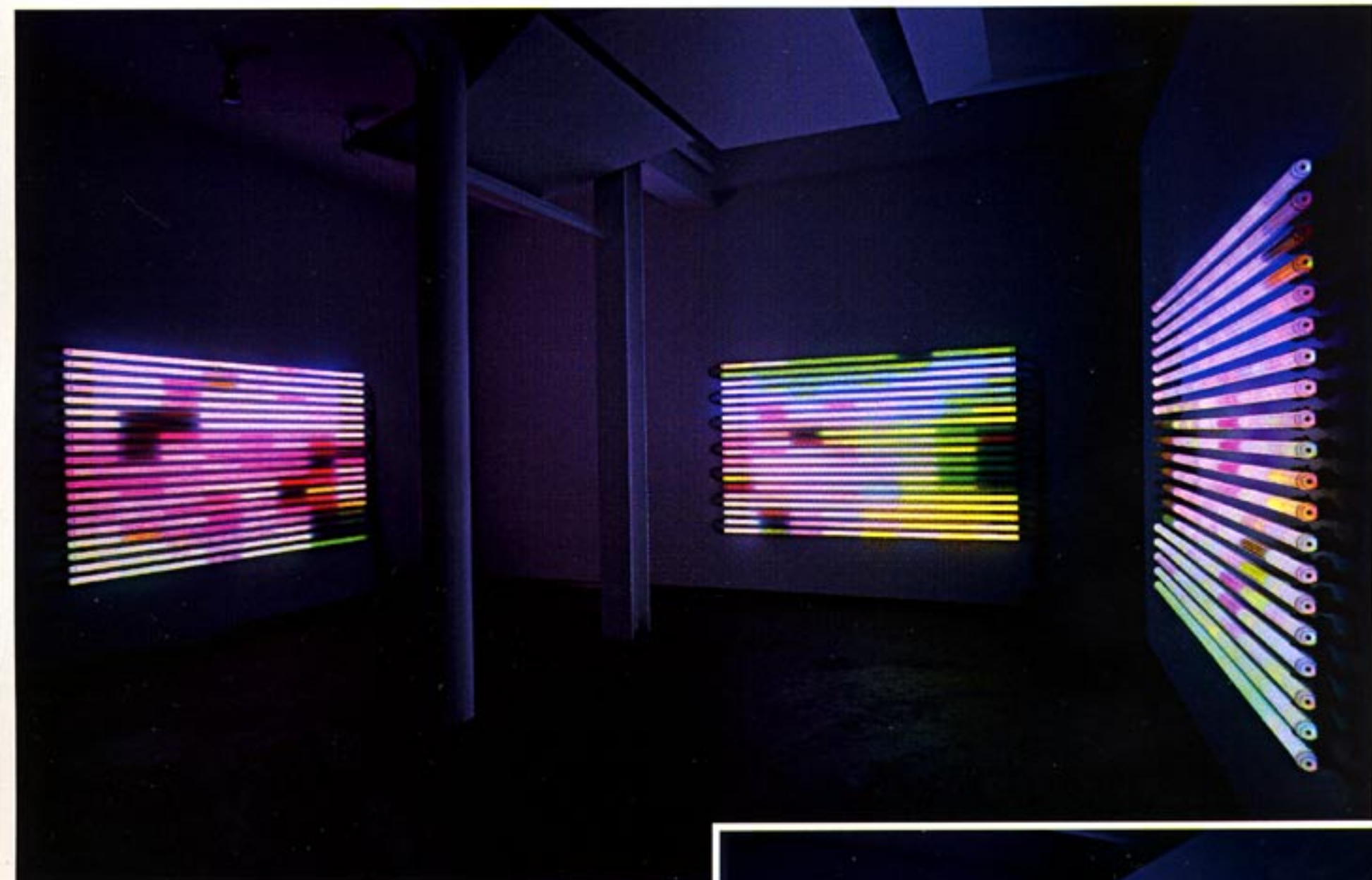


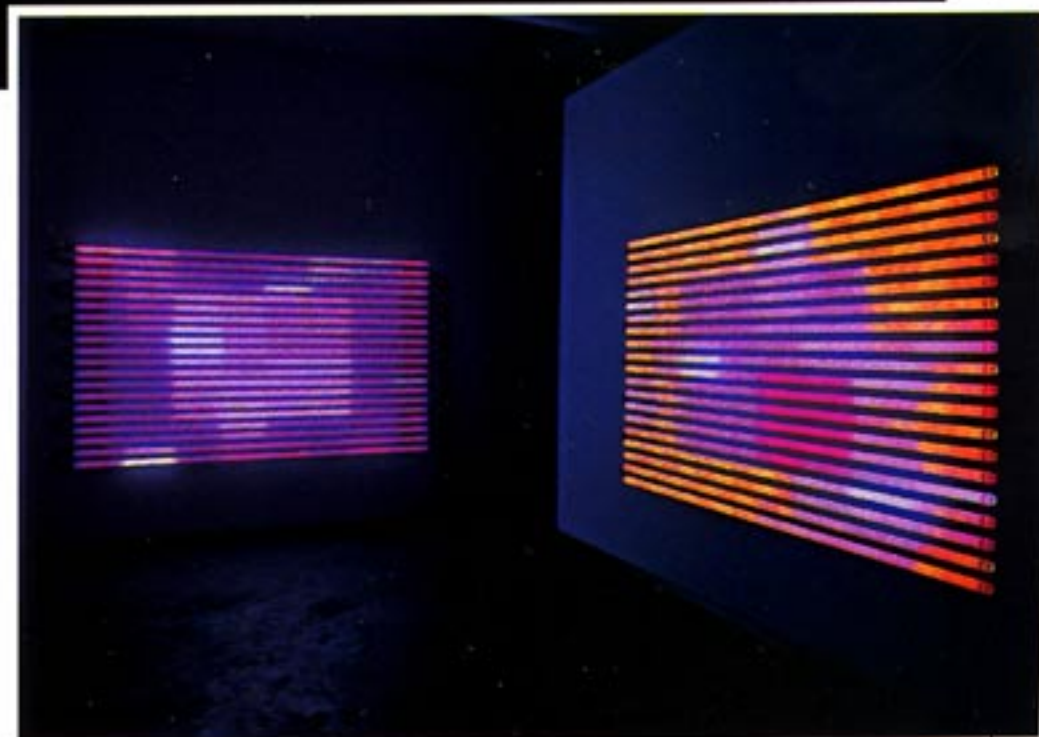
The hypnotic light sculptures of **Leo Villareal** are precedent-setting for architectural design



By Sara Hart

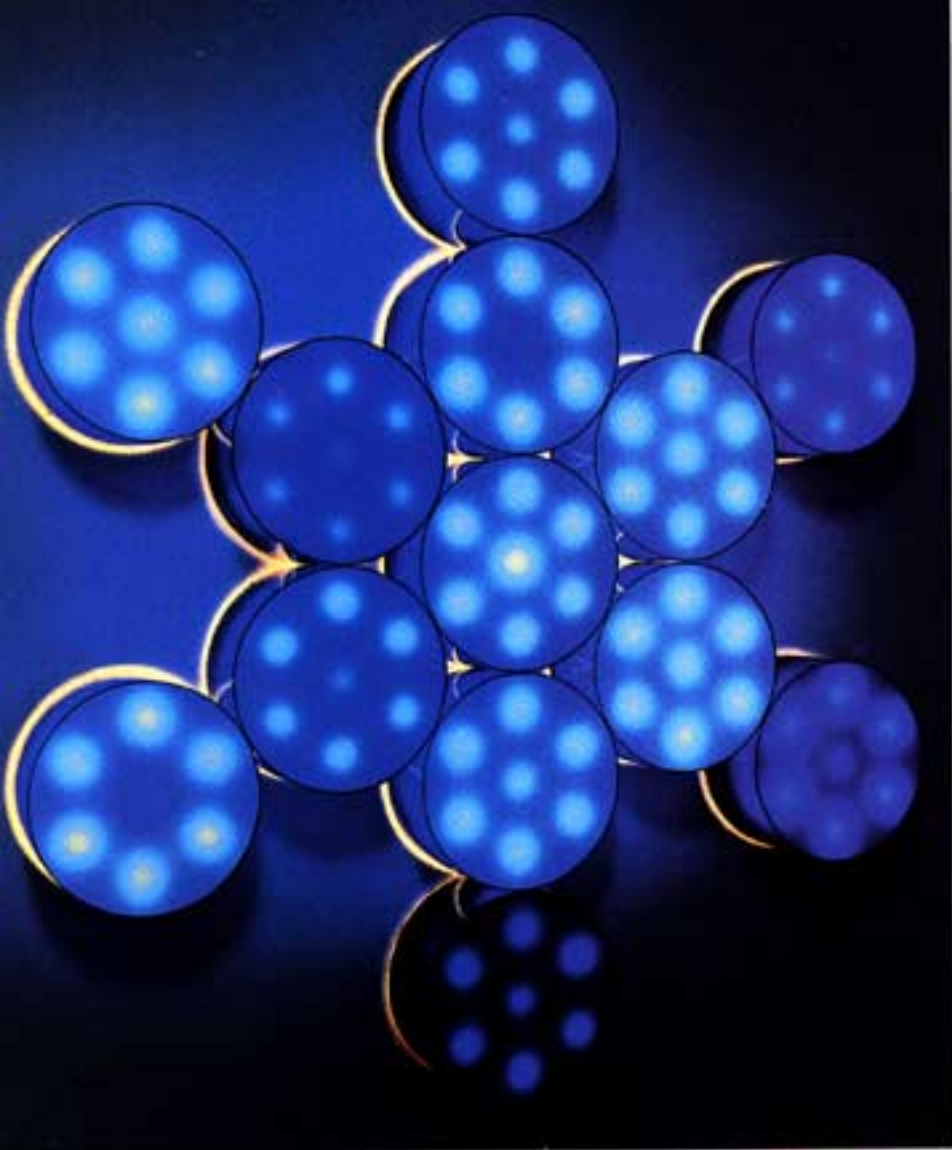
Light as the primary medium, not just a component, of art has been on the fringe historically, due in large part to technical limitations and its ephemeral nature, compared to the ductile mediums typically associated with sculpture and painting. Dan Flavin pioneered sculpting with light in the 1960s with his Minimalist fluorescent-tube compositions. More recently, James Turrell's mood-altering neon environments have made him the darling of the architectural vanguard. Yet in architecture as well, light traditionally plays a functional and, therefore, a supporting role in all but the most theatrical designs.

