Renovation versus Replacement
Dilemmas, Parameters and Tools

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Introduction

Parameters and Realities:

- Increasing pressure to find “highest and best use” for our buildings
- Academic space is precious (and expensive)
- Our institutions are ever changing and growing
- Community relations are critical
- Sustainability concerns are escalating
<table>
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<tr>
<th>Questions</th>
<th>Tools</th>
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<td>1. What is our Capital Plan?</td>
<td>⇒ Capital Plan Process</td>
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<td>What do we need?</td>
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<td>2. Are we using our space as well as we can?</td>
<td>⇒ Space Planning Guidelines</td>
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<td>⇒ Backfill Plans</td>
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<td>⇒ Space Charging</td>
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<td>3. Do we understand all of our costs?</td>
<td>⇒ First Costs</td>
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<td>⇒ Paybacks</td>
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<td>⇒ Life Cycle</td>
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<td>4. What about sustainability?</td>
<td>⇒ Sustainability Guidelines</td>
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Tools
Capital Plan Process

The University
Capital Plan

What do we need?
Are we using our space as well as we can?
Tools
Space Planning Guidelines

Our Goals in the Process

- To develop guidelines, not standards
- To promote key goals: 
  *Equity* - *Consistency* - *Efficiency* - *Flexibility*
- To keep the guidelines simple, practical, not overly formulaic, and focused on generic spaces
- To apply the guidelines both in new construction and renovation projects
- To learn from what has been successful already
- To continually update and improve the guidelines
Focus of Stanford’s Guidelines

- **Offices:**
  - Dean/VP
  - Full-time faculty
  - Visiting scholars, visiting faculty, and research associates
  - Emeritus faculty
  - Staff
  - Students

- **Classrooms, Computer Clusters, Conference Rooms**

- **Research and Laboratory Space**

**Space Guidelines:** [http://cpm.stanford.edu/DCP_Art/SpaceGuidelines.pdf](http://cpm.stanford.edu/DCP_Art/SpaceGuidelines.pdf)
Tools
Utilization Studies

Goals

- To determine how space is actually being used

- To enter utilization information into database, to be actively used by schools/areas in managing space

- To assess alignment with space planning guidelines

- To work with school/areas to improve utilization
Tools
Utilization Studies

- Process

- Straightforward – walk-throughs of areas, taking notes on floor plans
- Entry of data into University-wide database, tailored to school needs
- Communication about results, questions, strategies, next steps
Tools
Utilization Studies
Tools

Backfill Plans

- How is vacated space used?
- How much growth is really occurring?
- Data, Data, Data
How can we push the envelope on all of the above?
Tools
Space Charging

Goals:

- Change mindset about cost and use of space
- Encourage more efficient use of space
- Empower the schools to manage space
- Provide tools for space management
- Keep it simple, fair and transparent
- Limit the cost of implementation and ongoing maintenance
Allocation and Charge Mechanism

First: School receives an incremental base general funds allocation to cover its space “entitlement”

Then: Annually, school is assessed a charge based on actual space usage
## Base Allocation Calculation

<table>
<thead>
<tr>
<th>People Count</th>
<th>Guideline s.f.</th>
<th>Buffer</th>
<th>Allocation Per s.f.</th>
<th>Unit Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. 60 faculty</td>
<td>160 s.f.</td>
<td>1.15</td>
<td>$33/s.f.</td>
<td>$364,320</td>
</tr>
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</table>
Findings

- Six of the seven units owe money - causes vary (space abhors a vacancy)
  - One highly inefficient old building
  - Excess student space (more spaces than students)
  - Staff in faculty-sized offices

- Overall, space utilization was better than we had anticipated

- Problem areas were different than anticipated
What are the costs of our buildings?
Tools
Life Cycle Cost Analysis

Part of a Study of Annual Investment in Plant Assets

Major Questions:

“Are we investing enough capital to preserve and optimize the existing facilities?”

“Do we understand the level of investment required to renovate buildings and infrastructure that have reached the end of their useful lives?”
Tools
Life Cycle Cost Analysis

Emphasis:

“Whole Cost Accounting”

⇒ Evaluate building over its whole life

Integral part of the project delivery process

⇒ Operations and Maintenance Cost Benchmarking

⇒ Comparative analysis of energy, mechanical, electrical, structural systems, also building envelope and siting/massing
Tools
Sustainability Guidelines

“What do we really need?”

“The most sustainable building is the one that is never built.”

Sustainability “at the table” throughout the project management process
Some Quick Stanford Examples

- The “No Brainers”
- A Replacement
- A Renovation
The “No Brainers”: Modulars
The “No Brainers”: Modulars

Bambi

Godzilla
The “No Brainers”: Modulars

Encina
The “No Brainers”: Modulars

- Capital Plan: Aesthetically “not great”, not needed long term
- Space Guideline/Utilization Studies: Ok, but not stellar use
- Backfill: No “takers”
- Life Cycle Costs: At the end of useful life – and beyond
- Sustainability: A grade of “D” or “F”
A Replacement: Herrin Lab
A Replacement: Herrin Lab
A Replacement: Herrin Lab
A Replacement: Herrin Lab

- **Capital Plan**: Pattern of renovating lab by lab, with only limited success
- **Space Guideline/Utilization Studies**: Poor utilization, emeriti labs, not much sharing, not equipped for modern science, building dimensions not appropriate to current science needs
- **Backfill**: No “takers”
- **Life Cycle Costs**: Very high renovation costs – systems at end of useful lives
- **Sustainability**: 1:1 replacement
A Renovation: Old Chemistry
A Renovation: Old Chemistry
A Renovation: Old Chemistry

Capital Plan ⇒ No plan underway, mothballed

Space Guideline/Utilization Studies ⇒ Highest and best use is a dilemma
Various Ideas:
- Classroom building
- Teaching Labs
- Science Library
- Office Space

Life Cycle Costs ⇒ Reinvestment is expensive, but warranted

Sustainability ⇒ Historic value, holding out for what we really need
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