When Cuyahoga County Public Library's Brecksville Branch near Cleveland, Ohio, needed to renovate and restore its facility after a flood, the lighting designer chose Lutron’s EcoSystem™ lighting control solution to upgrade the lighting. The architect says, “EcoSystem represents the future of lighting and we expect to be using it a lot more.”

Libraries are filled with books about people and communities turning defeat into victory. This is the story about a library itself that experienced the same kind of tragedy into triumph transition. It was ravaged by a flood, then renovated using the most sophisticated lighting system now available. This allowed the library to meet its unique lighting needs, and reduce operating costs.

In June 2006, when a major storm system battered the Northeast, it was especially harsh to the Greater Cleveland area, including the city of Brecksville, Ohio, where, according to The Plain Dealer, Fire Chief Ed Egut declared, “This is rain of biblical proportions.”

Runoff from heavy rains on June 22 caused rapid rises in all of the streams and rivers of Cuyahoga County, including Chippewa Creek, which cuts through downtown Brecksville. The Chippewa’s rising water eroded 20 feet of the creek bank—flooding homes and businesses, and forcing firefighters to carry some town residents to dry ground.

One of the casualties of the storm was the Brecksville Branch of Cuyahoga County Public Library. The Library’s 82-year-old track record of serving its community came to an abrupt halt when the branch was temporarily forced to close.
The centerpiece of the system, the EcoSystem fluorescent system is suitable for a wide number of applications, including offices, education, health care, retail, and other spaces, including libraries.

“Before the flooding, people complained all the time about how dark it was inside the building,” said Cathy Schultis, the Branch Manager. “The difference now with the re-design is very noticeable. Our customers comment on it all the time.”

Within a week after the flooding, the Library borrowed a bookmobile from a neighboring county—and, just as quickly, the future of the Brecksville Branch was reborn. Zinkon said the existing night light level was not meeting IESNA recommended practice for library illumination. Zinkon said the existing night light system was not able to increase overall illumination “significantly” while, at the same time, decreasing wattage. This type of energy efficiency falls in line with how EcoSystem generally performs for a wide variety of applications. EcoSystem typically reduces a building’s lighting energy use up to 80 percent or more. Lighting accounts for 44 percent of an office building’s energy use, according to the U.S. Energy Information Administration. For education buildings, the figure rises to 56 percent. Lutron’s EcoSystem lighting control system was selected for the project. Van Dyke was chosen for the commissioning on EcoSystem was so much easier than other daylighting systems. The price of stacks, circulation and seating, we needed to allow for different lighting levels for the multiple tasks required without adding additional circuits to the space for separate control zones. Existing branch wiring was used without the need for additional feeds.

The Library directly hired a professional lighting designer for the project. Tec’s Columbus office, said her firm quickly recommended EcoSystem after evaluating the situation: “When we first walked into the facility, there was no power to the lighting at all. At that time, the entire space was illuminated by the skylights which made it completely obvious that daylight harvesting should be an integral design component. We knew the owner would see the return on investment with this direction.”

Lutron’s Duane Van Dyke, AIA, LEED AP, was the architect selected for the project. Van Dyke was chosen for his two decades specializing in the design of libraries and green design strategies. Noting that the original structure incorporated daylighting with the inclusion of skylights running the length of the building, he said “Unfortunately, the lighting controls of 1990 could not take advantage of this energy-savings capability. The lights were either ‘on’ or ‘off’. The sophisticated technology needed to fulfill the original intent of the skylights wasn’t available then.”

But Van Dyke says Lutron’s new EcoSystem lighting control solution is more than able to meet the task of achieving key goals the Library System established for the renovation:

1) Daylight illumination for all areas of the branch, which would vary depending on each area’s purpose.
2) Daylight harvesting, which would allow the library to take advantage of the natural light pouring in through the skylights with a lighting control system that automatically adjusts the electric lighting level accordingly.
3) Energy efficiency resulting from the first two goals;
4) Night lighting.

“Night lighting, which would vary depending on each area’s purpose. Which would be using it a lot more,” Van Dyke said. “The lights are dimming because they know they are saving energy,” Zinkon said. “We’re extremely pleased with the result.”

“Because each ballast is individually addressable, the commissioning on EcoSystem was so much easier than other daylighting systems. The location of the photocontrol becomes less critical.”

Late June and early July of 2008 was a hazardous period for many libraries in river cities in the northeastern United States, according to the American Library Association. The same heavy rains that struck Brecksville also inflicted multibillion-dollar flood damage to libraries in at least five other states and the District of Columbia—including The National Archives and Records Administration building in Washington, which had to close when floodwaters rose up to eight feet in the basement.

The Brecksville Branch operated on a limited basis for months, but was able to fully reopen in January 2007—no small feat for a library which had to close when floodwaters rose up to eight feet in the basement.

Duane Van Dyke, AIA, LEED AP, was the architect selected for the project. Van Dyke was chosen for his two decades specializing in the design of libraries and green design strategies. Noting that the original structure incorporated daylighting with the inclusion of skylights running the length of the building, he said “Unfortunately, the lighting controls of 1990 could not take advantage of this energy-savings capability. The lights were either ‘on’ or ‘off’. The sophisticated technology needed to fulfill the original intent of the skylights wasn’t available then.”

But Van Dyke says Lutron’s new EcoSystem lighting control solution is more than able to meet the task of achieving key goals the Library System established for the renovation:

1) Daylight illumination for all areas of the branch, which would vary depending on each area’s purpose.
2) Daylight harvesting, which would allow the library to take advantage of the natural light pouring in through the skylights with a lighting control system that automatically adjusts the electric lighting level accordingly.
3) Energy efficiency resulting from the first two goals;
4) Night lighting.

“The overall goal,” said Van Dyke, “was to create a patron-friendly environment that would encourage people to spend more time in the library, including children who take part in the early childhood development programs here.”

Van Dyke says the library system and his firm are both “very pleased” with Lutron’s EcoSystem lighting controls. “We know we’re saving money and offering lighting that people are enjoying,” said Van Dyke. “You can see people now react to the large, open space the branch has always been,” said Branch Manager Schultis. “It’s obvious how the different lighting fixtures are set to different light levels to accommodate our needs. The whole re-design turned out beautifully.”

The lighting designers at Tec agree the project is a big success. “We have talked with the library staff, and are excited when they notice that the lights are dimming because they know they are saving energy,” Zinkon said. “We’re extremely pleased with the result.”

“Because each ballast is individually addressable, the commissioning on EcoSystem was so much easier than other daylighting systems. The location of the photocontrol becomes less critical.”

Late June and early July of 2008 was a hazardous period for many libraries in river cities in the northeastern United States, according to the American Library Association. The same heavy rains that struck Brecksville also inflicted multibillion-dollar flood damage to libraries in at least five other states and the District of Columbia—including The National Archives and Records Administration building in Washington, which had to close when floodwaters rose up to eight feet in the basement.

The Brecksville Branch operated on a limited basis for months, but was able to fully reopen in January 2007—no small feat for a library which had to close when floodwaters rose up to eight feet in the basement.