

# CONCRETE ANGLES

An ancient building material finds itself on the cutting edge *by* LISE FUNDERBURG

MARION BRENNER





**B**ack in ancient Rome, when the emperor Hadrian decided to rebuild a temple on the outskirts of his city, he had workmen use the strongest material at hand, a blend of volcanic ash and lime, basalt and pumice, and the odd empty jug. Two thousand years later, the concrete Pantheon still stands. That its 142-foot-tall oculus-topped dome remains intact is nothing short of miraculous, especially since the Romans had never heard of rebar.

To this day, concrete remains a fundamentally simple and enduring material — you mix dry stuff with wet stuff and the results are incredibly hard — which helps explain its yearly production rate of well over 5 billion cubic yards (an amount that works out to roughly 20 cubic feet for every living person). While a vast portion of that material goes into making buildings, it's also finding its way into landscapes, thanks to technological advances and the creative minds that put the new products and manufacturing methods to use.

Today, even rebar — a reinforcing bar usually made of untempered steel and embedded in wet concrete to increase its tensile strength — comes up short compared to high-tech enhancers, such as glass and polyvinyl alcohol fibers. Rebar is still used in most paving surfaces and larger structures, but the more refined the reinforcement, the thinner concrete can be, a flexibility designers are exploiting across the hardscape spectrum, from seating and countertops to screens, planters, water features, and fire pits.

“Advancements in concrete technology have allowed us to make products that weren’t really possible before,” says Mark Rogero, a principal at Concreteworks, a San Francisco

At his two-acre garden near Nantes, France, Jean-Charles Chiron inserted colored free-standing walls to define discrete spaces, carving an oculus in one to frame a favorite fig tree. Previous spread: Surface-design Inc. embedded a fire bowl and light strips in the 10-foot paving pads of this Pacific Heights, San Francisco garden, squares large enough to hold an entire Richard Schultz dining set, the Knoll classic from 1966. At rear, a Harry Siter sculpture.



Bay Area precast company that works with landscape architects, artists, and architects to fabricate everything from spare park benches to voluptuous soaking tubs. Concrete builders used to create and fill molds by hand, Rogero explains, starting with drawings, custom jigs, and modeled clay or wire-cut foam. Now they do most of their work digitally. “We begin with 3-D modeling software, then move to computer-controlled milling technology to form the molds, then use these advanced concretes to spray into the molds with pneumatic sprayers and achieve the forms,” he says.

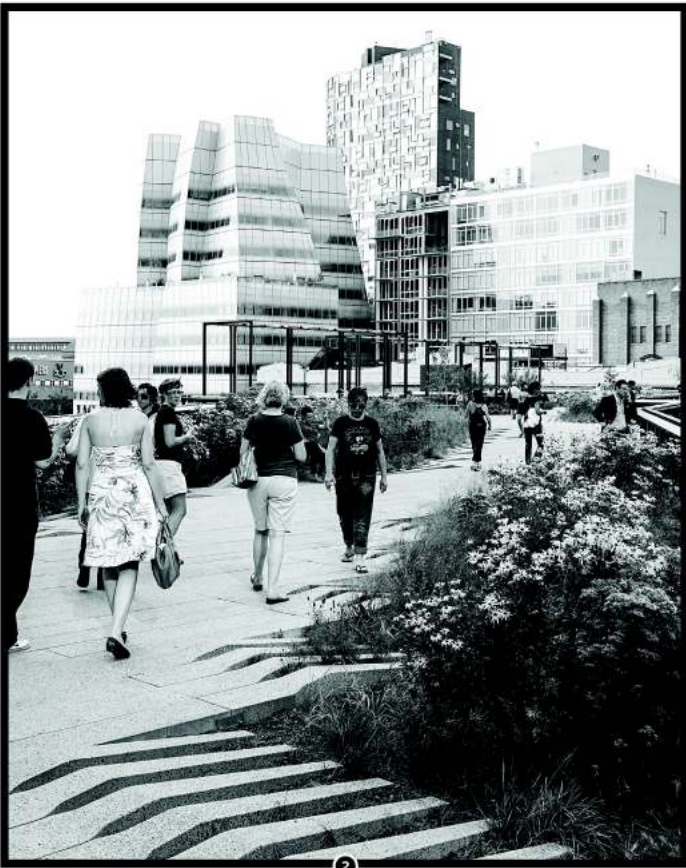
For a Los Angeles project, Concrete-works is fabricating outdoor seating based on Mexican beach pebbles that have been

three-dimensionally scanned into the computer, supersized to diameters of 3 to 5 feet, and executed as a series of 15 to 20 hollow perches that are a mere 3/4-inch thick. Rogero’s group is also working with a Finnish firm, Graphic Concrete, that creates custom-etched surfaces by printing chemical abrasives onto craft paper. When the concrete is poured into a mold lined with the paper membrane, the chemical pattern is re-emulsified and eats away at the concrete’s surface. And in collaboration with the artist Andrew Kudless, Concreteworks poured concrete over wire frames covered with Lycra. The weight of the concrete stretches the Lycra into the frame, leaving behind bulbous

geometries that have been used for environmental art and wall reliefs.

Cast-in-place concrete, on the other hand, typically gets mixed the old-fashioned way, in rotating drums and wheelbarrow batches. But that hasn’t stopped designers from pushing its limits in both form and function.

