



Fall General Membership Meeting



MONTCLAIR STATE
UNIVERSITY

November 1, 2024

Lafayette College's Acopian Engineering Center

Focusing Transformative Renovation Projects with Design Drivers and Collaboration

Presented by:

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Scott Hummel, Lafayette College

November 1, 2024

Meet Your Presenters



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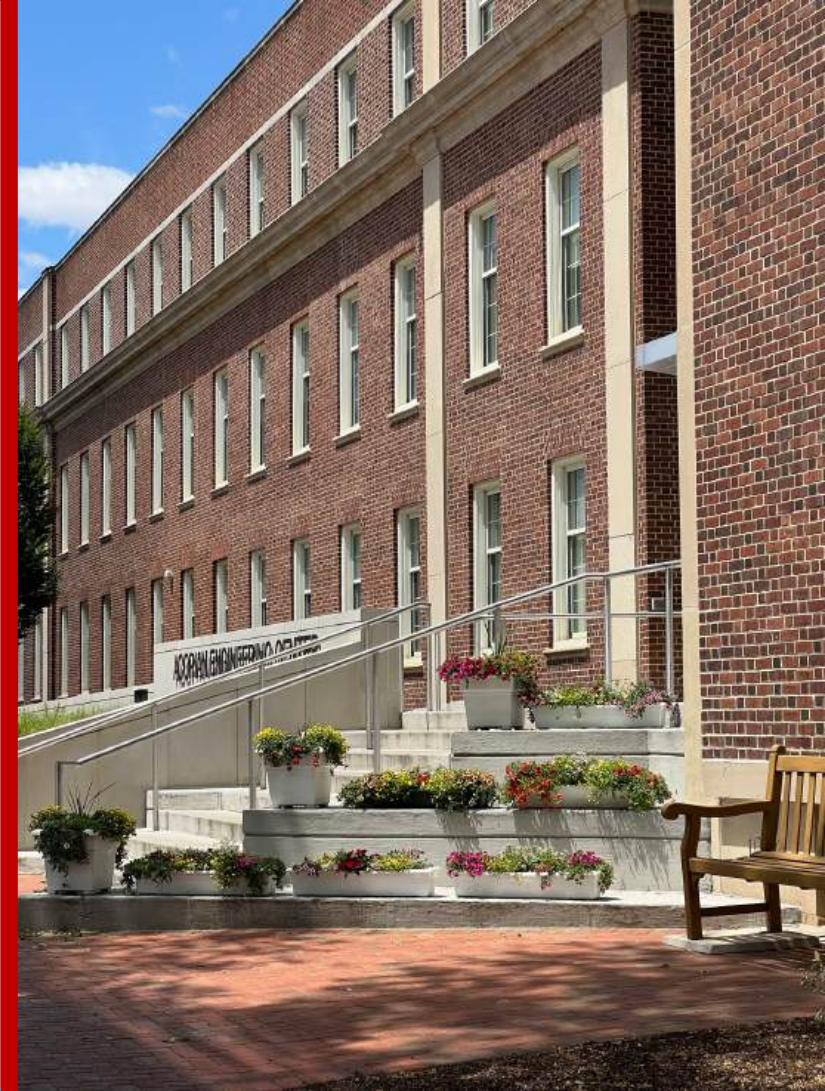
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Learning Objectives

1. How establishing clear guiding principles at the outset can inform an evolving phased project
2. How pre-war educational buildings can be made relevant to 21st century students
3. How normally siloed engineering buildings can reinforce interdisciplinary study
4. How institutional leadership can work together with design professionals to implement complex phased projects



AIA CEU REQUIRED SLIDES

1. We will incorporate once your presentation has been approved for AIA credits.

About Lafayette

- Liberal Arts & Engineering degree programs
- 200th Anniversary in 2026
- 2800 students (undergraduate only)
- Residential college (95% of students live in campus-owned housing)
- Co-ed in 1974



About Lafayette Engineering

- Civil Engineering began in 1866
- Five ABET Accredited degree programs and one liberal arts program (engineering studies)
- 750 students within engineering
- 45 FT faculty, 12 support staff
- 25% women through 2010 (18% national average)
- 45% women in 2023 and beyond



Behind the Curtain of Lafayette Engineering

- Longstanding departments (each over 100 years old)
- Deeply embedded cultures (resistant to change)
- Departments largely independent of each other in terms of resources (not interdisciplinary)
- Building reflected the dominant culture



About Lafayette Acopian Engineering Center (AEC)

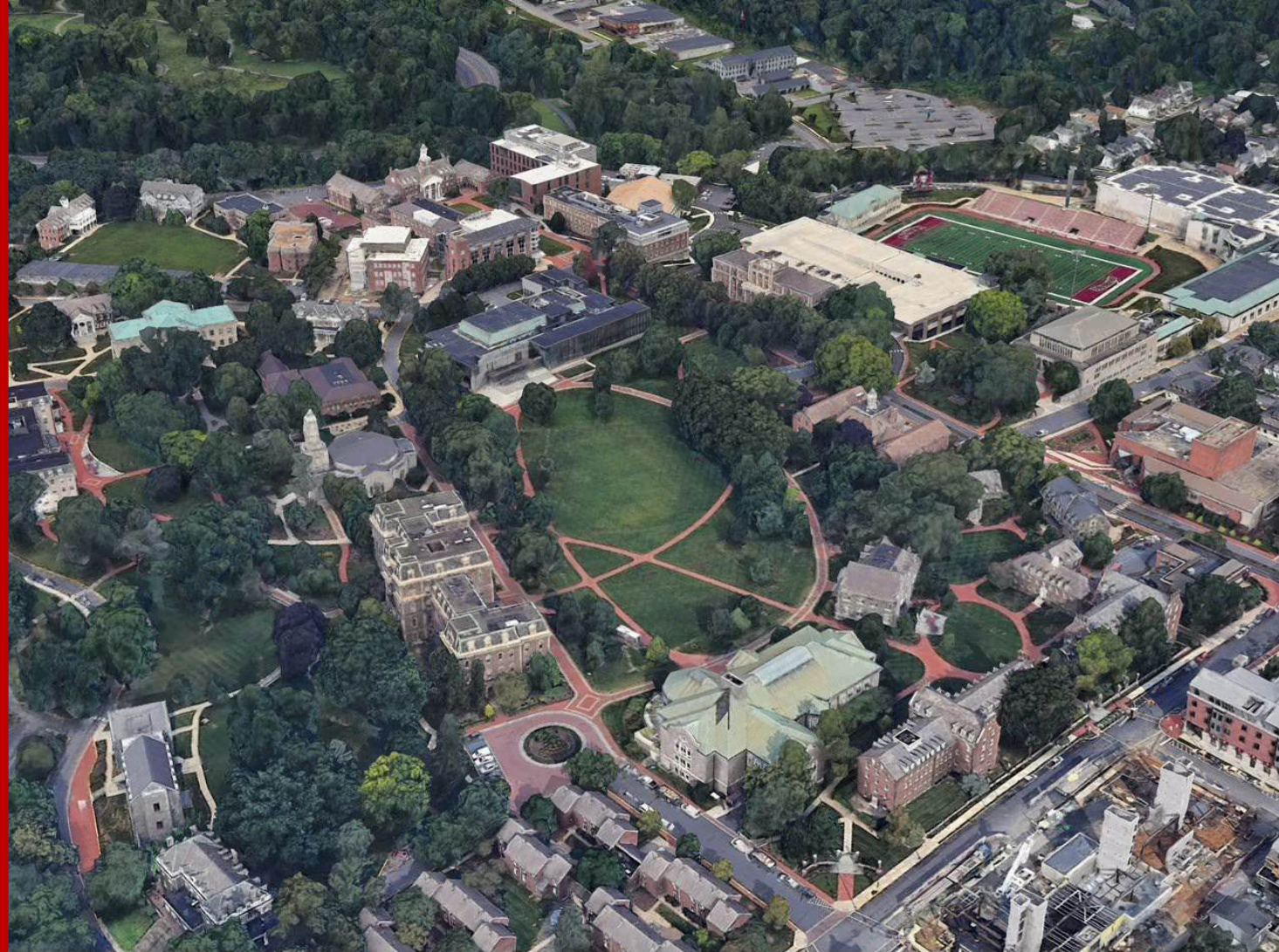


The 90,000-square-foot Acopian Engineering Center includes laboratories designed specifically for student-faculty research, high-tech classrooms, equipped with instructional technology, and student learning centers. It houses the entire Engineering Division's departments and programs, along with computer science.

