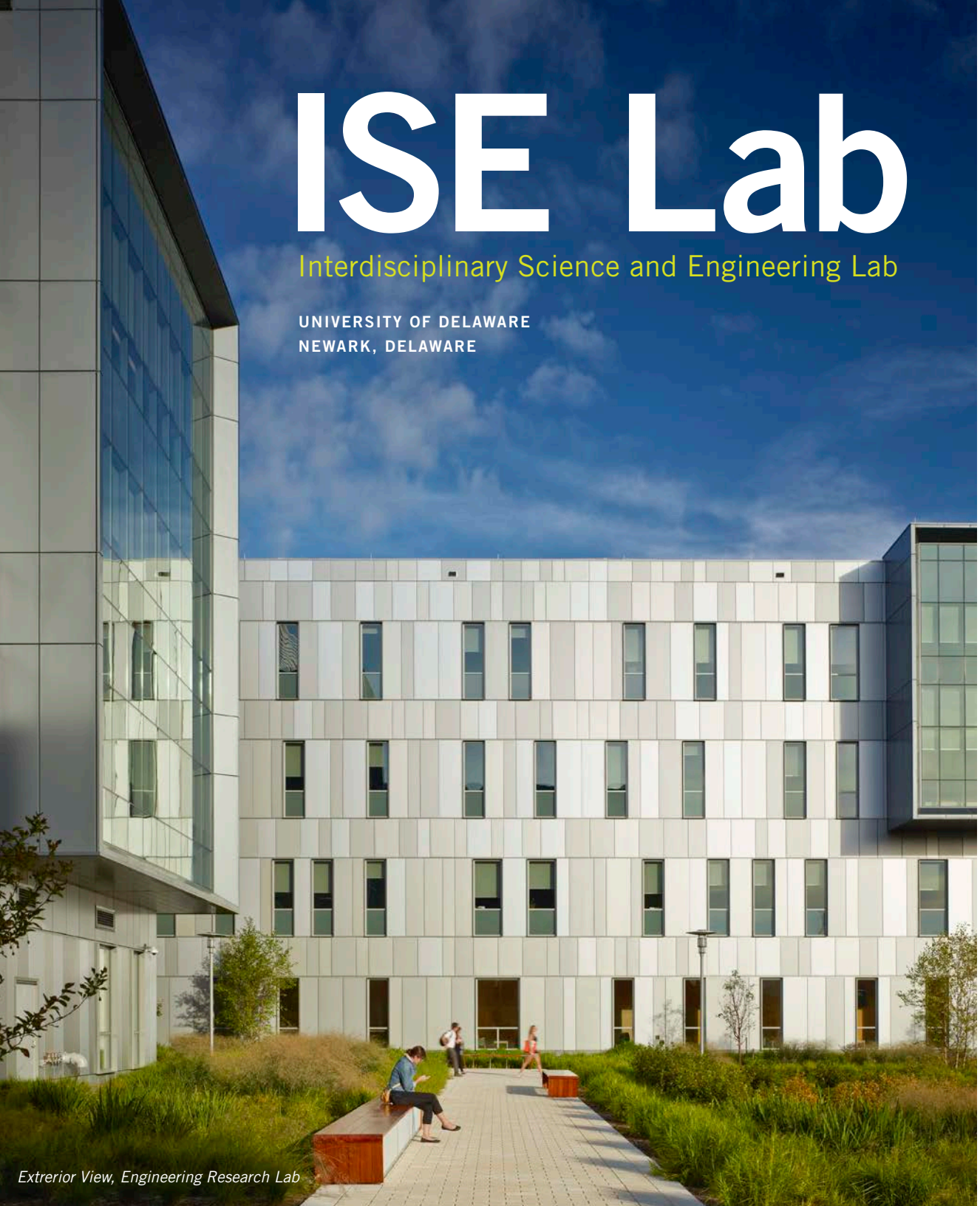


ISE Lab

Interdisciplinary Science and Engineering Lab

UNIVERSITY OF DELAWARE
NEWARK, DELAWARE

Extrerior View, Engineering Research Lab

The University of Delaware embarked on a revolutionary change to prepare its students and researchers for meeting today's ever changing needs. This transformation is manifest in the new Interdisciplinary Science and Engineering Lab (ISE Lab), whose purpose is twofold: to enhance the learning and discovery experience for its students through a new interdisciplinary curriculum, and to provide state of the art research space for the Institutes of Energy and the Environment.

The 194,000-square-foot building provides a home for the two research institutes (Energy and the Environment) to conduct research and includes open/collaborative labs, lab support, and administrative and office space. These spaces are supported by core facilities that provide the university much needed resources and include a Class 100 Clean Room, advanced materials characterization, synthesis and an imaging suite.

Together, the teaching and research vision of openness and collaboration for the ISE Lab provides students and researchers state-of-the-art facilities to educate and prepare tomorrow's leaders.

