Massive open innovation space: Lehigh’s game-changing reuse project for experiential learning, design, and prototyping

Daniel Lopresti
Professor and Chair, Computer Science & Engineering
Director, Data X Initiative
Overview

Lehigh’s Mountaintop Building C project:
• Background & history
• Goals & opportunities
• Experiences & lessons learned so far

… from the perspective of an academic (professor, department chair, initiative director, computer scientist) who provided some design input.
Lehigh University

- Founded in 1865
- Mid-size private university
- 3 adjacent campuses
- Arts & sciences + engineering + business
- 5k undergrads, 2k grads
Bethlehem Steel

- Founded in 1904
- America's second-largest steel producer and largest shipbuilder
- Bankrupt in 2003

Magazine ad from 1966
Lehigh Mountaintop Campus

Former home of Bethlehem Steel’s Homer Research Laboratories

Mountaintop Building C

Iacocca Hall

Building B
Photos taken May 2013
Lehigh Mountaintop Building C

Photos taken May 2013
Summer Mountaintop Experience (2013-)

- Student-driven interdisciplinary projects
- Faculty serve as mentors
- 100-200 students each summer
- But only using part of the building: 1 or 2 high bays
Explosive Growth of Computer Science

86% increase from AY 2012-13

Lehigh CSE undergrad majors
Explosive Growth of Computer Science

US-BLS New STEM Job Projections Through 2024 By STEM %

Computing 76%

- Natural Sciences, 6%
- Mathematics, 7%
- Engineering, 11%
- Computer systems analysts, 19%
- Information security analysts, 2%
- Software developers, 31%
- Database administrators, 2%
- Network + systems administrators, 7%
- Computer support specialists, 14%
- Computer occupations, other, 1%

Data X in a nutshell:
- Major investment in computing and data analytics at Lehigh.
- Significant number of new faculty positions in CSE and allied areas: Consumer Analytics, Digital Media, Connected Health.
- Plus synergistic faculty searches in other key fields.

Implementation:
- Initial rollout during AY 2015-16 faculty hiring season.
- Also: symposium and hackathon, innovation grants, seminars and brown bag lunches, regional receptions, industry engagement, campus computing infrastructure working group.
My first impressions of Building C:

- Completely unique space.
- Great place for a hackathon …
- … or for flying drones.
- Looked like someplace Google or Facebook would adapt into a cool, collaborative workspace.

Perfect location for an interdisciplinary initiative with computer science at core.
Requirements

My personal requirements (as a building user / occupant, not a pro):

- Lots of open, collaborative space for students and faculty.
- Permanent office space for 30 faculty and staff, 80 Ph.D. students.
- Hotel office space for other visitors.
- Unique classrooms – don’t duplicate what we have elsewhere.
- A “look” inspired by places our students will someday work.
Entry Pavilion - Level 1

08/12/16  1/16" = 1'-0"

- Telepresence classroom (yellow)
- Shared collaborative spaces (orange)
- Grad student lab (blue)
- High bay maker spaces (blue)
- Faculty and staff offices (brown)

Use Legend:
- Building Common Area
- Building Support
- Circulation
- Dry Research Lab
- Faculty/Student Support
- Office

EYP Architecture & Engineering
Academic Boulevard
Food: Self-Service Cafe
Active Learning Classroom
Back to the Silicon Valley connection …
Hackathons...
Experiences & Lessons Learned

• CSE Department moved in in January.
• Phase 2 renovation now underway for Art, Architecture & Design.

• Design for maximum flexibility.
• Fine-tuning technology takes a while (e.g., telepresence room).
• People maintain old habits, even in new spaces (Ph.D. students).
• Still not sure how to effectively use high bays (noise issues).
• If you build a cool new building, lots of people will want to use it.
The EYP Team

• Ann Barolak: Project Executive
• David Thomas: Project Director
• Toni Loiacano: Academic Planner
• Richard Clarke: Lead Designer

EYP Architecture & Engineering
225 Varick Street, 2nd Floor
New York, NY 10014
If an opportunity drops in your lap, grab it.

Know what you want, but at same time, look around at what others have done.

Ask lots of questions.
Massive open innovation space: Lehigh’s game-changing reuse project for experiential learning, design, and prototyping

Daniel Lopresti
Professor and Chair, Computer Science & Engineering
Director, Data X Initiative