

Centering Planning on Student Learning and Student Learning Goals

Holabird & Root — ST. OLAF COLLEGE
Regents Hall of Natural and Mathematical Sciences

There are several chapters in the story of the evolution of Regents Hall of Natural and Mathematical Sciences at St. Olaf College, each of which affords important insights about a planning process that culminated in one of the largest and most complex academic facilities in the nation to be certified LEED platinum. One connecting thread through the story is attention to the student.

The campus planning team, working with the design team, recognized early-on that thinking about who owns the building was must go beyond thinking about the institution as owner. *"Today it helps to consider also the student as owner, especially as we begin to explore what and how they will be learning in the spaces to be created. As we plan, it is important to understand the students' perceptions of the teacher/learner relationship, of how they experience labs and classrooms, of what kind of learning spaces they find comfortable."*

Thus students were integral to the planning process, engaged early and often. Several key design decisions reflected student input, based on their vision of the building to model best practices in environmental stewardship. In addition to planning teams, students assisted in evaluating options for casework and furniture, rating initial options on aesthetics, ergonomics, and sustainability; that the system finally selected had the greatest content of recycled materials was important to them, as was opportunity to participate in the decision.



Another way students made significant contributions was in developing the green roof terrace. An Environmental Studies class took responsibility for comparing green roof systems and their impact on reducing heating loads and water run-off. They also experimented with trays planted with a variety of plants placed around campus to determine which might survive the harsh Minnesota winters, once the green roof was in place. Students also helped layout and install the green roof terrace— true ownership of their learning and their spaces for learning.

The point where attention to students had the highest impact on both program and facility was the introduction of green chemistry into the academic program, which happened during the mid-point of the decade-long planning for Regents Hall (more about this later). St. Olaf chemistry faculty, seeking ways to minimize the impact of chemical processes on the environment, had received external support to develop a summer green chemistry project to test its viability in their context. During the pilot, they compared the effectiveness of traditional chemistry using toxic solvents with water-based green chemistry.

Once implemented in a single class, students strongly preferred green chemistry because of its positive environmental impact. Indeed, it was at the direct insistence of students that the pilot was extended to be the modus operandi in chemistry teaching labs in the new facility. In announcing the initial green chemistry pilot, the leader of the campus planning team spoke about how the planning of the new chemistry curriculum was being closely integrated with the planning for the new science complex, *"in the end, what you want ideally is a building that is green with a program that is green."*



Learning Spaces for Undergraduate Mathematics



This attention to green buildings and green programs provides further evidence of planning that put students at the center of programmatic and physical change. One goal to be served by the new spaces was to sustain and enhance the institution's strength in preparing science and mathematics students for graduate school and the S&T workplace. Exploring the potential of green chemistry was a strategy to serve that programmatic goal. Actively engaged as researchers, faculty understood how the practice of chemical research was evolving and wanted to prepare their students for that world. A senior administrator at 3M, commenting on St. Olaf's green chemistry program, indicated, *"...as these students move into the workforce they will positively influence their organizations and the world. ...I look forward to meeting the first graduating class with this background."*

The green chemistry program was taking root in the curriculum during critical stages in the design process. The number of hoods initially programmed for chemistry teaching spaces was 118. Given the impact of green chemistry, the final number of hoods is 58. In addition to reducing the number of hoods, they also were able to specify low-flow hoods (down to 60 lfm) that are relatively easy to shut off or decommission with a straight forward protocol. Peter Sandberg, the chief facilities officer, reports, *"many other things contributed to the high-level of attention to sustainability in bringing this facility on line, but the decisions about green chemistry made the largest single impact."* He also reports how, after twelve-months of operation, *"Our initial DOE2 energy model predicted just over 10,000,000 KWH would be required, given the MN Energy Code at that time; the subsequent model, based on ASHRAE 20.1 (which had become the MN Code), predicted something over 9,000,000 KWH. In the past twelve months, the building consumed just 2,700,000 KWH."*

The St. Olaf story, about attention to students and to sustainability, is also one of taking advantage of their start-and-stop, more-than-a-decade-of space planning (in hind-sight a blessing in disguise). Faculty whose teaching, research, and students would be affected by the quality and character of the anticipated new spaces kept involved in different ways. They participated on the formal design team, in informal focus groups that looked at specific kinds of learning environments, and the new kinds of interdisciplinary connections that were emerging within the division that could be advanced through the planning of the facility, as well as in its use for generations of learners. The LEED Platinum certification, in 2009, is further evidence of the value of the time and timing of the planning and construction: the "green" technologies and systems incorporated in Regents Hall were, in large part, hardly on the radar screen in the mid-1990's.

One of the most important lessons learned at St. Olaf was that innovation comes from many sources. The most unique elements of the facility came from a close collaboration between the design team and the stakeholders who created a vision statement together and then challenged each other to make it a reality.

Between Regents Hall on the southeast edge of campus and the wind turbine on the northwest, St. Olaf's commitment to environmental stewardship— to being a green campus— is visible far and wide. ■

