Frontier Pragmatism: Every Design Move Has a Purpose

ZGF Architects LLP — DICKINSON COLLEGE
The Rector Science Complex — Stuart Hall and James Hall

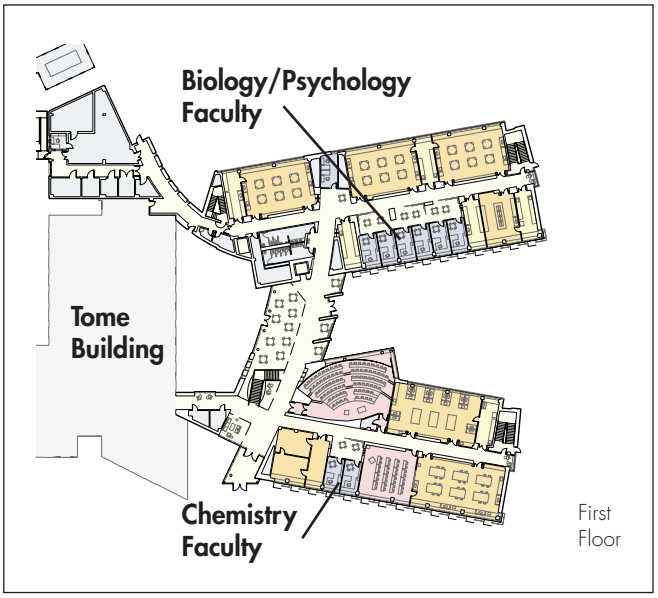
Build on a Past for the Future

Dickinson's culture is firmly grounded in the liberal arts; its beginning as a frontier institution is still honored through the idea that liberal arts are useful as preparation of all graduates for responsible citizenship. This commitment shapes their academic program and thus also spaces that house those programs. The architectural design of the new science complex was intended to assert the centrality of the sciences to the mission of the college. The building was expected to not only house a 21st century science program but to reflect three key characteristics of that program:

- Interdisciplinarity— the creation of cutting edge new fields such as Biochemistry and Molecular Biology, Neuroscience, Bioinformatics and Nanoscience.
- Active pedagogy— "workshop" approaches, interactive labs and fieldwork, and courses organized around issues such as "Understanding Cancer" and "Climate Change."
- Inquiry— engaging students in complex scientific research guided by a faculty equally committed to teaching and mentoring and to conducting first-class research.

The immediate impression when walking into the two new science halls in the Rector Science Complex at Dickinson College—Stuart Hall and James Hall—is how transparent everything is, how seamless everything seems. Both transparency and seamlessness were intentional, captured in the vision that drove the community of planners and thus the process by which planning and designing evolved.

The power of transparency is evident from stepping first into the spine, the social heart of the complex. It includes an atrium and smaller spaces for group study and project displays. As the spine opens up to the street, directly across from the dining center, it serves one of the primary goals for the seamlessness of the new spaces: that every graduate—whatever his or her major—would have a deep awareness of how scientists work, how science is done. Thus, the space is designed to attract students from across campus, providing them social spaces for the informal collaborations and conversations that build communities of learners—within and beyond science learning.



The process of translating Dickinson' culture and history into new spaces for science was the process of getting the planning right. By creating flexible and adaptable teaching and research spaces in a "state-of-the-art" environment, the planners aimed to create a social heart for the sciences that would be further enhanced by promoting interdisciplinary learning and research.

Respect a Culture of Informed Change

For more than 25 years, faculty at Dickinson had been at the forefront of pedagogical change. The concept of Workshop Physics—adapted widely elsewhere as well as across departments at Dickinson—was grounded in a conviction of the value of student-centered learning. In fact, for decades faculty at Dickinson had experienced on-site and first-hand the remodeling of spaces in the old Tome Building (built in 1883, one of the oldest continuously operating science buildings in the country) to accommodate the pedagogical approach that became Workshop Physics. When "new Tome" was designed more than a decade ago, the walls of the corridors were lined with windows, classrooms had a flexible design to accommodate space for interactive learning experiments, and learners often spilled out into gathering spaces designed in the corridors for group discussions and projects. All of these experiences and ideas informed planning for the new science halls.

The goal of making the planning process transparent to all required the right kind of planning team, or—in Dickinson's case—the right set of planning teams. The core team involved faculty, facilities officers, and students. One important lesson learned from the involvement of students was to engage them early and often. At the beginning of the process first-year students were invited to join the planning team so there could be consistency of students' participation over the months and years it takes in a major facilities planning initiative.

Make Learning Visible

Spaces were designed to support curricular commitments to inquiry, connectedness, and enterprising and active learning. The various meeting spaces were planned to provide inviting discussion spaces to connect to learning outside the classroom and to make science more inviting to all students. Faculty chose to have their offices co-located, integrating the disciplines physically just as the curriculum integrated them intellectually. The result is that offices and labs from three departments are dispersed and mixed across the two wings emerging from the spine. This was a pragmatic planning decision, not made arbitrarily, without reflection or directions from top-down. Weaving the thread of transparency throughout the wings affected also the design of offices suites and decisions about how to make teaching labs open and welcoming. Glazed windows between teaching labs, as well as windows providing glimpses from the teaching labs into faculty research spaces were designed to emphasize the connections between learners and learning at all career stages.

The attention to sustainable design was another way college leaders intended that this project was to look toward the future. While appreciative of the charm of the historic campus buildings, the goal for Dickinson's first lab-intensive teaching buildings was to signal that leaders for the future were aware of and committed to responsible stewardship of natural resources. ■

About Dickinson College:

The College, founded in 1783, is the 16th oldest institution of higher education in the nation. It was intentionally located in Carlisle, Pennsylvania, a small town on the edge of what was then the western frontier of our young country. The founders rejected learning for learning's sake, which they considered an effective concept. Instead they supported the idea of a useful liberal arts education designed to shape graduates who would have a leading role in building a democratic nation. This culture and spirit of pragmatism continues today, shaping the future of Dickinson College.

About Stuart Hall and James Hall, Dickinson College (opened August, 2008):

- 90,000 square feet (first and second wing) at a total cost of $34.5 million
- 16 area construction firms used about 165 construction workers each day for a 20-month period from 2006-08
- Facilities include 12 teaching labs, 4 instrumentation suites, and 27 faculty and student research space

- Academic Program Features
  - Programs supported: biochemistry and molecular biology, biology, chemistry, neuroscience, and psychology.
  - Initiatives supported: bioinformatics and nanoscience.
  - Number of majors supported in these programs: 2.
  - Number of faculty supported: 12 faculty, 8 of whom participate in two or more programs.
- Sustainability Features
  - LEED-certified. The building has been awarded LEED (Leadership in Energy and Environmental Design) gold certification.
  - Enthalpy Heat Wheel – a heating and ventilation system to reduce typical science building energy use by at least 50 percent.
  - Lighting systems controlled by light-harvesting sensors.
  - Exterior sunscreens on southern facades to allow for maximum daylight harvest and minimum negative solar heat effects.
  - Sustainable landscape that relies on indigenous plants that require less water and no harmful fertilizers. The landscaping includes a bio-swale installation to capture storm water and reduce run-off.
  - East-west orientation of building to allow for maximum solar harvesting.