

Detailing Decks Over Living Space

When the roof pitch is shallow enough to walk on, clear drainage paths and careful waterproofing are essential

by John Phelps



The second-floor and third-floor decks were the problem. With a footprint limited by wetlands, this house on the Florida coast rose up, not out. Consequently, two decks at the central tower, or crow's nest, had to be built above finished interior spaces.

Charlie and Sally Williamson's lot on Apalachicola Bay looked plenty big until I saw the wetlands survey. I realized then that we would have to build up instead of out. But a multistory house meant two decks built over fin-

ished interior space, an architectural bugaboo I always avoid. However, Charlie is a construction waterproofing consultant. We discussed the situation over a few beers and decided to damn the torpedoes and go full speed ahead.

Pitch the roof so that it drains—The best roofing materials can still leak when they're applied to a deck that holds water, or ponds. So good waterproofing begins by sloping the deck at least $\frac{1}{8}$ in. per ft. to drain the water; $\frac{1}{4}$ in. per ft.

is even better. On Charlie's house, the carpenters sistered 2x6s to some floor joists and tapered others to get the slope. We sheathed the decks with $\frac{3}{4}$ -in. plywood to be sure the deck sheathing wouldn't sag and make ponds.

The second-floor deck simply drains onto the roof below. But the crow's nest deck is enclosed by kneewalls, and the roof over the deck below actually comes above the crow's nest floor. We pitched the deck toward this roof and raised the bottom plate of the kneewall, forming a scupper to drain the water. It drains under the kneewall into a gutter that has been mounted beneath the roof overhang below.

A foundation drainage mat provides extra protection—The roofing that Charlie recommended is a 3-ply, heat-weld system (Johns Manville, 717 17th St., Denver, CO 80202; 800-654-3103) installed over the plywood decking. All the exterior walls that intersect decks are wrapped with Polyguard 650 (Polyguard Products Inc., P.O. Box 755, Enns, TX 75120; 800-541-4994), a self-adhering bituminous membrane consisting of a high-strength polyethylene backing laminated to a thick (60-mil) layer of rubberized asphalt. We brought the Polyguard about 6 in. onto the base sheet of the roofing to serve as flashing and went over the Polyguard flange with the remaining two layers of roofing.

Next, we installed a layer of J-Drain 1000, a $\frac{1}{4}$ -in. thicksheet of crushproof plastic mesh core wrapped in filter fabric (JDR Enterprises Inc., 292 S. Mam, Suite 200, Alphretta, GA 30043; 800-843-7569). The J-Drain is laid loose on top of the roofing. Normally used as a drainage mat around foundations, in this case the J-Drain provides a layer of padding that protects the underlying waterproofing membrane, and it lets water drain under the sleepers that are supporting the deck.

Two-by-six decking screwed to pressure-treated 2x4 sleepers forms the walking surface. The decking can be unscrewed to inspect the roof below. The sleepers run parallel to the slope of the deck to allow drainage.

This composite of materials provides a waterproof membrane that will flex and not crack as the wood framing deflects under load. Should leaks occur, the deck and J-Drain can be lifted and the roof inspected and repaired.

Charlie and Sally's house survived Hurricane Opal during construction and then two no-name storms that have passed by since. Opal devastated the nearby Apalachicola Manna, and the lot flooded during all three storms. But the roof didn't leak. □

John Phelps is an architect with Phelps Brown- ing Sullivan Architects Inc. in Atlanta, Georgia. Photo by John Phelps.

