Connection HUBS
Building Community in the Digital Age
Carnegie Mellon University, Tepper Quad
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Connection HUBS
Building Community in the Digital Age
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Senior Associate, Moore Ruble Yudell Architects & Planners
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Principal, Moore Ruble Yudell Architects & Planners
Carnegie Mellon University, Tepper Quad
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?

- Who is Generation Z?
- What is a Connection HUB?
- How HUBS address GEN Z needs
- When Instagram–ready works
- Why Emotional bonding with place matters

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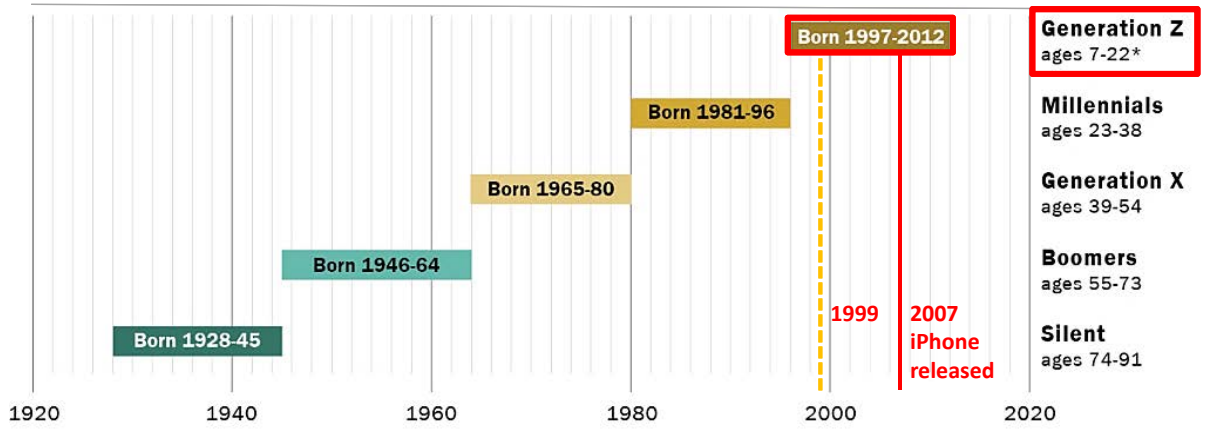
Generations Defined



Pew Research Center

January 17, 2019, Michael Dimock

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GEN Z, i-GEN or "Homesteaders"

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Who is Generation Z?

MILLENNIALS

- Tech Savvy: 2 screens at once
- Communicate with text
- Now focused
- Optimists
- Want to be discovered
- Curators & Sharers

Your Recent Students & Alumni

GEN Z

- Digital Native: 5 screens at once
- Communicate through images/videos
- Future focused
- Realists
- Want to work & learn for success
- Creators & Collaborators

Your Current & Future Students

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73 Million people aged 7 - 22

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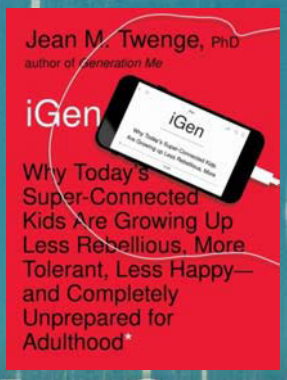
GEN Z Research

More comfortable communicating with devices than Face-to-Face



In 2017, psychologist Jean Twenge published research at San Diego State University.

- The IPhone and Social Media have changed teen behavior
- 60% of GEN Z say they used a smartphone before the age of 14
- Digitally Super-Connected but interpersonally clueless

Have Smartphones Destroyed a Generation?

the Atlantic

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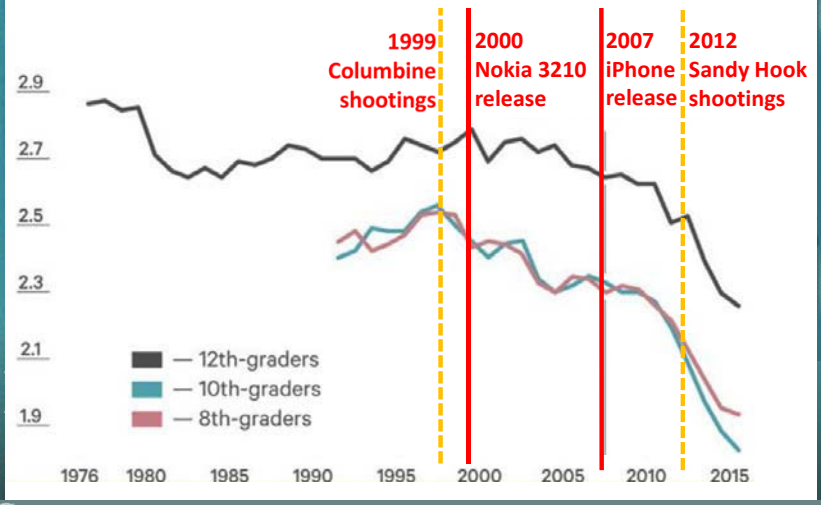
Not Hanging Out with Friends

 # Times per week Teenagers go out without their Parents



- Loneliness is on the rise in the US, GEN Z most of all
- The Columbine School shootings and availability of new cell phone – led parents to give their children mobile phones
- More screen time and social media use parallels a rise in anxiety in American adolescents

the Atlantic

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GEN Z – Ages 2 or younger in 1999, 10 in 2007

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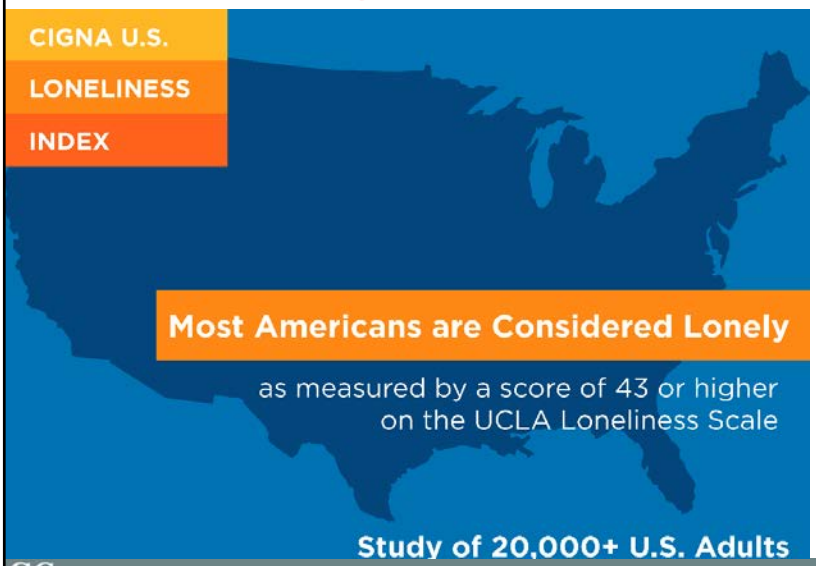
Social Connection & Health



2018 CIGNA Survey Results

- GEN Z scores highest for loneliness and heavy social media use
- Social Media use alone is not a predictor of loneliness
- Social Connection (or the lack of it) is now considered a social determinant of health, by the Institute of Medicine.

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Generation Z Research

Ways GEN Z Differs From Millennials

GEN Z Wants To Talk Face-to-Face

- Fifty-three percent of GEN Z said they prefer in-person discussion over instant messaging or email.
- 72% of GEN Z wants to communicate face-to-face at work (2019 EY survey)

Forbes

September 21, 2017, Deep Patel

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GEN Z Research

GEN Zrs Crave Human Connection

Authenticity

Technology can enhance, not replace Personal Touch

Food Sharing to Socialize

GEN Z'rs share food, swap bites as a way to socialize

Celebrating Experience

Sharing on Social Media is a Celebration of Experiences

2018 Mindful Dining Study (1500 sample survey) by PMQ Magazine. Outcomes are for 18-34 year olds

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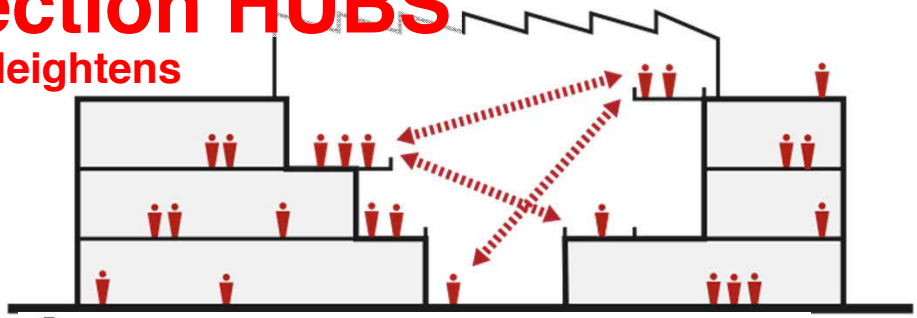
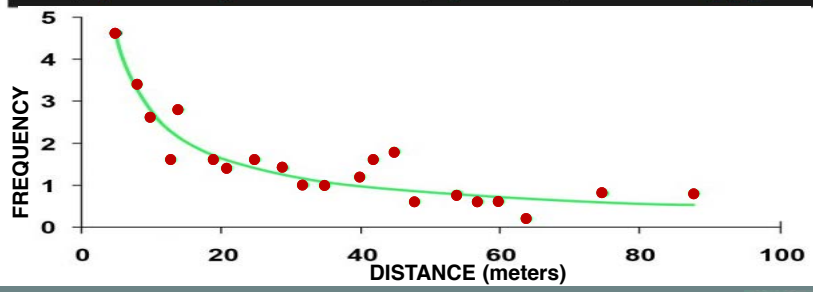
Connection HUBS

Proximity Heightens Interaction



ALLEN CURVE
MIT Press
1977)



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Exponential Drop in Communication with Distance

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Connection HUBS

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Components for Fostering Interaction

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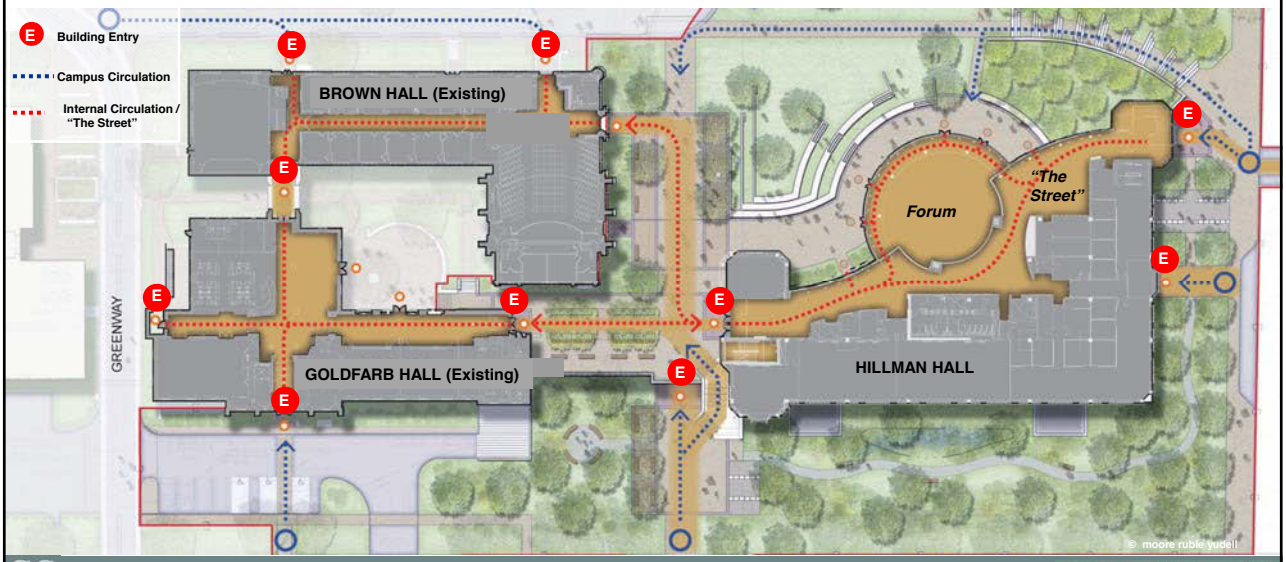
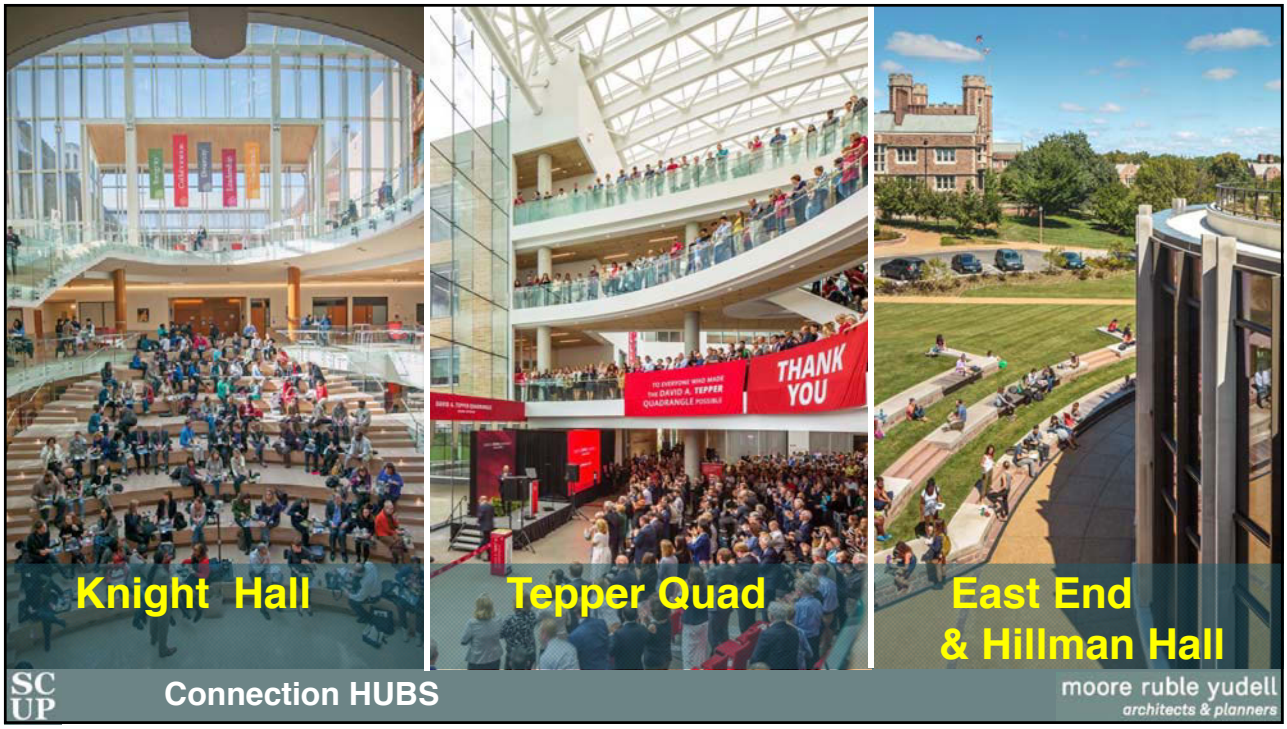
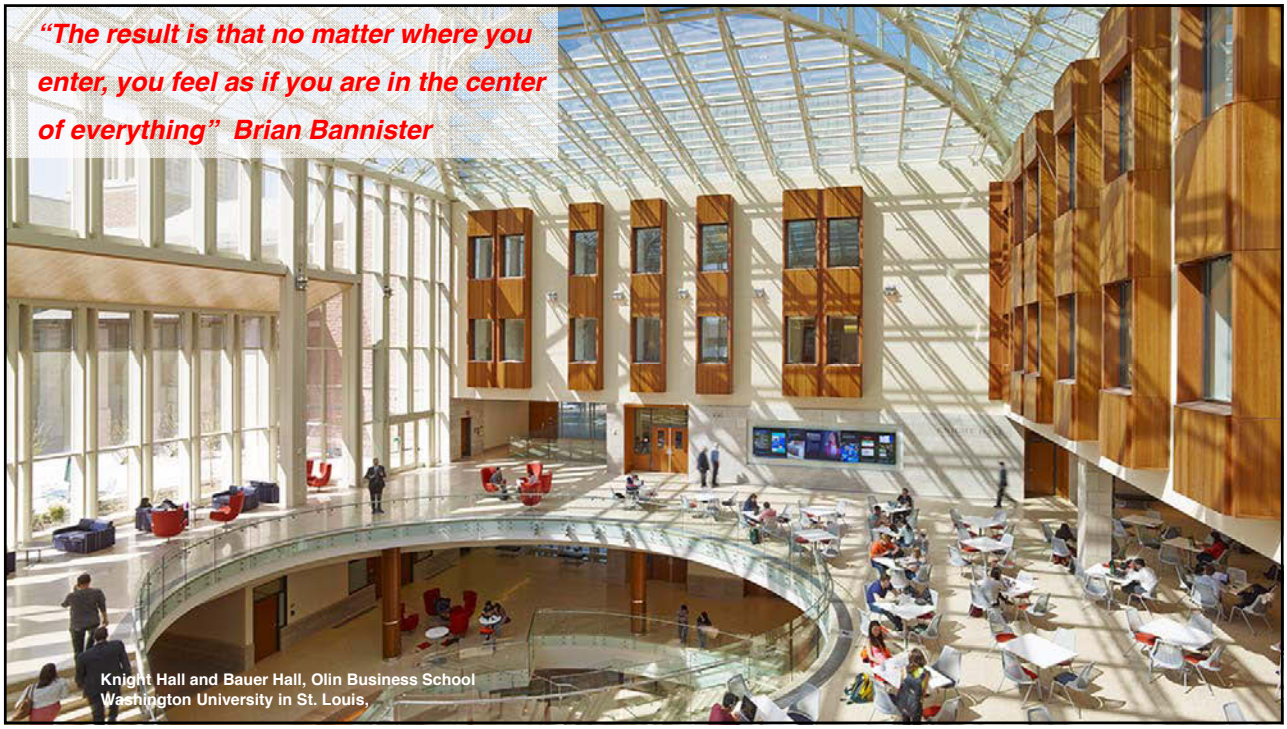
District Scale Connection

