RD

RESIDENTIAL DESIGN

FOR ARCHITECTS AND BUILDERS
OF DISTINCTIVE HOMES

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Away From It All

Defying Gravity

A mediocre dwelling is masterfully reimagined in response to the strict regulations on its extreme site.

BY CHERYL WEBER

SUSPENSION HOUSE
NORTHERN CALIFORNIA
FOUGERON ARCHITECTURE

It takes an ambitious architect and a steady client to rebuild a house that spans an active creek. The property Anne Fougeron's clients purchased in California was every bit as daunting as it looked, yet you couldn't blame the previous owner, who was also the builder, for laying claim to this prized parcel. The house bridges two landscapes: Its sunny front faces the region's quintessential yellow hills and live oaks, while the jungle-like backyard contains a natural waterfall that can roar in the rainy season.

The new owners, too, fell prey to the site's power, but they found the house too prosaic, and potentially unsafe. Built in 1968, it had small windows, stained glass accents, and a roof that pitched down toward the waterfall. More troublesome, it rested on concrete columns embedded in the creek bottom, prompting concerns that the gigantic logs that sometimes course through could take out the columns. "The contractor who built it got one permit," says Anne, FAIA. "In those days they let you do anything."

The couple, who work in the tech industry, were up for the challenge, as was their architect. Several of her houses perch rather precariously on Northern California's spectacular sites, but this was the first to span a body of water, which is no longer legal for new construction. What the clients were

The steel superstructure is bolted into the creek banks, entirely suspended on steel caissons and 3¼-inch rods drilled horizontally into the stone.

essentially asking for was a new house, but demolition of the old one was prohibited. Moreover, any additions had to be within 100 feet of the creek, which disqualified most moves.

"If we saved 50 percent of the building they'd let us keep it the way it was, and it couldn't be more than 50 percent bigger in volume," Anne says. "It became a game of, what can we save, while making it better and also safer structurally." The redesign had to follow the exact outline of the old house and decks, but the rules could be bent, if not broken. The new third-floor cantilever was permitted because an existing lower deck had come out that far.

Reconfiguring the design was like solving a Rubik's Cube. "We had this 3D volume we could work within, and we ended up doing things you might not do," Anne says. "The limitations of houses are sometimes their brilliance. We didn't feel horribly constrained but were just really paying attention." In the end, only a few walls of the old house remained—mostly in the lower-level office, although with the insertion of large windows they are altered beyond recognition.

Full Transparency

The new home drinks in its unusual setting. On arrival you encounter a three-story structure that appears almost see-through. Its glass walls and light-colored zinc cladding are held in exposed steel framing, as if it were alighting on the creek. A stainless-steel-grate bridge leading from the creek bank to the front door lets you see down to the water and keeps the material load light—a priority throughout the project. "The house has a certain weight and couldn't go over that or it could fail, so we were always trying to lighten it up," Anne says. "But we loved the idea that you could see down to nature, to remember where you are because it's so exceptional."

The lowest level, which can also be reached from stairs on the entry porch, comprises an office/guest room, along with utilities and floating decks on the front and back. Although its ceiling is only about 8 feet high because of the huge beams required to hold up the house, it enjoys a close view of the waterfall and a rear deck that hovers over the creek.

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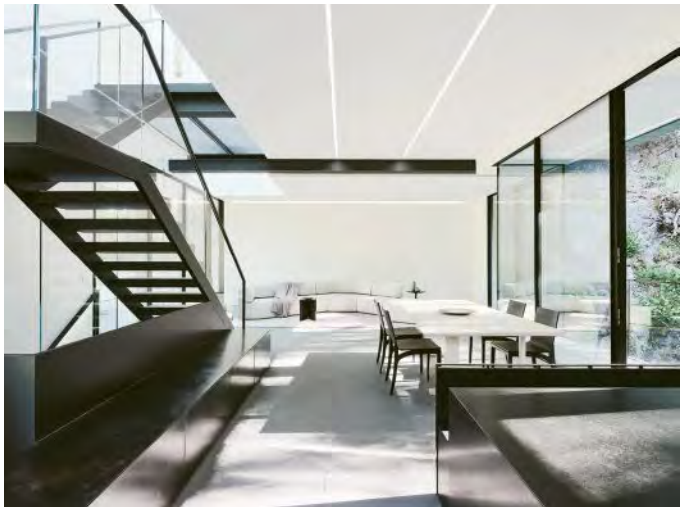
>
> —Anne Fougeron, FAIA

Keeping the house as lightweight as possible was imperative. Steel grating, stone veneers instead of slabs, and other careful specs help keep the house aloft.



