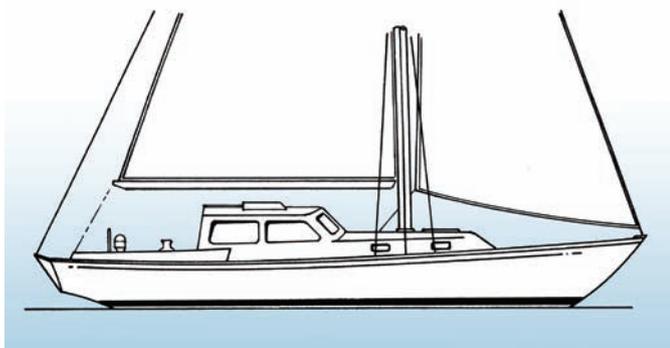
One way to achieve better visibility forward over the pilothouse is to raise the cockpit sole, which also has the benefit of more easily allowing the accommodation plan to move aft into this area, especially in larger boats. This is especially true if the engine and tanks are located under the raised sole in the pilothouse area, rather than aft under the cockpit. Again, size allows more flexibility in interior arrangements, especially when it comes to headroom.

All this raising of soles and houses, of course, has a negative effect on stability as the center of gravity also rises and the boat becomes a tad less stable.

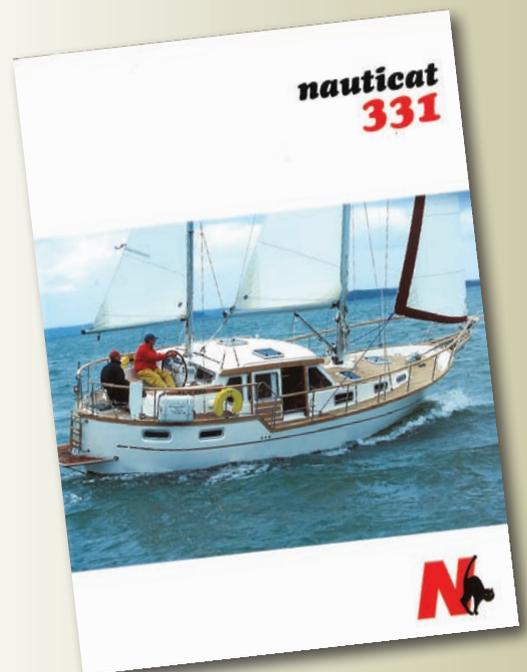
Sail handling and control lines – Assuming that it is best to lead halyards, sheets, vang, and reefing lines aft to the cockpit, achieving this goal is made more complicated by the presence of the pilothouse. Halyards and reef lines can be easily led aft on top of a conventional trunk cabin (even under a canvas dodger) to winches on the cabintop aft, all

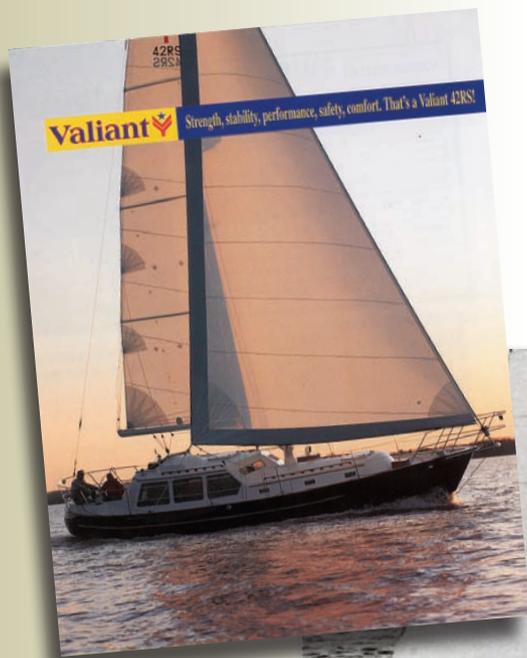


Designers approached the pilothouse concept in different ways, as these brochure photos show. The compact Gulf 32 was designed by Bill Garden in 1965. The Nauticat 331, introduced in 1997, has more of a motorsailer look. The Scepter 41, from 1982, benefits from its length to achieve a relatively low profile and a near-flush foredeck.



Full pilothouse – The cabin sole is raised in the pilothouse to provide full visibility forward and possibly in the cockpit to give a view over the pilothouse.





Valiant Yachts introduced the Valiant PH 40, below, in 1981. It had an inside steering station that justifies its pilothouse name. The later Valiant 42 RS, at left, did not have inside steering, so would fall into the raised-saloon category.



accessible from the cockpit. All these lines must be led around the pilothouse somehow or be confined forward at the mast, making it necessary to leave the cockpit to shorten sail.