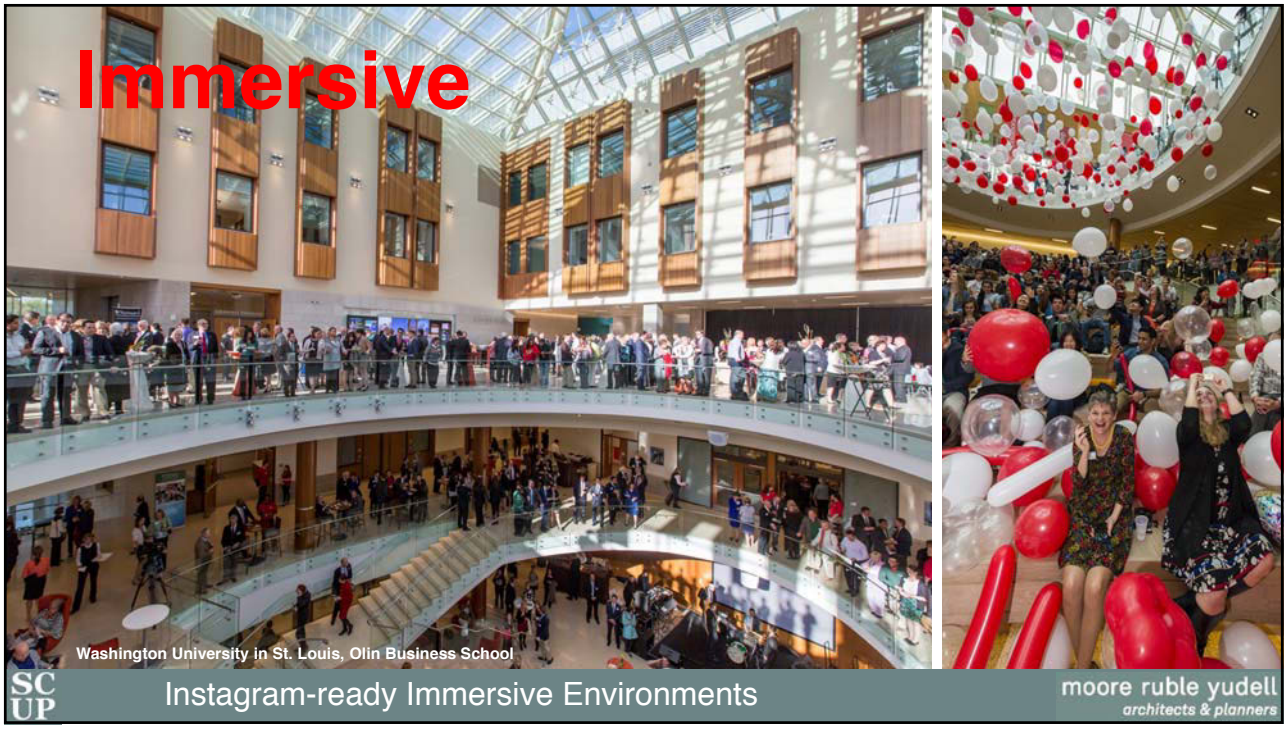


SCUP The Interior Street: Strengthening School Cohesion moore ruble yudell architects & planners



SCUP Connection HUBS moore ruble yudell architects & planners


"The result is that no matter where you enter, you feel as if you are in the center of everything" Brian Bannister
Knight Hall and Bauer Hall, Olin Business School
Washington University in St. Louis,


Immersive
Washington University in St. Louis, Olin Business School
SC UP
Instagram-ready Immersive Environments
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Flexibility

Event-Ready Infrastructure

Washington University in St. Louis, Olin Business School

GEN Zrs are Entrepreneurial and want to learn

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What is Instagram – Ready?

Diamond Head Crater, Hawaii

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GEN Z Celebrate Experiences on Social Media

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Instagram - Ready
Washington University in St. Louis, Olin Business School
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Instagram-ready Immersive Environments
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Instagram - Ready
Washington University in St. Louis, Olin Business School
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Instagram-ready Immersive Environments
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Art Invites Interaction
SC UP
Sculpture by Jaume Plensa invites Play
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Serious Conversation
Washington University in St. Louis, Olin Business School
© moore ruble yudell
SC UP
Post-Ferguson: Race & Ethnicity Day of Dialogue
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Washington University in St. Louis, Olin Business School
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SC UP
Encourage an Emotional Bonding with Place
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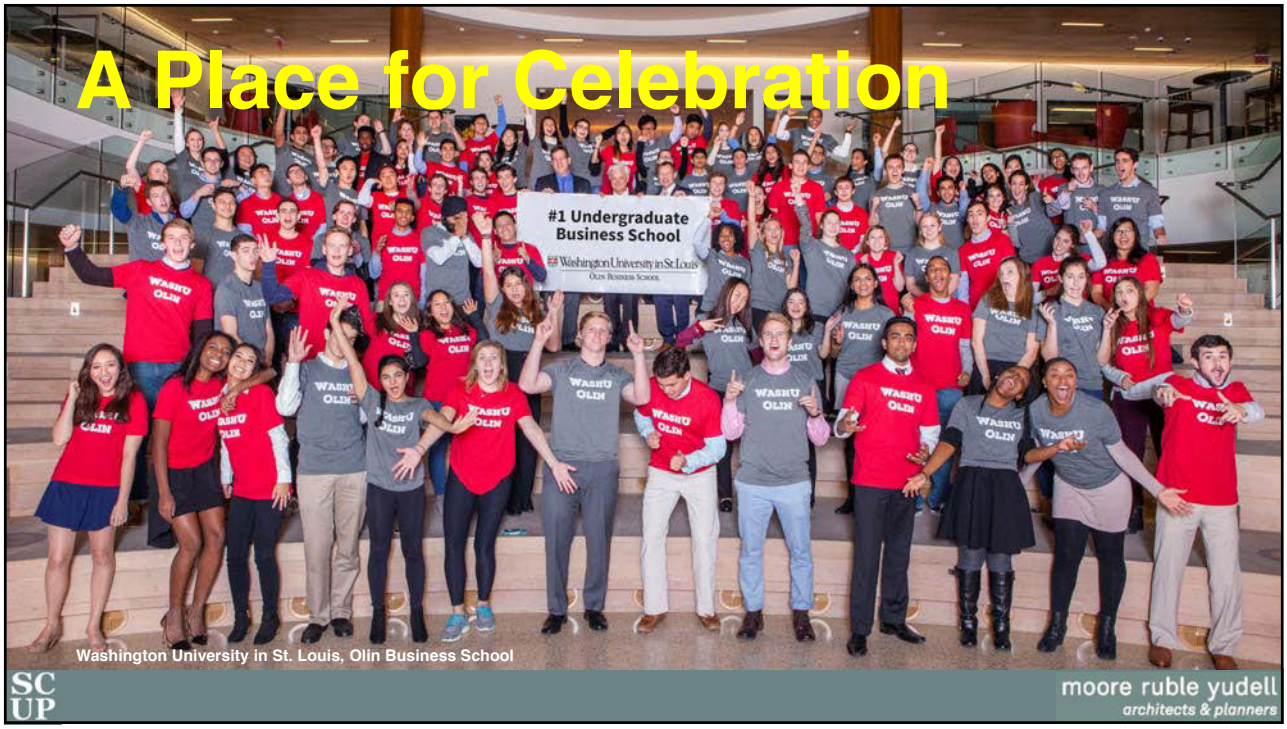
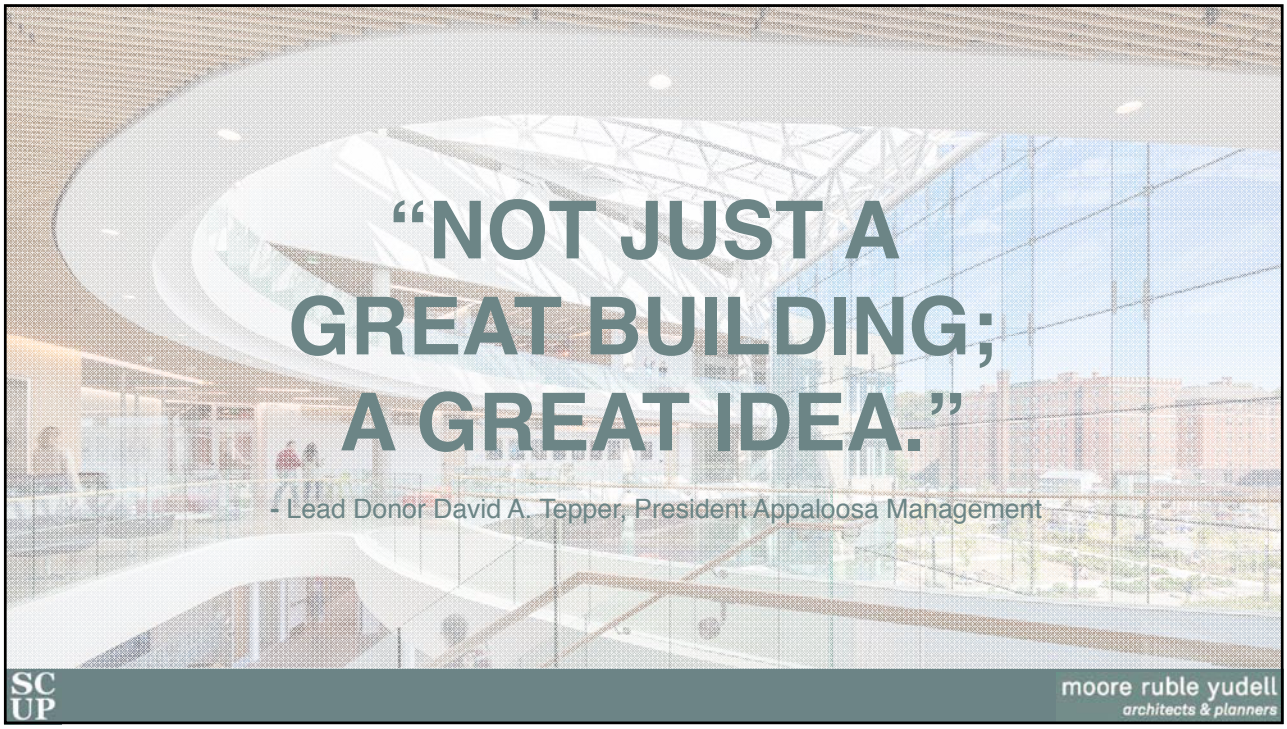

A Place for Celebration
#1 Undergraduate Business School
Washington University in St. Louis
Olin Business School
Washington University in St. Louis, Olin Business School
SC UP
moore ruble yudell
architects & planners


