

**T**his project was my dream and had been incubating quietly for most of my career. After 16 years of building fine homes for others, I finally had the chance to build my own.

My wife, Lynn, and I had spent several years searching for property on San Juan Island in northwest Washington State. Our ideal piece of property would have a great view, which in the islands is typically interpreted to mean waterfront. At the end of a long day looking at mostly mediocre waterfront houses, we had one last stop. The gravel driveway wound up through a

mature fir and madrone forest; then, with a final switchback, it got really steep. When we finally leveled off on a gravel bench at the top and I relaxed the death grip on the steering wheel, we took in a spectacular 180° view. It stretched from Puget Sound in the south to Vancouver Island in the north. With its seasonal community of orca whales, Haro Strait was just beyond the forest canopy at the bottom of the hill. We were smitten, until we saw the price tag.

It took us a couple of months and a lot of deep breathing finally to pull the trigger. The property had been developed, with water,

# Timber-Framing the Views

Outdoor places over indoor living spaces are just one way this house makes the most of its spectacular site

BY STEVE MITTENDORF

*Picnic on the roof. A deck over the lower level of the house extends the main-floor living space where it matters most: open to the view. In the background, a garage workshop occupies the flat spot at the top of the driveway. Photo taken at A on floor plan.*

power, phone, and a septic system already installed. The driveway alone—and this is speculation on my part—had to have cost \$50,000 in 2001 money, because it was largely hammered into the solid rock of the bluff. In short, the lot, although loaded with a whole set of its own challenges, was ready to build, and the higher price tag reflected substantial savings on developmental costs.

### Skinny house sits on two benches

At first look, the only place to put a house was on the parking bench at the top of the driveway. I've always thought it awkward, however, to feature garage doors in a house's entrance facade. Exploring other options, we discovered what appeared to be pair of parallel rock benches under an 8-ft.-tall blackberry thicket. I spent a brutal day reducing the thicket to a debris pile, and it paid off. The benches looked promising.

Next, we brought in architect Peter Stoner to give shape to our dreams. His first pass at a

concept sketch nailed the dream to the drawing board, and we were off and running. The parallel benches dictated a long, skinny two-level house (floor plans, p. 37). The beauty of this approach is that it extends the upstairs living space with an outdoor room atop the lower level (photo preceding pages).

### Updating the timber frame

Wanting the house to take advantage of the huge views led us to build a timber-frame structure, which is a natural for lofty ceilings, long views, and big openings for windows. Timber frames are not without their own set of problems, though. It can be hard to find stable timbers that won't twist and check. Also, modern seismic codes call for lots of steel plates and bolted connections, which can look out of place in a traditional timber frame. That's OK with me, though. I wanted a more contemporary look than that of a timber frame with angled braces.

We gave our timber frame an updated twist by using glulam beams. They are laminated

from kiln-dried finger-jointed 2x Douglas fir (photo below left). Glulams are remarkably strong and stable, and lend themselves to big cantilevers—something we took advantage of at the entry to the house (photo below right). The bolted steel-plate connectors that we used to join beams to posts are so strong that we could do away with angled braces.

Glulams are also impressively heavy; our longest weighed close to 500 lb. We couldn't get a crane close enough to the site to set them, so we ended up rolling them into position on the floor deck on 18-in. lengths of 2-in. PVC pipe, then lifting them into place with a hand-crank Genie lift.

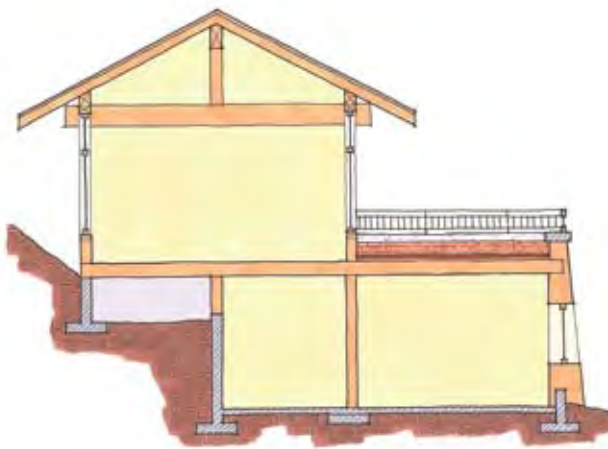
Glulams cost less than comparable timbers, but that doesn't mean they're inexpensive. We spent about \$65,000 for the glulams and the posts for this house.

