03 Projects

03A Science

VISION AND OBJECTIVES

Plans for new and renovated facilities should be judged against their ability to help us achieve the following educational goals:

- Support integrated science education. Students, faculty, and staff should experience the connections between scientific disciplines and the connections between science, other academic fields, and “real life” outside of the classroom.
- Support student-faculty research. Facilities should increase our ability to involve more students in meaningful research in our laboratories, and to incorporate meaningful research opportunities into the science curriculum.
- Enhance the strengths of our current facilities and programs in a manner that reflects Carleton’s historic leadership in educating scientists.

At the same time, the resulting facilities should clearly reflect these design principles:

- Adaptability/flexibility—Teaching and research spaces should be relatively easy to reconfigure as new faculty and new scientific techniques and areas of interest come and go. Incorporation of flexible casework, partitions, and utilities are ways in which adaptability can be achieved.
- Sustainability—As some peer institutions have done when building and renovating science facilities, we envision buildings that, in addition to cutting operational costs and being more sustainable, are also tools for teaching about energy conservation and the environment.

BACKGROUND AND OBSERVATIONS

- The science and math departments are housed in five buildings: The Center for Math and Computing, Hulings, Mudd, and Olin Halls have a combined area of about 209,000 gross square feet occupied by the Mathematics, Computer Science, Biology, Chemistry, Geology, Physics, and Psychology departments. The fifth, Goodsell Observatory, houses astronomy equipment, ENTS offices, and the GIS lab.
- Construction and renovation in these buildings has been designed to address department-specific needs (e.g. Hulings Hall for Biology), with less regard for inter-departmental concerns.
- Courses and research conducted in some of our older facilities require improved laboratories with enhanced infrastructure (better power, chilled water, HVAC), a more flexible design, and better energy efficiency.
- During the last two decades our science program has increased considerably (a 38% increase in faculty, and a 30% increase in laboratory enrollments). Trends at Carleton and nationally suggest a continued and accelerating emphasis on student-faculty research. Increased laboratory, office, storage, and other space is needed to accommodate this growth.
- Analysis by faculty and staff of current resources and needs, conducted during the planning process, suggested a need for a space increase of about 30% in the sciences.
RECOMMENDATIONS

- New construction should be in the current science courtyard and should include connections at all floors across the courtyard and at the NW and NE corners between buildings.

- New construction should be dedicated mainly to high-intensity laboratory uses in chemistry and physics. Floor-to-floor heights should match those in Hulings, with connections at every floor.

- New construction and targeted renovations should enable cross-disciplinary and collaborative interactions across the sciences, as well as addressing departmental needs.

- A sufficiently large swing space should be built initially, so that as this space is occupied by parts of the science program, comparably-sized spaces become available for renovation.

- New office and dry laboratory space (e.g. many Psychology, Geology, GIS, and Computer Science labs) should be placed in renovated space in Mudd and Olin. A significant portion of renovated or new space should be dedicated to new and improved classrooms that would replace and supplement Olin 02 and 04.

- Significant pre-design and architectural design work will be critical to define arrangement of spaces, determine which spaces should be shared and how to maximize efficiency and flexibility. The staging of construction and renovation must be carefully orchestrated so that progress can be made in a reasonable timetable and with minimal disruption.

- New construction should result in an increase of approximately 30% in the overall footprint of the sciences. Initial renovation may involve about a third of the existing space.

/ Figure 8 / Locations of recommended science renovation, in orange, and new construction, in blue