The technological innovation that precedes commercial application often finds its way onto the artist's palette. Advances in light-emitting diodes (LEDs) represents one development with great promise. In a recent exhibition at the Sandra Gering Gallery in Manhattan, New York light sculptor Leo Villareal (www.villareal.net) displayed three wall-mounted light sculptures constructed of horizontal tubes containing thousands of



Chasing Rainbows is an installation of 60 tubes arranged horizontally in three groups of 20. Villareal

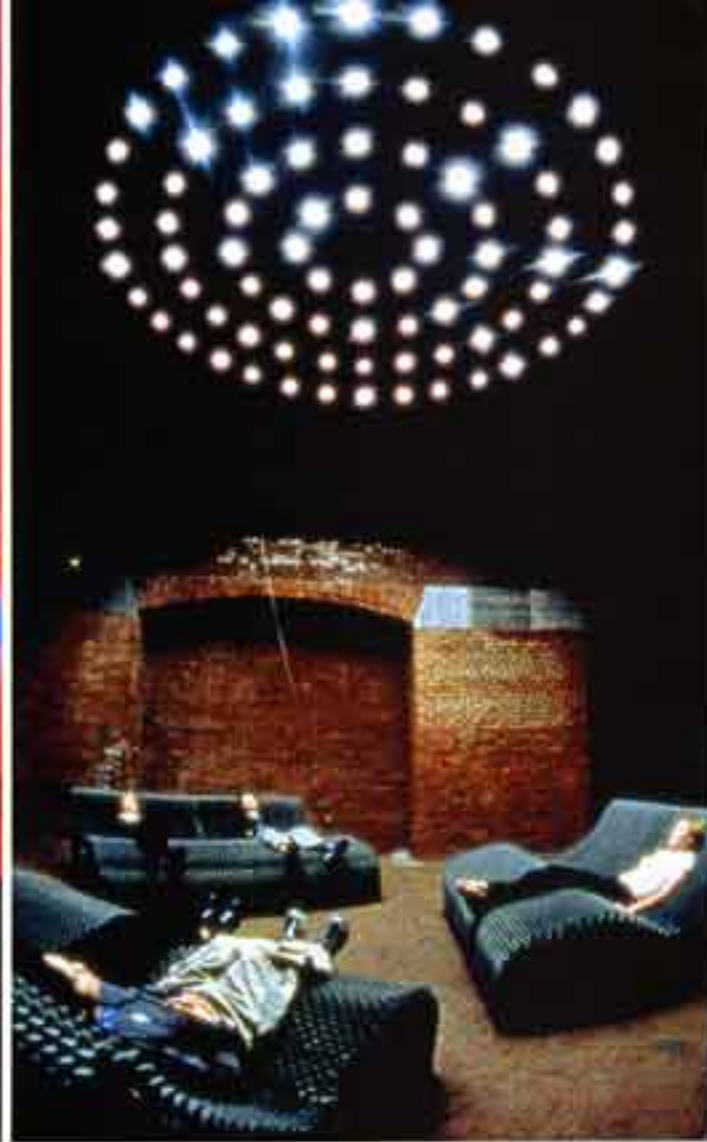
(left) programmed deep, shifting, virtual spaces within a matrix made up of thousands of full-color LEDs.



