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LILLIS BUSINESS COMPLEX AT THE UNIVERSITY OF OREGON

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By A|L Staff

Some projects announce themselves with great fanfare, and others quietly take their place letting the architecture do the talking. Such is the case with the Lillis Business Complex at the University of Oregon in Eugene. What started off as a renovation and addition project for an existing business school facility was transformed through a collaborative process between client, architects, engineers, and energy and lighting specialists, into an excellent example of sustainable practices, and an advanced application and integration of daylighting and shading controls. As Kent Duffy, principal of Portland, Oregon-based SRG Partnership, explains, he knew from the initial meeting that he had an engaged client. 'Having recently redefined its curriculum, the buildings that housed the school did not reflect this,' he says. 'You couldn't see it manifested in the physical surroundings. They said to us, 'We want to figure out what it takes to be the business school we want to be.''





Like many projects today, the design and schematic development stages of the project involved numerous meetings and 'workshop' sessions. Client, design team, and consultants analyzed and evaluated design and building technology issues, and determined what could be built on the very tight site that lay between three existing buildings, and a fourth, the oldest building on campus, registered with national landmark status. Added to this process, which commenced in 1999, were campus planning and university budget approval processes. The building was completed in the fall of 2003.

From the University's perspective, sustainable building systems were not part of the original project scope. 'During the programming process, we were really struck by the faculty and students' desire that the building strive for energy-efficiency,' says Duffy. 'They came to us before we could bring up the issue.' This push toward sustainability is not just lip service; it is the very foundation of the school's curriculum, which believes that businesses that do not practice sustainability will not survive in the coming decades. When it became clear to the university that this was a critical aspect of the project, the institution realized if it was going to do this, it had to do it right. Daylighting specialist G. Z. Brown, who is the director of the Energy Studies in Buildings Laboratory at the school of architecture just across campus, along with the local utility, and energy and solar consultants, were brought on board. 'We started very early on in the process with a wide number of ways to address energy issues and key among them was lighting,' says Duffy. 'The cornerstone of any conservation plan, from my point of view, is daylighting, and so we set out to daylight as much of the building as we could.'

The spaces where this becomes particularly apparent are the atrium, the lecture hall, and the case study rooms. Faculty programmatic requirements requested that entrances to lecture and classrooms be at the rear of the space so as not to interrupt lectures in progress. This layout meant the 'front' of the classroom would be along the exterior window wall. But after several site visits to business schools on the West Coast, and witnessing lecture halls with problematic window placement and shading control, the client told the architects to omit windows from the classrooms completely. Not willing to give in so quickly to what they considered a rather harsh idea, the architects discussed the benefits of daylighting with the client, and the way it could be controlled in a space. Computer models prepared by G. Z. Brown showed that the proposed classroom layout would achieve daylight factors (the percentage of available light in the sky that is actually in the room) that would satisfy the requirements for both video presentations and note-taking. However, the values were occurring in the wrong places. 'We showed the client that if you turned the room around 180 degrees and entered from the front, with the exact same arrangements of sun shades and light shelves, you would produce the daylight factors ideal for students to take notes, and the preferred contrast ratios for video projection,' states Duffy. Achieving this quality of light was far more important to the faculty than classroom disruption, and from this point forward they became completely committed to the idea of daylight as the primary light source.

This is exactly lighting designer Jim Benya's philosophy about lighting and his design approach for the project. As he says, 'It seems a bit like fuzzy logic, but if you let spaces be lit with more natural light, if you let the light itself rise and fall naturally, you do not have to rely on electric lights.' Benya, whose firm Benya Lighting Design

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is based in Tigard, Oregon, puts this into practice in the four-story, 65-foot-high atrium, an area treated as part indoor, part outdoor space. It is already so filled with light, that relatively few electric sources were required, and those that are included are meant to accent the different spaces within the atrium. 'The approach was to not really light the space too much,' Benya says, 'but to create light that was delicate and disappearing, a little bit of light in a little bit of space.' MR16s are used in the south portion of the atrium, custom-designed T5HO pendants hang in the corridors that lead into the space, and low-voltage monorails light the stair in the circular section of the rotunda.

Of the electric light sources used on the project, the real workhorse is a very small indirect/direct T5 fixture from Smedmarks. 'It has a lot of design appeal; it's delicate, yet robust,' explains Benya about his luminaire selection. Its versatile mounting options also allowed it to be installed in a number of locations throughout the project. 'All sustainable issues tie back to doing the most sustainable thing that we can do to get more light out of a luminaire,' explains Benya, who actually worked with the manufacturer to modify the lens and parabolic baffles. 'The net result,' Kent Duffy says, 'is that we got more light out of it, more efficacy and efficiency.'

Lutron was also key to the lighting story. The architects had called for separate lighting control and shading systems, initially thinking they would have to use two different manufacturers. Receiving the contract for both, Lutron was able to work with Benya to customize a system of integrated lighting and shading controls rather than two separate systems. Not only did Lutron develop new software to make this control integration possible, it changed the course of its product development, eventually leading to its Graphik 7000 offering.

All the controls are the same in every room, and Lutron worked closely with the design team and faculty to create four pre-set scene functions that would respond to the different working and presentation scenarios. Basically the system works this way: upon entering a room and hitting the light switch, the lights come on, automatic roller blinds located in the window sill roll up, and adjust to the right position in accordance with the amount of daylight in the room, and then the lights dim back off. There is a manual override if necessary. A full-scale classroom mock-up was constructed to evaluate and analyze the lighting, shading, and control interface.

The Lillis Business Complex is an example of concept manifested into architectural form, both in terms of the school's curriculum, and the implementation of that mission through the building technologies used on the project: daylighting, integrated lighting and shading controls; thermal mass in the building to help moderate temperature fluctuations; and a passive ventilation strategy. 'People think if your doing a sustainable building you end up with passive systems and that it requires less engineering, but the truth is it requires more engineering because you have to count on every subtle difference to make things work,' says Kent Duffy. The result is a building that its designers and inhabitants are proud of, and in a true academic sense, serves as a laboratory of ideas. elizabeth donoffdetails

project Lillis Business Complex, University of Oregon, Eugene, OR

client University of Oregon, Eugene, OR

architect SRG Partnership, Portland, OR

mechanical, electrical, and civil engineers Balzhiser & Hubbard Engineers, Eugene, OR

lighting designer Benya Lighting Design, Tigard, OR

energy efficiency consultants Energy Studies in Buildings Laboratory, University of Oregon; Solarc Architecture & Engineering; Eugene Water & Electric Board

solar design Solar Design Associates

project size 137,346 square feet

photographer Lara Swimmer (facing page); Rick Keating (this page)

manufacturers applications

Advent Corridor custom-designed T5HO pendants

Cooper Atrium column uplights

Edison Price Seminar room accent lighting

Lutron Integrated lighting and shading control system

Shaper Corridor compact fluorescent luminaires and bathroom vanity lights

Smedmarks T5 indirect/direct luminaires in case study rooms, classrooms, and offices

Translite Sonoma Atrium MR16s

Winona Atrium compact fluorescent uplights

Zumtobel Suspended T5HO luminaires in faculty offices

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