

In this scenario, ceiling-hung pendants bounce light off the ceiling and side panels to supplement the daylighting from windows on both sides of the space on cloudy days, or provide ambient illumination in the evening hours.



Images courtesy Ball State.

How do you combine daylight and electric light to create excitement for a new library? Just ask the students at Ball State University

BY VILMA BARR

Some of tomorrow's lighting designers are learning the fine art of combining daylight with electric light, as part of a design studio course offered at Ball State University in Muncie, IN. Officially known as the "Daylectric Lighting Design Studio," the course was initiated by a \$20,000 grant from the Nuckolls Fund for Lighting Education in 2006 (see sidebar). The 15-week class has been offered twice to date, during the spring semesters of 2007 and 2008.

The course is not all theory and lecture, however. The would-be lighting designers are trying their hand at applying daylectric light to a real building...well, sort of. The "building" in question is actually a hypothetical 5,000-sq-ft branch of the Muncie Public Library situated at a downtown corner location.

Each course included 11 students from the university's first-year graduate and fourth-year undergraduate architecture programs; the class was divided into five three-week modules. Co-instructors with Prof. Robert Fisher of the Department of Architecture were Prof. Robert J. Koester, director of the Department of Architecture's Center for Energy Research/Education/Services (CERES), who served as lead instructor, and Prof. Jeffrey Culp, operations manager, CERES. Three visiting lighting designers also taught during the middle weeks of the program.

INSIDE THE DAYLECTRIC

DESIGN STUDIO

Full-height movable screen panels of reflective translucent glass over the windows bring daylight into the interior. This group's design controlled the southern sunlight and the sky-vault daylight via selective placement of glazing and the use of louver systems along with the adjustable screen panels.



Fisher believes it's imperative for universities to begin introducing the concept of architectural integration of daylighting and electrical lighting to their students. "This topic, although highly influential in the practice and experience of architecture, has been under-represented and under-explored within the studio culture of most schools, including our own," he says. "The design and technology of lighting involves a different approach that is new ground to students."

ASSIGNMENT: LIBRARY

The 11 students in the studio class were divided into four groups and asked to develop a lighting plan for the hypothetical Muncie Library branch. The instructors provided certain basic architectural characteristics for the building to keep students' attention on the daylectric area of focus. "We created an architectural brief for the building relating to its form, structure and materiality so the students could concentrate on the daylectric aspects of the program," says Koestner.

The objective of the library design was to build readership, especially within the inner-city population, and bring more visitors and activity to the downtown area. The 30-ft-high facility would offer an intimate ambience, stocked with works of contemporary fiction, with emphasis on new releases from popular and new authors. Building amenities would include a coffee shop,

Internet lounge, multipurpose digital classrooms and a reading area with carrels. An outside garden reading area would be visually enclosed.

With that information in hand, the students developed lighting concepts using the AGi32 program, which their respective groups then studied and refined into solutions. "The final solutions arrived at by each stu-



This interior daytime view of the main lobby shows an example of daylighting controlled by the exterior louvered wall system.



The library's main lobby and reading room feature custom luminaires to complement the daylighting characteristics and the architectural elements of the primary space.

dent group were vastly different," reports Culp.

Students in the Spring '08 course "got up to speed quickly," adds Koester. "They became very proficient with the software, and their building solutions were quite sophisticated." As the course progressed, it was evident that the students were learning from one another. And by the close of the semester, he adds, "they had developed a unique professional skill—a willingness to hear the other side."

Moreover, "even though the students were working from prescribed options, they still invested their projects with considerable innovation," Koester says. Working in teams of three, the students arrived at decisions by majority. According to Koester, the real development of each team's design took form as the students more fully understood the impacts and implications of their initial selections. "For example, the design of a custom luminaire was influenced by their interior plan and the material palette they had specified for the user spaces. In other cases, the desire to achieve balance in daylighting and electrical lighting necessitated modifications to the plan form or the exterior wall systems," he explains. "The students had to determine optimum integration of the custom electrical luminaire with the daylighting design strategies being used: top lighting, side lighting and/or ground lighting."

