

Reaching for the Roof

BY TINA GOVAN



Creative indoor and outdoor living spaces culminate in a rooftop deck that connects this modern home to its natural, urban surroundings

When Steve Martin learned that his new job would be located in downtown Raleigh, N.C., he and his wife, Sujittra, saw it as a chance to begin a new, greener lifestyle. They promptly bought a small house on a nearby urban lot, with the intention of adding on. Located in an older, pedestrian-friendly neighborhood, with school, work, and shopping all within walking distance, it offered the promise of nearly automobile-free living.

After seeing how I had transformed my own urban bungalow in the same neighborhood (see “A Tiny Addition for a Growing Family” in *FHB* #197 and online at FineHomebuilding.com), the Martins contacted me, and together we developed a design for their new home. Unfortunately, the old house proved to be structurally unsound. It could not be saved, so it was dismantled and recycled by Habitat for Humanity. The proposed design, however, remained unchanged.

The Martins wanted their house to be modern and efficient, to take advantage of new building technologies and materials, and to sit comfortably among the older surrounding homes. The result of our collaboration is a house

Redefining the bungalow

While the exterior of the house is a modified bungalow, the interior breaks free of this style. The extensive use of concrete, exposed southern yellow pine, and floor-to-ceiling glass give the house a contemporary feel that complements a setting that's equal parts urban and natural. Photo below taken at A on floor plan.



with a tangible bungalow aesthetic that uses advanced technologies and building practices, including structural insulated panels (SIPs), a geothermal heat pump, a solar hot-water system, a rainwater-collection system, and a range of local, salvaged, and recycled materials.

Exploring the boundaries of the bungalow style

To build continuity with its neighbors, the house purposefully repeats key patterns common to the 1920s bungalows that dot the neighborhood, such as exposed rafter tails, common roof slopes, the use of lap sid-

ing and simple exterior trim, and most important, a generous front porch. While the house acknowledges these hallmarks, many of its details have been reinterpreted. For example, the front porch and its roof, rather than being linear, are curved to accommodate a sycamore tree that marks the entrance. Instead of traditional materials, the decking is made of recycled milk jugs and the railing of galvanized pipe.

Higher up, this modern-day bungalow reveals another surprise: a rooftop deck. It serves as an outdoor living room overlooking the street.

inside out



Variations in ceiling height create room transitions. A lower ceiling at the entrance transitions to taller ceilings in the kitchen, dining, and living areas, where the beams and joists of the roof deck above are exposed. The continuous space accommodates a variety of functions, including laundry in a thickened "wall" by the entry. Photo taken at B on floor plan.

At the far end of the roof deck sits another little bungalow, the guest house, which is barely visible from the street. The plan gives the feeling of this not being just one house, but a group of smaller houses that are gathered around a series of plazas and patios. This arrangement reminds Sujittra of the small vil-

lages where she grew up in her native Thailand.

Flexible and communal spaces tie it all together

The Martins didn't need square footage, but rather a range of spaces to accommodate the family's changing needs. To satisfy this need, the design includes



auxiliary areas whose functions can vary. These spaces include an office nook above the stairwell, the guest house, the day-lit basement, and guest rooms that can serve a variety of roles, from a library, office, and workshop to a nursery or playroom.

In Thailand, Sujittra explained to me, family members spend

most of their time together. She and Steve wanted that same dynamic in their new home. My approach was to provide for many functions within a large single space. Fortunately, this was a tremendous space saver as well. The kitchen, dining, and living spaces are connected, and have niches for a piano, a TV, a

window seat, and a computer desk. Each family member can be involved in an independent activity, but remain together.

Another way to reduce interior square footage is to maximize use of outside spaces. In the Martins' house, we opened nearly every interior space to an adjacent outdoor one so that all rooms feel

Hardworking spaces and controlled views. Marked by a concrete pier, the stairway is enclosed by a bank of maple cabinets that serve the kitchen. A reading nook at the midlevel landing serves as a perch to view activity below. In the dining area, a poured-in-place concrete wall is illuminated by a long skylight. Beyond, large windows focus attention on immense trees. Top photo taken at C on floor plan. Bottom photo taken at D.

Wrap corners with windows. At the corners of the house, casement windows swing away from the corner. Opening up rooms on the diagonal like this, as opposed to placing windows in the middle of a wall, gives a greater feeling of spaciousness. Photo taken at E on floor plan.



spacious. For example, at 130 sq. ft., the bedrooms are modest but don't feel small because each opens to usable exterior space.

The kitchen, dining, and living areas open to a flagstone patio; the basement workshop opens to a gravel terrace. Because the house has a strong connection to the site, the interior spaces feel larger, and the tight urban lot is put to maximum practical use.

Sustainability creates aesthetic opportunities

Although the house incorporates many new building technologies

and materials, some are more visible than others. The well for the geothermal heat pump and the SIPs inside the walls are unseen. But the solar hot-water panels, which are a newcomer to this historic neighborhood, sit high on the south-facing roof. The solar hot-water panels feed the radiant concrete slab in the living room and kitchen, and supply the domestic hot water. The heat pump is used primarily for cooling, but also as a supplement to the radiant heat in winter. Passive cooling is achieved via the operable skylights at the

The battle between aesthetics and performance

When designing a home, you have to consider architectural details that make a home special and details that increase efficiency. The goal is always to accomplish both. Occasionally, however, there is conflict, so compromise is required.

At the entry, for example, we wanted to create a space with indoor and outdoor qualities, not a harsh boundary that divided the two. By continuing the interior plywood ceiling outside and the exterior siding and bench inside, we were able to achieve continuity between the interior and the exterior (photo right, taken at F on floor plan).