"NOT JUST A GREAT BUILDING; A GREAT IDEA."
- Lead Donor David A. Tepper, President Appaloosa Management
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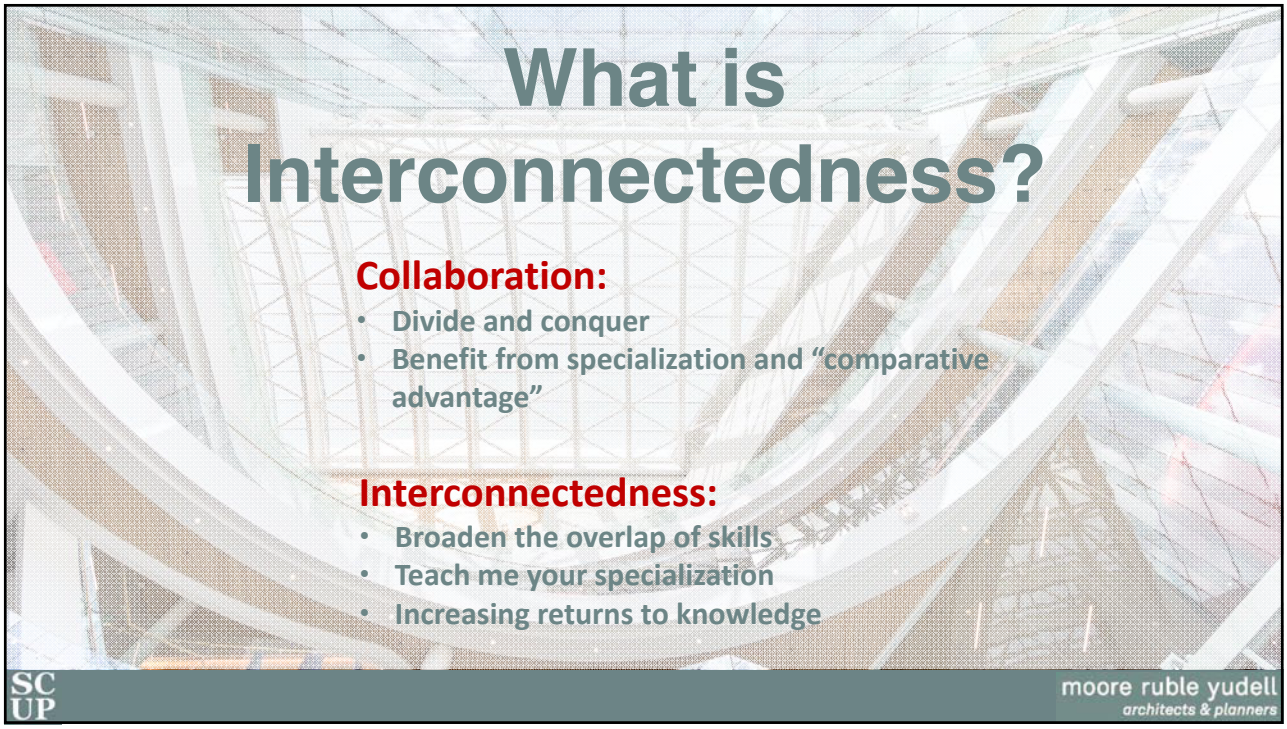
What is Interconnectedness?
Collaboration:
• Divide and conquer
• Benefit from specialization and "comparative advantage"
Interconnectedness:
• Broaden the overlap of skills
• Teach me your specialization
• Increasing returns to knowledge
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Business problems are not just business - All problems are business
- Bryan Routledge, Co – Chair Tepper Quad Working Group
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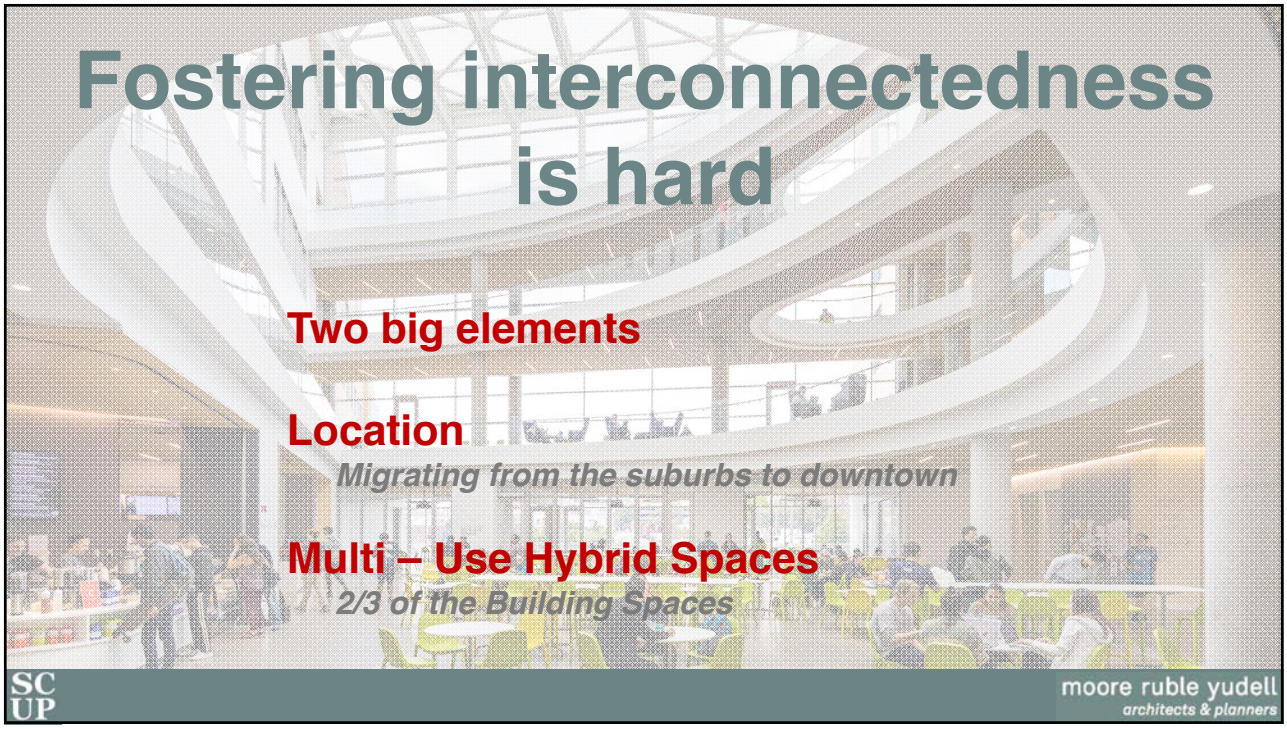
Fostering interconnectedness is hard
Two big elements
Location
Migrating from the suburbs to downtown
Multi – Use Hybrid Spaces
2/3 of the Building Spaces
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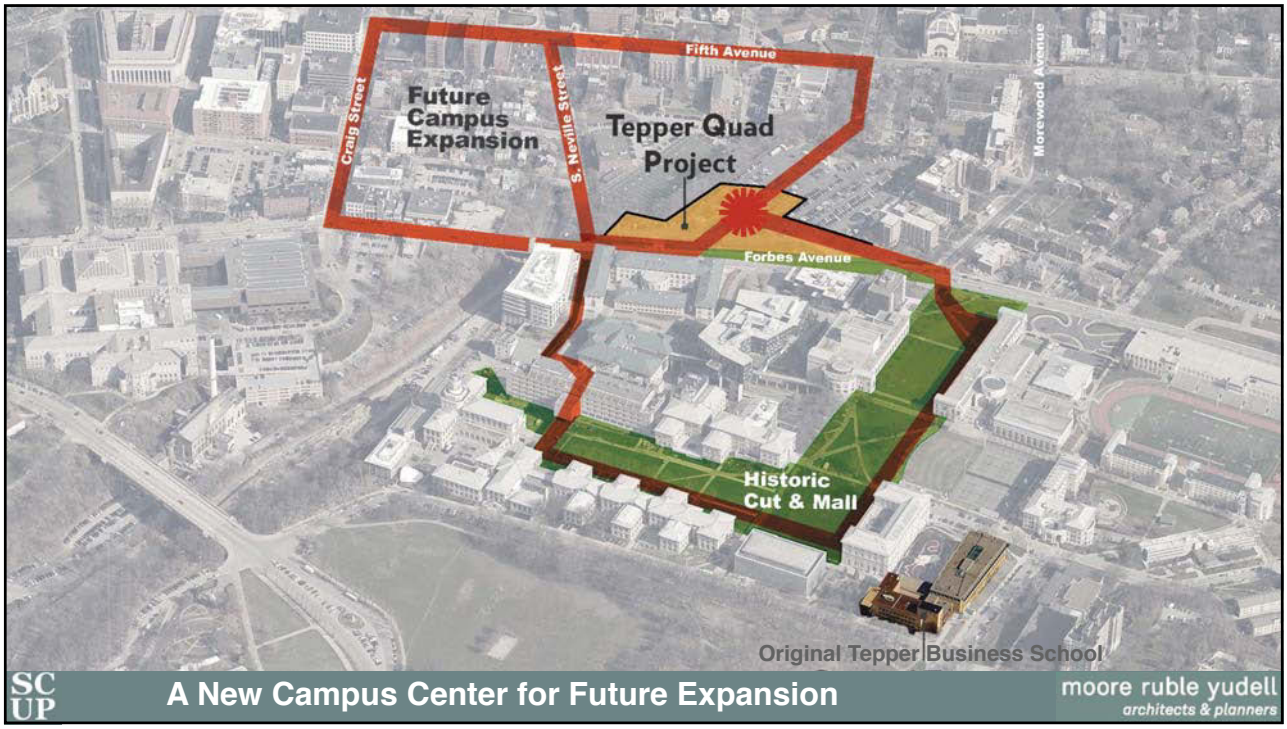
Fifth Avenue
Craig Street
Future Campus Expansion
S. Neville Street
Tepper Quad Project
Morewood Avenue
Forbes Avenue
Historic Cut & Mall
Original Tepper Business School
SC UP
A New Campus Center for Future Expansion
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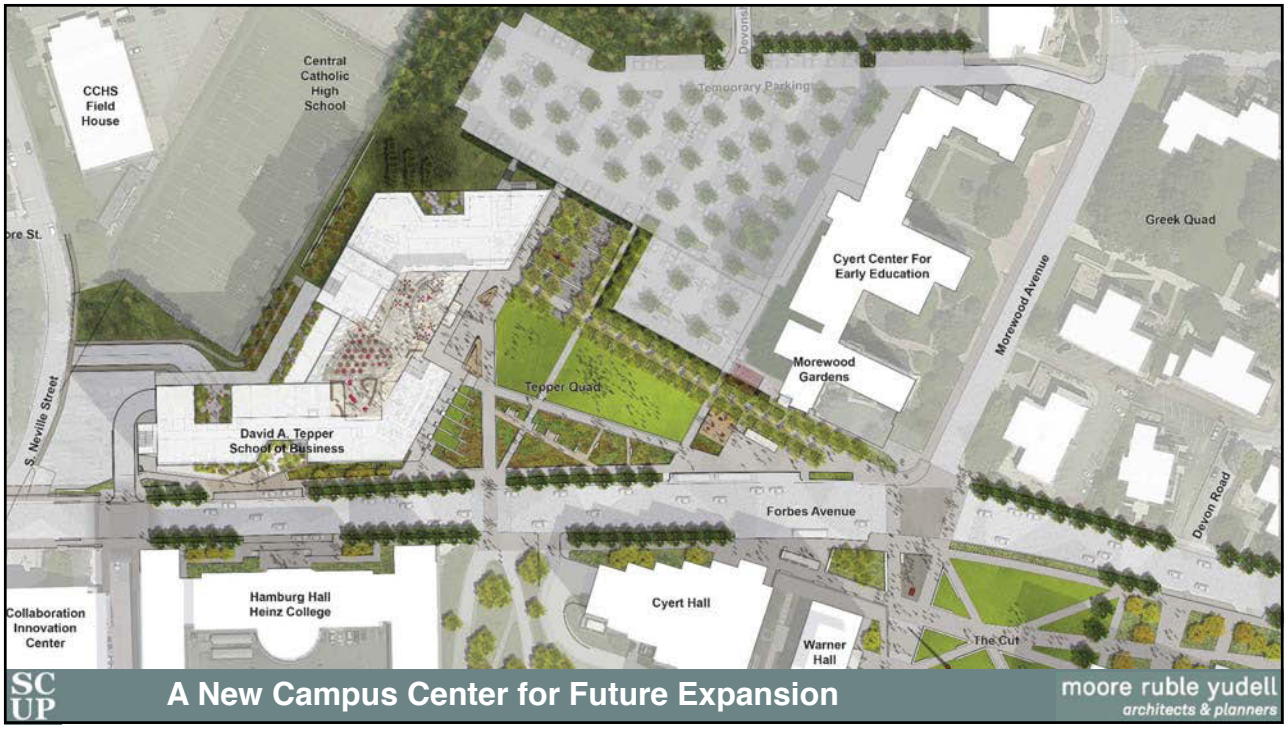
CCHS Field House
Central Catholic High School
Temporary Parking
Greek Quad
Cyert Center For Early Education
Morewood Avenue
Morewood Gardens
S. Neville Street
Tepper Quad
David A. Tepper School of Business
Forbes Avenue
Devon Road
Hamburg Hall Heinz College
Collaboration Innovation Center
Cyert Hall
Warner Hall
The Cut
SC UP
A New Campus Center for Future Expansion
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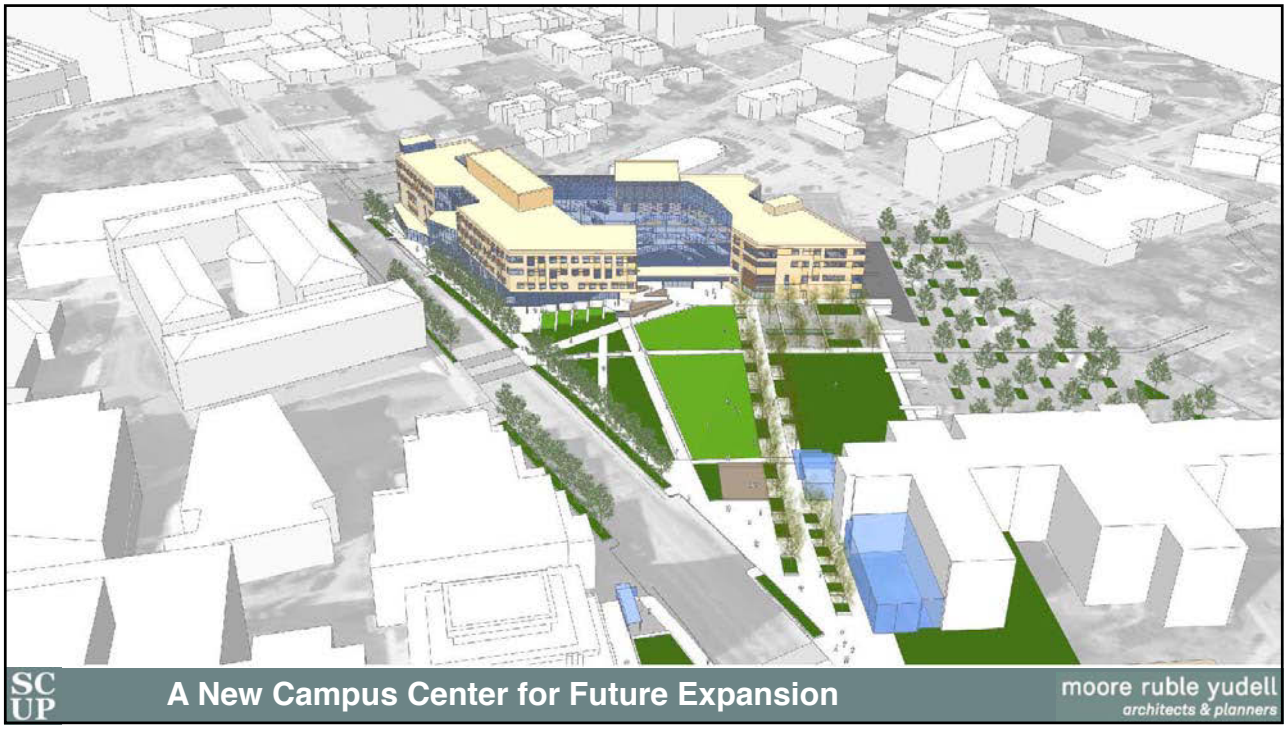
SC UP
A New Campus Center for Future Expansion
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SC UP
Active & Transparent Ground Level
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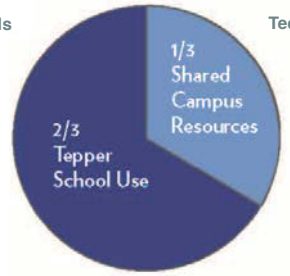
SCUP Indoor / Outdoor Connections for Community moore ruble yudell architects & planners

2/3 Multi–Use Spaces

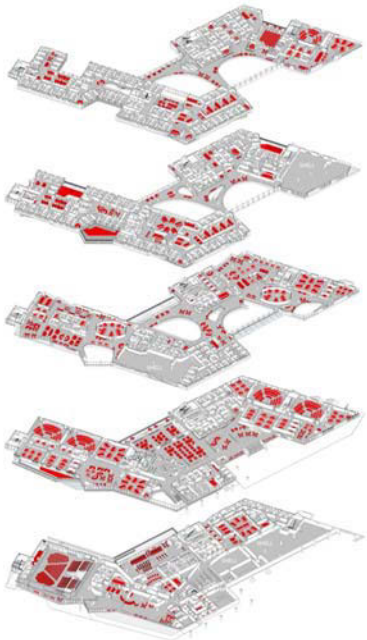
Tepper School of Business

- Undergraduate HUB
- Graduate HUB
- Experiental Learning Spaces
- Innovation HUBS
- Faculty & PhD Neighborhoods
- Tepper Event Space
- Behavirol Lab
- Executive Education
- Career Opportunity Center
- Distance Studios

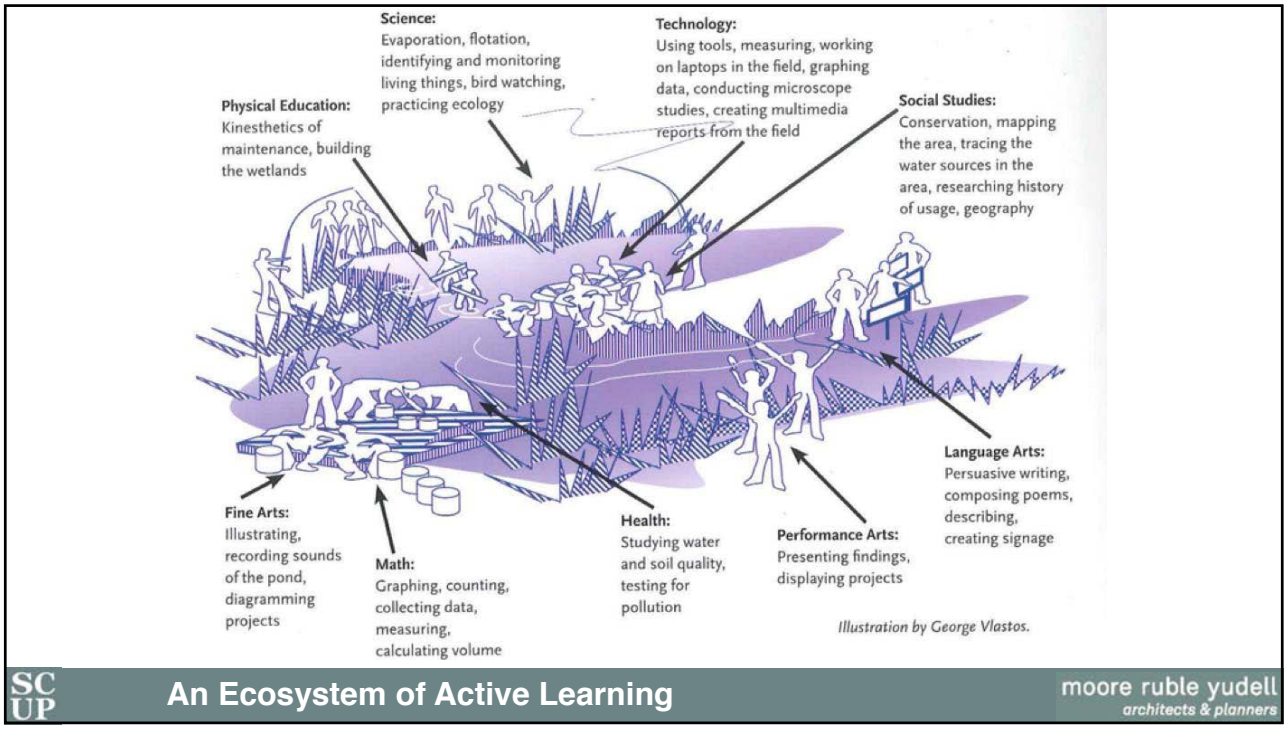


Shared Campus Resources

- Campus HUB / Informal Gathering
- 600 Seat Multi – Use Auditorium
- Global Languages & Culture Lab
- Entrepreneurship Center
- Technology Enhanced Learning Center
- Campus Welcome Center
- Campus Admissions
- Dining & Café
- Fitness Center



SCUP A Hub of Campus Life and Active Learning moore ruble yudell architects & planners