The great room on the second floor engages two entirely different views of the site. A large terrace soaks up the sunny side facing the yellow hills and live oaks, while a Juliet balcony takes in the jungle-like waterfall side.

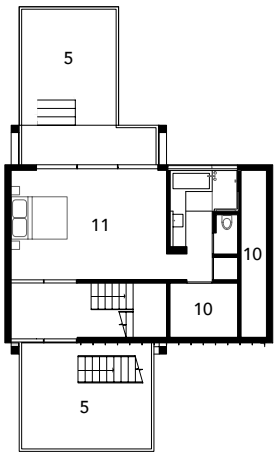
In fact, the waterfall became the design's reference point. "We thought it was important to have a place where you could see the waterfall, so the whole back façade is almost all glass," Anne explains. The larger, second-level entry floor contains the living spaces—kitchen, dining, living—including a cantilevered terrace off the living room in front and a rear Juliet balcony off the dining zone. "In the area behind the kitchen we had to keep some walls without windows as a place for storage and a half bath," she adds. "Having solidity in that area allowed the open living room to face both ways."

Solidity is just a suggestion on the all-new third floor, where two bedrooms are housed in a glass box rotated 90 degrees for views and to reduce the house's mass. This top piece was allowed to project as far as the lower decks on the front. Its roof pitches up at one corner to capture more light, resulting in ceilings that rise from 9 feet to 14 feet, while keeping the roof height within the required 35 feet of the lowest deck.

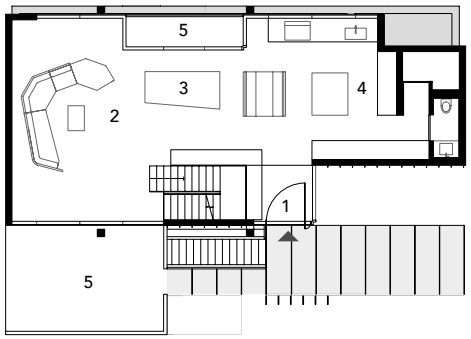
Imbued with the site's drama, the diaphanous primary suite opens onto a rear roof terrace, where that view takes over again. A large skylight in the terrace floor invites light into the kitchen below. "The deck is their place to sit out or do yoga and see the waterfall," Anne says. "You don't get as much light on this side of the house because of the tall canyon walls, so the skylight fits right over the island." The daughter's

The clients' preferred palette of black and white puts the focus on the lush scenery outdoors. Skylights and open stairs brighten interiors; stone veneer floor tiles affixed to aluminum sheets help keep the weight in check.

FIRST FLOOR



SECOND FLOOR



THIRD FLOOR

FLOOR PLAN | 1. Entrance | 2. Living Room | 3. Dining | 4. Kitchen | 5. Deck | 6. Bedroom | 7. Main Suite | 8. Roof Deck | 9. Flex Space | 10. Utilities | 11. Guest Suite

bedroom and a playroom sit across a hallway, whose stainless-steel-grate floor sifts additional light and views into the main living level.

Heavy Lifting

These airy, spacious volumes have a gravity-defying footing. To allow for the expansion of the third floor and to remove the previous structural columns in the creek bed, a steel structure was inserted underneath the existing floors. This superstructure is bolted into the creek banks, entirely suspended on steel caissons and 3¼-inch rods drilled horizontally into the stone. They too are part of the aesthetic design. "The rods and clips, which also bear seismic loads, are beautiful on their own but very much what they are," Anne says. "We asked if the clients wanted us to hide the big moment frames on all the floors, but it would have made the house look twice as big and there were places where it still wouldn't work, so we said let's expose it all."