This kind of detail, however, creates a thermal bridge (see "How It Works" in *FHB* #210 and online at FineHomebuilding.com). In this case, slats of 2x4s with 1x4 spacers form the bench. They are continuous from the wall of the entry coat closet to the supporting bracket outside. Breaking the 2x4s over the insulated wall would have reduced thermal bridging but wouldn't have offered

the exact look I was seeking. Architects have to consider this type of compromise carefully. Typically, I weigh the benefits and downsides of each choice, and see each detail in the context of the entire building's design and performance.

Because this house was built from SIPs, had tested tighter in a blower-door test than any house our energy analyst had ever tested before, and was superinsulated in other areas, we decided that a small amount of thermal bridging at the entry bench would be offset by the care we took elsewhere in the home. While important, energy efficiency shouldn't stifle creativity.



top of the stairwell and through the wall of operable windows at the back of the house. The main space is free-flowing, with few dividing walls, so it cools easily when the skylights and windows are opened.

I saw rainwater collection as an opportunity to create a visual feature. A continuous gutter that doubles as a water-carrying trim band along the western facade dumps water, dramatically, into a 1000-gal. underground cistern. The collected water satisfies most of the Martins' landscape-watering needs.

Introduce new materials into the bungalow

Concrete isn't something you'd expect to find as an interior finish material in a bungalow, but we used it extensively throughout this house. It's been polished and used as finished flooring, formed into a support column in the stairway, and left as a raw continuous wall in the living and dining area. To create the wall, we used a system called Thermomass (www.thermomass.com), which has a layer of insulation in the middle of the wall, allowing it to be left exposed inside and out.

Throughout the house, we chose to use materials and fixtures that made financial, environmental, and aesthetic sense. The interior trim is local southern yellow pine, and the heart-pine flooring was salvaged from a pre-Civil War textile mill in nearby Burlington.

Although the Martins' house is progressive for its neighborhood, it sits harmoniously on this street of older homes, showing that continuity and innovation are both possible. □

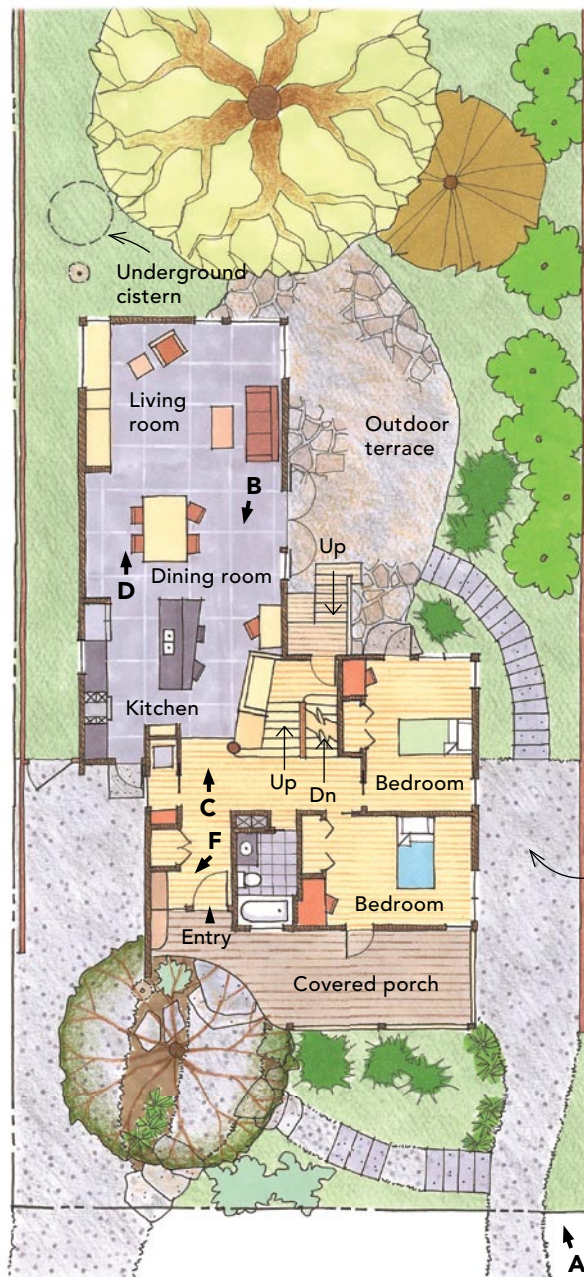
Tina Govan (www.tinagovan.com) is an architect in Raleigh, N.C. Photos by JWest Productions/James West, except where noted.

LIVING SPACES REACH TO THE ROOFTOP

The Martins' house is an example of how a new home can fit in an older neighborhood if the design is sensitive to the site. Instead of trying to create a stark contrast between indoor and outdoor spaces—and feeling the pressure to shoehorn a house onto a tight urban lot—the author and the homeowners embraced the site constraints and designed the home so that interior and exterior spaces would blend together. You climb up through the house, as you do the site, moving through indoor and outdoor spaces effortlessly.



Replace the roof with an outdoor living room. Set under a canopy of trees, the rooftop deck is a courtyard between the guest house and the master bedroom. The space is suitable for entertaining or as a private retreat from the busy life below. Photo taken at G on floor plan.



Photos taken at lettered positions.



SPECS

- Bedrooms:** 4 (including guest house)
- Bathrooms:** 2
- Size:** 2560 sq. ft.
- Cost:** \$185 per sq. ft. (not including cost of lot)
- Completed:** 2008
- Location:** Raleigh, N.C.
- Architect:** Tina Govan
- Builder:** Tom Brown, The Splinter Group