



Bungalow on a Budget

How every design
decision impacts cost

BY PAUL HANNAN

Patience is a virtue. It took about a year between the time that Jeff and Sarah first reached out to me about designing their new house and the time that the design work actually began. They had their eyes on a particular property that was tied up in probate, and they were smart to wait for it.

Jeff and Sarah were intent on having a home designed and built expressly for them, and they knew that location was an important part of the equation. In this case, Keewaydin, a southeastern Minneapolis neighborhood, offered just what the couple was looking for: easy access to downtown, a modest and human scale, and a sense of community. Jeff and Sarah wanted their new home to fit the rhythm of the street, which consisted primarily of 1½-story homes built in the late 1930s and '40s. They liked the Craftsman bungalow style, which was made popular in California in the early 20th century by brothers Charles and Henry Greene.

Craftsman bungalows embrace simplicity, craftsmanship, and natural materials. Traditionally, these homes were 1½ stories, with the bedrooms built into the roof where dormers provided windows and additional space. Porches were an important design element that brought living space outside. Craftsman bungalows evoke coziness and a feeling of home. This style would fit the existing streetscape just fine.

Jeff and Sarah were working with a budget of about \$300,000—a challenge in the Minneapolis building market. To accomplish their goals, a true team effort was required.

The completed home has two bedrooms, one bath, and a laundry room on the second floor. The first floor has an entry vestibule, a living room, a dining room, a kitchen, a walk-in pantry, a powder room, and a mud-room/office. Finishes include white-oak trim and floors, custom cabinetry, and butcher-block and stone countertops in the kitchen. The total finished area is 1580 sq. ft., and the total cost was about \$320,000.

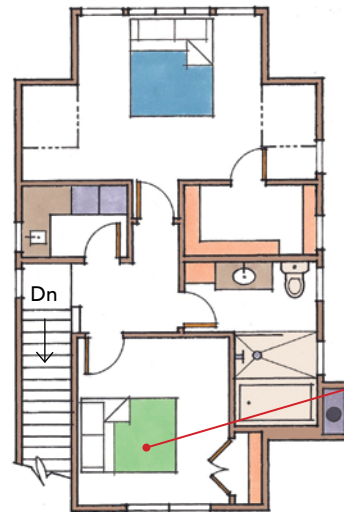
Here's how we did it.

Start with a simple shape

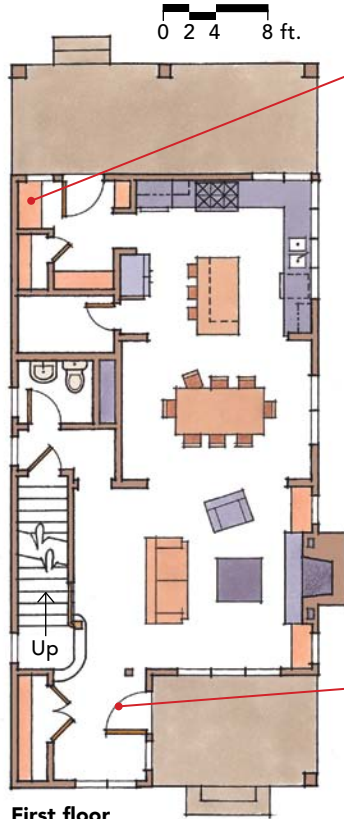
At the beginning of the design process, I give my clients a questionnaire to help them organize and clarify their thoughts. I use the answers they provide, as well as information about the neighborhood and local requirements and codes, to establish the basic parameters I need to create initial schematic

PLAN SET FOR SAVINGS

From the schematic design of the floor plans to the structural design of the walls, floors, and roof, the architect (with the builder's guidance) made each decision with performance, quality, and cost in mind.



Second floor



First floor

0 2 4 8 ft.

◀North

Framing the main roof and the dormers with trusses made the roof construction as cost- and labor-effective as possible.

The bedrooms are tucked under the dormers. The stairs and bath are under the main roofline.

Both entries have bench seating and closets, so everyday necessities have a place to be stored.

2x4 walls insulated with closed-cell spray foam for maximum performance

Plywood sheathing

Floor trusses are spaced 19.2 in. on center. Trusses span the width of the house and provide chases for mechanicals.

½-in. plywood rim joist insulated with closed-cell spray foam

The entry view is diagonal to the kitchen windows at the farthest corner of the home. This long view makes the home feel much bigger than it actually is.

Poured-concrete foundation walls are insulated with 2-in. exterior rigid foam.

A 2-in. layer of spray foam, topped with cellulose, is energy- and cost-efficient.

SPECS

- Bedrooms:** 2
- Bathrooms:** 1½
- Size:** 1580 sq. ft.
- Cost:** \$200 per sq. ft.
- Completed:** 2013
- Location:** Minneapolis

Architect: Paul Hannan, AIA, SALA Architects; salaarc.com
Builder: David Erotas, Ethos Building; ethosbuilding.com

CHARACTER AT EVERY CORNER

From the entry, a series of views invites you into the house, while signature details create a charming interior. A centered hearth flanked by windows and white-oak built-ins is quintessential Craftsman.



At first glance. As soon as you step in the front door, curved treads, an elegant Craftsman-style newel post, and a half-wall and column set the bungalow tone. Views up the stairs and out the landing window draw you deeper into the house.



drawings. Even though this is only the first stage of design, these early decisions have cost implications.

With Jeff and Sarah's budget, I knew that a simple form and standard construction techniques would be required. A rectangle is more cost-effective to build than a home with multiple shapes and angles. Similarly, modest ceiling heights that use pre-cut studs and standard drywall save money on labor and materials.