One reason to hide it, she adds, would have been to mitigate thermal transfer from the colder exterior steel. Their waterproofing consultant came up with the solution: A layer of thick thermal paint on the interior steel and four or five feet of the exterior steel prevents cold transfer and condensation issues. The zinc cladding, however, has hidden clips, resulting in a simple seam where the panels come together—a job that took

Occupying a large swath of the top floor, the main suite opens to an expansive terrace, with a skylight that ushers light into the kitchen.

the sheet metal subcontractor seven months to complete. Zinc also wraps the deck ceilings and around the roof.

Indeed, the subs' work and that of builder Dermot Barry made all this look effortless, although the reality was quite the opposite. How does a suspended construction site work, anyway? Like bridge building, it turned out. The crew built a 50-foot-by-3½-foot walkway on which to carry all the materials. "We set a lot of the structure manually with old-fashioned chain blocks, but we were able to purchase a small spider crane to drive down there and lift some of the steel into place," Dermot says. "The bolting to the bank was done manually with a drilling rig, temporarily supported off the existing rock face."

Because large trucks couldn't get down to the construction site, concrete for the suspension system, walkways, and driveway was pumped from the neighbor's driveway 200 feet away. In addition, the crew built a temporary substructure between the office level and the creek to keep things from falling into the water during construction, and to finish the underside of the house.

Light Touch

As well as a bravura engineering response, Suspension House is fine-tuned like a Swiss clock. "The clients are very educated and were very controlling of everything that went into the house, studying every detail, down to the joints in the cabinetry on a SketchUp model," Anne says. They were so hands-on, in fact, that one of them built a virtual-reality device to help them better understand the design, using files from SketchUp. It ended up benefiting both parties. "We asked for the specs

Suspension House

Northern California

ARCHITECT: Anne Fougeron, FAIA, Fougeron Architecture, San Francisco

BUILDER: Dermot Barry, Barry Builders, San Francisco

LANDSCAPE ARCHITECT: Johnson Bullard and Bernard Trainor, Ground Studio, Monterey, California

STRUCTURAL ENGINEER: Paul Endres, Endrestudio, Emeryville, California

CIVIL ENGINEER: Steven Brown, Adobe Associates, Santa Rosa, California

GEOTECHNICAL ENGINEER: Linda Liang, Rockridge Geotechnical, Oakland, California

BIOLOGIST: WRA Environmental Consultants, San Rafael, California

PROJECT SIZE: 2,505 square feet

SITE SIZE: 1.08 acre

CONSTRUCTION COST: Withheld

PHOTOGRAPHY: Joe Fletcher Photography

KEY PRODUCTS

CABINETRY: Poliform, with Fougeron Architecture and Myers Cabinetry

CLADDING: RHEINZINK

COOKING VENTILATION: Miele

COOKTOP: Gaggenau

COUNTERTOPS: Da Vinci

DISHWASHER: Miele

ENTRY DOORS: Sky-Frame

FAUCETS: Agape

FLOORING: Folio Stone

GLAZING: Supreme Glass

HOME CONTROL SYSTEMS: Lutron

HOME THEATER COMPONENTS: Sonance

HVAC SYSTEMS: Mitsubishi

INSULATION: Denim Insulation

LIGHTING: Aion LED, Sugo

PASSAGE DOORS: Rimadesio

PAINTS/STAINS: Benjamin Moore

REFRIGERATOR/FREEZER: Gaggenau

ROOFING: RHEINZINK

SHOWER ENCLOSURE: Duravit

SINKS: Agape, Blu Bathworks

THERMAL AND MOISTURE BARRIERS: Gaco

TOILETS: TOTO

TUBS: MTI

SHEATHING: DensGlass

SPECIALTY APPLIANCES: Gaggenau

WALKABLE SKYLIGHT: Glass Flooring System Inc.

WASHER/DRYER: Miele

WINDOW SHADING SYSTEMS: Hunter Douglas

WINDOW WALL SYSTEMS: Sky-Frame