About Lafayette Acopian Engineering Center (AEC)

Built in **Four Stages** prior to our work:

- Original building: 1951
- Addition: 1965
- Addition: 1981 (Dana)
- Addition (Dana Addition): 1989
- Complete Renovation: 2000



About Lafayette Acopian Engineering Center (AEC)

Before:



About Lafayette Acopian Engineering Center (AEC)

Before:



About Lafayette Acopian Engineering Center (AEC)

Before:



Utilization

- Utilization rates in some labs <10% due to specialized equipment....and fiefdoms (culture issues)
- Not an issue until enrollments increased in the 2000's



We needed **flexible space!**

- **Greater sense of belonging:** Through 2012, 25% women. Become a national leader (meaning upwards of 40% women).
- **Interdisciplinary:** Had traditional fields (mechanical, electrical, chemical, and civil), but modern engineering is happening at the intersections (bio, environmental, robotics).
- **Collaborative** teaching and learning environment



- Establish a sense of **cohesion** throughout the building
- A facility that reflects the institution's values and projects a **top-ranked engineering program**
- More space for the new BSE program (interdisciplinary) and existing engineering programs
- More **flexible spaces** that can be shared by programs and therefore improve utilization
- Improved restrooms including more non-gendered
- More inviting, **inclusive**, and improved collaboration spaces
- Improved aesthetics



Process

- In the context of Lafayette as a whole or within the Division of Engineering, what specific **challenges** are there to implement these changes?
 - Fundraising
 - Construction in an occupied building
 - Resistance to “change”



Shift in Culture



A major component of the building renovation was using it as a catalyst for cultural change.

Culture shift is the hardest kind of change....

“People overestimate what will happen in the next two years and underestimate what will happen in ten.” - Bill Gates

Process: A Shift in Culture



- Departments were not required to shift to a more engineering school-based mindset....but all new space would be **school-based**, not departmentally-based.
- Some individuals (and some departments) hopped on immediately, eventually all did.

Stakeholder Engagement & Planning

First Floor:



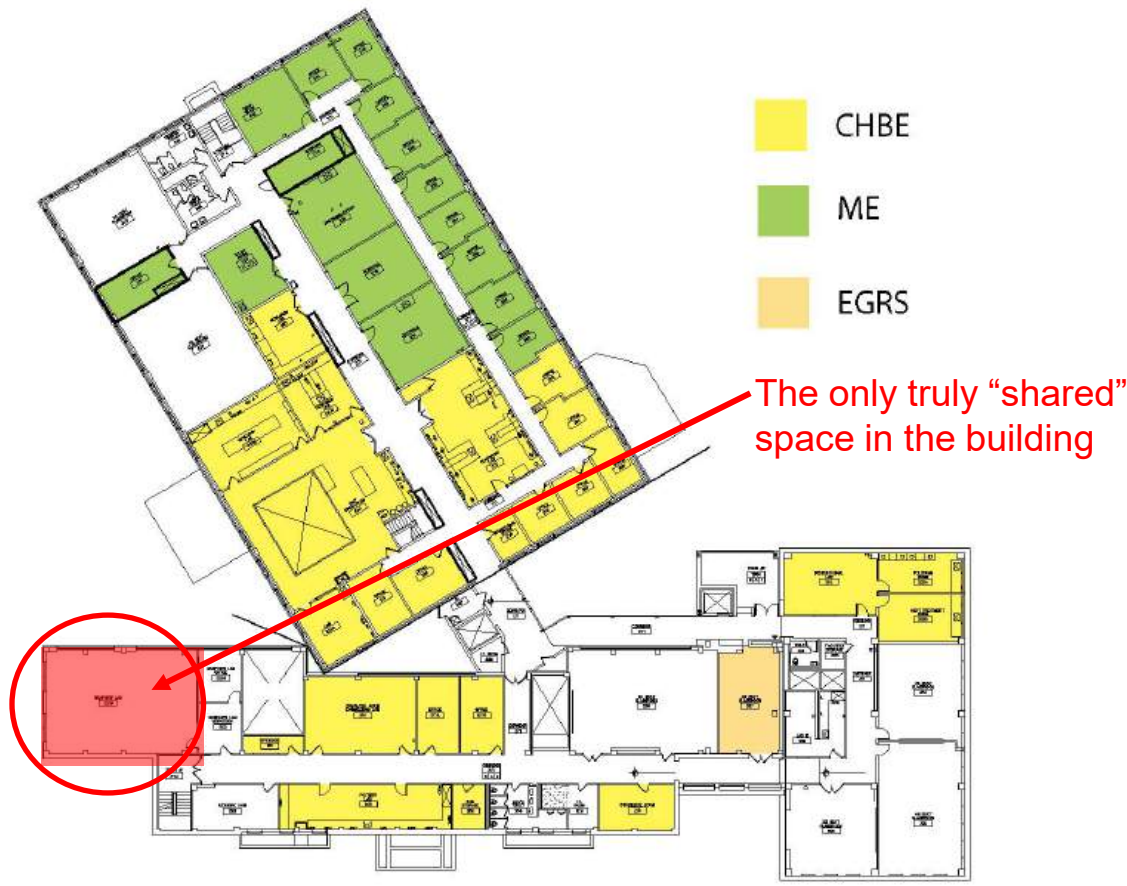
Program Study



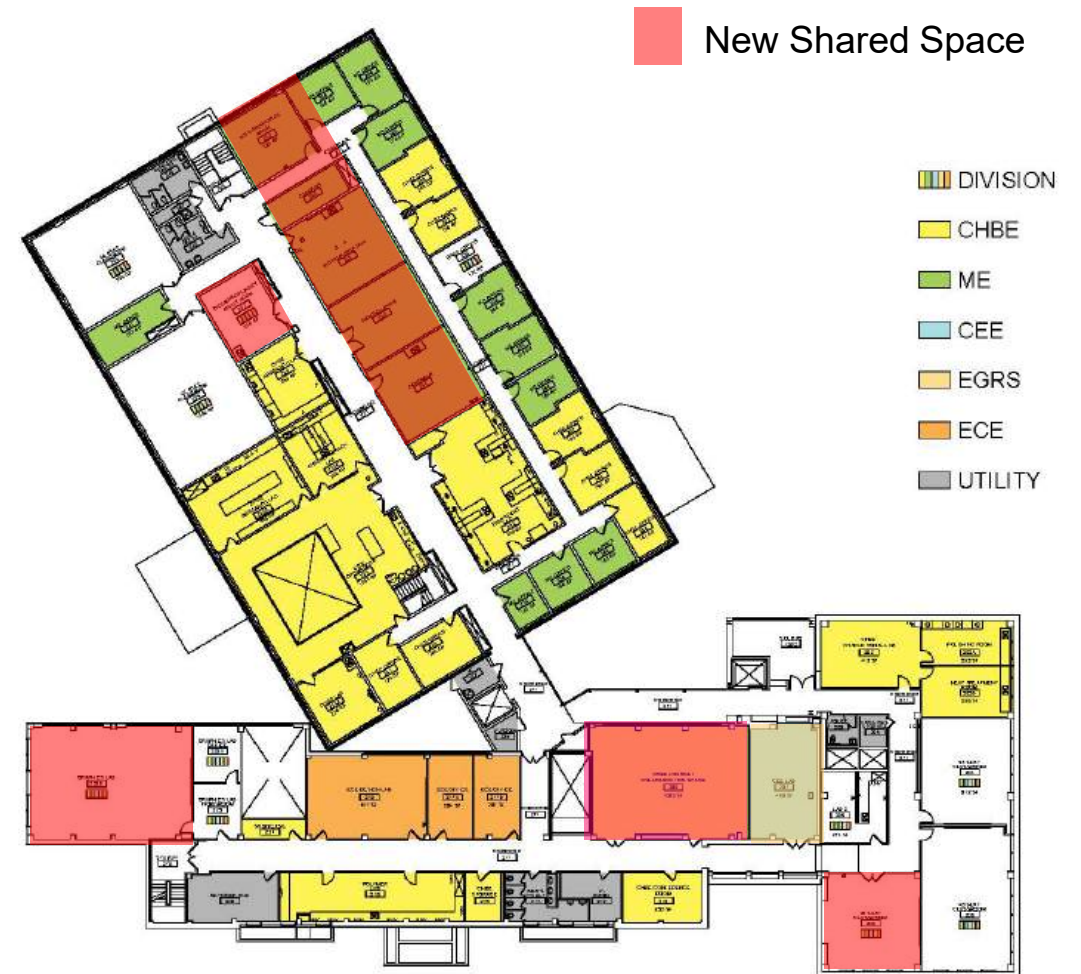
Proposed

Stakeholder Engagement & Planning

Second Floor:



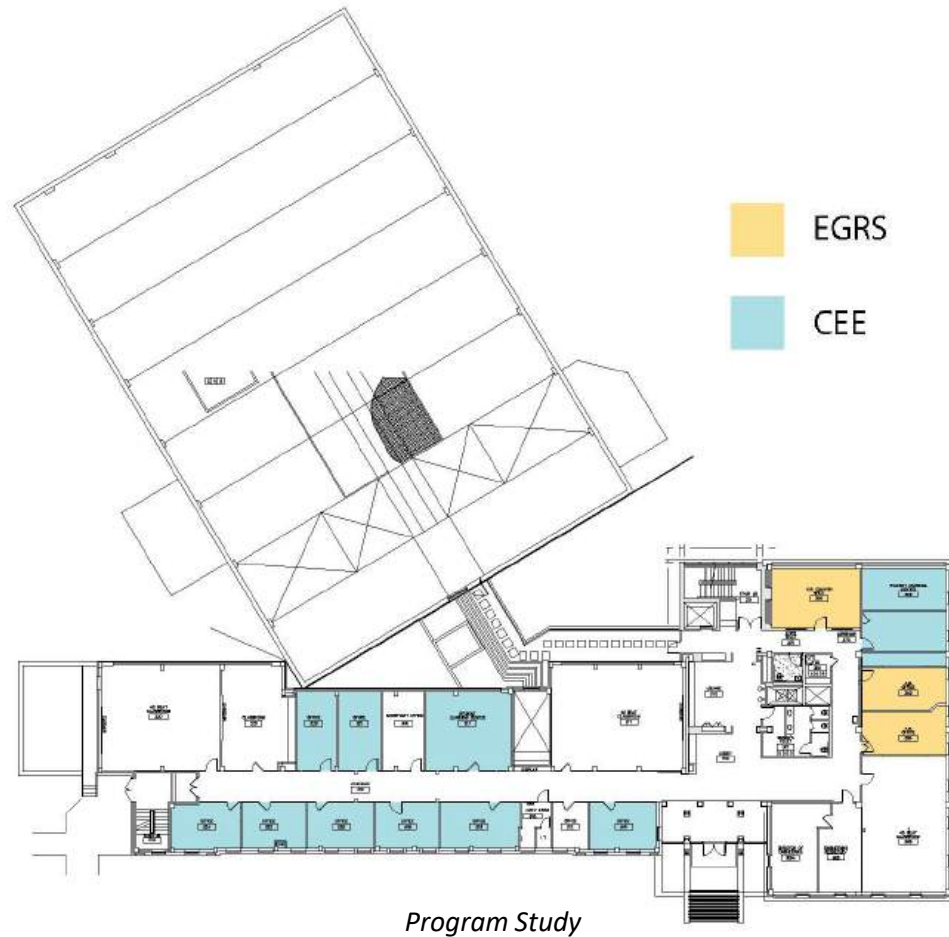
Program Study



Proposed

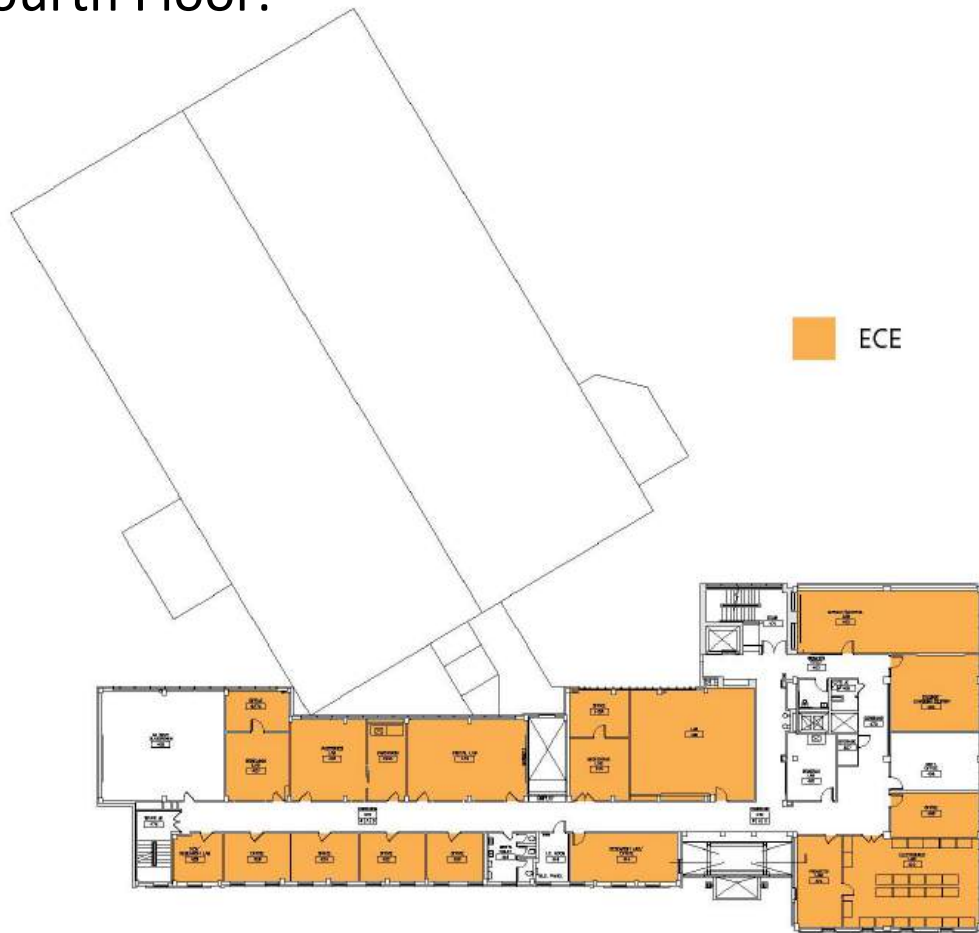
Stakeholder Engagement & Planning

Third Floor:

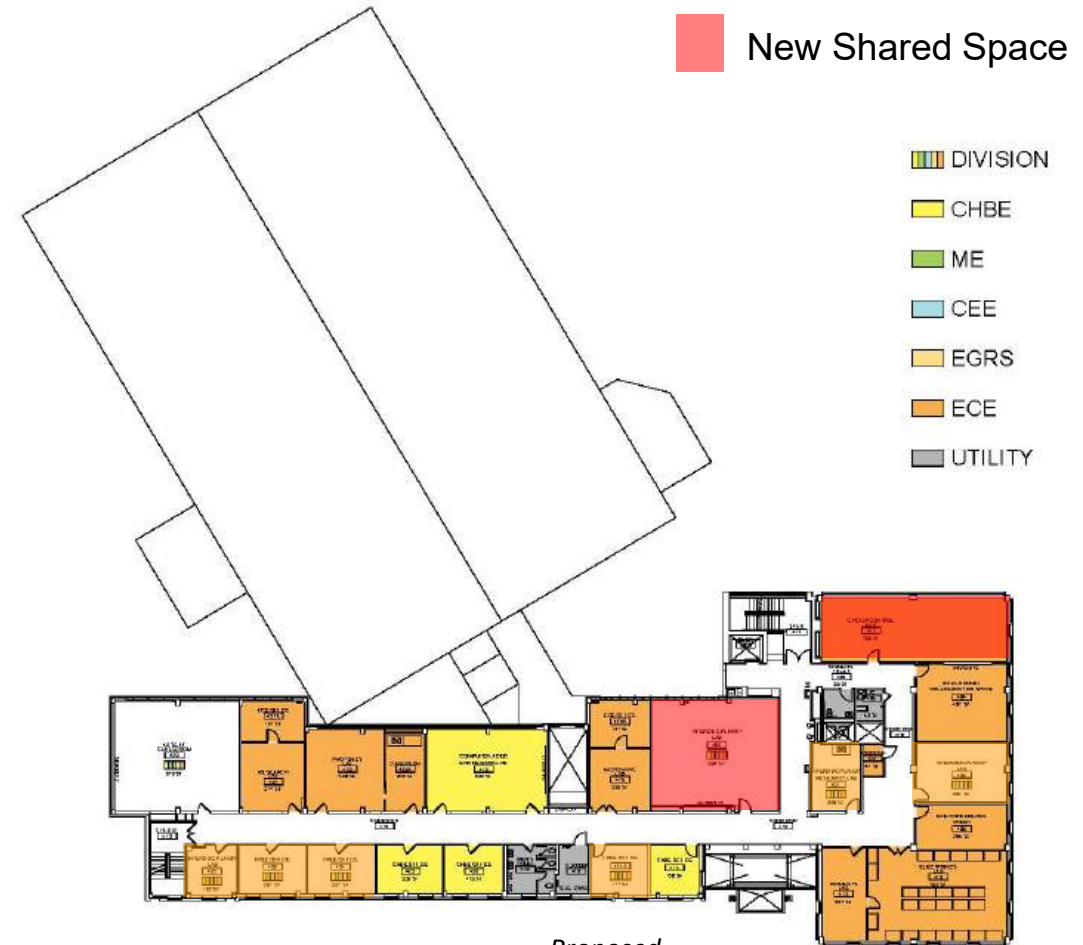


Stakeholder Engagement & Planning

Fourth Floor:



