Repair and Renovate
Capital Renewal

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The act of upgrading, renovating, refurbishing, remodeling, repairing or renewing our facilities.
History of Campus Construction

Pre-War
- Built before 1951
- Durable construction
- Older but typically lasts longer

Post-War
- Built between 1951 and 1975
- Lower-quality construction
- Already needing more repairs and renovations

Modern
- Built between 1975 and 1990
- Quick-flash construction
- Low-quality building components

Complex
- Built in 1991 and newer
- Technically complex spaces
- Higher-quality, more expensive to maintain & repair

*Sightlines - 2018 State of Facilities in Higher Education*
Waves of Construction Drive Capital Needs

<table>
<thead>
<tr>
<th>System</th>
<th>SL Standard Life Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roofing</td>
<td>25 Years</td>
</tr>
<tr>
<td>Electrical</td>
<td>25 Years</td>
</tr>
<tr>
<td>Exteriors</td>
<td>30 Years</td>
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<tr>
<td>HVAC</td>
<td>30 Years</td>
</tr>
<tr>
<td>Plumbing</td>
<td>35 Years</td>
</tr>
</tbody>
</table>

Sightlines Database - Construction Age

First Wave Lifecycles

Second Wave Lifecycles

DRIVER: Enrollment Growth

DRIVER: Program/Amenity Growth
Deferred Maintenance Backlog Challenges

Percentage of Total Higher Ed Space by Year of Construction

- The Post-War Space Race
  - Energy inefficient
  - Obsolete configurations

- Complex Systems Come Online
  - System integration
  - Shorter replacement cycles
As the deferred maintenance backlog grows, there is increased risk of system failure.

Dedicating fewer resources to preventative maintenance increases the amount of deferred maintenance.

As systems fail, Facilities must dedicate resources to reactive maintenance, leaving fewer resources for preventative maintenance.
Representative Impact of Repair and Renovation*

1.5X
Average growth of deferred maintenance backlog compared to inflation

66%
Of buildings nationally are due for significant renovations and upgrades

Institutions increasingly forced to transfer renewal costs to students in form of new fees

Outdated facilities are difficult to adapt to needs of most advanced research

*EAB – Tackling the Deferred Maintenance Crisis – Executive Briefing
Questions