PROS OFFER CRITIQUE

The Ball State faculty integrated three outside experts into the program. The visiting professionals offered critiques and feedback of the final presentations. The visiting professionals for the first course in 2007 were Joel Loveland, director of the Betterbricks Daylighting Lab, Seattle; Gary Steffy, principal designer and president of Gary Steffy Lighting Design, Inc., Ann Arbor, MI; and Paul A. Zaferiou, principal, LAM Partners, Inc., Cambridge, MA. Steffy returned for the second Daylectric course offered in 2008 and was joined by Jim Benya of Benya Lighting Design, Portland, OR, and David Eijadi, principal of the Weidt Group, Minnetonka, MN.

The instructors agree that their daylectric students are now educated in a way that's unique compared to graduate students in other schools of architecture throughout the country. By working in teams and applying the AGi32 software, the students have developed a skill set that should serve them well in professional practice. "They are able to enter a firm as 'walking experts,' taking with them with the history of an immersive design experience," says Koester.

Several students from the 2007 studio were invited to serve as graduate assistants to the 2008 studio, while "others have continued to this day to play a role in the daylighting assessment activities of the CERES Lighting Lab,"

Nuckolls Then and Now

James L. Nuckolls occupies a singular place in the history of architectural lighting, combining a career as a lighting designer with that of an educator and champion of lighting education. He spread the message of the importance of lighting as an integral component of architecture and interior design across the U.S. to design professionals and students alike.

After graduating from Carnegie Mellon University, Nuckolls worked briefly under the legendary Stanley McCandless at Century Lighting. He became an early practitioner in the developing field of architectural lighting and was subsequently involved in lighting design partnerships with Donald Gersztoff, William Warfel, Jeffrey Milham, Carroll Cline and Francesca Bettridge. At the same time, Nuckolls worked tirelessly to promote architectural lighting as a discipline, urging recognition of the relationship between lighting, architecture and interior design.

In his 20 years at the Parsons School of Design in New York where he was active through the 1980s, Nuckolls succeeded in making lighting a separate required course for all undergraduate environmental design students. He introduced lighting design to the school's Continuing Education Program and initiated the first Master of Fine Arts in Lighting Design program. He was one of the founders of the International Association of Lighting Designers (IALD), and was its president for two years. His 1976 book, *Interior Lighting for Environmental Designers*, was

a widely used text in lighting and interior design courses across the country.

In 1988, a group of colleagues established a memorial educational fund, The Nuckolls Fund for Lighting Education, Inc. A year later, it initiated its program of providing financial support to schools in North America to develop and expand courses and curricula in architectural lighting design and recognize outstanding work in lighting by students and educators. A growing endowment, created by contributions from across the lighting industry, has distributed \$555,000 in 19 years in grants of \$20,000 to colleges and universities, and awards at \$10,000 and \$5,000 to individuals.

Educational institutions that have received Nuckolls Fund grants include Boston Architectural College; Art Center College of Design, Pasadena, CA; Texas A&M University; University of Washington; Maryland Institute College of Art, Baltimore; Virginia Tech School of Architecture + Design; University of Oklahoma College of Architecture; and Ball State University. A final report assesses the project and offers recommendations for further action.

Jeffrey A. Milham is president of the Nuckolls Funds Board of Directors. Grants and awards are presented at an annual LIGHTFAIR International luncheon. Information about submissions for next year's awards, due February 1, 2009, is posted on the Fund's website, www.nuckollsfund.org.

—Vilma Barr

Koester adds. Under the direction of Culp, all sessions led by the visiting designers were video recorded to be edited into resource materials. Combined with the web conference, Fisher foresees a growing set of instructional re-

continual transformation of studio education.”

A summary of the Daylectric Lighting Design Studio was presented at the international “Teaching in Architecture” conference held last year in Krems, Austria. 🍷

By the close of the semester, students had developed a unique professional skill—a willingness to hear the other side

sources to sustain the course and build a library of materials and expertise. The course will be continued beyond the initial Nuckolls Fund grant, Koester says. “The course has made an effective contribution to the Master of Architecture program at Ball State,” Koester says. “The opportunity to interact with the lighting experts for feedback and reviews offers an important long-term opportunity for the

Editor's Note: Images represent concepts from two student groups during the Spring '08 “Daylectric Lighting Design Studio” course at Ball State.

Vilma Barr is a regular contributor to LD+A and has written, co-authored or edited 15 books on retailing and design.