### Make sure the deck doesn't leak

Putting a deck over a living space is a great way to take advantage of real estate that would otherwise go to waste. It's also a

## One man's roof is another man's terrace

Two adjacent flats on a steep hillside inspired a house that steps up the hill in two levels. The roof of the lower level is the terrace to the upper level. The timeless, templelike quality of symmetrical posts and beams against the sky is an enduring image for structure enthusiasts. Here at the north end, the cantilevered beams create a big-hat overhang that shelters the entry. Photos taken at B on floor plan.



## DETAILING A DECK OVER A LIVING SPACE



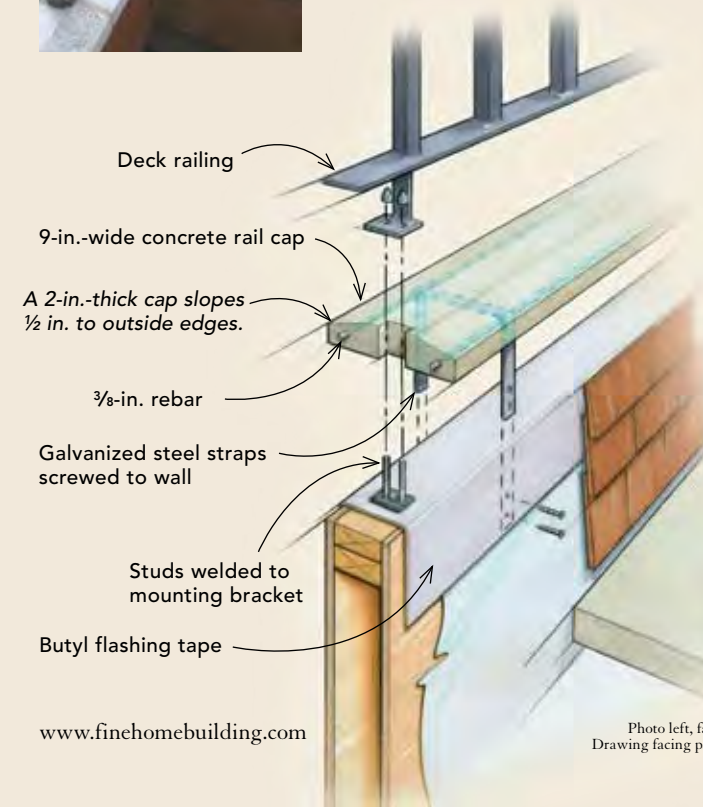
### MODULAR WOOD DECKING

Foot-friendly deck boards are supported by tapered sleepers with rounded bottom edges. Strips of membrane under each sleeper protect the deck membrane. The boards are assembled in modules for easy removal. The two sections in the foreground will be tied to one another by the missing deckboard.



### CONCRETE RAILING CAP

Tapered to shed water, custom concrete caps protect the parapet walls of the terrace. The gaps between the sections are filled with masonry caulk. Powder-coated steel railings complete the assembly.



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### ROOF-DECK MEMBRANE

When putting a deck over a living space, there is one question at the top of the list: "What kind of membrane should I use?"

I've seen enough failed membranes under deck-over-living spaces to know how much damage can occur when a membrane goes bad, so I consulted with a couple of different deck-builders I've worked with. The brand that kept coming up was Duro-Last.

I'd used their product long ago on a project, and it had the reputation then of being the best. It still does around here. The product is a PVC material with heat-welded seams. Most single-ply products have heat-welded seams, but one of the main advantages of PVC is that during the welding process, the material liquefies and oozes



**Level pavers on a sloped deck.** Concrete pavers atop a Duro-Last membrane compose the finished walking surface at the entry court. The pavers are supported at their corners by pedestals that consist of a base, a cap, and a piece of 4-in. plastic sewer pipe ([www.appianway.com](http://www.appianway.com)). Each row of pipes gets a little taller as it moves down the slope so that the pavers end up level. A PVC slip sheet under each pedestal protects the membrane.

out of the seam. This is important because the installer can visually confirm that the seam was heated properly.

