

Fast Forward

New technology lights up City Hall Plaza

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If you stroll by City Hall Plaza some evening, take a moment to watch the light display emanating from under the canopy of the newly constructed arcade there. Colors cascade, flash, and slowly change in a marriage of technology and artistry new to the streets of Boston.

Some say City Hall Plaza is a concrete prairie that could be transformed into a civic and green space for Boston pedestrians. To that end, Mayor Thomas Menino initiated an Ideas Competition in 1994 to inspire plans for a new design by the city's artists.

The 300-foot-long arcade and its lighting display are the first steps toward that goal, says Ann Donner, executive director of the Trust for City Hall Plaza.

A local company called Color Kinetics Inc. has patented a technology that uses a microprocessor to control the mixing of red, green and blue light emitting diodes (LEDs) to create a palette capable of generating over 16 million colors.

"The color is rich," says Steven Rosen, lead designer of Boston-based Available Light Inc. "Like a good wine, it has a lot of depth to it."

Several local partners collaborated to create the new structure and its light show. Cambridge-based architectural firm Chan Krieger & Associates designed the arcade and hired Lam Partners, also of Cambridge, to do the lighting design.



GLOBE STAFF PHOTO/DOMINIC CHAVEZ

The lighting design of the arcade on City Hall Plaza was creating using Color Kinetics' technology.

It was Lam architectural lighting designer Justin Brown who ultimately turned to Color Kinetics technology after evaluating the pros and cons of using neon lights. Rosen then took those 16 million color possibilities and choreographed a display that is a visual timepiece. At 7

o'clock, the lights blink white seven times, at 8 o'clock eight times, and so on. At the quarter hour, a rainbow of lights cascades around pedestrians for about 30 seconds and then returns to slower, gradual color changes.

"It's not a static image," says Ed Hyatt, president of Boston Illumination Group in Watertown. "It changes slowly as you walk across the plaza, sometimes subtly and sometimes more distinctly. It gives a little life to a somewhat static environment."

Hyatt's company represents TTR Systems Ltd. of Vancouver, which manufactures the housing units for Color Kinetics LEDs. These units are called light pipes, according to Brown, and are totally sealed from weather elements.

"Color Kinetics takes the light unit and shines it inside the pipe," Brown says. "Because the pipe has a special reflective material around it, the LEDs appear to shine evenly throughout, even though they're located at one end."

Positioning the LEDs at one end of the pipe makes it easier to replace the diodes when one burns out. It also makes the LEDs a more attractive choice for stringing lights across a swimming pool, notes Hyatt.

"You wouldn't have to drain the pool to change bulbs," he notes.

Diodes are tiny blocks of silicon with positive and negative sides. They are designed to conduct electricity in one direction only. An LED emits light when a cur-

rent passes through it.

Kathy Pattison, vice president of marketing at Color Kinetics, says their benefits are threefold: They have a source life of almost 11 years; they use little energy; and, they project almost no heat or ultraviolet emissions.

These characteristics make them desirable for highlighting department store products up close, such as shoes resting on translucent cubes lit from within. Conventional lights would project too much heat onto the shoes and discolor or ruin them, says Rosen, but LEDs won't.

"When you spotlight a cashmere sweater, you get highlights and shadows that give you form and texture," Rosen says.

"It makes you want to buy it because it's lit so well."

Rosen, who has done lighting designs for the Crayola Factory in Easton, Pa., and the Liberty Science Center in Jersey City, N.J., says he also works with fluorescent, halogen and metal halide lights. He credited Color Kinetics with trying to address the issues of brighter LEDs, the next leap in technology.

Within five years, Brown says, the new technology may populate households.

"If these fixtures become optimized and streamlined, they will absolutely revolutionize the lighting industry because the fixtures use barely any energy," he says.