Villareal's work varies wildly in scale from interiors such as *Synth* (opposite, middle), an interactive performance piece created with other artists, and *Firmament* (opposite, right), a strobe ceiling display viewed on zero-gravity foam sofas, to large flashing displays on building facades (opposite, left).

Villareal's experiments in light are varied. The pulsating white light of a gallery installation called *Metatron* (above) quietly recalls phosphorous in the ocean; flickering colored lights beckon pedestrians into a gallery (right). In contrast, *Supercluster* (below), the LED matrix covering the facade of P.S. 1, investigates complex light-programming issues.





full-color LEDs, which, although based on only green, blue, and red, gave the artist a palette capable of producing an astonishing 16 million color combinations.

With solid-state semiconductors as pigment, Villareal created a virtual reality more spatially complex and radiant than is typically associated with kinetic art. As the viewer is absorbed into the matrix, the horizontal tubes dissolve, and the darting shapes emerge as architectural forms. The mind begins to concentrate on the rhythmic ebb and flow of

HE MOVES BACK AND FORTH FROM COMPUTER SIMULATION TO PHYSICAL MOCK-UP, TWEAKING THE DESIGN.

the forms and patterns, looking for repetition—some evidence of a loop—that would provide a narrative to the story. One can stand and observe the installation for hours and not find a way out, but the journey is thrilling.

Villareal works much like an architect, first conceptualizing on the computer with software he writes. As with the design of buildings, the process is iterative. He moves back and forth from computer simulation to physical mock-up, testing and tweaking the design until all issues are resolved. This process is important in his site-specific commissions in which architectural scale becomes a critical component. *Supercluster* is a 45-by-120-foot matrix of 640 LEDs, which envelops the facade of the P.S. 1 Art Center in Queens, just across the river from Midtown Manhattan. Mounted on scaffolding attached to the south facade, the structure is ordered by a grid within which light animations are governed by what is known as cellular automata, a closed system in which grid cells evolve in relation to neighboring cells. Hence, the cells take on a life of their own, “living and dying” according to the rules of the matrix.

The artist’s own evolution began with work in set design at Yale.

“I eventually ended up in the sculpture department and realized I could do the same thing I was doing, but didn’t need plays, directors, or actors,” Villareal explains. “I worked with light, sound, and video, finding site-specific locations for installations.” Later, he went on to New York University’s Interactive Telecommunications Program (itp.nyu.edu), a pioneering department in the Tisch School of the Arts for the study and design of new media, computational media, and embedded computing. Here, he learned the programming skills that now enable him to push LED technology far past familiar commercial applications, such as embellishment of commercial space and the transformation of facades into animated advertising and infomercial billboards.

It would benefit architects and engineers to consider the experiential and spatial potential of Villareal’s work. There are a handful of precedents that prove genuine collaboration between lighting designers (if not artists) and architects can happen with neither being compromised, but the potential for innovation in space-making and facade design is far from fully realized. Villareal is taking a step in that direction with a commission to create a light sculpture for a new federal courthouse in Texas, which is now in design development by Antoine Predock. If design influence can flow in both directions here, then light may emerge as a true building material. ■

Project: *Supercluster*, as part of *Signatures of the Invisible*.

Client: *P.S. 1 Contemporary Art Center; Antoine Guerrero, director of operations; Cornelia Tischmacher, project manager*

Project: *Chasing Rainbows*, three wall-mounted light sculptures constructed of horizontal tubes

containing thousands of full-color LEDs

Location: *Sandra Gering Gallery, New York City*

Lighting equipment: *Color Kinetics*

For more information on this project, go to Projects at

www.architecturalrecord.com.