Extrerior View, Instructional Wing, Courtyard at Dusk

Rendering of Clean Room

Problem Based Learning Classroom

Project Principles

ACADEMICS & STUDENTS

- Improve the delivery of education enabling a richer, fuller experience
- Encourage and stimulate excitement, curiosity, and wonder in the sciences and stewardship of the environment
- Destination point for students and the campus community including faculty
- Flexible lab spaces that can adapt to changing Pedagogies
- Student oriented spaces that encourage dialog and the exchange of ideas and experiences

SUSTAINABILITY

- Consistent with sustainable planning principles outlined in the Capacity Plan
- Use proven building technologies in lieu of experimental technologies
- Life Cycle cost payback to occur in a reasonable time frame (7- 10 yrs)
- Technologies to be functionally and operationally appropriate
- Utilizing best 'green' practices (not seeking LEED certification)
- Visibility of sustainable measures

FUNCTION & PERFORMANCE

- Durable and adaptable building that 'wears nicely' over the years
- Not over designed, but has what's needed-designed to freely adapt and adjust to future needs
- Providing space for infrastructure capacity (expansion/replacement)
- Adaptable to future science or non-science programs
- Robust mechanical systems

AESTHETICS

- Acknowledge context while respecting institutional need and look to the future
- Create an image that evokes excitement and passion for science learning
- An image that is commensurate with the institutions commitment to excellence in the sciences
- Learning hub/ gathering space

Problem Based Learning Classroom, Connected to Instructional Lab

Space Allocation

TEACHING & LEARNING

35%

RESEARCH INSTITUTES

30%

20% Core Facilities - Campus Resources

- (4) 48 seat SCALE UP/ PBL Active Learning Classrooms
- (8) 24 seat Instructional Labs
- (6) 40 seat General Purpose Classrooms
- (3) 30 seat SCALE UP/ PBL Active Learning Registrar Classrooms
- Lab Support & Prep spaces
- Interdisciplinary Faculty space
- Institute Research Labs (open)
- Institute Offices (Energy, Environment)

15% Building Shared Facilities

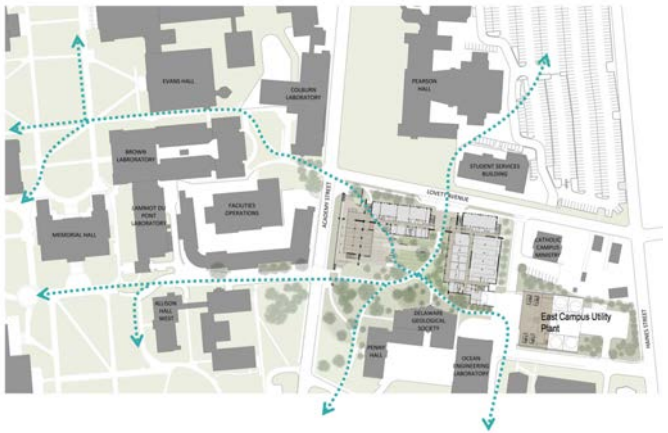
- Office spaces (Principal Investigators, Post Docs & Graduate students)
- Imaging & Microscopy Suite
- Clean Room (class 1,000, 100)
- Synthesis Lab
- Advanced Material Characterization Suite
- Commons & Food Service
- Social spaces; Group Study, Crash and Private
- Conference & Seminar Rooms
- Loading & Receiving

Site Plan

Connectivity

The project site is located east of the main campus green and adjacent to the existing science and engineering teaching and research buildings. Strategically located between the main campus green and student housing (2,000 beds) to the southeast, the building is organized to capture the flow of student traffic between these two points, while becoming a campus wide destination.

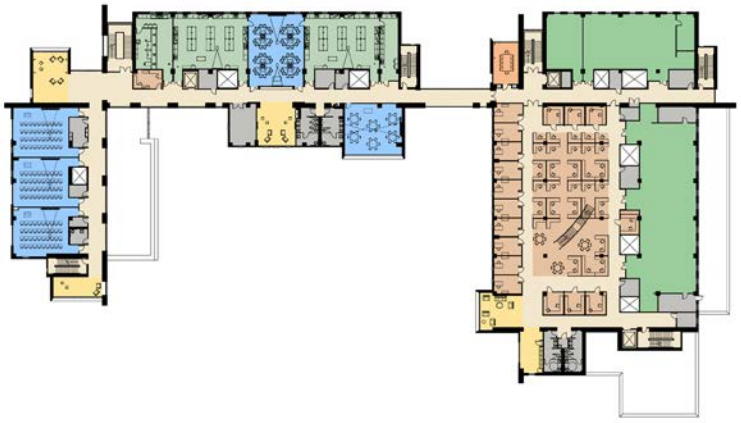
By anchoring the southern boundary of science and engineering precinct, it is anticipated that over time, new science and engineering growth will occur to the north of the project site.



