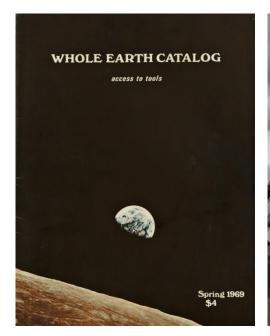


### Designing Our Living Spaces: Green Buildings – Green Cities

**Buzz Yudell** 

# 1969

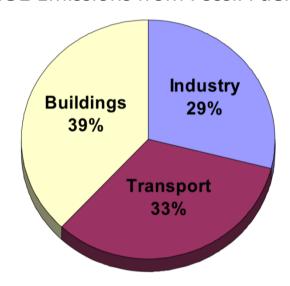


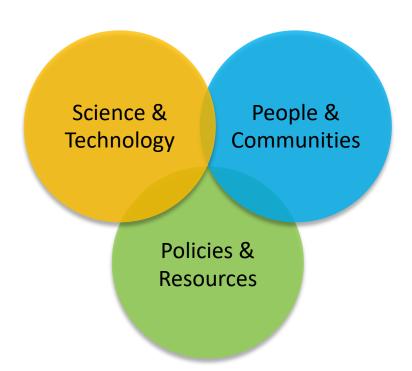




## 2019

CO2 Emissions from Fossil Fuels





## **ENGAGEMENT**

- Engage Communities "Upstream"
- Incentivize Public-Private Partnerships
- Empower Youth



Lower Sproul Redevelopment and Student Life Center University of California Berkeley

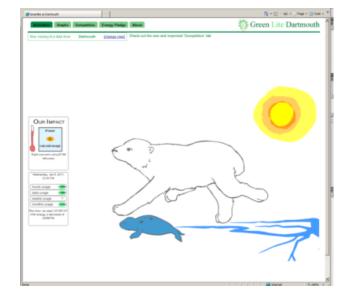


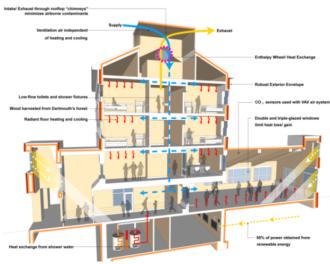
Emissions reductions	Percent reduction
2,530 kg CO <sub>2</sub>	42%
1,255 g NOx	60%
15 g PM <sub>10</sub>	12.5%
Mode share	
Car	23%
Public transit	17%
Bicycle	31%
Walking	29%

#### **Create Eco-Communities**











#### **Students as Champions**

McLaughlin Cluster Housing
Dartmouth College, Hanover, New Hampshire





The Student Community Center is a:

Home Forum Laboratory for Sustainability

Lower Sproul Redevelopment and Student Life Center University of California Berkeley

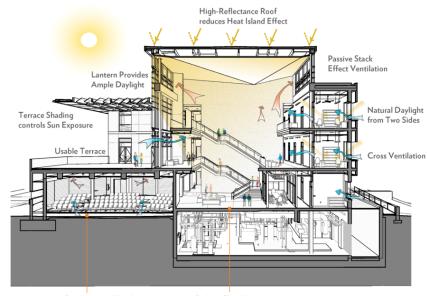


**Adaptive Re-use and Resilience** 

Lower Sproul Redevelopment and Student Life Center University of California Berkeley

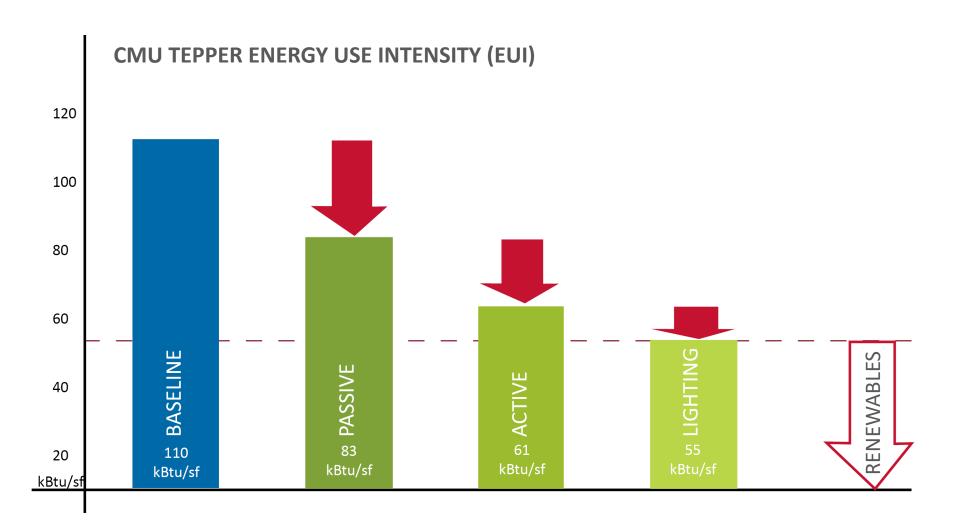
### INTEGRATED DESIGN PROCESS

- Create multi-disciplinary teams
- Optimize resources with a tiered toolkit
- Analyze scenarios for life cycle impacts



Displacement Ventilation

Radiant Floor Heating



A Tiered Toolkit

Tepper School of Business and Quad Carnegie Mellon University



A Hub for Collaboration & Innovation

Tepper School of Business and Quad Carnegie Mellon University



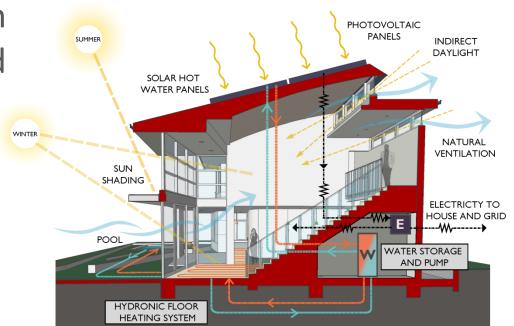
**Government as Environmental Leader** 



## **EMERGING DIRECTIONS**

 Expand "Green" design to health, wellness and social equity

- Expand dialogue and education
- Build Net Zero Energy projects



23%

increase in hours standing

**35%** 

increase in steps per week

19%

increase in "enhanced work with others"

48%

increase in social connections



Support Health & Wellness

Brown School of Social Work and Public Health Washington University in St. Louis

#### **Life Cycle Costs**

10%

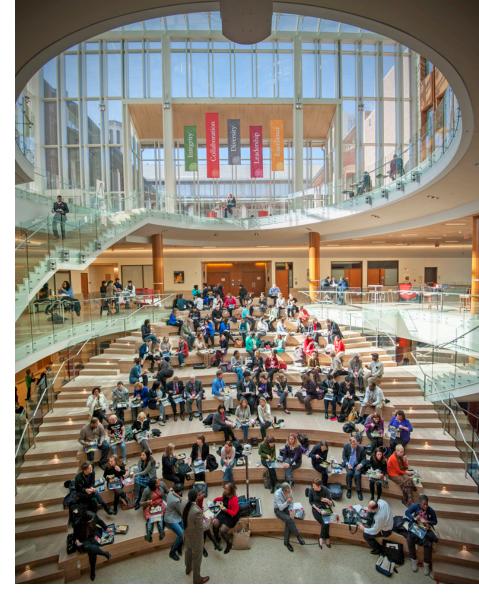
Construction Cost

**15%** 

**Operations Cost** 

**75%** 

Personnel Cost



Olin Business School Washington University in St. Louis

## 2019

Science & Technology



People & Communities

Policies & Resources