Science:
Evaporation, flotation, identifying and monitoring living things, bird watching, practicing ecology
Technology:
Using tools, measuring, working on laptops in the field, graphing data, conducting microscope studies, creating multimedia reports from the field
Physical Education:
Kinesthetics of maintenance, building the wetlands
Social Studies:
Conservation, mapping the area, tracing the water sources in the area, researching history of usage, geography
Language Arts:
Persuasive writing, composing poems, describing, creating signage
Fine Arts:
Illustrating, recording sounds of the pond, diagramming projects
Math:
Graphing, counting, collecting data, measuring, calculating volume
Health:
Studying water and soil quality, testing for pollution
Performance Arts:
Presenting findings, displaying projects
Illustration by George Vlastos.
SC UP
An Ecosystem of Active Learning
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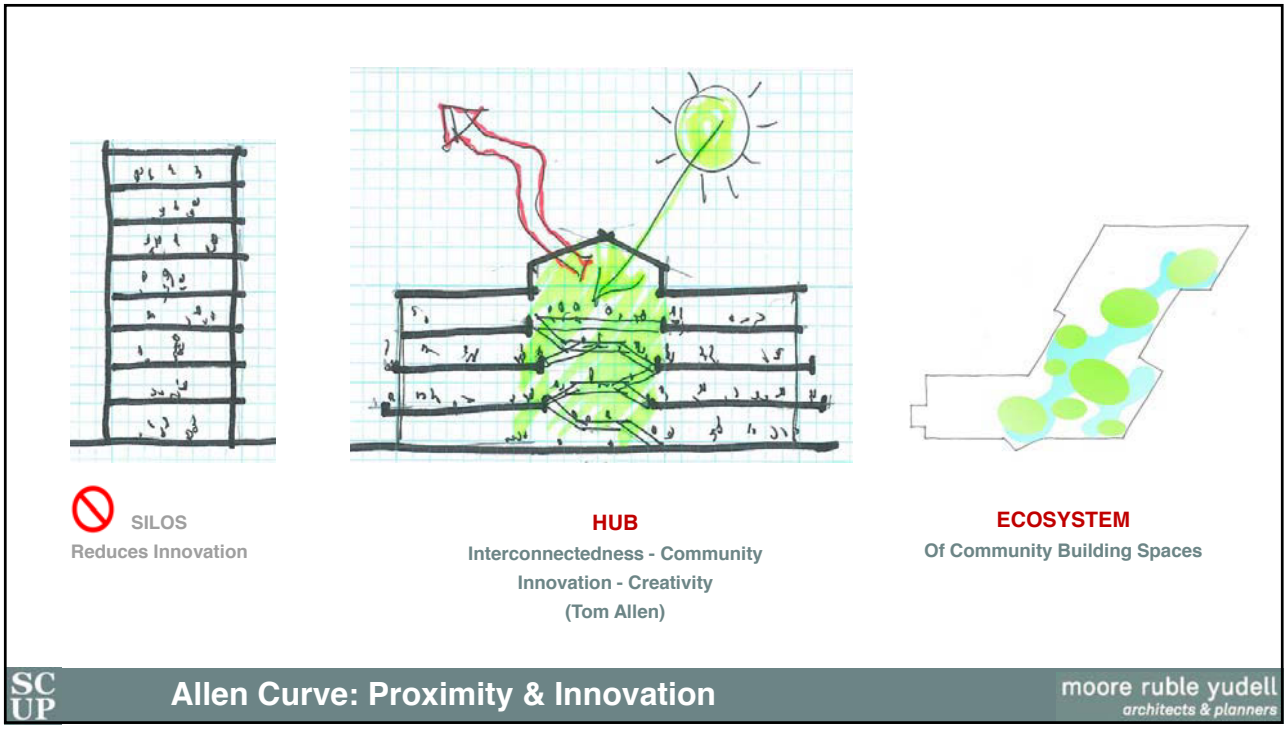
SILOS
Reduces Innovation
HUB
Interconnectedness - Community
Innovation - Creativity
(Tom Allen)
ECOSYSTEM
Of Community Building Spaces
SC UP
Allen Curve: Proximity & Innovation
moore ruble yudell
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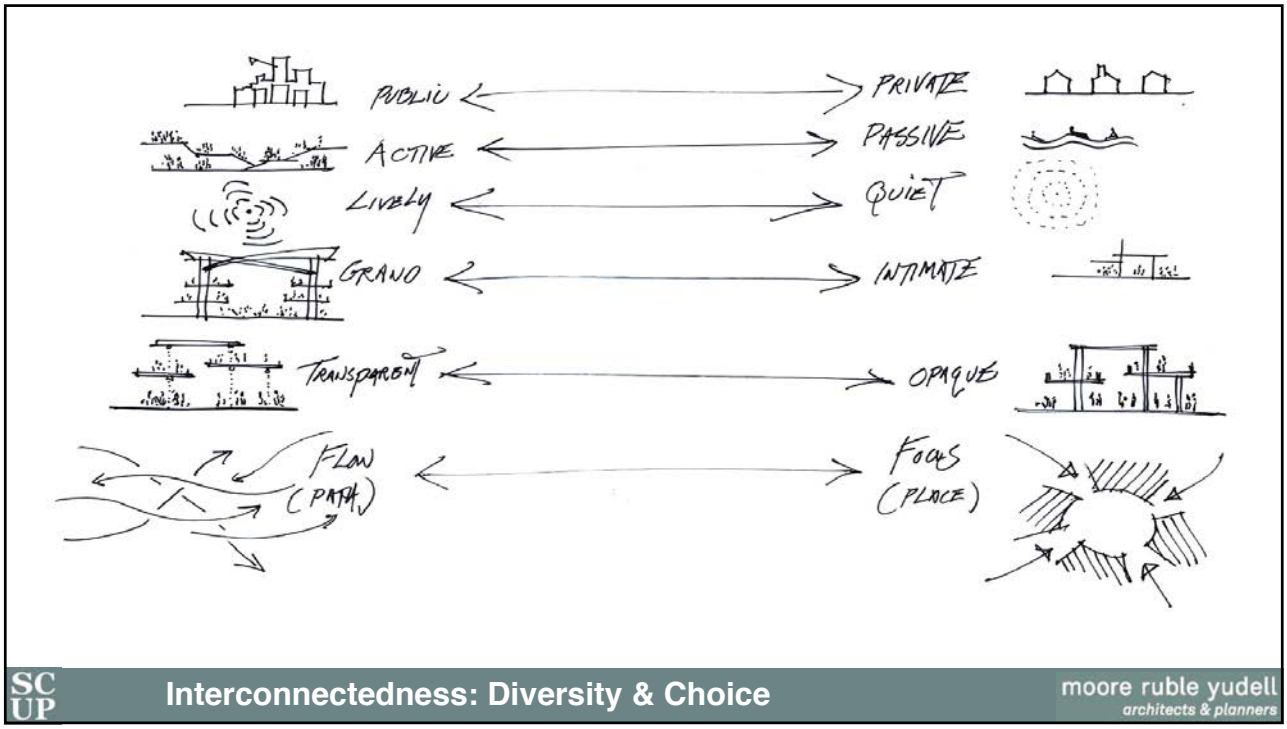
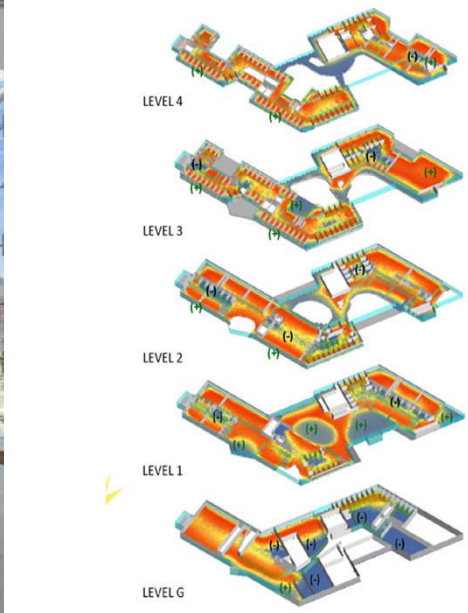
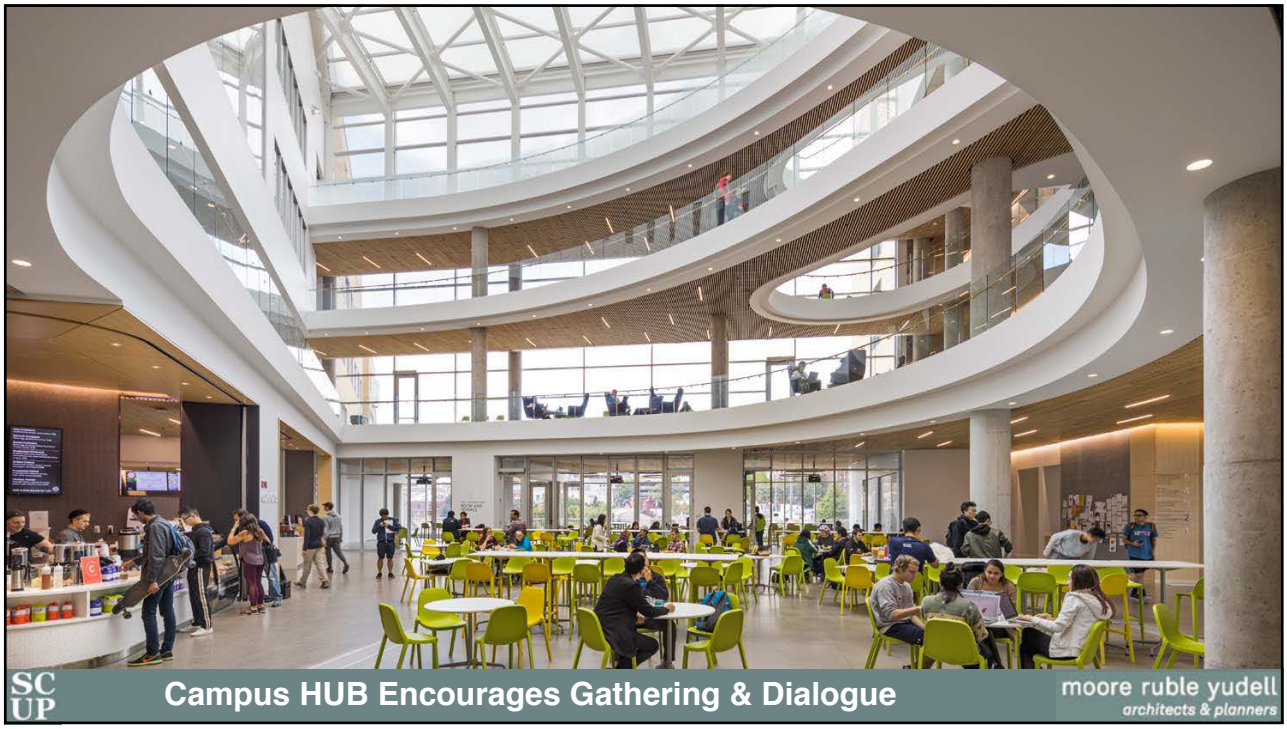


SCUP **Interconnectedness: Diversity & Choice** moore ruble yudell architects & planners



SCUP **Daylight: NUMBER ONE desired Natural Element** moore ruble yudell architects & planners


SC UP
Campus HUB Encourages Gathering & Dialogue
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SC UP
Social Stairs Connect Magnets for Learning & Research
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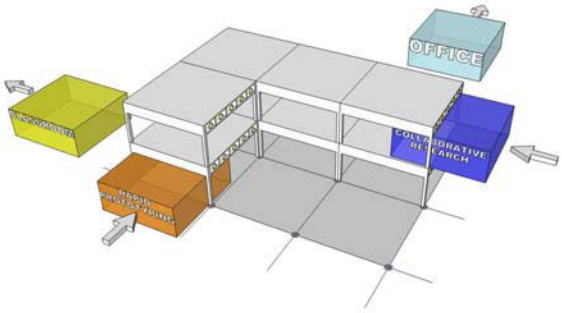
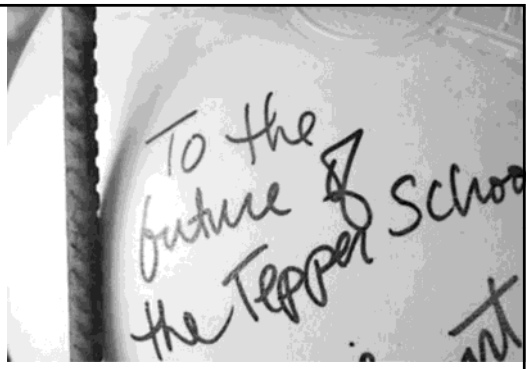
Flexibility Plug & Play

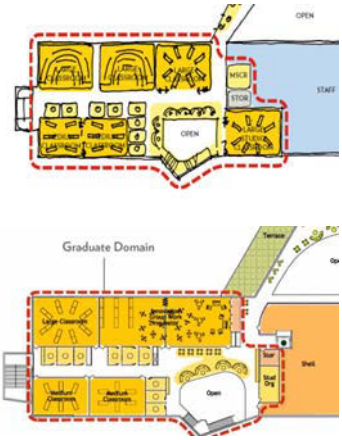


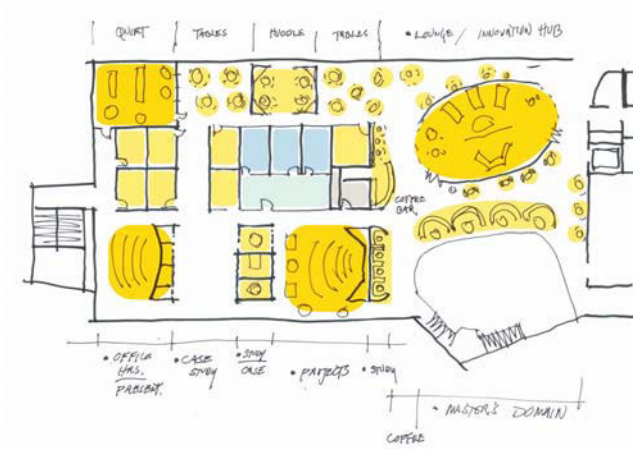
SC UP Concrete in a Steel Town moore ruble yudell architects & planners



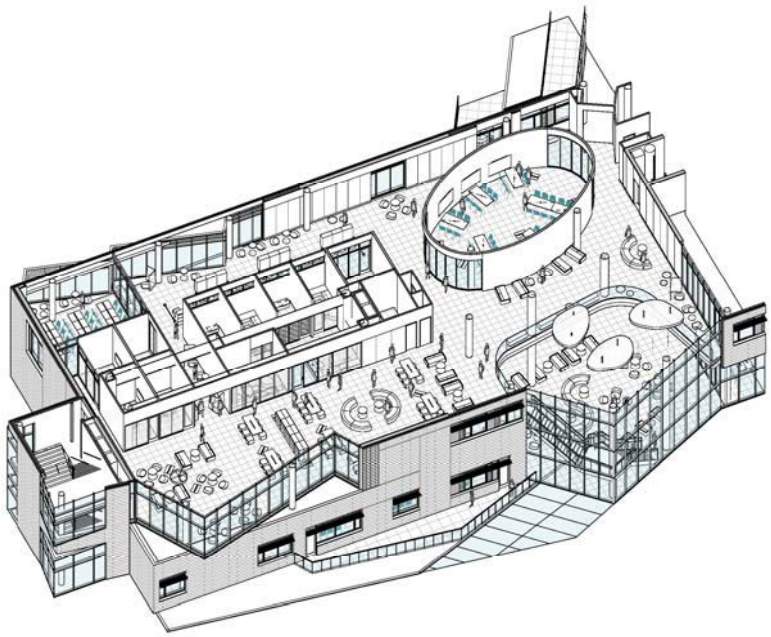
SC UP Concrete in a Steel Town moore ruble yudell architects & planners