Using furling headsails, with the halyard winch mounted on or near the mast and the furling line led aft along the rail, is a partial solution, but a furling mainsail, whether in the mast or in the boom, still requires lines to be led aft closer to the centerline. I have seldom seen control lines and winches, other than traveller control lines, mounted on the top of a pilothouse. While lines can be led around the pilothouse, it does tend to crowd all the control lines, stoppers, and winches onto the coamings.

Interior arrangement – The whole purpose of a pilothouse is to allow seated occupants a view through the windows of the surrounding scenery and the helmsman a good view from the helm seat. By definition, that requires the cabin sole to be elevated. The raised sole has the added benefit of easing entry from and egress to the cockpit, since there is less difference in height between the two levels even when the cockpit sole has been raised substantially to permit a view over the pilothouse.

However, the raised sole in the pilothouse means you now have a split-level interior, necessitating a step down to the lower level forward and possibly another to a separate cabin aft under the cockpit. The raised sole in the pilothouse also means that there is insufficient height under the sidedecks to allow sitting headroom, which forces the settees and the interior farther inboard. This raised level is best utilized as the

saloon for sitting and dining, forcing the galley to the lower level forward. This isn't necessarily bad, since it can still be open to the upper saloon area if designed properly. The galley can even be located in the pilothouse, but the presence of the pilothouse windows eliminates upper storage lockers and the sidedecks do force the galley farther inboard.

The raised sole in the pilothouse has the added benefit of creating a large and easily accessible engine room below. Access can be through removable panels in the sole or from forward after removing the ladder and the panel to which it is attached. This area also allows for generous tankage and battery capacity. Locating the engine amidships frees up the space under a raised cockpit sole for an aft cabin, as mentioned previously.

Structural considerations – The principal concern with pilothouse configurations is the ability of the large expanse of windows to withstand capsize or wave impact. Although the development of high-strength tempered glass capable of stopping bullets, together with equally strong adhesives, has made this no longer the concern that it was, the subject must be seriously addressed at the design and specification stage on new boats and reviewed in some detail on existing boats, depending on their intended use.

The other concern is the amount of open area under the pilothouse in the amidships area of the hull. The housetop is often unsupported and often carries the mainsheet loading. This can be addressed in new boat construction with a well-engineered deck structure using modern composites,

“The larger the boat, the lower the pilothouse can be in proportion to the length of the boat.”

but it's something that should be looked at in any review of an existing boat.

Attractiveness – It is important to most sailors that a boat be attractive. How the designer handles all the challenges mentioned so far and how much emphasis he puts on the requirements of inside steering generally — as opposed to warmth, shelter, light, and the view from the pilothouse while at anchor — will go a long way in determining how attractive the boat's profile will be.

A lot of so-called pilothouse configurations are merely added options on existing production models. These generally are raised saloons and do not offer inside steering. As a result, they can be lower in profile and more attractive. Size is a major factor here: the larger the boat, the lower the pilothouse can be in proportion to the length of the boat, thereby reducing its apparent height. Size, or more specifically, longer length and lower cabin sole, can also allow a flush deck configuration forward of the pilothouse, resulting in a nice appearance as seen in the Pearson Contessa 44. This is probably the smallest size that can get away with this configuration.

Some designers do pilothouses very well. I have to give a nod to Chuck Paine in his Bermuda series built by Morris Yachts and in his Bougainvillea series built in aluminium by Kanter Yachts. However, the Morris is a 48-footer and the Bougainvilleas start at 60 feet LOA, so they have size on their side. The lines of Chuck's Cabo Rico 42 do take this fine aesthetic close to the range we're considering. Bob Perry also has done a number of attractive pilothouse configurations, starting with the Valiant 40, and Ted Brewer's 42-foot Troubadour design should also be mentioned.

Now that we have laid the groundwork on what constitutes a pilothouse configuration and discussed the inevitable compromises that result, we'll take a closer look at specific pilothouse yachts in the next issue to see how they compare in comfort and performance. We might also look at some production fiberglass motorsailers. This is a much smaller demographic but, as the boating population ages, it is gaining a very interested following. I am writing this on a cold damp drizzly afternoon in May. In these conditions, it's hard to deny the allure of a well-designed pilothouse. 

Rob Mazza is a Good Old Boat contributing editor. As well as being a lifelong sailor he spent much of his adult life designing sailboats, beginning at C&C Yachts when that company was building what are now very popular good old boats.

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