In Minneapolis, the minimum width of a house is 22 ft. That established a beginning parameter for this house. This 22-ft. dimension allowed the floor trusses to span the width of the house without intermediate bearing walls—and the necessary footings—except at the stairway. Collaborating with a truss designer, we arrived at a floor-truss depth that would accomplish three things: First, it would allow for spacing at 19.2 in. on center rather than the common

16 in. on center. This meant fewer trusses and lower cost. Second, it would allow for all of the ductwork to be run through the trusses, eliminating the cost of framing and finishing soffits that are often needed for mechanicals. Third, and most important for space planning, it would allow the entire first floor to be open, which is important in helping to make a smaller home feel large.

The spacing of the floor trusses helped me to establish the final depth of the house.



The kitchen corner. With white-oak cabinetry and counters made of dark stone and butcher block, this kitchen has the hallmarks of tradition. Stainless-steel appliances and a painted blue island are more-modern details that represent the homeowners' sensibilities and tastes. The corner windows are not a traditional detail either, but they make sense given the home's location on a street corner.

I wanted to use materials efficiently and to minimize construction waste. The floor-truss spacing works on a 4-ft. module for standard sheet goods, so the overall 44-ft. length of the house was easy to determine. This meant that we would use full sheets of plywood and other standard materials, generating little waste.

The second-floor rooms were built into the roof with front and back dormers to let space and light into the bedrooms. The roof and

dormers were framed with manufactured roof trusses, also saving labor costs.

Once the schematic design of the home was determined, I interviewed six builders that I felt were qualified to tackle this project. During the interviews, we reviewed the design and discussed the proposed construction budget. I asked each a simple question: "In your experience, is this construction budget realistic?" Two of them didn't think they could build the house for \$300,000. Of the

remaining four, Sarah and Jeff interviewed three to learn more about their companies and how they would work with us to achieve the budget goal. I encouraged Sarah and Jeff to consider these builders' enthusiasm for the project, their business models, their bodies of work, and most important, their personalities.

We decided to work with David Erotas and the team from Ethos Building. David and I have worked together for more than 30 years, and we had talked previously of designing



BARRIER-FREE BUNGALOW BATH



An open bathroom plan has many advantages: The glass partition allows the small space to feel bigger. Without a curb at the shower, entering and exiting are safer. And tucking the tub under the roof creates an intimate bathing space. A small band of glass tile accentuates the traditional subway tile that covers most of the room.

and building quality-crafted, affordable homes. (For an interview with David, see p. 96.) Sarah and Jeff's home would be a great example of how this could be done.

It's not smart to sacrifice the structural and thermal performance while trying to save money, and I knew that David would be helpful in maintaining that integrity.

We decided early on to use closed-cell spray-foam insulation in the exterior walls and on the rim joists. While closed-cell foam costs more than fiberglass-batt insulation, we would not have been able to meet the energy code in a 2x4 exterior wall with batts. A 3½-in. batt has an R-value of about R-13, while an equivalent amount of closed-cell foam has an R-value of about R-21. Using closed-cell foam also helps seal the home from air infiltration and negates the need for an additional vapor barrier on the inside of the wall. It also helps stiffen the wall, adding to the house's structural integrity. Beyond the cost savings of 2x4 studs over 2x6s, we saved on the window and door package by not having to order extension jambs.

As we were discussing cost efficiencies, I proposed several materials and designs for the exterior finish of the home—cedar shingles, stucco and cedar shingles, and stucco and brick, to name a few. All are appropriate for a bungalow, but each would have a different impact on cost. David estimated each, and we decided on a combination of fiber cement and cedar shingles, balancing Sarah and Jeff's design preference with cost.

Because of our cost-wise decisions thus far, we were able to use interior finishes that would not be expected within this budget, including the flooring, trim, cabinets, and countertops mentioned earlier. Throughout the home are other details that are not ordinarily found in homes with more modest budgets. For example, even though the main living areas are open to one another, arches visually define the kitchen, dining room, and family room. This simple detail adds interest and a high-quality appearance. Another example is the second-floor bath, which is barrier free, has a separate shower and tub, and is finished with subway and accent tiles.

When the budget is modest, it is important to realize that certain spaces have a bigger impact on the cost of a house than others. Kitchens and baths are the most expensive rooms in a house. While a living room averages around \$100 per sq. ft., a kitchen can easily cost \$600 per sq. ft. (A larger home



Restful rooflines. Dormers create the space for both of the second-floor bedrooms. A bank of windows—with double hungs flanking fixed, stained-glass units—provide muted natural light. A space created by the roofline offers a cozy reading nook.

may have the same size bathrooms and kitchen as a smaller home, but the cost-per-sq.-ft. impact on the budget is not as great.)

When I begin the design process with my clients, I try to identify the value and importance that they place on each room and its functions. If cooking and baking are hobbies, then the kitchen becomes more important. I push them to consider if two full bathrooms are really necessary or if one will work, and if built-in cabinets are needed or if furniture can meet storage requirements.

To keep initial construction costs down, I am asked frequently to design elements that can be added or completed later. Designing a basement that may not be finished for a few

years, as we did here, is a common example. Though this can work, I try to ensure that it is not obvious something is missing. It can be disheartening if you look at an area and see a “coming soon” sign for a length of time.

The success of this home required a team effort. I worked closely with Sarah, Jeff, and David, and they worked closely together to make all decisions based on smart design, quality construction, cost, and performance. As we thoroughly examined many options, Jeff and Sarah's patience paid off again. □

Paul Hannan, AIA, is a principal at SALA Architects in Minneapolis. Photos by Brian Pontolilo, except where noted.



End of story. Because the home has a private back deck, the homeowners considered using the porch area for more interior space. They know now that they made the right decision. Having the public front porch has given them the opportunity to get to know their neighborhood and their neighbors in an unexpected way.