Catalyst For New Research & Education Model

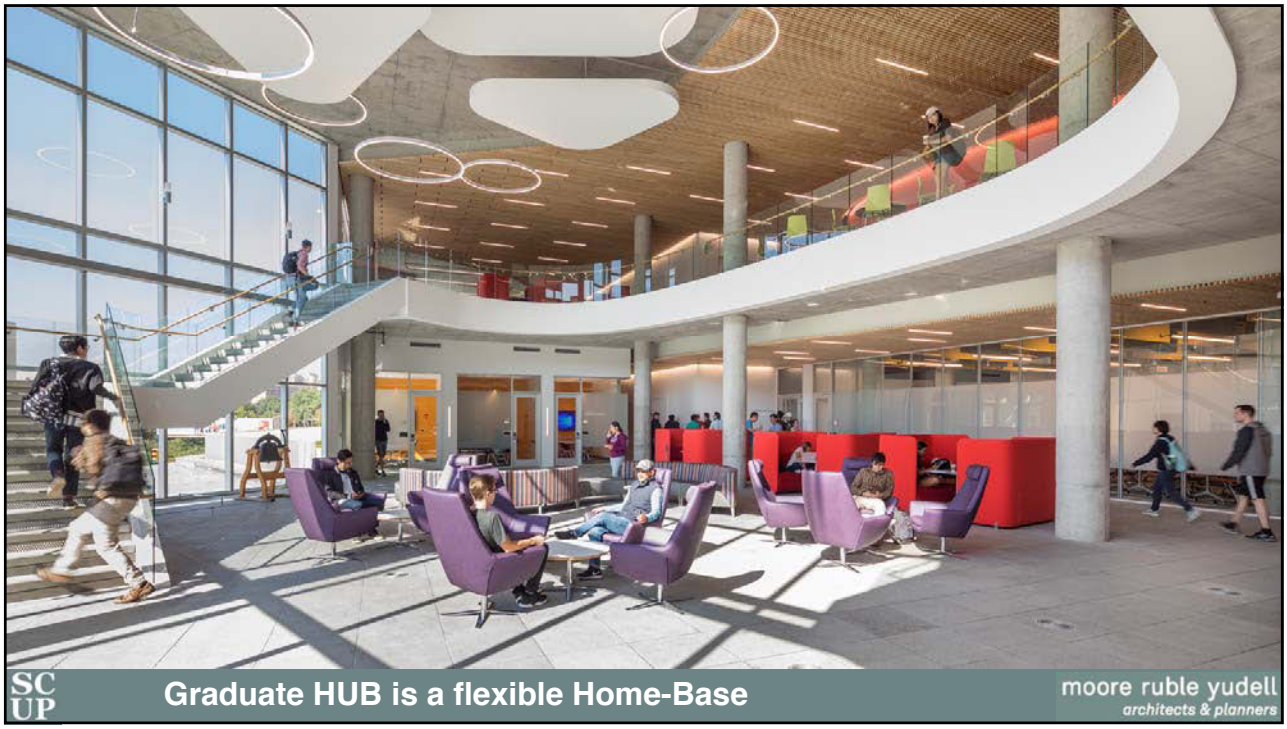




SCUP **Graduate Domain Scenario Testing** moore ruble yudell architects & planners



SCUP **Graduate Innovation HUB** moore ruble yudell architects & planners


SC UP
Graduate HUB is a flexible Home-Base
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SC UP
Entrepreneurship Center
moore ruble yudell
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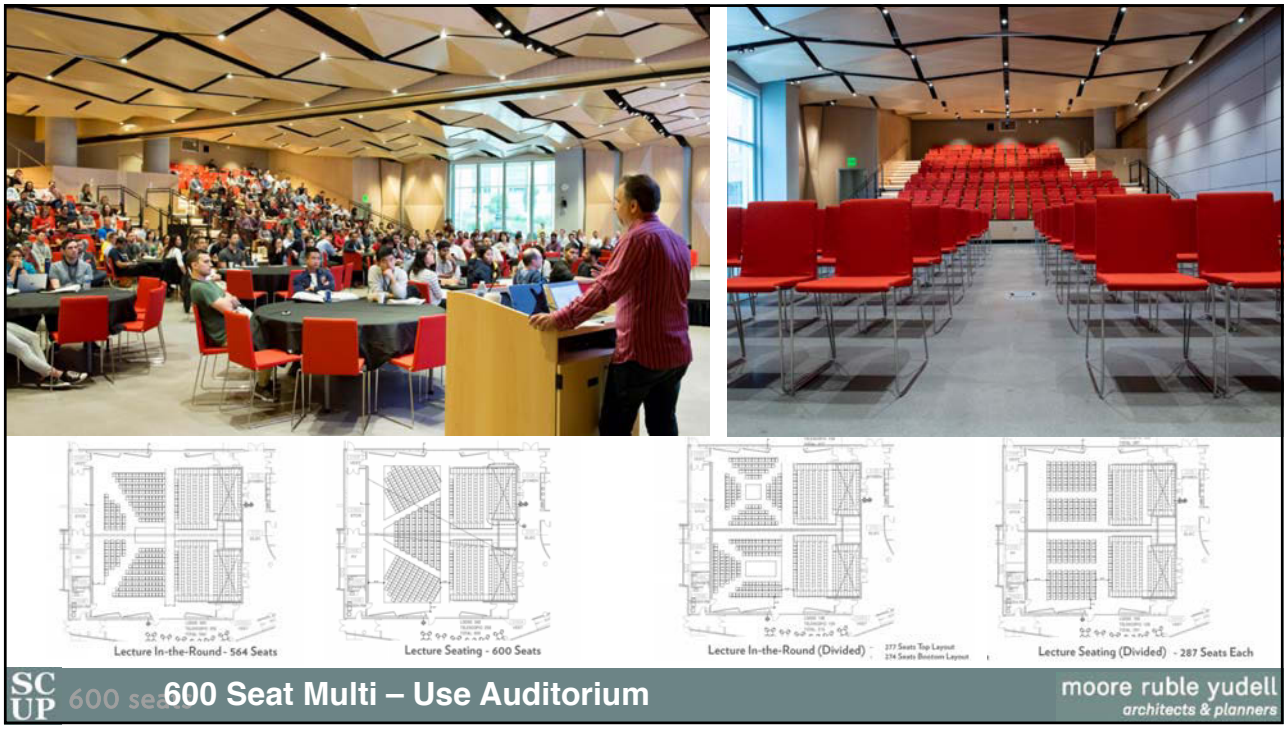
Lecture In-the-Round - 564 Seats
Lecture Seating - 600 Seats
Lecture In-the-Round (Divided)
Lecture Seating (Divided) - 287 Seats Each
SC UP
600 seats
600 Seat Multi – Use Auditorium
moore ruble yudell
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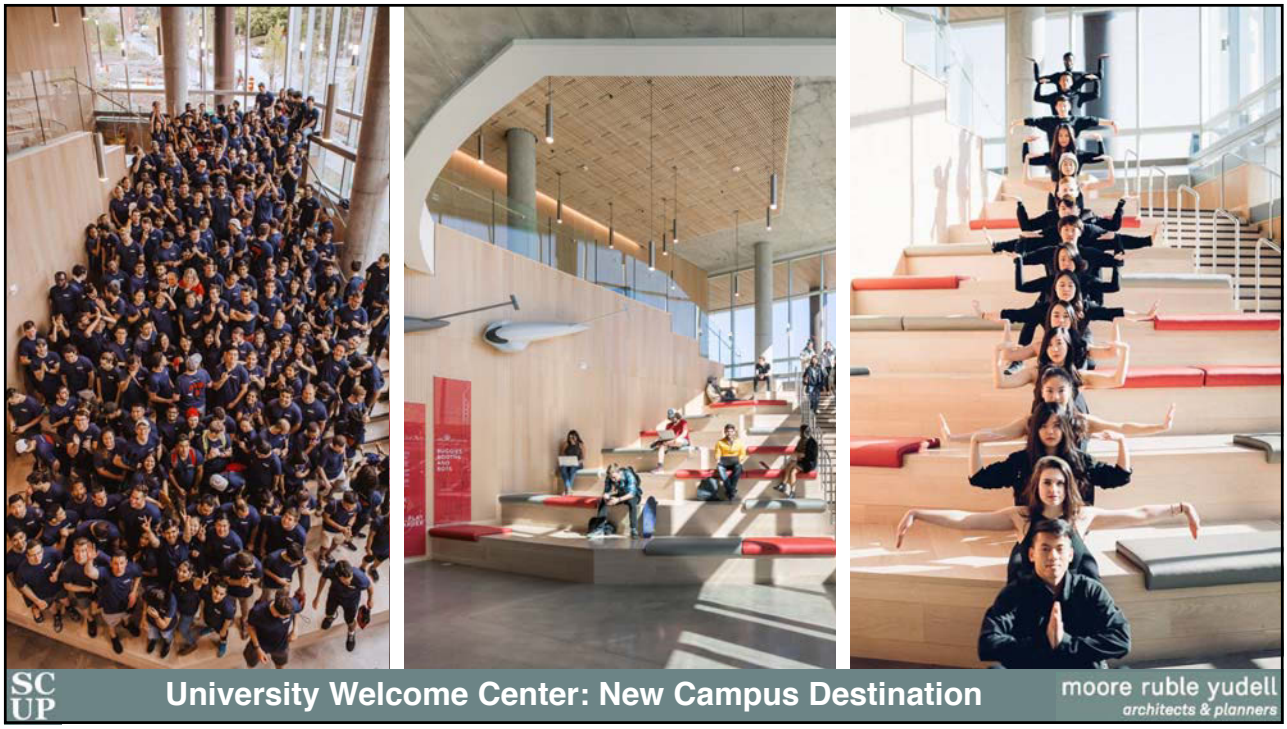
SC UP
University Welcome Center: New Campus Destination
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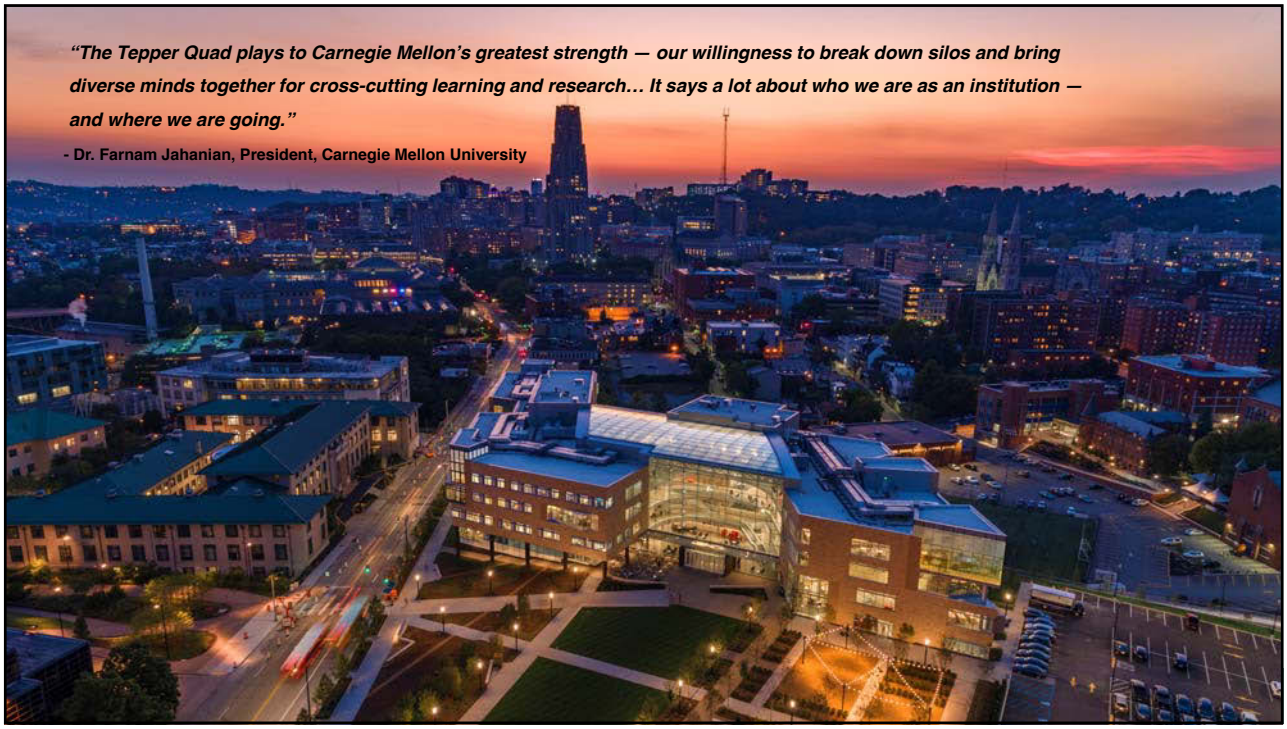
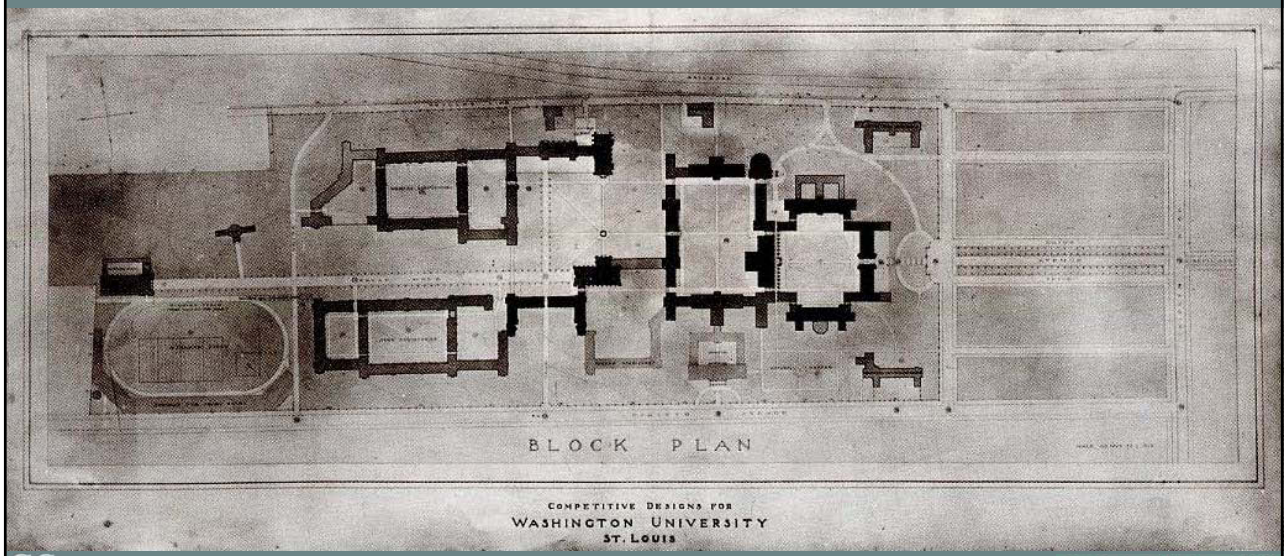


Washington University in St. Louis



SC UP

Cope & Stewardson 1900 - Plan

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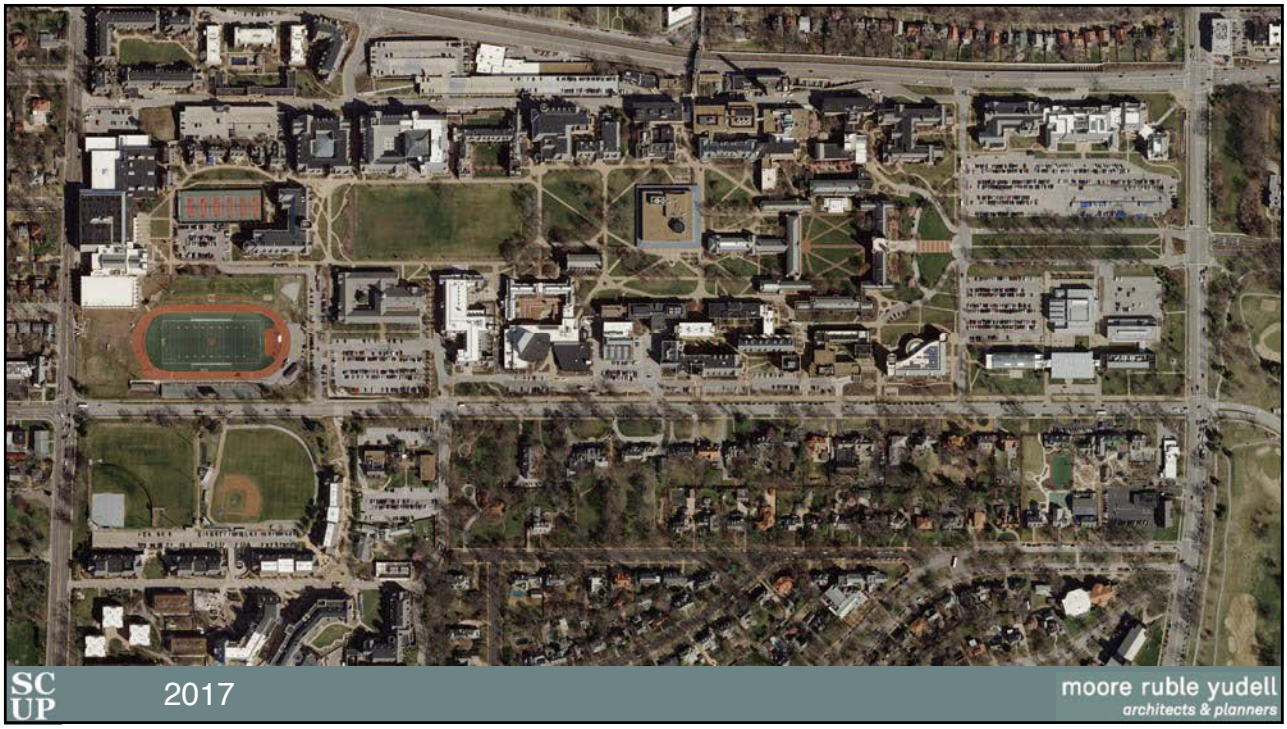
SC UP
1904
moore ruble yudell
architects & planners