With the other membrane products I've used, the installers have taken a tool such as a dull screwdriver and probed the heat-welded seams looking for areas that didn't bond. That strikes me as a kind of craphoot.

I flood-test deck-over membranes just like a shower-pan liner to make sure they don't leak. I had one installation that failed a dozen flood tests, with the installers repairing more than 70 leaks and still not getting it right.

To flood-test the membrane on this job I first had to plug the 2-in.-dia. drain lines that convey runoff away from the house. The drains run inside the walls, and daylight just above the foundation. To plug the lines, I used the inflatable test plugs that plumbers use to test waste pipes in a plumbing system.

With the drains plugged, I flooded the membrane with enough water to cover every square foot and up the walls on the high side an inch or so. The Duro-Last membrane installed here held water on its first test.

Photo left, facing page; top photos, this page: courtesy of Steve Mittendorf. Drawing facing page: Martha Garstang Hill. Drawing this page: Bob La Pointe.

potential nightmare if a leak develops. The keys to a leak-free deck are to put down a meticulously installed membrane and to protect it from abrasion at contact points with the decking supports. And just in case, make sure the decking can be removed easily should a leak require repair.

Our deck has two different surfaces. At the entry, concrete pavers continue the pattern and durability of the concrete walkway. The deck off the living room, however, is finished with ipé planking. It's a less durable but more user-friendly surface for bare feet or the occasional dropped dinner plate.

Prior to assembling the deck modules, we cut, sanded, and stained (Cabot Australian Timber Oil) all the deck boards on both sides and their ends. They are attached to the sleepers with stainless-steel screws. The deck's crowning touch is its steel railing and custom concrete cap.

### A year of Sundays

I'm a carpenter, and my love for building is what got me into this. I dived into the project, commuting up to the island toward the end of every week and devoting the early part of the week to keeping my business afloat. I worked relentlessly for almost two years, through every phase of construction. I used a handful of local subs, received a lot of help from my wife and friends, and hired my employees for occasional stints. Still, I ended up doing much of the work myself.

We've shared the house with family and friends, and built many memories. Our love of the home and the island continues to grow, and we hope someday to make it our full-time residence. While I sometimes miss the intensity I felt during construction, whenever I get to the top of the driveway and turn to see the house, my heart does a little dance. This is one dream that came true. □

Steve Mittendorf ([www.mittqc.com](http://www.mittqc.com)) is a builder in Seattle. Photos by Charles Miller, except where noted.

**All hall?** Pairs of posts on 16-ft. centers march the length of the great room, carrying the glulam beams that support the roof. In the foreground, the circulation path cuts between the living-room sitting area and the kitchen island. Beyond, it skirts the dining area on the way to the master suite. Instead of wasting space, this hall defines and expands it. Photo taken at C on floor plan.



### A LONG THIN HOUSE WITH STRATEGIC BUMP-OUTS

The main floor functions as the primary living space, with the entry, kitchen, living, and dining areas combined into a great room. The lower level houses two guest bedrooms, a bathroom, laundry, utilities, and a TV room. On the uphill side, a 5-ft.-deep bump-out makes room for the kitchen and powder room. To the west, a shallow bump-out accommodates a window seat. A master suite angles off to a higher bench cut into the hillside.



### SPECS

- Bedrooms:** 3
- Bathrooms:** 2½
- Size:** 2750 sq. ft.
- Cost:** \$290 per sq. ft. (does not include 3500 hours of the owner's time)
- Completed:** 2006
- Location:** San Juan Island, Wash.
- Architect:** Peter Stoner Architects
- Builder:** Steve Mittendorf

**It's not big, but it looks it.** Lofty ceilings and bump-outs for the kitchen and window seat give the great room some breathing room. Photo taken at D on floor plan.

