

## project frog

AcuityBrands.  
Lighting

### CLIENT

Project FROG  
San Francisco, CA



### SCOPE

Design a classroom of the future that provides a flexible learning environment that is both effective and green

### ENERGY SAVINGS

Power density: 0.77w/sf, 45% lower than ASHRAE 90.1-2004/2007 standard

### LEED

LEED Silver Certifiable

### DESIGNER

Project FROG Team

### FACILITY TYPE

- Single Classroom – 1,282 sq ft.
- Completely open interior
- Prefabricated construction makes construction economical and fast
- Raised roof and clerestory for maximum daylight
- Raised floor for easy reconfiguration

### KEY DATA

- SIMPLY5™ Classroom Lighting Solution satisfies CHPS and IES best practices
- Indirect/direct Peerless luminaires maximize visual comfort and lighting quality

### PRODUCTS

- Peerless luminaires achieve the desired aesthetic
- SIMPLY5 control system enhanced occupancy sensing, daylight dimming, teacher control (switch from General to A/V mode) and entry master/row control
- All luminaires and controls are integrated using RELOC® plug-and-play power and control wiring, allowing easy installation and reconfiguration
- Hydrel illuminated the exterior with LED technology
- Lithonia Lighting provided emergency and exit lighting

## The Classroom of the Future— at Greenbuild 2008

Each year, more and more students are attending schools that are getting older and older, and using them differently than previous generations—creating demand for new facilities that support student performance and new learning technologies.

As a result, America finds itself in an unprecedented school building boom, with architects reaching out to best practices such as CHPS and LEED to design flexible learning environments that are both effective and green.

*A major challenge is to provide classroom lighting that increases teacher control, reduces glare, improves lighting and optimizes visual comfort while minimizing lighting power and energy use to their lowest possible levels.*

Mark Miller, CEO and founder of Project FROG, has a vision for a “classroom of the future” that goes beyond today’s best practices. His company makes prefabricated classroom structures that are faster and cheaper to build than other construction methods, while still meeting high-performance criteria.

“We looked at the best and the worst classrooms and asked, how do we make high-quality learning environments available to everyone, not just the richest

districts?” says Miller. “And not just kids five years from now, but right now?”

Project FROG’s classrooms feature a clean and contemporary design aesthetic, are LEED Silver certifiable, exceed CHPS best practices, and significantly surpass energy code requirements. The new FROG Zero model uses solar panels to generate its own energy. The company has received numerous awards, including the 2007 CHPS Green Apple award for excellence. A school simply chooses a classroom standard, customizes it, and will have a new high performance facility built by the next school year.

“If you order a cell phone or car, you are buying a quality product that you can customize with upgrades,” says Miller. “We’re taking the same approach to buildings. The classroom is built offsite in a controlled, regulated environment in which all waste is captured, customized to preference and need, and then assembled onsite. It’s faster, cheaper—and greener.”

PEERLESS®

**SIMPLY5™**  
LIGHTING INTELLIGENCE

**Synergy®**  
LIGHTING CONTROLS

**AcuityBrands**  
Lighting

**RELOC®**  
WIRING SOLUTIONS

**HYDREL**

**LITHONIA**  
LIGHTING

For the U.S. Green Building Council's Greenbuild 2008 expo, Project FROG teamed up with construction industry leaders to showcase the greenest possible solutions in a 1300-sq-ft. model classroom assembled outside the main entrance of the Boston Convention Center. The interior is open, without columns, and optimizes lighting, daylighting, indoor air quality, thermal comfort, acoustics and sustainable materials according to best design practices and available technology. Raised access flooring houses all duct, wiring and cabling, making the room easy to reconfigure. Smart boards, tackable surfaces and computers provide an intensive, interactive learning environment.

A major challenge to today's education designers is to provide classroom lighting that increases teacher control, reduces glare, improves lighting on faces and optimizes visual comfort while minimizing lighting power and energy use to their lowest possible levels.

"Lighting is at the top of our list," says Nikki Tankursley, director of marketing for Project FROG. "We wanted a system that would meet all of our high-performance criteria while also sharing our high-quality design aesthetic and commitment to sustainability."

The company turned to Acuity Brands Lighting and its portfolio of brands.

Peerless' Classroom Lighting Solutions (CLS) offer education designers a range of options that satisfy CHPS and IESNA best practice, exceed energy code requirements, and support LEED certification. The Classroom of the Future features the Peerless SIMPLY5™ CLS, in which intelligence is added to highly efficient luminaires and Synergy® Lighting Controls components to create an integrated solution that is simple to specify and—thanks to Acuity's RELOC® plug-and-play wiring—easy to install and reconfigure. Meanwhile, Hydrel® luminaires illuminate the building's exterior and Lithonia Lighting® luminaires provide emergency and exit lighting.

"Peerless is high-design and really merges well with our design intent," notes Tankursley. "The SIMPLY5 solution met our performance criteria—not only the luminaires, but the RELOC plug-and-play modular wiring systems in the ceiling, the controls and so on."

The SIMPLY5 CLS consists of two rows of intelligent indirect/direct T5 luminaires mounted parallel to the windows and can include a whiteboard luminaire on the teaching wall. Choose the right luminaire from a wide selection of Peerless models, each utilizing advanced optics to maximize visual comfort, reduce glare on computer screens, improve facial recognition and place uniform illumination on walls and ceilings.

The luminaires are integrated into several layers of control, including an occupancy sensor for automatic shutoff, a photosensor for daylight step-dimming control, master/row control at each entrance, and teacher controls—a series of engraved switches located at the main teaching board for control of the whiteboard luminaire and main lighting.

Using the teacher controls, the teacher can change the main lighting state from General to A/V mode with the whiteboard luminaire on or off, enabling selection of ideal lighting conditions for lecture or A/V presentations while producing significant energy savings. (Note the whiteboard luminaire and teacher controls are not installed in the Classroom of the Future demonstration.)

"For the Classroom of the Future we're exhibiting at Greenbuild, we wanted to show the greenest solutions, the best of the best from our partners," says Tankursley. "It's our first time showcasing Acuity Brands Lighting brands of Peerless, Synergy and more and we're looking forward to a long-term relationship with the company and offering the SIMPLY5 CLS as a standard solution."

Be sure to visit the Classroom of the Future while at Greenbuild. After the show, it will be moved to a new permanent home in a school district.



**AcuityBrands**  
Lighting

**AEL** American  
Electric  
Lighting  
**mark**  
architectural  
lighting

**ANTIQUE**  
Street Lamps

**CARANDINI**

**gotham**

**HYDREL**

**HOLOPHANE**

**LITHONIA**  
LIGHTING

**MetalOptics™**

PEERLESS®

**RELOC**  
WIRING SOLUTIONS

**SPECLIGHT**

**Synergy**  
LIGHTING CONTROLS