SC UP
2017
moore ruble yudell
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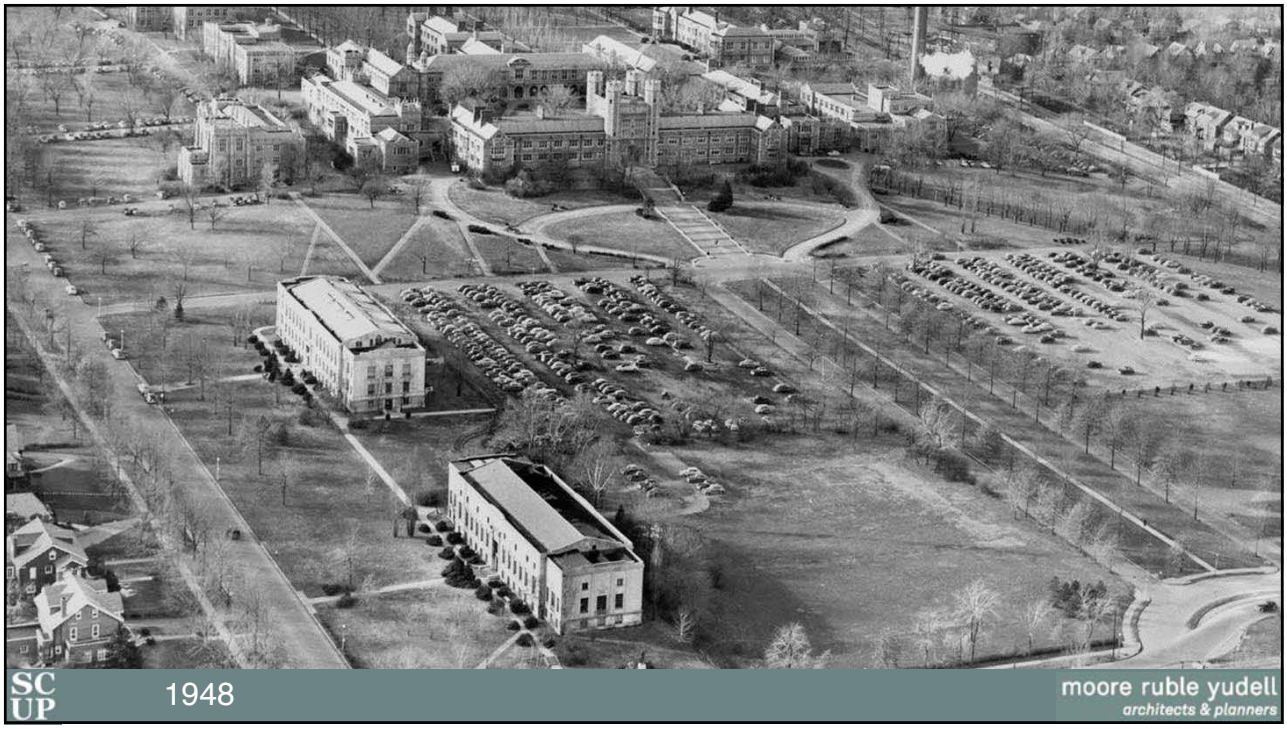
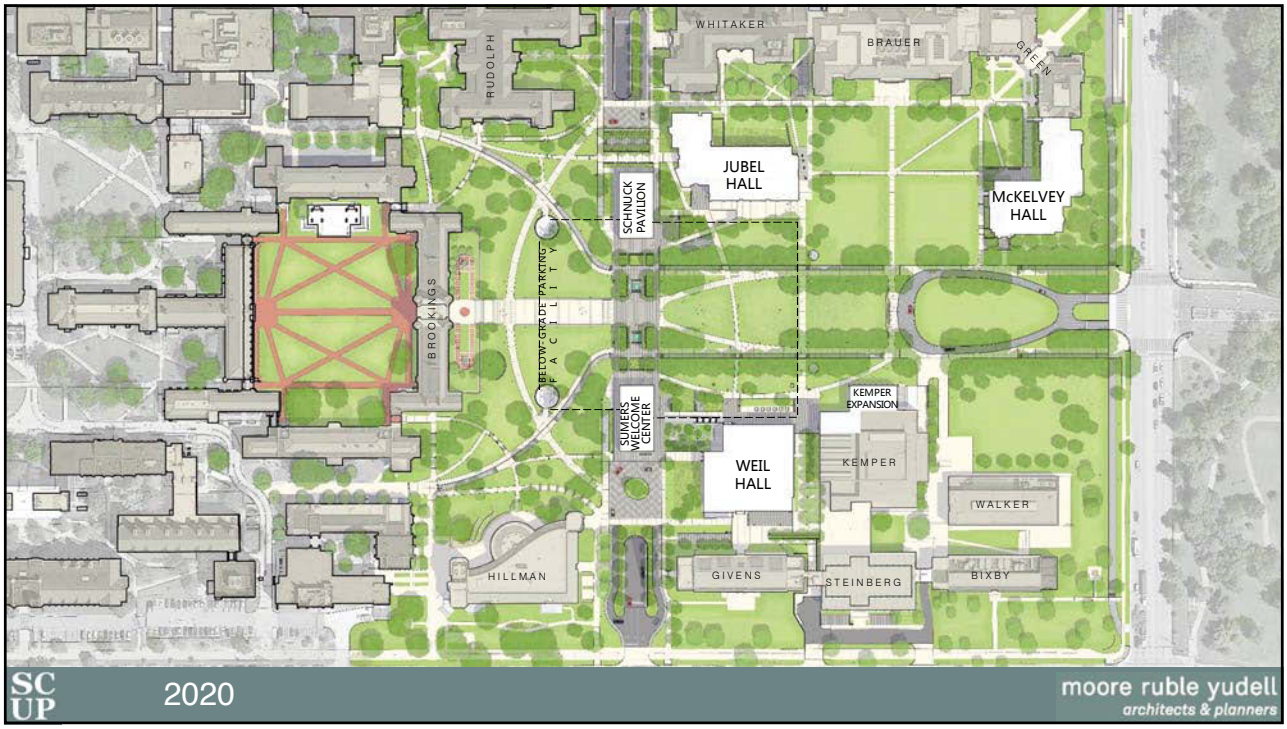
SCUP Jamieson & Spearl East End Plan – 1932 moore ruble yudell architects & planners



SCUP 1948 moore ruble yudell architects & planners

SC UP
2015
moore ruble yudell
architects & planners

SC UP
2017
moore ruble yudell
architects & planners


WHITAKER
BRAUER
GREEN
RUDOLPH
JUBEL HALL
McKELVEY HALL
SCHNUCK PAVILION
BROOKINGS
BELOW-GRADE PARKING FACILITY
SUMERS WELCOME CENTER
KEMPER EXPANSION
WEIL HALL
KEMPER
WALKER
HILLMAN
GIVENS
STEINBERG
BIXBY
SC UP
2020
moore ruble yudell
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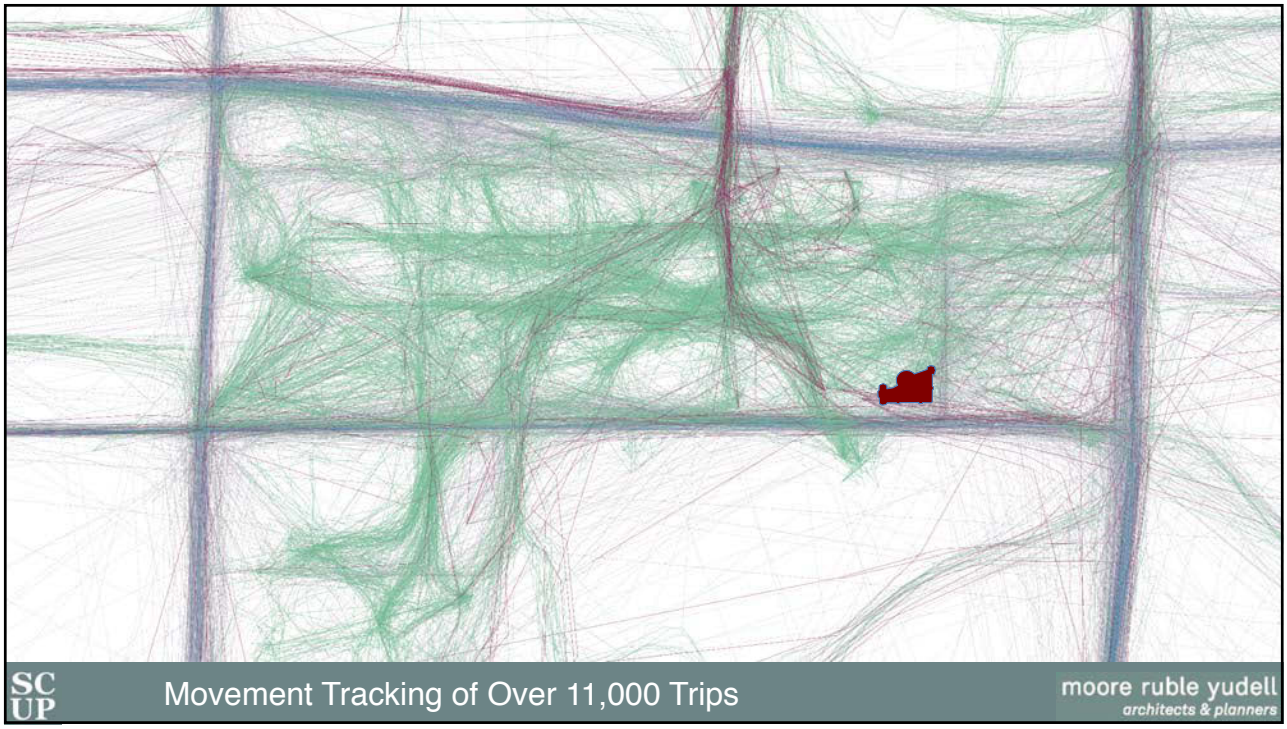
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Movement Tracking of Over 11,000 Trips
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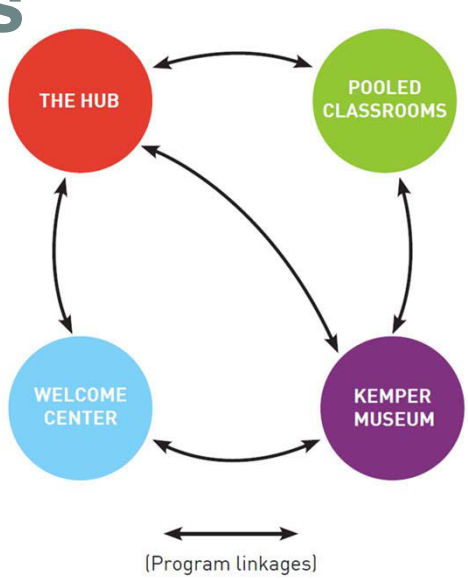
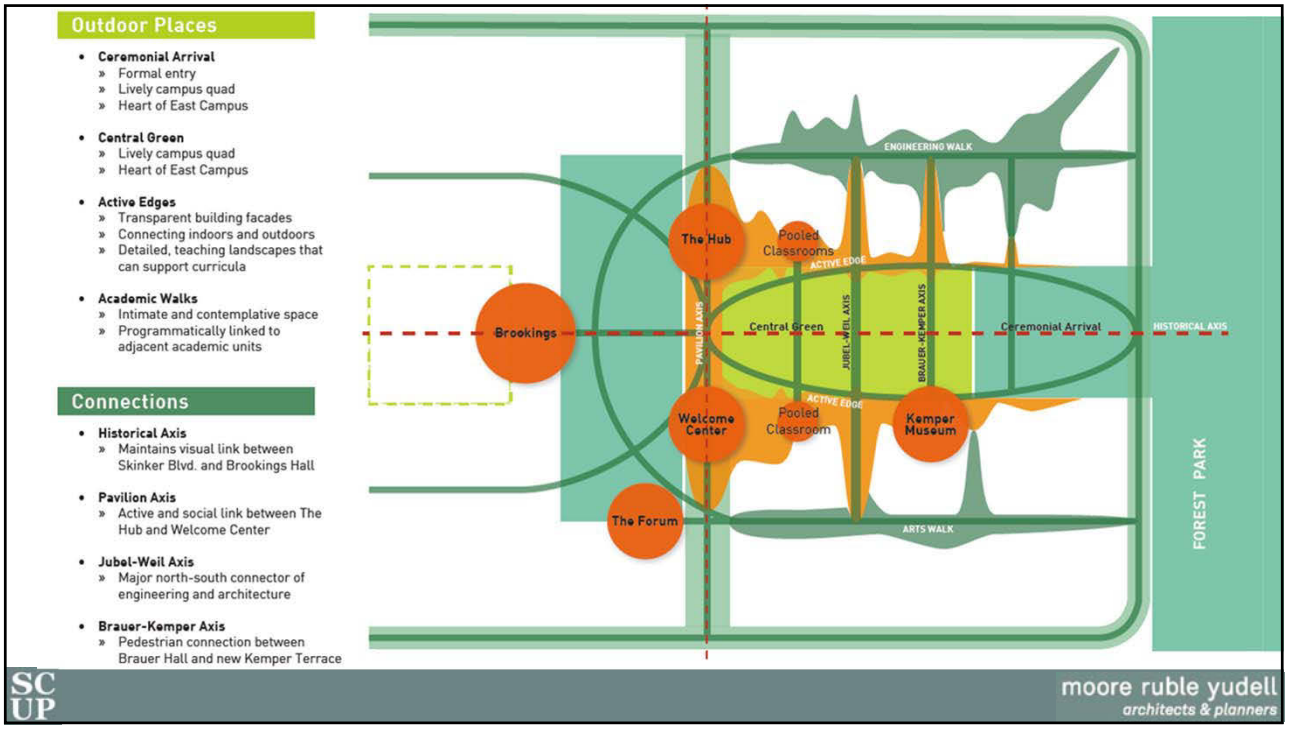
Activity Generators

Program-Driven Approach

- Adding highly social and public academic and collaborative programmatic anchors
- Designing inviting and comfortable outdoor places to encourage lingering
- Strong pedestrian and visual connections to link active uses and places

Activity generators are arranged with a strong Landscape Armature that guides building massing and planting strategies.