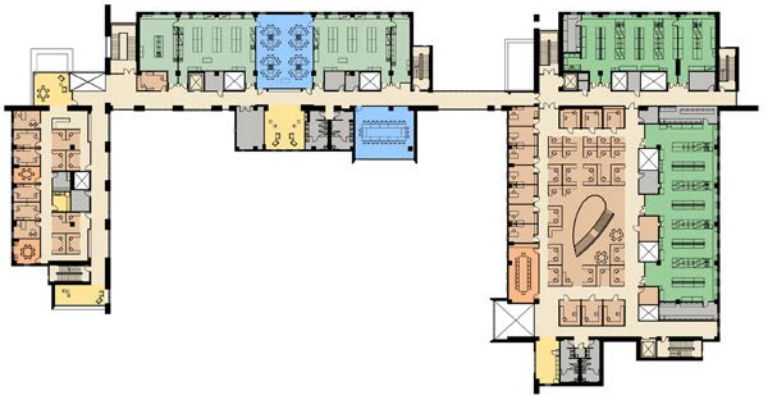
First Floor

Second Floor

Third Floor



Fourth Floor



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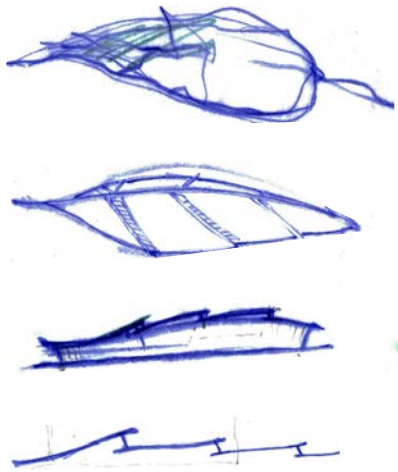
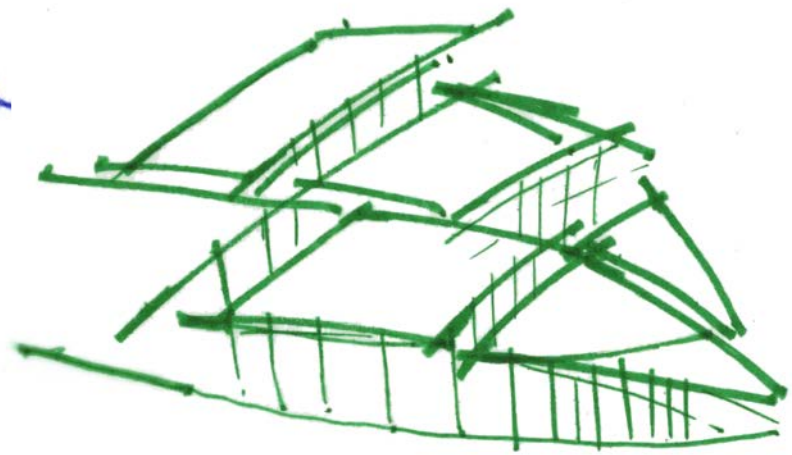
LEGEND

- CIRCULATION
- LOUNGES/BREAKOUT
- OFFICE
- SUPPORT
- SPECIALTY CLASSROOM
- STUDENT LAB
- RESEARCH LAB



Early Sketches



Massing Sketch

Rendering

Construction Photo

Finished Stair

The two institutes in this building focus on energy and the environment, both looking to nature for inspiration.

The post doctorate and graduate student work area on the third and fourth floors of the research wing occupies the center of a large floor plate. Opportunities for views out and direct sun light in this space are limited. Centrally located, this area permits students and principal investigators to quickly access their labs and each other horizontally and vertically. The interdisciplinary spirit of the research environment demanded the space celebrate the collaboration and foster the synthesis of ideas between principal investigators, post docs, and graduate assistants.

The design solution evolved into a double height space capped by a light monitor with a gently curved stair. This form is meant to reflect the research occurring in the building for the institutes of Energy and the Environment. Thus the ‘leaf’ symbolically reflects the transformation of energy as carried out by plants through the process of photosynthesis. To further amplify the idea, photovoltaic panels are placed on top of the clerestory roof and provide power to the building.

"ISE Lab is, indeed, the temple of our future, where the university's pioneering research will find a home built on the foundation of openness and collaboration: where new discoveries will redraw the boundaries of human knowledge, and new innovations will help us harness it: where young talent will be developed and deployed to solve the problems that challenge us locally and globally: where students will see everyday the enormous power of putting science to work."

PATRICK T HARKER, PRESIDENT, UNIVERSITY OF DELAWARE, 2013

Exterior + Courtyard

Commons Lobby with Outdoor Courtyard

Connection between Buildings

An Outward Expression

The building is designed to contribute to a vibrant streetscape and pedestrian realm facilitating movement to and through the site connecting the main campus core to the developing east campus. The buildings outward expression uses materials and fenestration patterns to connect it to older campus buildings while other materials express the exploration of modern science and transparency. Strategically located to capture movement through the site, the commons is a campus-wide destination for students, faculty, and staff to congregate, collaborate, and study.

The building forms a 'U' shape, framing a south facing plaza. This plaza provides exterior gathering space for students and formal events. Stormwater management is visibly expressed through the buildings green roofs, runnels, pre-treatment planters, and bio-retention plantings.

Exterior View, Instructional Wing