

Pathway to an Economical House

An architect explains why good design doesn't have to mean expensive design

by James Estes





One of the most endangered species along our Rhode Island coastline is the rarely spotted AWL (also known locally as the affordable waterfront lot). Countless people spend large portions of their lives stalking this elusive quarry. My clients, Steve and Maresa Lane, were among these discouraged seekers, when much to their astonishment they came across a prize specimen. It was a 60-ft. by 100-ft. lightly wooded site, one house back from the strait overlooking Newport. A 50-ft. wide public right-of-way to the beach next to the lot made it even more attractive, and the Lanes quickly closed the deal.

The Lanes' trophy was a bargain relative to similar lots, but it wasn't cheap. Consequently, they had \$180,000 left in the budget to build their house. The Lanes were sure of their needs, however, and open to various ways of addressing them. With two young children, they wanted finally to settle down in a three-bedroom house with a study and a playroom. Being accustomed to the outdoors, they wanted wide-open spaces and informal living, with lots of glass and a deck so that they could appreciate their catch.

Building economically requires the right mind-set—Our office has designed a lot more high-budget homes than low-budget homes. I assume the reason is that when there is less



Big windows overlook the deck. Bordered by the dining-area bump-out and the south wall of the living room, the deck is a sheltered corner overlooking the view. Photo taken at A on floor plan.

Simple shapes used to complex effect. A sturdy base clad in horizontal siding ties the Lane house to its site. The primary shape above it is a 50-ft. long gable, bumped up at the far end to make an upstairs study. Photo taken at B on floor plan.

money to spend, luxuries such as architectural design are the first to go. This is really a shame because a good design is crucial to building a house whose value is significantly greater than the cost of its individual parts.

From our perspective, the main prerequisite for building well and economically is having the right attitude. If clients want to save money by getting the cheapest contractor and beating him down, by managing the work themselves or by trying to come on as contractors to suppliers and get cut-rate deals on materials, we stay away. What I consider the right attitude is a client's willingness to rethink common assumptions about how they live and what constitutes quality in materials and design.

We ended up building the Lanes' house for about \$70 per sq. ft., which I think is a low cost considering the end result and the cost of construction around Newport. Here's how we did it.

Avoid redundancy in the floor plan—Size is probably the most important variable in determining the cost of a house: the smaller, the cheaper. So in the Lane house, we eliminated redundancies wherever possible. For example, there is not a dining room and breakfast room, a living room and family room, or even a separate lavatory and master bath (right attitude).

Maximum variety from minimum corners. *Reduced to basics, the Lane house is simply a pair of rectangles. The smaller rectangular bump-out, on the south side of the house, encompasses the entry and the dining area. Just as important, the sheltered exterior spaces created by the bump-out make room for the carport and the deck off the living room.*



The kitchen is housed within its own structure. Drywalled gables bracket the ends of the kitchen, creating a quiet corner for the cook adjacent to the main hall. A big chopping block on wheels is parked under the island counter, ready to expand workspace when needed. Photo taken at C on floor plan.

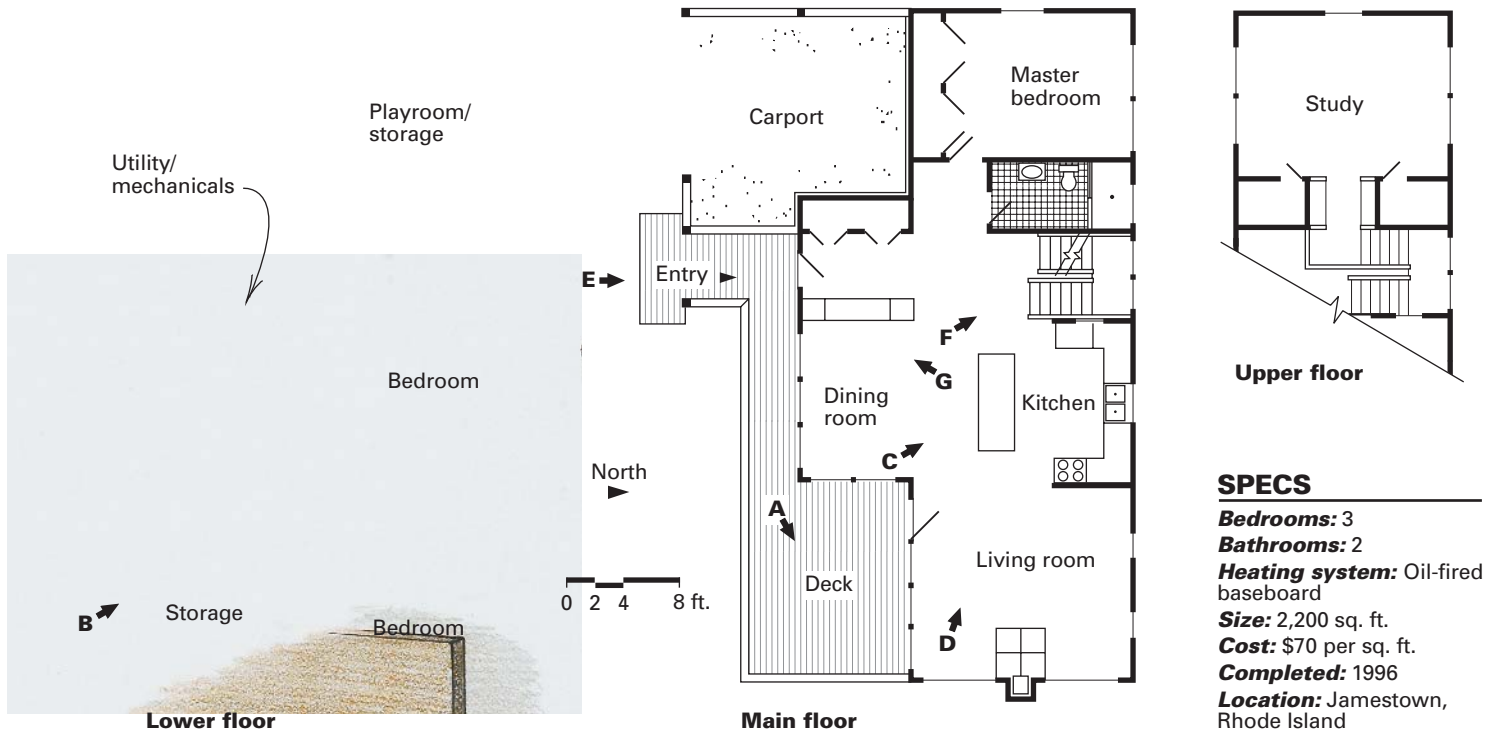
In the main hall the kitchen, dining area and living room all blend into each other, avoiding extra space for corridors (photo facing page). So just through programming, we pared the house down to essentials. The spaces are not small, and they are all used every day.