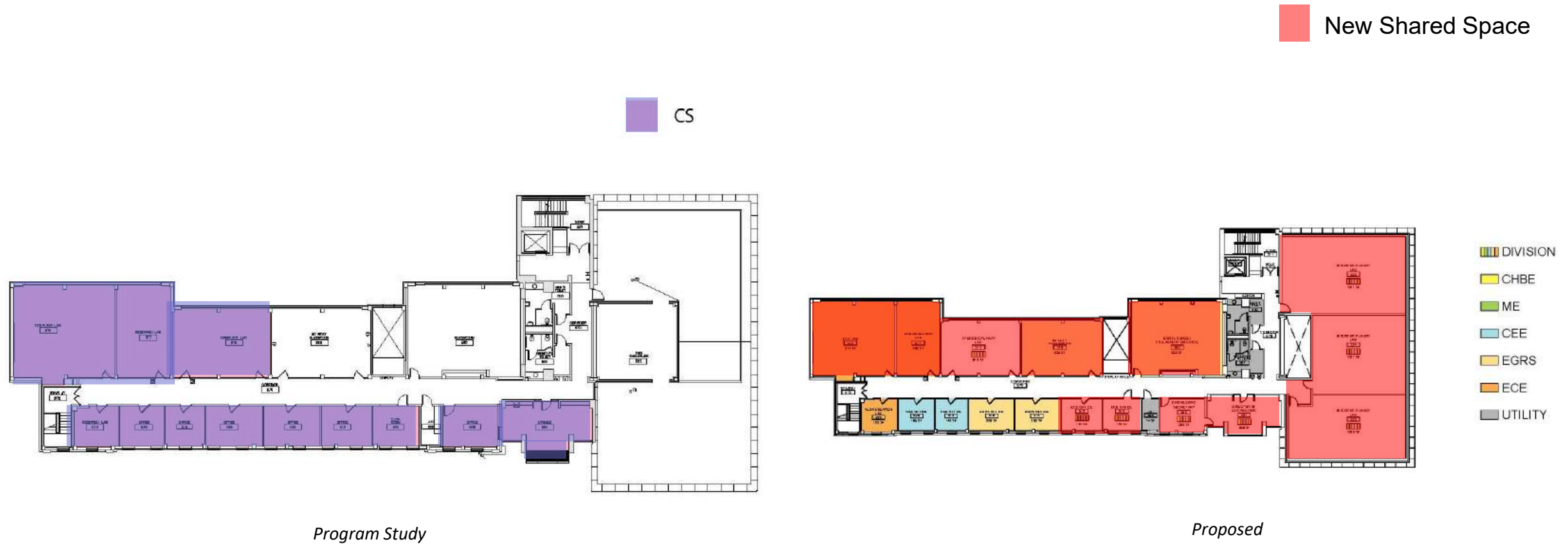
Program Study



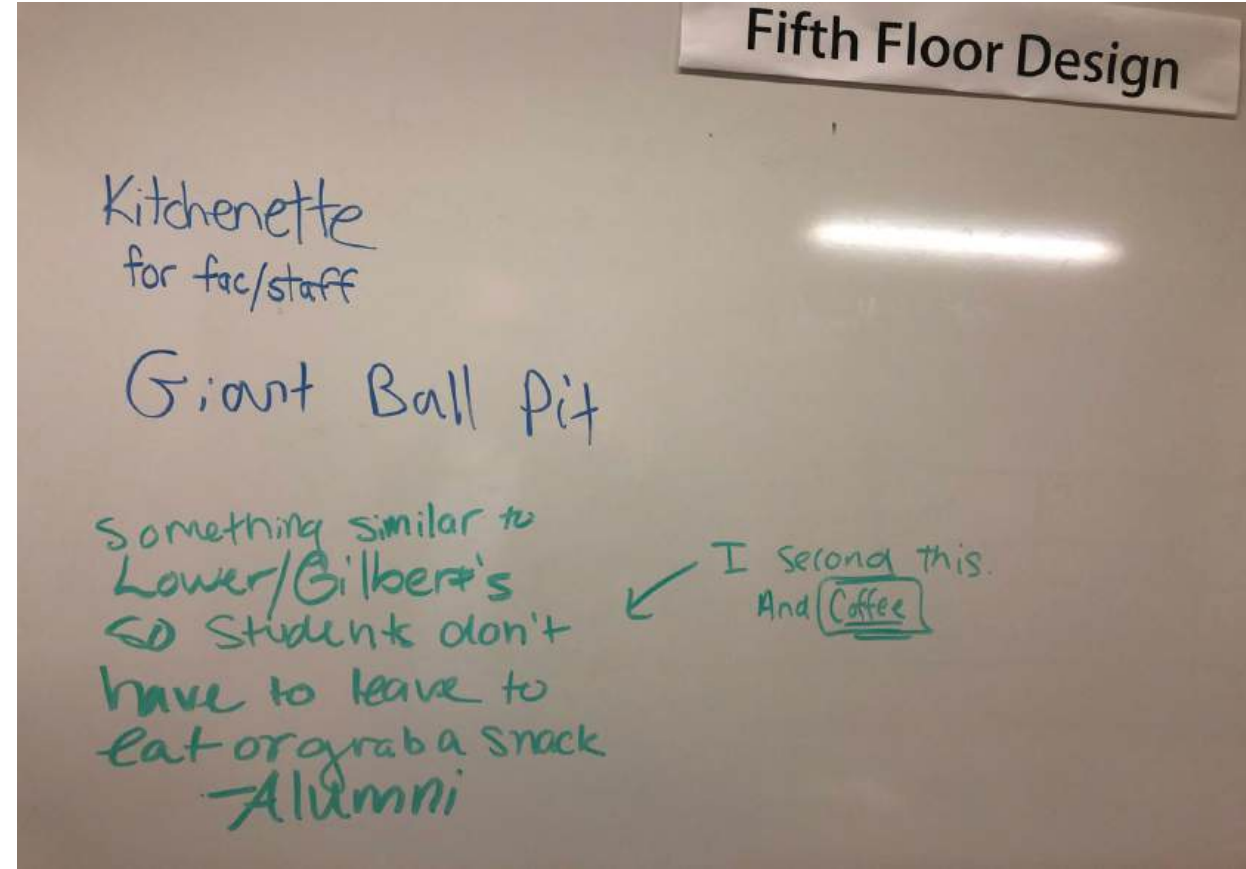
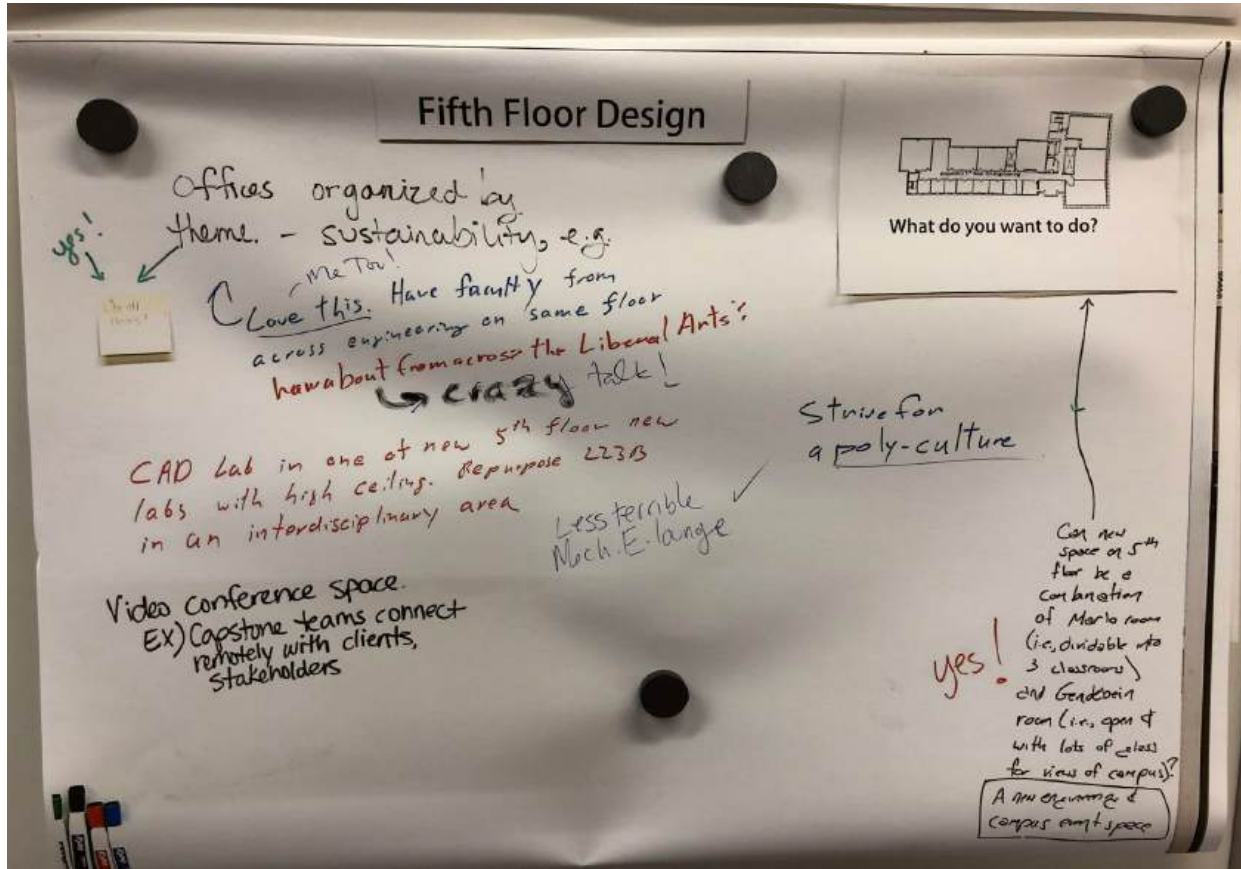
Proposed

