

The Decks of Hurricane Alley

by Bryan G. Parker



The North Carolina coast is a beautiful place to live and visit; however, during hurricane season—which runs from June until October—the area is vulnerable to storms that bring high winds and flooding. Sitting in the heart of “Hurricane Alley” is Pleasure Island, a small barrier island just south of Wilmington, N.C., that includes the towns of Carolina and Kure Beach as well as the historic Fort Fisher. Here, most homes have a deck or a porch, whether for embracing ocean and inlet views or simply providing a space to enjoy the warm ocean breezes and salt air. The trick is to build decks that not only look good and function well, but also can weather the occasional storm.

Design

Oceanfront homes on the island are typically built with the decks facing the

ocean to maximize views of the water. These decks are usually large and encompass the entire width of the home. Often, each level of a home is equipped with a deck, which unfortunately often results in a massive stack of decks.

A way to provide outdoor space while avoiding the “stacked” effect is to incorporate decks into the floor plan of the home. Keith Bloemendaal, owner of Dutch Built Homes, in Carolina Beach, says, “With lot sizes relatively small here, design is critical when trying to maximize outdoor living space. Everyone wants outdoor space. Good design is key to ensuring that space works with the home and not against it.”

On the island, it’s common to extend the main roof structure out over the deck to provide shelter from rain and sun. This is a cost-effective way to improve traffic

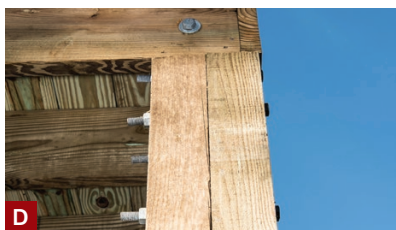
Coastal decks and porches should be designed to take advantage of the summer breezes and engineered to withstand a hurricane.

flow between indoors and outdoors while maintaining the home’s overall curb appeal. Often these are shallow-pitched hip roofs, which have proven to be less vulnerable to damage from high winds than gable roofs. But shallow-pitched gable roofs are just as common and are sometimes a better solution for porches.

Construction

A major difference between decks built along the coast and elsewhere is that everything on the coast starts with pilings, either marine-grade treated round timbers or 8x8 PT posts. Because most of the barrier islands off the North Carolina coast are in a floodplain, both houses and

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Coastal homes on small lots often have multiple decks, resulting in a “stacked deck” effect (A). Wind-resistant low-pitched roofs are the norm in coastal North Carolina (B). To minimize the effects of waves, storm surge, and erosion, most coastal homes and decks are built on pilings (C), which can be extended with through-bolted lap joints, a common detail on elevated multi-story decks (D). Uplift connectors that tie vertical and horizontal framing members together to resist high winds are required on coastal decks (E). Decks and balconies built over living space require careful flashing and waterproofing details (F).

decks are elevated to allow storm surge and flood-borne debris to flow freely underneath them.

Along the oceanfront—or first row—the pilings are typically driven 16 feet into the ground, while the pilings for second- and back-row structures are driven a minimum of 8 feet. A machine-mounted auger is used to start the hole, and then the posts are driven into the sand with a drop hammer to the proper depth. A high-pressure mixture of water and sand is then used to compact the soil around the post.

Cross-bracing with 2x12s bolted to the posts is required for pilings that support

the main structure of a house, and it may also be required when the deck structure is integrated into the floor plan. If necessary, posts can be lap-jointed and through-bolted to accommodate multilevel decks. All of these critical connections are spelled out in prescriptive details that are widely followed by local contractors and enforced by local building inspectors.

Because salt water and salt air are highly corrosive, hot-dip galvanized (HDG) or stainless steel hardware and fasteners are required—and even those are subject to corrosion and therefore should be monitored regularly. This isn’t

a requirement on Pleasure Island, but a recent series of corrosion-related deck failures on nearby Emerald Isle prompted local property-management companies to require annual inspections of rental properties under their management.

Pleasure Island is in a 140-mph wind zone. So while decks are built largely using details that most builders are familiar with, local code requires the use of a lot of hurricane clips to prevent uplift. For example, trusses or joists in a 90-mph zone would need only one clip on each side of the framing member. Here, you must either use clips on both sides of both ends of the joist or truss, or use a

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wrapping-style clip that catches both sides at each end.

I don't think that code requires a specific type of clip, as long as it meets the approval of the local inspector. I have seen heavy plate straps with through-bolts, as well as longer, lighter-gauge straps that can be bent around the framing and fastened with nails. Typically, straps are used to secure the subfloor to the pilings, while plates are used to fasten girders to pilings.

Proper flashing is also very important on an oceanfront deck, to guard against wind-driven rain. While flashing methods and materials are similar to those used on the mainland, the process is monitored more closely by inspectors. They want to see how everything is flashed before it is covered up, similar to how they count nails in sheathing here. (Before housewrap goes on, an inspector makes sure your nail count is right; if the sheathing is covered up before they can look, they will make you tear off the housewrap so they can count.)

Most builders here use $\frac{5}{4}$ x6 or 2x6 PT decking—or, rarely, ipe or other tropical hardwoods on high-end homes—rather than composites, mainly because the composites seem to retain so much heat. We get a lot of sun in the summer, and with this being a beach town, many people are barefoot. I've seen composites get so hot you can't walk barefoot on them, while wood decking stays relatively cool underfoot.

You see more variety when it comes to railings. Most decks

have low-maintenance composite, PVC, or metal railings, often with stainless steel cable or glass panels to maximize the views. Surprisingly, painted wood railings are also popular, keeping the painters on the island in business all year round. ❖

Bryan Parker has been a carpenter and builder for more than 25 years in North Carolina. He has built homes, decks, and many other structures from the Appalachian mountains to the N.C. coast, and currently lives in Carolina Beach, N.C.



Even though they require regular maintenance, traditional painted wood deck and porch railings are still popular in coastal North Carolina communities.