The plan is simple and straightforward (floor plans below). We avoided angles, curves, corners and even walls wherever possible. The shape is a long rectangle, 16 ft. wide by 50 ft. long, with a small rectangle added for the dining room/entrance. The spans take advantage of the allowable strength of the framing lumber.

We also took advantage of the sloping lot by notching the lower level into the hill. This allowed us to build the outside walls for the lower bedrooms for essentially the same price as the foundation. The sloping lot gave us the space above grade that we needed for daylight (and egress windows) in the downstairs bedrooms. The garage was reduced to a south-facing carport, which is sufficient protection for the normally mild Rhode Island winters.

Get the most from the architectural moves—As with the plan, we avoided angles and curves with the form of the house, and we minimized the corners. When we made what might be called architectural moves, such as the

Photos taken at lettered positions.





Distinct spaces in a big room. The main hall contains all the public parts of the house, eliminating the need for space-wasting hallways and corridors. Oak trusses complement the oak floors and stair. Photo taken at D on floor plan.

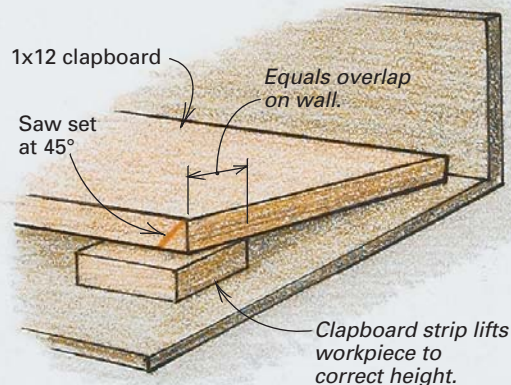


Find the module. An underlying symmetry controls the detailing on the exterior of the house. The battens are on 1-ft. centers to cover the grooves in the T-111 plywood. Windows and their muntins align with the battens. The rafters, on 2-ft. centers, occur over every other batten. Photo taken at E on floor plan.



Compound-miter cuts for clapboards

The 1x12 boards that clad the base of the Lane house overlap one another, so their mitered corners can't meet at a simple 45° angle. To achieve the necessary compound angle, the crew shimmed up the bottom edge with a strip of clapboard before making a 45° cut with a compound-miter saw.



three south-facing dormers, they were simple and repetitive, and they were placed to achieve maximum effect. Outside, the dormers break up the otherwise unrelieved expanse of the main gable (photo p. 90). Inside, they brighten the living space by letting in daylight, and their crisp drywall edges become the decoration in place of moldings.

The kitchen is a simple plastered shape (photo p. 92), a miniature version of the main hall, with angled end walls that mimic the slope of the

ceiling. The kitchen carves out a chunk of the main room that is off the circulation route, protected behind an island counter.

We used the classical idea of a plinth to link the elements of the house and to ground the house to its site. The plinth in this case is the lower level of the house. It is set off from the upper portion of the house by its darker color and its rustic clapboard siding. In the front, the base wraps around the deck off the main floor (photo p. 91).

Simple details, both visible and invisible—

There is not a contoured piece of molding in the house. All the trim and casings are flat stock. Wherever possible, they are butt-joined, not mitered. We avoided paneling, coves and crowns with the conscious decision to let the architecture speak for itself. Inside, we limited the moves to the trusses, the stair and the built-in bench/display shelf that separates the dining area from the entry (photo left, facing page).