Outdoor Places
Ceremonial Arrival
» Formal entry
» Lively campus quad
» Heart of East Campus
Central Green
» Lively campus quad
» Heart of East Campus
Active Edges
» Transparent building facades
» Connecting indoors and outdoors
» Detailed, teaching landscapes that can support curricula
Academic Walks
» Intimate and contemplative space
» Programmatically linked to adjacent academic units
Connections
Historical Axis
» Maintains visual link between Skinker Blvd. and Brookings Hall
Pavilion Axis
» Active and social link between The Hub and Welcome Center
Jubel-Weil Axis
» Major north-south connector of engineering and architecture
Brauer-Kemper Axis
» Pedestrian connection between Brauer Hall and new Kemper Terrace
ENGINEERING WALK
The Hub
Pooled Classrooms
ACTIVE EDGE
Brookings
PAVILION AXIS
Central Green
JUBEL-WEIL AXIS
BRAUER-KEMPER AXIS
Ceremonial Arrival
HISTORICAL AXIS
Welcome Center
Pooled Classroom
ACTIVE EDGE
Kemper Museum
The Forum
ARTS WALK
FOREST PARK
SC UP
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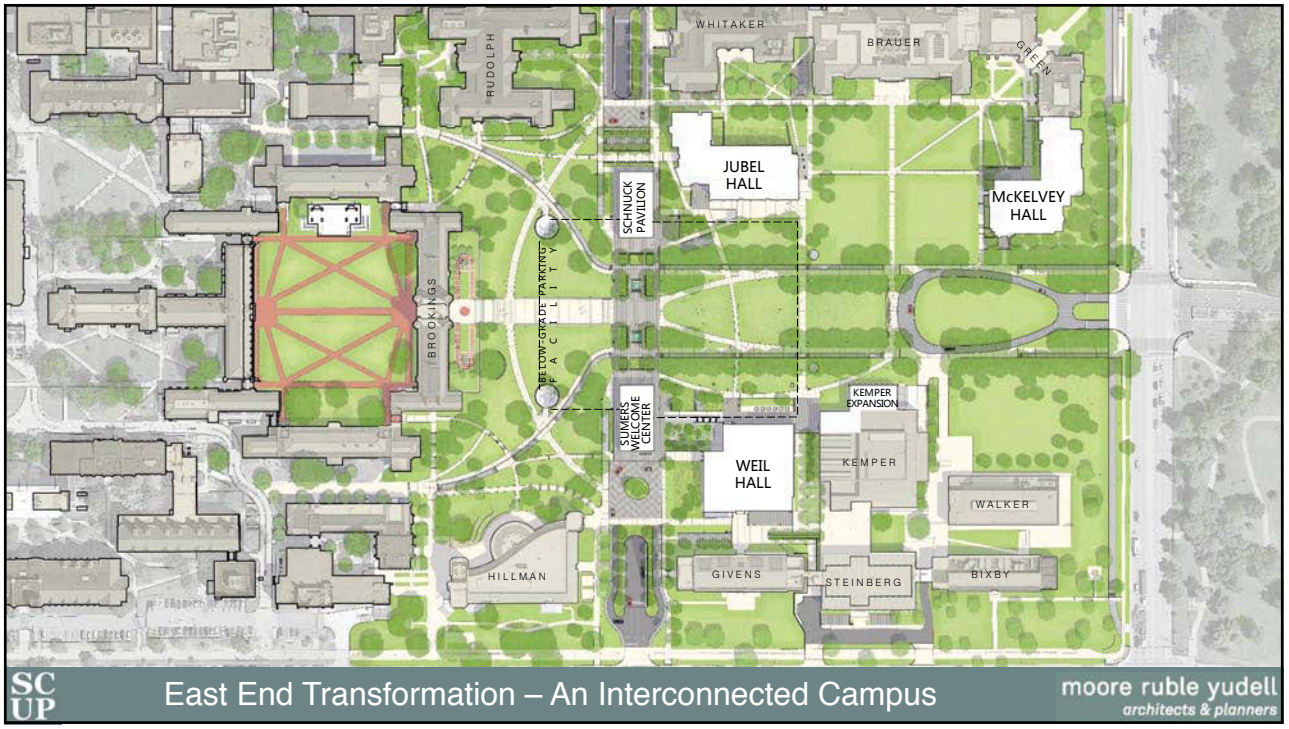
WHITAKER
BRAUER
GREEN
RUDOLPH
JUBEL HALL
McKELVEY HALL
SCHNUCK PAVILION
BROOKINGS
BELOW-GRADE PARKING FACILITY
SUMERS WELCOME CENTER
KEMPER EXPANSION
WEIL HALL
KEMPER
WALKER
HILLMAN
GIVENS
STEINBERG
BIXBY
SC UP
East End Transformation – An Interconnected Campus
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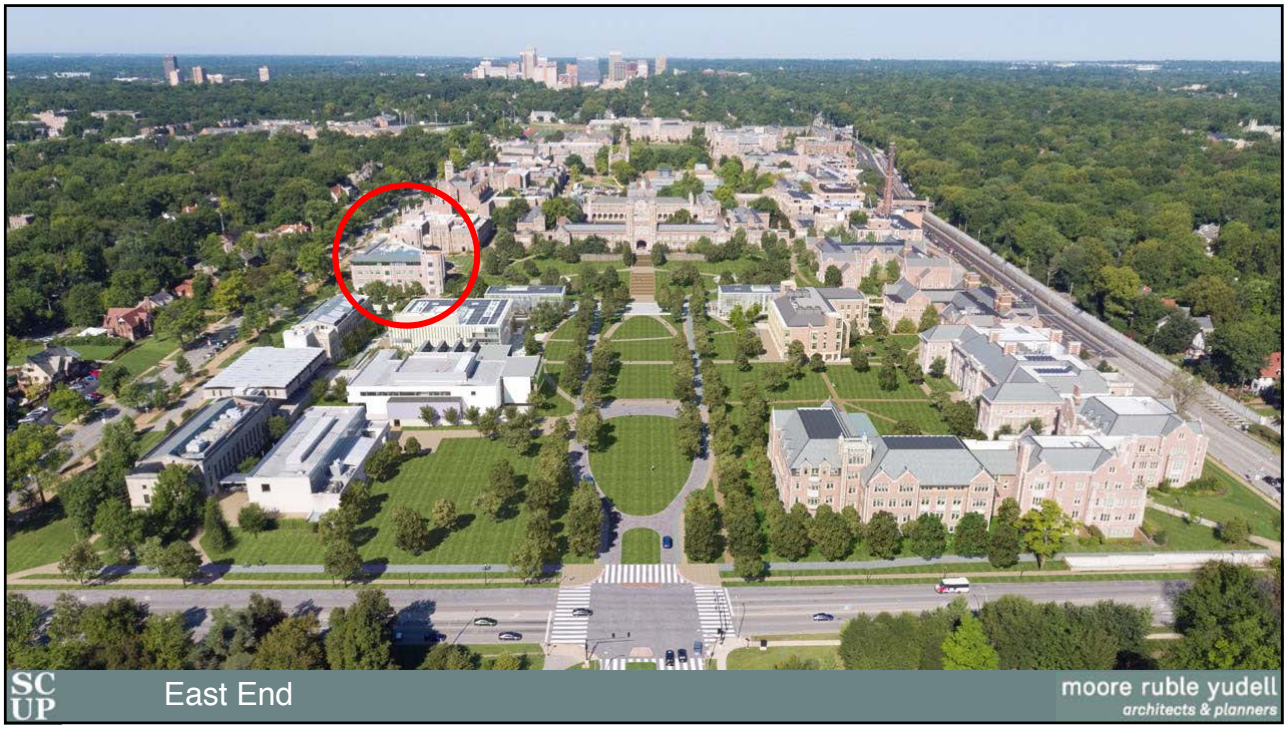
SC UP
2019
moore ruble yudell
architects & planners

SC UP
2020
moore ruble yudell
architects & planners


East End
moore ruble yudell
architects & planners

"To Create Positive Social Change Through Research and Educational Excellence"
PUBLIC HEALTH
BROWN SCHOOL
SOCIAL WORK
First school of Social Work, Founded in 1913
#1 Ranked
School of Social Work
School of Social Work and Public Health
Research Centers Include:
Diabetes Research
Mental Health Services
Obesity Prevention
Violence & Injury Prevention
American Indian Studies
The George Warren Brown School of Social Work & Public Health
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SC UP
Inclusive Design Process
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Hillman Hall – Health and Wellness
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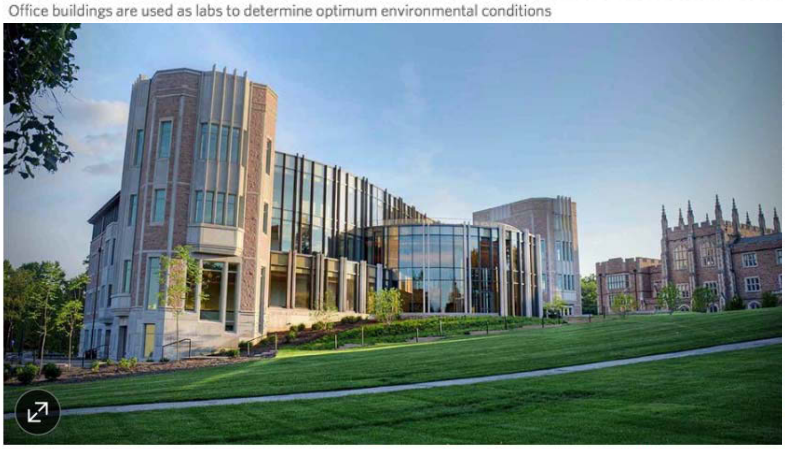
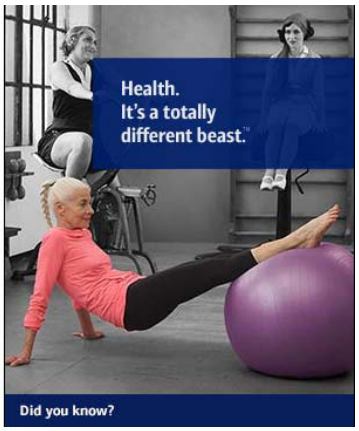
WSJ.com THE WALL STREET JOURNAL.

Scientists Probe Indoor Work Spaces for Clues to Better Health

Office buildings are used as labs to determine optimum environmental conditions





Hillman Hall, at Washington University in St. Louis, was designed with easy access to stairways, lots of natural light and other health-minded features. A yearlong study begun this summer will test if the design features boost employees' physical activity and lead to greater collaboration. *PHOTO: JAMES BYARD/WUSTL*

SCUP Measuring Health Impacts moore ruble yudell architects & planners

BEEP IS:
BROWN SCHOOL
EXPANSION
EVALUATION
PROJECT
Design Workshop: June 2012
Researchers recognized the potential for a "natural experiment" to explore health and collaboration outcomes after moving to Hillman Hall
Amy Eyler, PhD
BEEP Co-Director
Brown School, Washington University in St. Louis
J. Aaron Hipp, PhD
BEEP Co-Director
North Carolina State University
Cheryl Valko, MPH, RD
BEEP Project Manager
Brown School, Washington University in St. Louis
Ramya Ramadas
BEEP Masters Research Fellow
Brown School, Washington University in St. Louis
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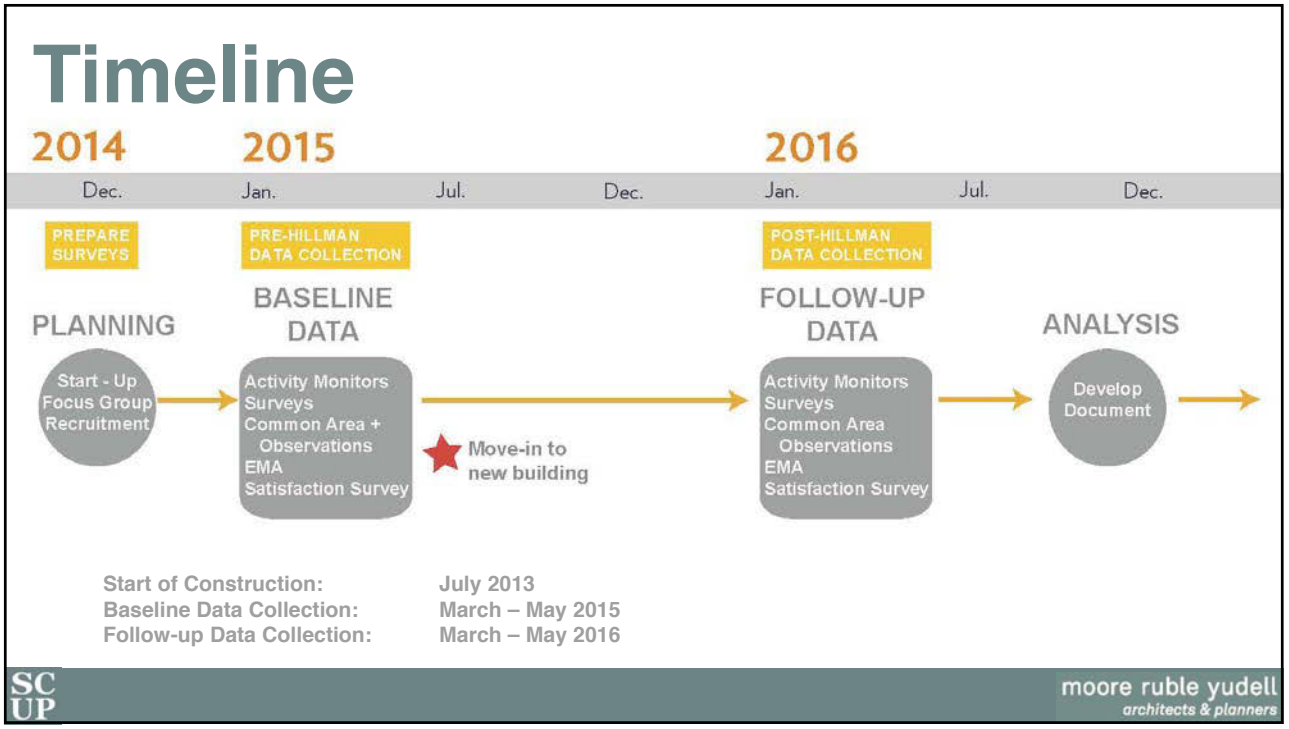
Timeline
2014
2015
2016
Dec.
Jan.
Jul.
Dec.
Jan.
Jul.
Dec.
PREPARE SURVEYS
PRE-HILLMAN DATA COLLECTION
POST-HILLMAN DATA COLLECTION
PLANNING
BASELINE DATA
FOLLOW-UP DATA
ANALYSIS
Start - Up Focus Group Recruitment
Activity Monitors Surveys Common Area + Observations EMA Satisfaction Survey
Move-in to new building
Activity Monitors Surveys Common Area Observations EMA Satisfaction Survey
Develop Document
Start of Construction: July 2013
Baseline Data Collection: March – May 2015
Follow-up Data Collection: March – May 2016
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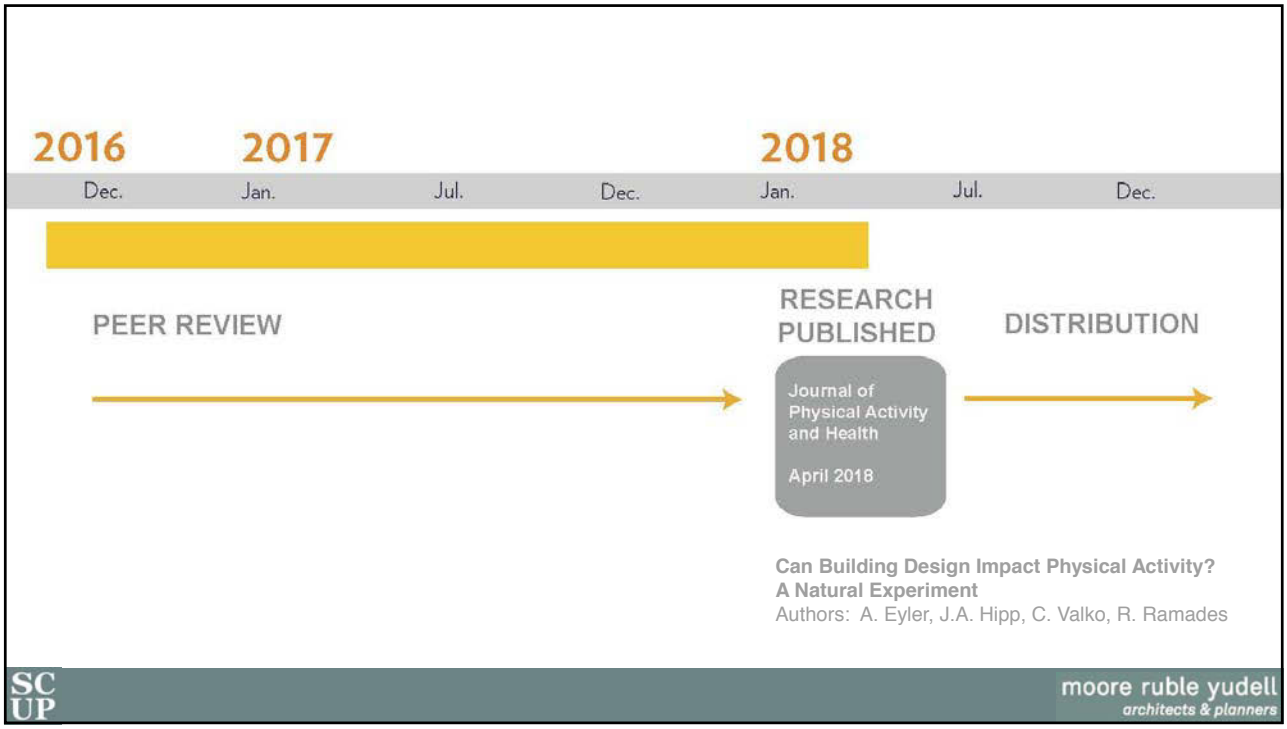
2016
2017
2018
Dec.
Jan.
Jul.
Dec.
Jan.
Jul.
Dec.
PEER REVIEW
RESEARCH PUBLISHED
DISTRIBUTION
Journal of Physical Activity and Health
April 2018
Can Building Design Impact Physical Activity? A Natural Experiment
Authors: A. Eyler, J.A. Hipp, C. Valko, R. Ramades
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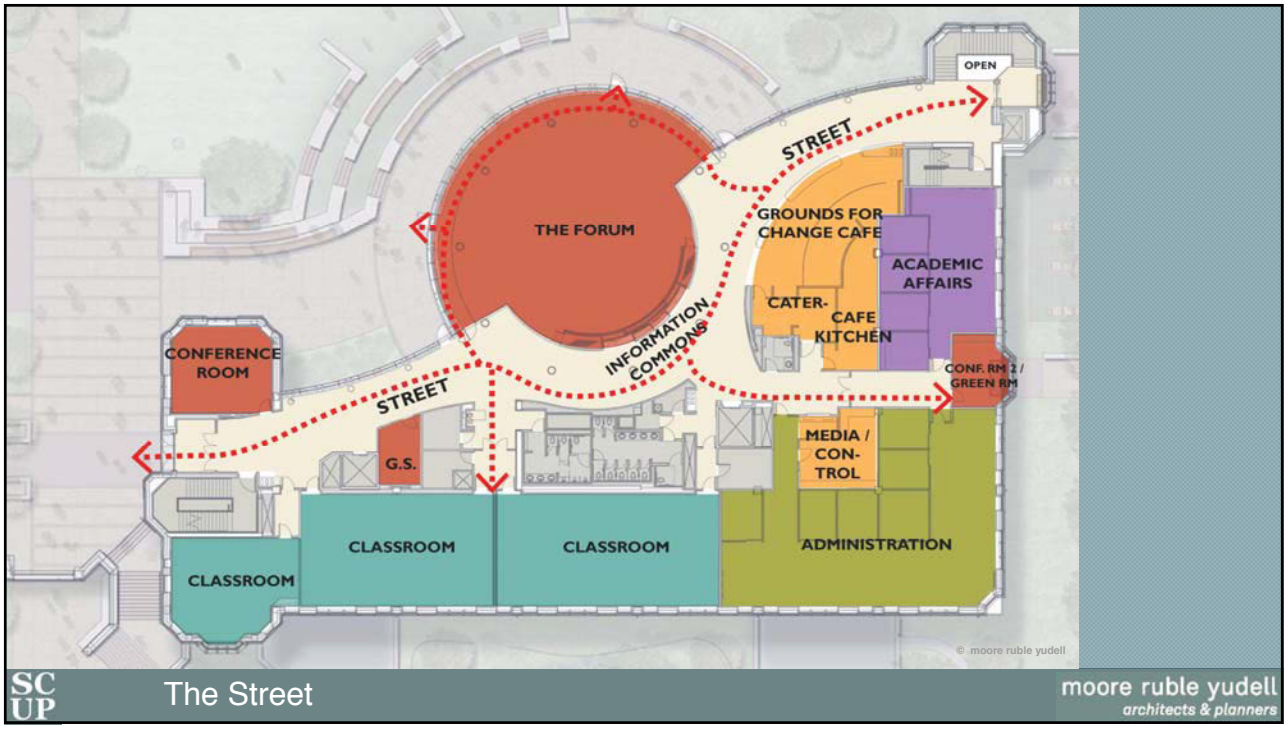
OPEN
STREET
THE FORUM
GROUNDS FOR CHANGE CAFE
ACADEMIC AFFAIRS
CATER-
CAFE KITCHEN
INFORMATION COMMONS
CONFERENCE ROOM
STREET
CONF. RM 2 / GREEN RM
G.S.
MEDIA / CON-TROL
CLASSROOM
CLASSROOM
ADMINISTRATION
CLASSROOM
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The Street
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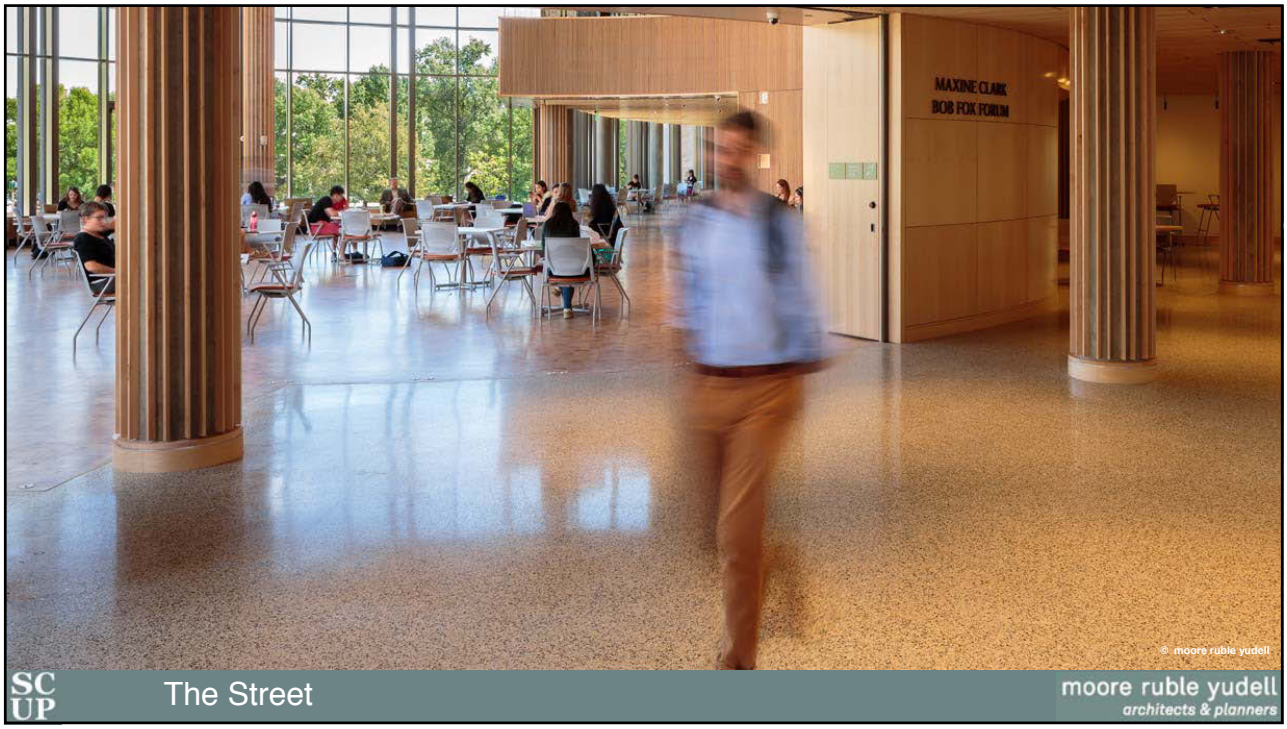