Stakeholder Engagement & Planning

Fifth Floor:



Design – Student Engagement

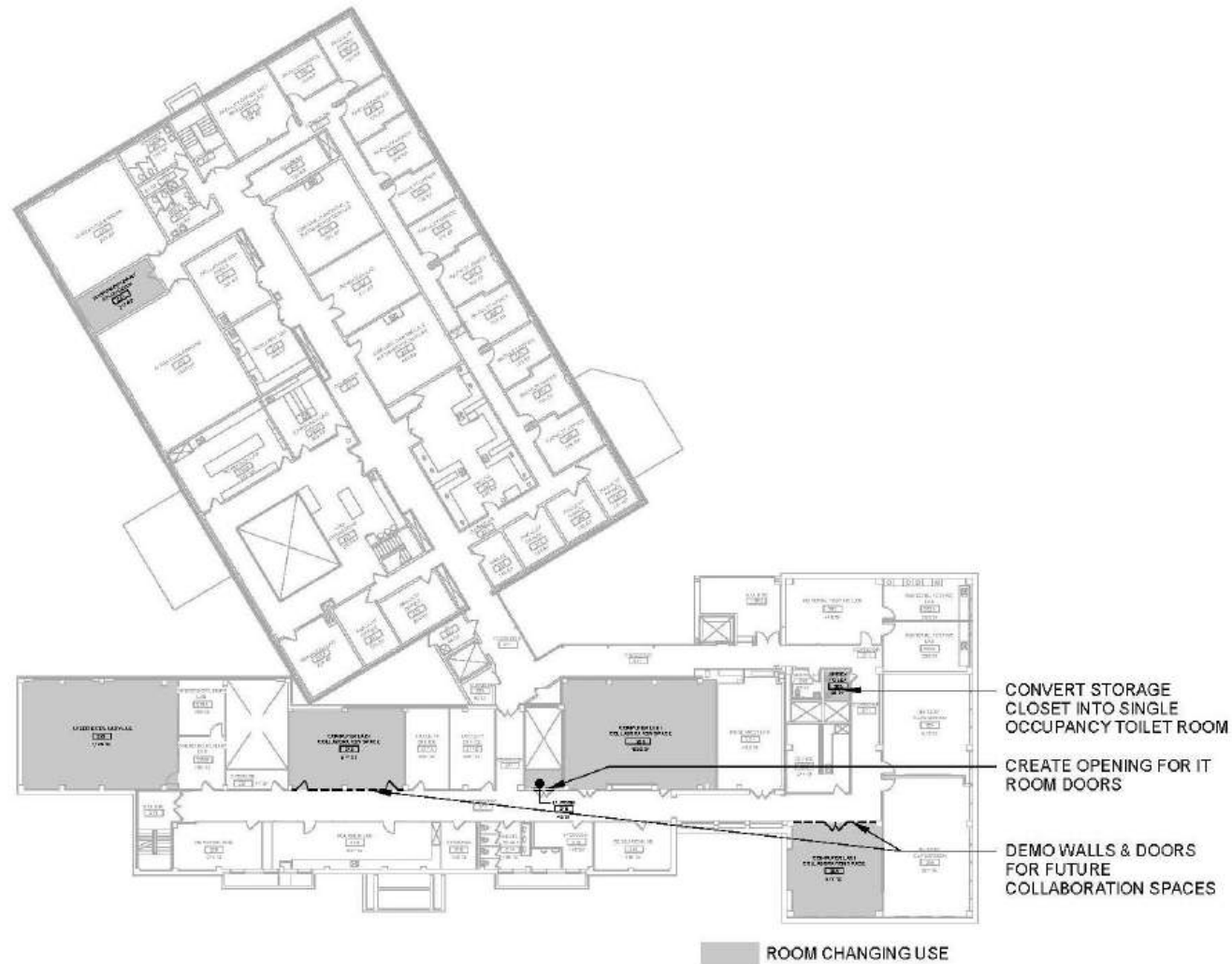


Stakeholder Engagement & Planning



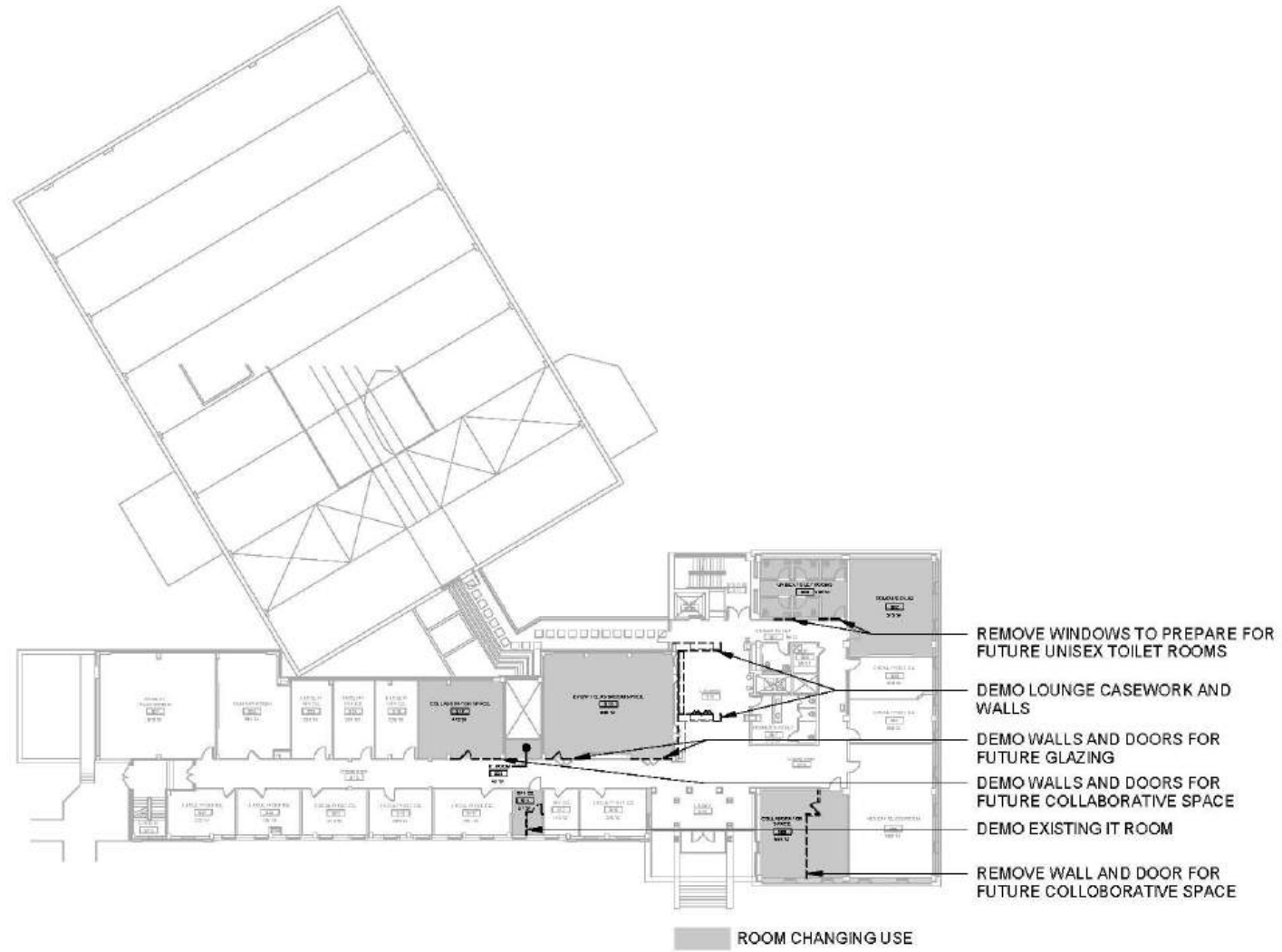
First Floor Changes

Stakeholder Engagement & Planning



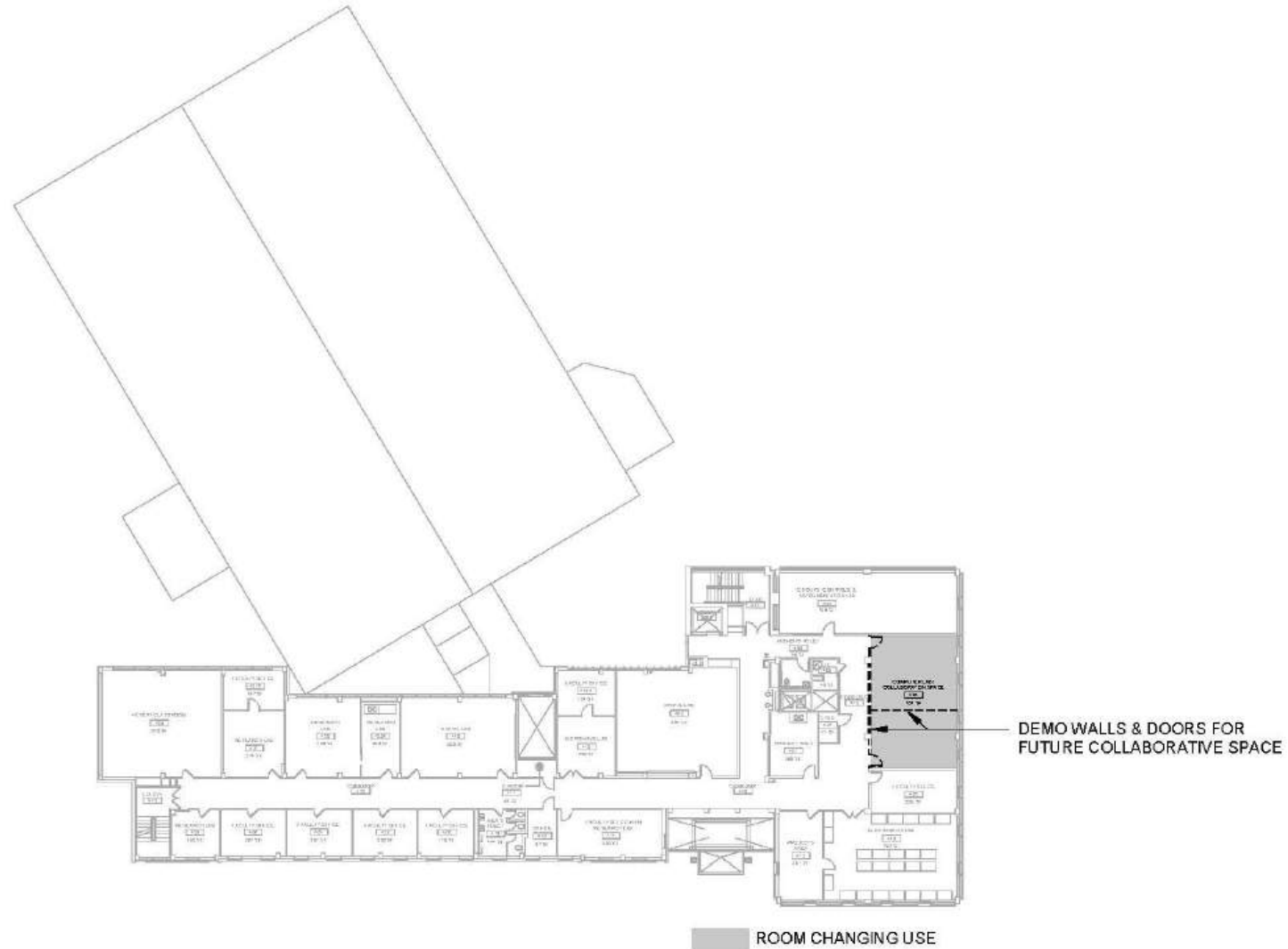
Second Floor Changes

Stakeholder Engagement & Planning



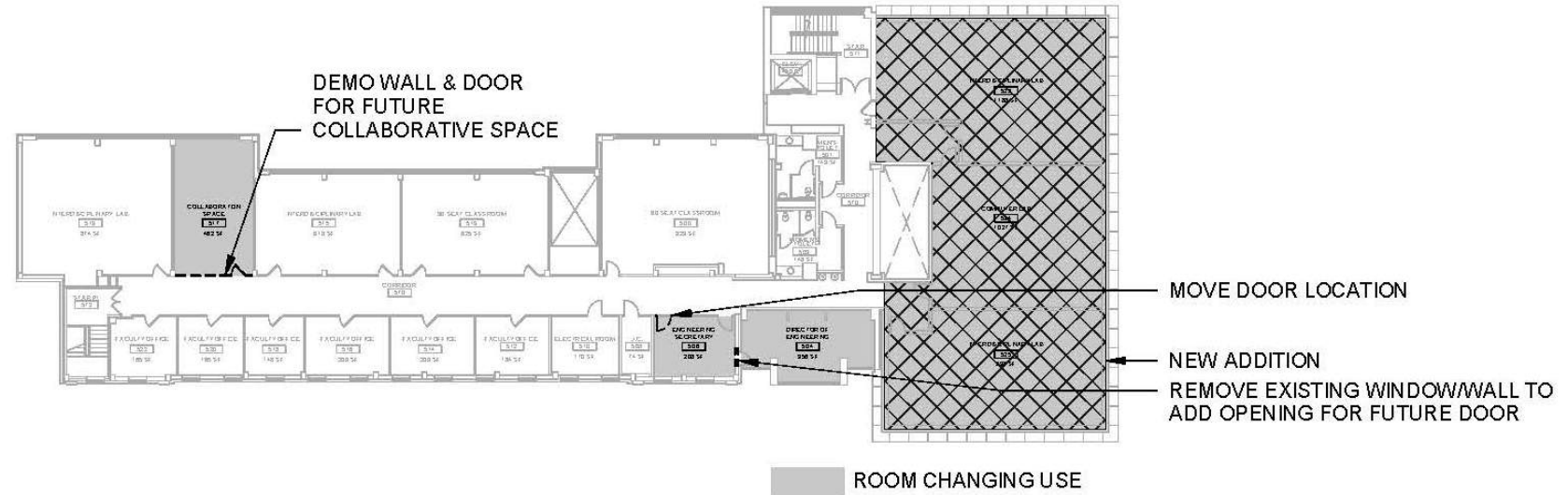
Third Floor Changes

Stakeholder Engagement & Planning



Fourth Floor Changes

Stakeholder Engagement & Planning



Fifth Floor Changes

Prototyping



Before



Prototyping



Prototyping

Before



Prototyping



Before



Utilization

We needed **flexible space!**

- Must support lecture, lab, conference room (and do it all well!)
- Custom built tables with stowable computers
- Lockers for lab equipment