The stair is a focal point as you enter the house (photo right, facing page). With no risers, the stair lets light from the north-side dormer and back door into the main room. Although its clean lines imply simplicity, the stair has some tricky parts to it. The beam that carries the top landing cantilevers beyond the wall of the downstairs bath. The stringer that bears on this beam is laminated out of a pair of 1x10s and includes a hidden steel spline in the joint where the beam makes its change from sloped to level.

We dressed up the trusses that carry the roof over the main hall with oak bottom chords (photo p. 93). White oak for the trusses extends the color and texture of the floor and the stair into upper reaches of the room, but it also created a problem. We couldn't find kiln-dried oak 2x8s that were 16 ft. long. So we used 8-ft. pieces instead and linked them together with split-ring connectors. The rings are 2½ in. in dia., and they fit between the king posts and the butt ends of the chords in kerfs cut with a hole saw. The rings allow a butt joint to be tension-loaded.

Outside, the details are common, straightforward and carefully laid out to maintain an underlying symmetry (photo above). The exterior sheathing of the upper portion of the house is T-111 plywood siding, with vertical grooves on 1-ft. centers. We like T-111 because it's affordable, it's immediately available, it goes up fast, it's strong, and it is simultaneously a sheathing material and a finish material. But the grooves cut in its rough-sawn finish make T-111 look like, well, plywood with grooves cut in it. So the 1-ft. groove spacing became our module. Battens cover each groove in the plywood, creating a board-and-batten look with vertical shadowlines on 1-ft. centers. The rafters are on 2-ft. centers, falling on every other batten. The windows and doors fit inside these modules so that the battens align with the window casings, and so forth.

The base of the house is covered with clapboards made from eastern white pine 1x12s from a local sawmill. The boards are rough-sawn, and a full 1 in. thick. We got a great price on this locally milled material. We're hoping the adage that local lumber weathers well in local conditions will be true—it certainly couldn't do any worse than western pine does around here.

We ordered the lumber early in the job and had it air-drying while the frame went up. The



Cantilevered stair leads to an upstairs study. Delicate oak treads, a spare railing and open risers let the light pour through the stair-case. Photo taken at F on floor plan.

Built-in furniture eliminates a wall. At the entry, a bench/display case separates the dining area from the entry. The rift-sawn, white-oak cabinets are topped with polished-granite slabs. Shelves on both sides of the cabinets get the most out of their depth for storage and display. Photo taken at G on floor plan.

same rough pine was used for the battens and all exterior trim, including the little shed roofs over the lower windows (photo p. 90).

The clapboards are mitered at the corners, emphasizing their extra-thick, sturdy-looking profiles. This was a tedious detail at first, until our builder, Peter Kent, developed a slick method for making the compound-miter cuts on the ends of the clapboards (drawing facing page).

Mitered corners in siding are a matter of heated debate among builders. Some argue that they will always open over time, becoming an eyesore and home to a variety of insects and spiders. Other builders say the detail can work just fine if it's assembled properly.

Pete's technique is to cross-nail the boards at the mitered corners, but not to glue them. His reasoning is that glue would just trap water and lead to premature failure. The most important thing is to let the wood dry as much as possible before applying it. The house has been up for 1½ years now, and so far the miters remain tight.

Except for the doors and the window sash, all the exterior elements—siding, beams, brackets, rafter tails and eaves—were finished with solid-body stains. This system saved money. In terms

of both materials and finishes, we completed the exterior for about half the cost of the usual (around here) cedar-shingle or clapboard siding with redwood trim.

Simplicity extends to the mechanical systems—For the general systems, fixtures and fittings, we again tried to exercise restraint and look for quality and simplicity. The electrical layout is sparing. We do not have two or three different levels and types of lighting for rooms as we do on some more-involved houses. The majority of fixtures are single, inexpensive plaster castings. We made an exception to this rule in the kitchen, where some fancier low-voltage lights hang over the island.

The heating system is oil-fired hot-water baseboard, always the best deal in town, and not too unsightly if the radiator covers are carefully and symmetrically placed. Domestic water is heated off the same boiler.

Choosing plumbing fixtures, as with electrical fixtures, was another exercise in the right attitude. As everyone knows, one faucet or sink can be ten times more expensive than another, but after the initial thrill, they both deliver hot and

cold water about equally, and the cheaper one does not necessarily look bad or cheap.

The constraints can be a blessing—The economies of materials and means we were trying to achieve led us to a cleaner design. It is often a battle to simplify ideas, forms and details when they are being coated with ornate trims, fancy hardware, specialty windows, the latest appliance or whatever. Through effective marketing, the housing business has become similar to the car market, where you start with a basic car and then start adding features and toys until the budget is maxed out. The trouble is that in housing, all these features are made by different companies. The architect's job often becomes trying to stitch them together into some semblance of a unified whole. With a lower-budget house such as the Lanes', these features do not enter the picture. The focus is back-to-basics design and layout, back to the basic question of whether it is a good or bad house, not an okay house loaded with great features. □

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