For a small backyard garden in San Francisco’s Pacific Heights, for example, the locally based Surfacedesign Inc. created the edge and ground plane using concrete in ways that are as sculptural as they are pragmatic. A bench along one wall could easily have felt austere, but its 90-degree angles are interrupted by fern-filled cutouts and planters that hold stands of bamboo. In lieu of conventional



PERMEATE THIS

1. Behind this 2008 addition to the Magnolia Branch Library in Seattle (designed by SHKS Architects), Swift Company installed a series of concrete paving bands that can serve as a performing stage without dominating the small garden. In lieu of an impermeable solid surface, the strips are irregular lengths. Interplanted Irish moss addresses the need for drainage and softens the edges of the hard material, allowing the texture of the adjacent sweeps of *Carex testacea* (orange New Zealand sedge) and *Pennisetum alopecuroides* ‘Hameln’ (dwarf mountain grass) to come to the fore. 2. For New York City’s High Line, which turned a defunct elevated railroad into a popular public park, landscape architect James Corner wanted a paving scheme that would reduce the linearity of the site but also unify it, creating what he called “a concrete carpet.” At its edges, as shown here, there are openings where plants are allowed to bleed through the exposed aggregate surface. Not only does this interlacing suggest the plants are colonizing the paved areas, but it creates microclimates and offers more opportunity for rainwater to collect, a crucial consideration given the site’s shallow soil. 3. Landscape architect Topher Delaney is well-known for her exuberant use of color, but at this Orinda, California, residence, the highly textural hardscaping carries the day. Patinas, exposed aggregates, and dramatic forms mark the walls, troughs, and paving, which also uses generously planted joints between its long spans. A feathery tamarix (salt cedar) hangs over the corner of the wall, and *Acer dissectum* spills out of the trough at the center of the path.

FROM LEFT: DALE LANG; ROB CARDILLO; FACING PAGE: ANDREA JONES







For the entry into a Miami Beach garden, Raymond Jungles Inc. makes a dramatic statement by inserting a sculptural concrete bridge into the softer landscape of native Everglades palms, black ironwood, *Myrcianthes fragrans*, and *Alcantarea imperialis*.

ROGER FOLEY



smaller pavers, Surfacedesign's Roderick Wyllie conceived 10- by 10-foot pads inlaid with thin blue LED light strips that seem to float on a bed of 2 1/2-inch river rocks, rocks that help rainwater absorb into the ground.

Wyllie introduced texture by varying his surfaces: a Formica-lined form created the smooth, stonelike quality on the vertical planes, whereas the paving pads were acid-etched, removing the smooth "cream" that rises to the top of the wet mix. As formidable as concrete may seem to be, Wyllie says it's an irresistible implement in the designer's toolbox. "It's a simple material that's readily available," he says, and, with proper planning, "it's actually very easy to manipulate."


Unadulterated concrete tends to be a glaring white, so Los Angeles-based designer Judy Kameon often works with suppliers to build custom shades by matching samples and playing with the intensity of the pigment.

"I'm obsessed with color," Kameon says. For her own home, she chose a deeply saturated palette of charcoal and maroon for the hand-troweled exterior stucco walls, backdrop colors that make the foliage and blooms of her foundation plantings pop. An earthy light brown warms up the adjacent steps, which feature an exposed aggregate made more dense by having been hand-seeded with extra gravel after the concrete was poured.

One of Kameon's favorite finishes is the tex-

turized surface that comes from using wood planks to contain the wet concrete. "Board formed-concrete fell out of fashion for a while," notes Kameon, "but it's coming back." She'll often use wood to create horizontal banding on planters and counter bases.

For today's designers, artisanal techniques are more typically about preference rather than necessity. What all designers agree on is that the material needs to be handled properly from conception through execution.

"As long as you respect its natural qualities," says Miami-based Raymond Jungles, who is drawn to the material's plasticity and jokes that it is the indigenous stone of Florida, "you can create at whatever scale you like." 



## TO SURFACE WITH LOVE

**1.** When Surfacedesign Inc. rebuilt a failing retention wall for a San Francisco client, it incorporated it into the garden by introducing water and a highly variegated surface. The wall is made with board-form concrete, but to exaggerate the resulting texture, the form was sandblasted to expose more of the wood grain. To create additional visual interest, boards were staggered inside the form to interrupt the vertical plane so the resulting concrete surface moves in and out, casting shadows that add depth to the wall. **2.** After 25 years of sustaining an English-style garden in the dry El Paso, Texas, heat, these homeowners asked landscape architect Martha Schwartz to give them something more regionally appropriate. She designed this folly, which is a takeoff on traditional Mexican courtyard gardens. Some of these small concrete "rooms" have cactuses within their walls, while in this one, the grid of exposed rebar turns into a play of shadow and light against the deep coral, rough-textured wall face. **3.** Strong wall pigments and heavily pebbled steps define garden designer Judy Kameon's Los Angeles hardscape and highlight the lush greens of her *Aeonium urbicum*, *Asparagus densiflorus* 'Myers', *Liriope gigantea*, and *Acanthus mollis*. Deep, plummy leaves of an *Acer palmatum* "Bloodgood" vibrate against the front of the maroon wall.

FROM LEFT, MARION BRENNER, HARPURGARDENIMAGES.COM; FACING PAGE, INGALLIS PHOTOGRAPHY



## ARCHITECTURAL ALCHEMY

A luscious pictorial history of the built environment, *Concrete* (Phaidon, 2012), by Leonard Koren and William Hall, memorializes 180 masterpieces by such luminaries as Louis Kahn, Le Corbusier, and Tadao Ando. Pictured here in the book is an underground reservoir in Basel, Switzerland, by Berrel Berrel Kräutler.