Visualizing Change



Visualizing Change



Before

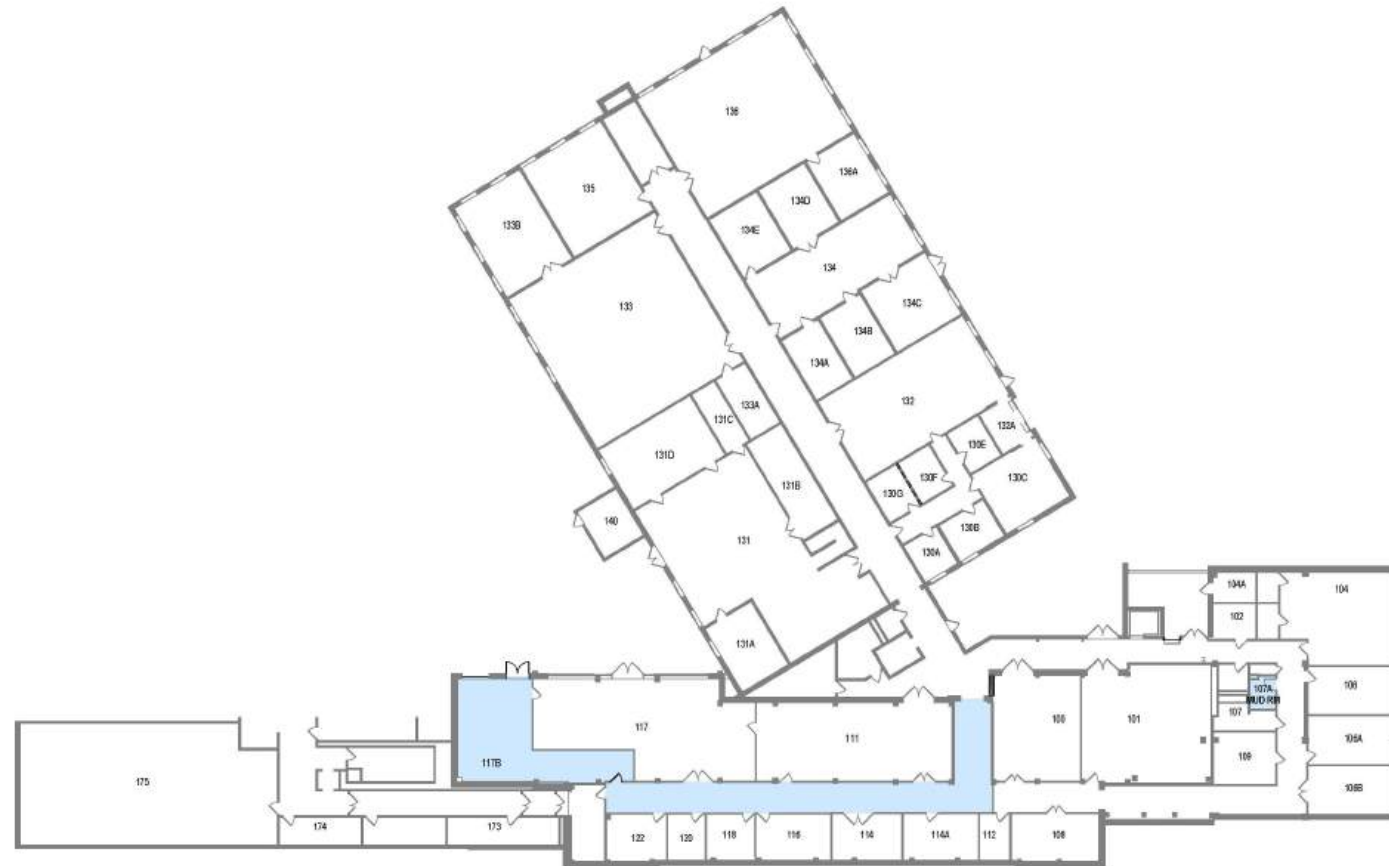


Visualizing Change



PHASING LEGEND

	PHASE 1 - SUMMER 2019
	PHASE 2 - SUMMER 2020
	PHASE 2 OVERBUILD - SUMMER 2020 INTO 2021
	PHASE 3 - SUMMER 2021
	SWING SPACE - UTILIZED DURING OVERBUILD, COMPLETED 2021



First Floor - Phasing

PHASING LEGEND

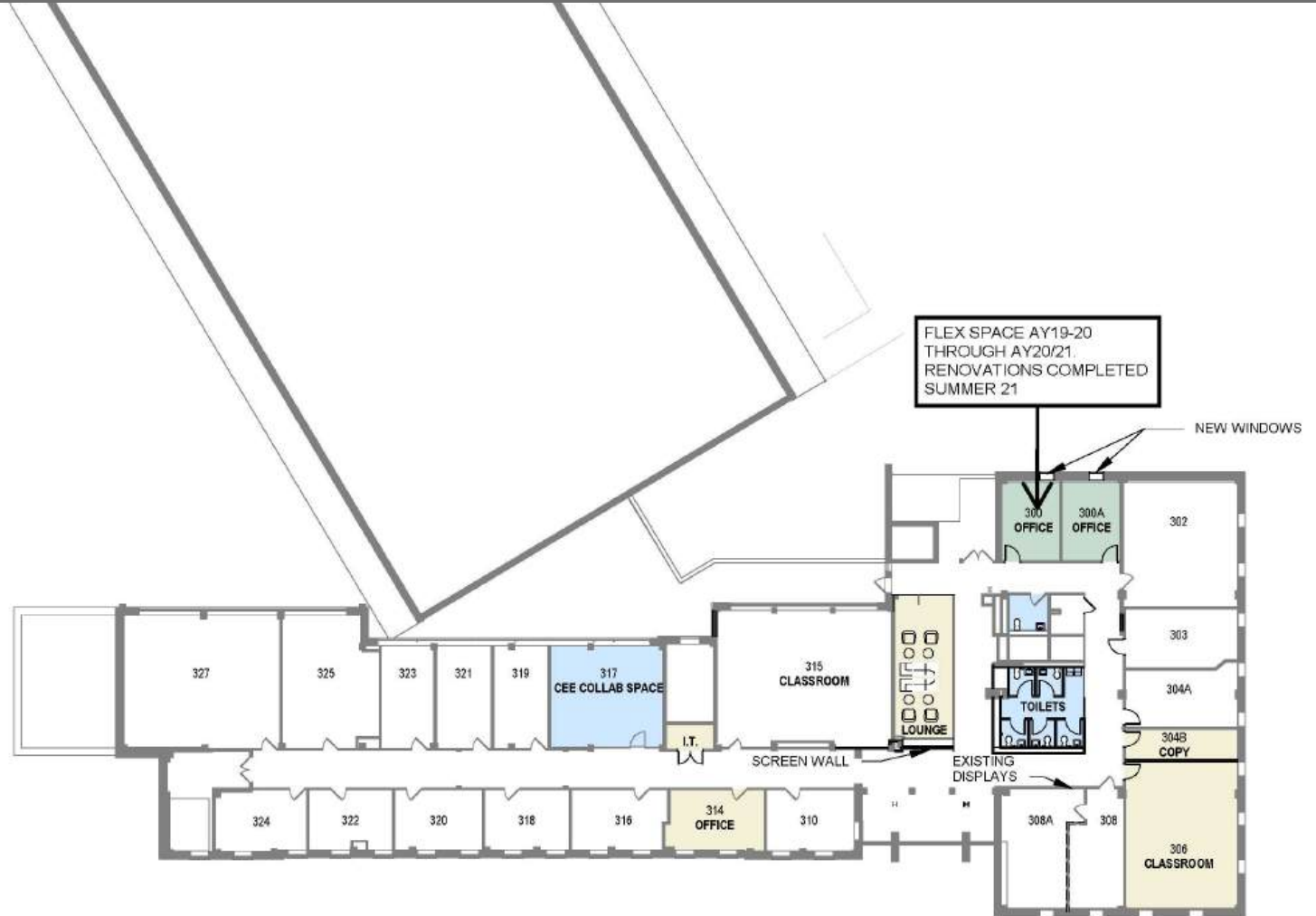
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- PHASE 2 - SUMMER 2020
- PHASE 2 OVERBUILD - SUMMER 2020 INTO 2021
- PHASE 3 - SUMMER 2021
- SWING SPACE - UTILIZED DURING OVERBUILD, COMPLETED 2021



Second Floor - Phasing

PHASING LEGEND

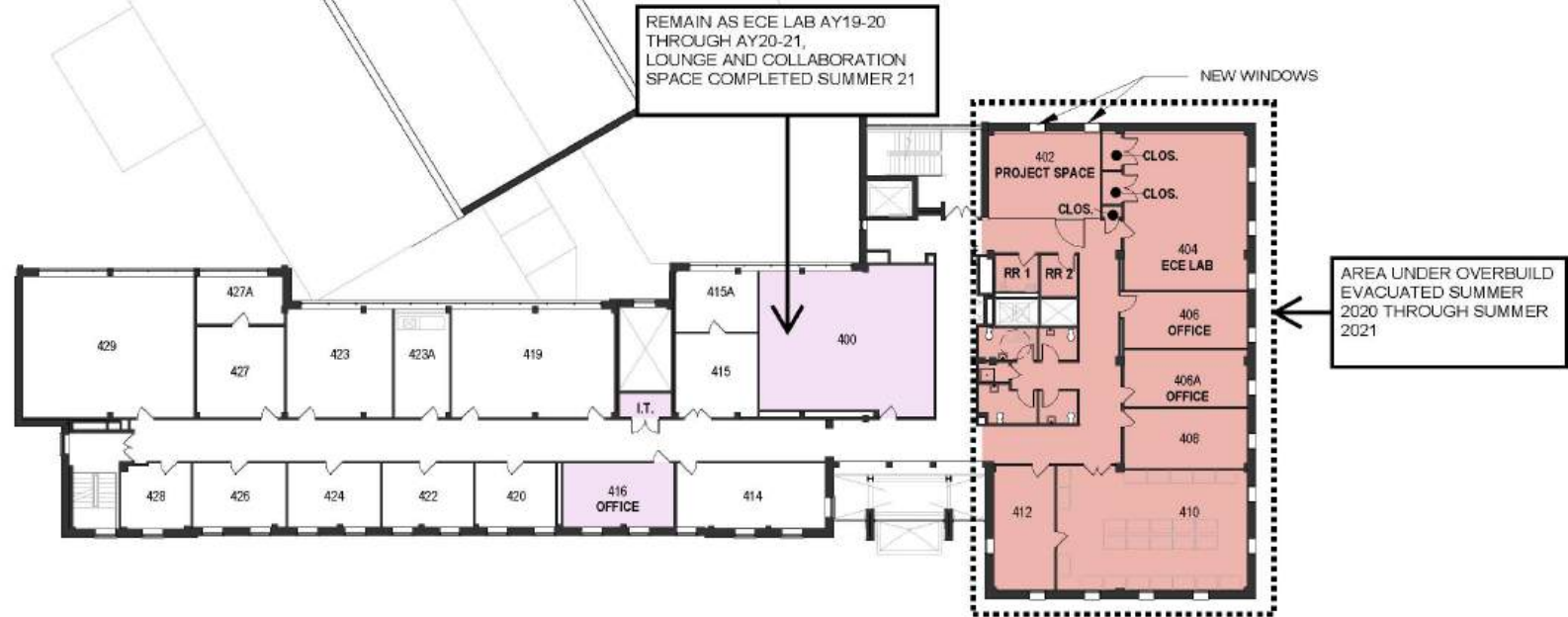
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- PHASE 3 - SUMMER 2021
- SWING SPACE - UTILIZED DURING OVERBUILD, COMPLETED 2021



Third Floor - Phasing

PHASING LEGEND

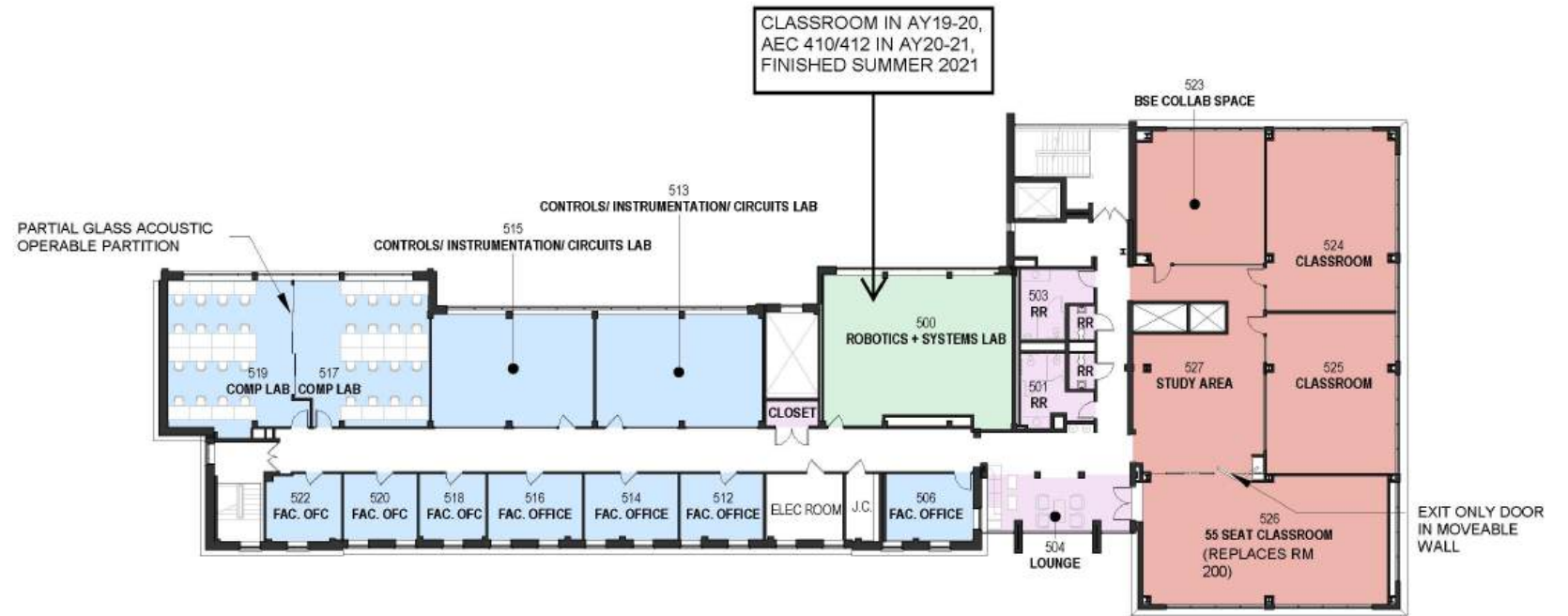
- PHASE 1 - SUMMER 2019
- PHASE 2 - SUMMER 2020
- PHASE 2 OVERBUILD - SUMMER 2020 INTO 2021
- PHASE 3 - SUMMER 2201
- SWING SPACE - UTILIZED DURING OVERBUILD, COMPLETED 2021



Fourth Floor - Phasing

PHASING LEGEND

- PHASE 1 - SUMMER 2019
- PHASE 2 - SUMMER 2020
- PHASE 2 OVERBUILD - SUMMER 2020 INTO 2021
- PHASE 3 - SUMMER 2021
- SWING SPACE - UTILIZED DURING OVERBUILD, COMPLETED 2021



Fifth Floor - Phasing

One Final Step...



Fundraising Imagery



Fundraising Imagery

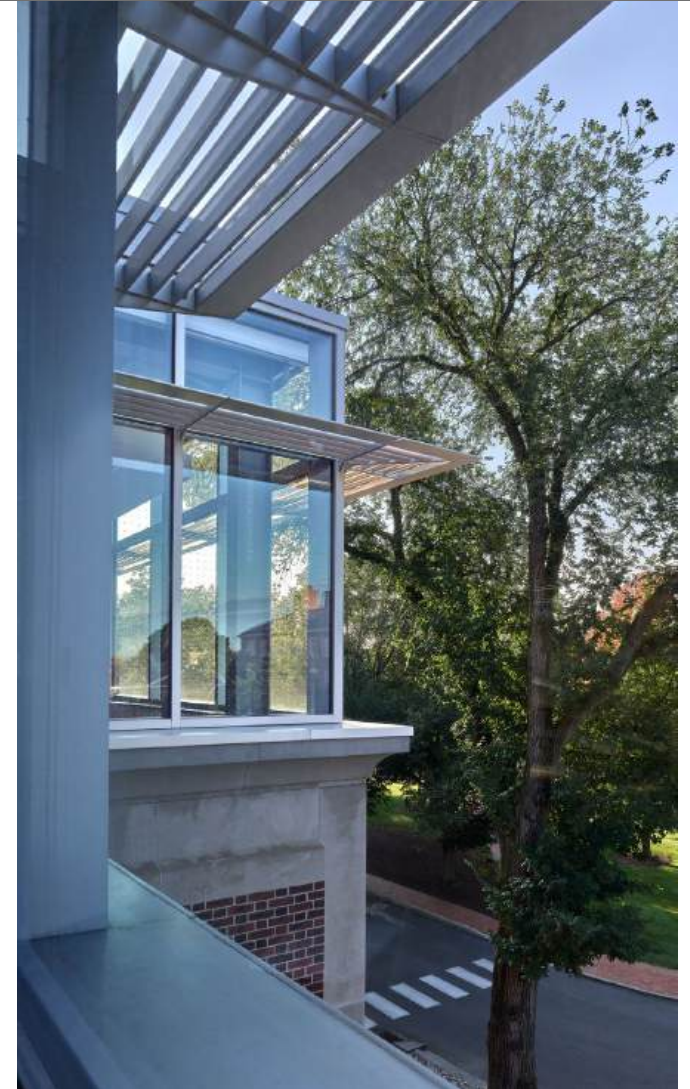
THE PROCESS



Fundraising Imagery



The Outcome



The Outcome



The Outcome



The Outcome



The Outcome



- Establish a sense of **cohesion** throughout the building
- A facility that reflects the institution's values and projects a **top-ranked engineering program**
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Discussion

- A **Unique** Process
- What can other institutions **learn** about how Lafayette implemented this project?



Questions?



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THANK YOU!