SCUP The Street moore ruble yudell architects & planners

SCUP Forum – Heart of the School moore ruble yudell architects & planners

OCTOBER 3, 2015
CLARK-FOX FORUM
Symposium:
Innovations for Social and Health Impact
Brown School at Washington University in St. Louis
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GROUNDS FOR CHANGE
Local Eats
GROUNDS FOR CHANGE
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Healthy Menu Options
moore ruble yudell
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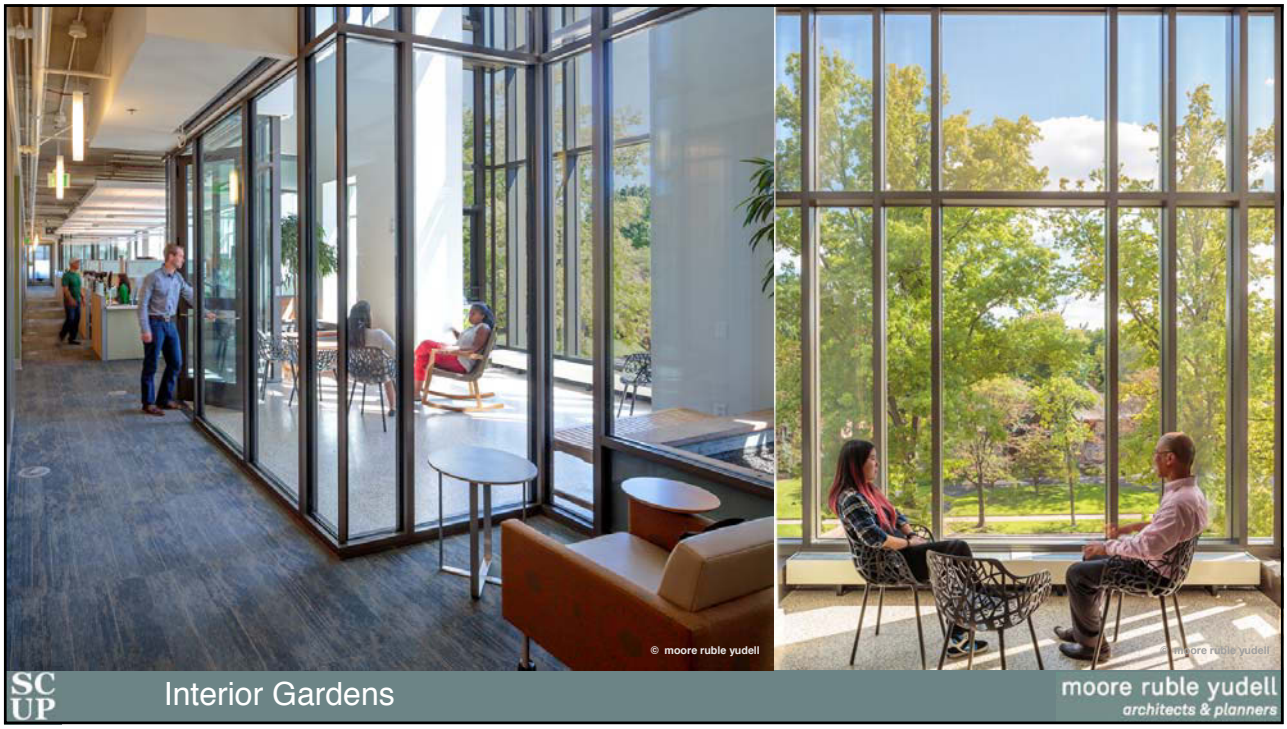
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Interior Gardens
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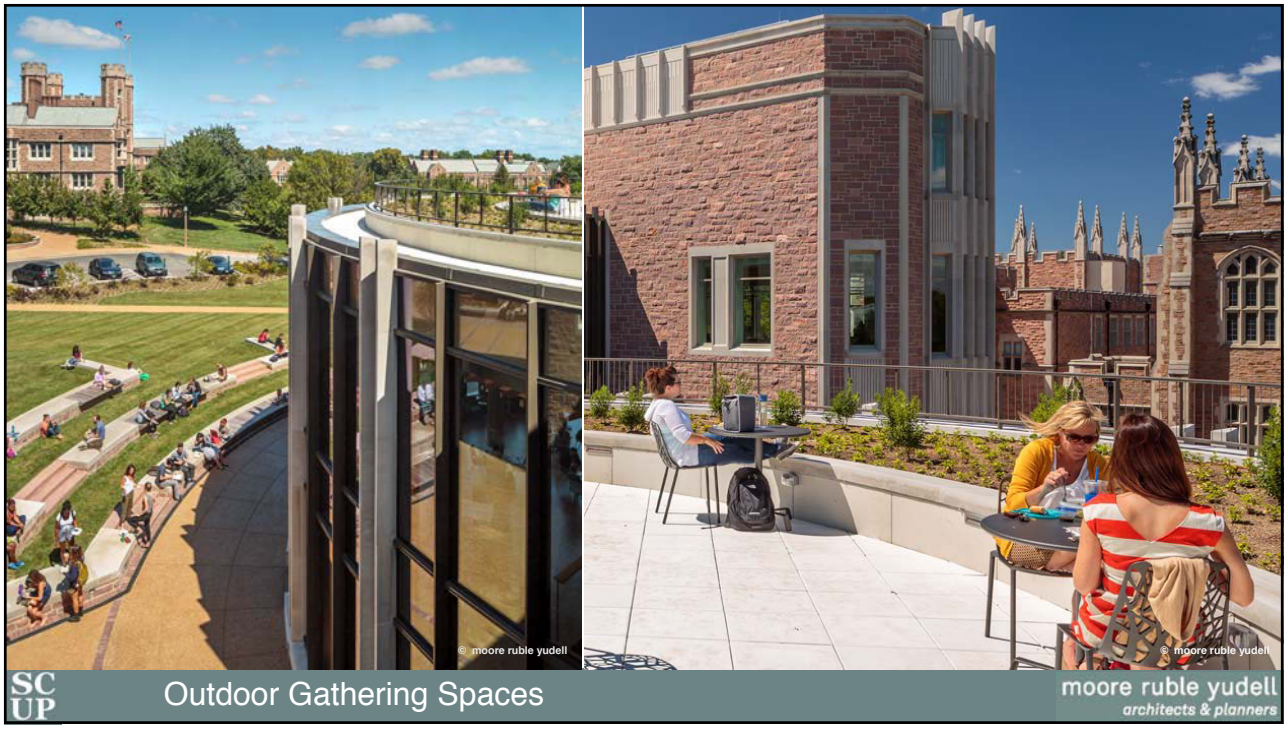
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Outdoor Gathering Spaces
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Outdoor Classrooms and Rain Gardens
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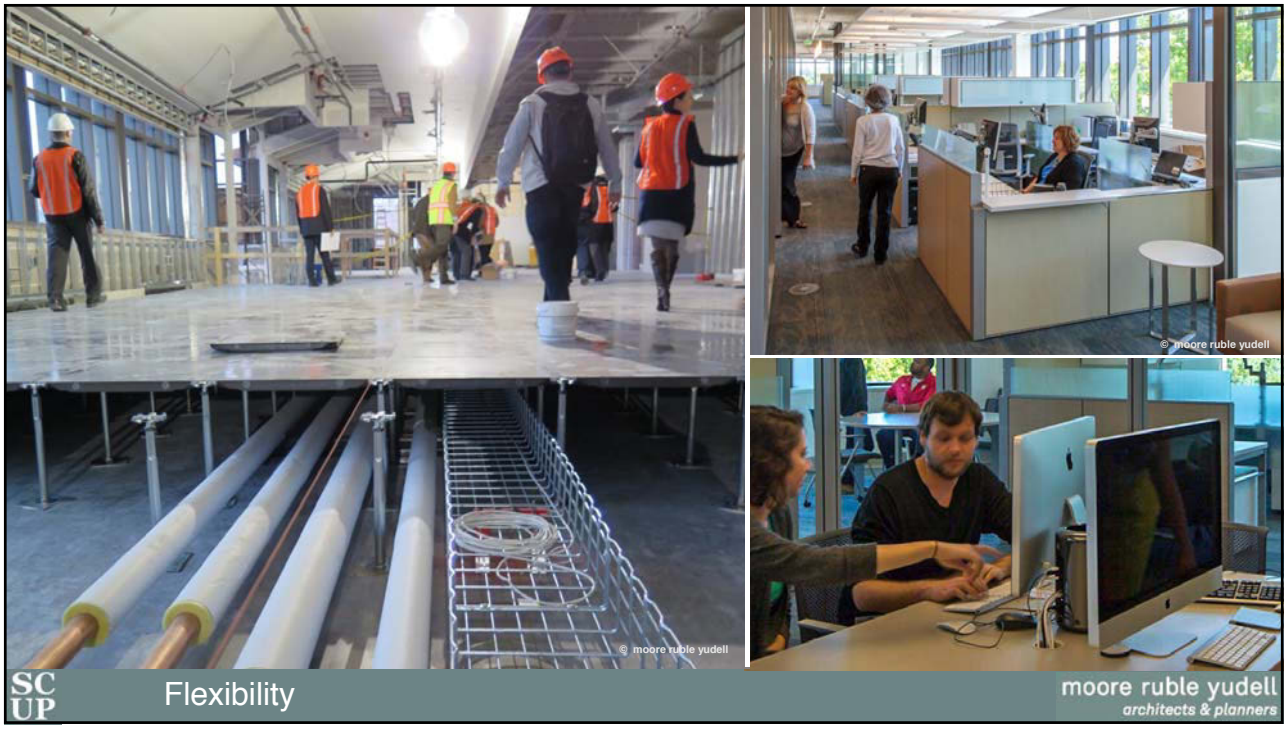
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Flexibility
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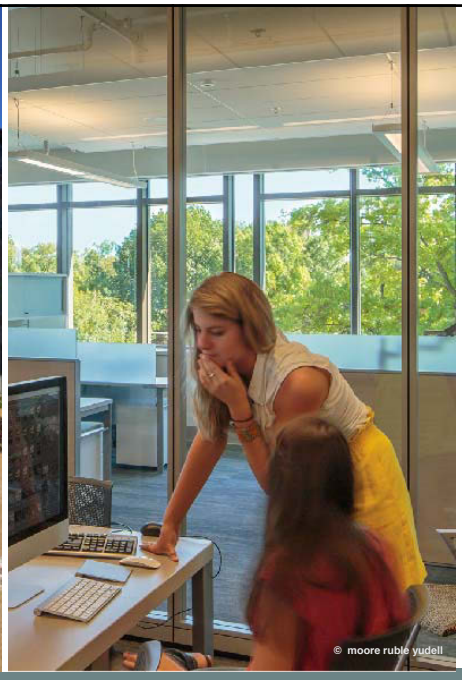


Physical Activity

Movement
Sedentary Behavior
Standing Workstations
Garden Circuit

Team Science

Collaboration
Chance Interaction
Social Networks

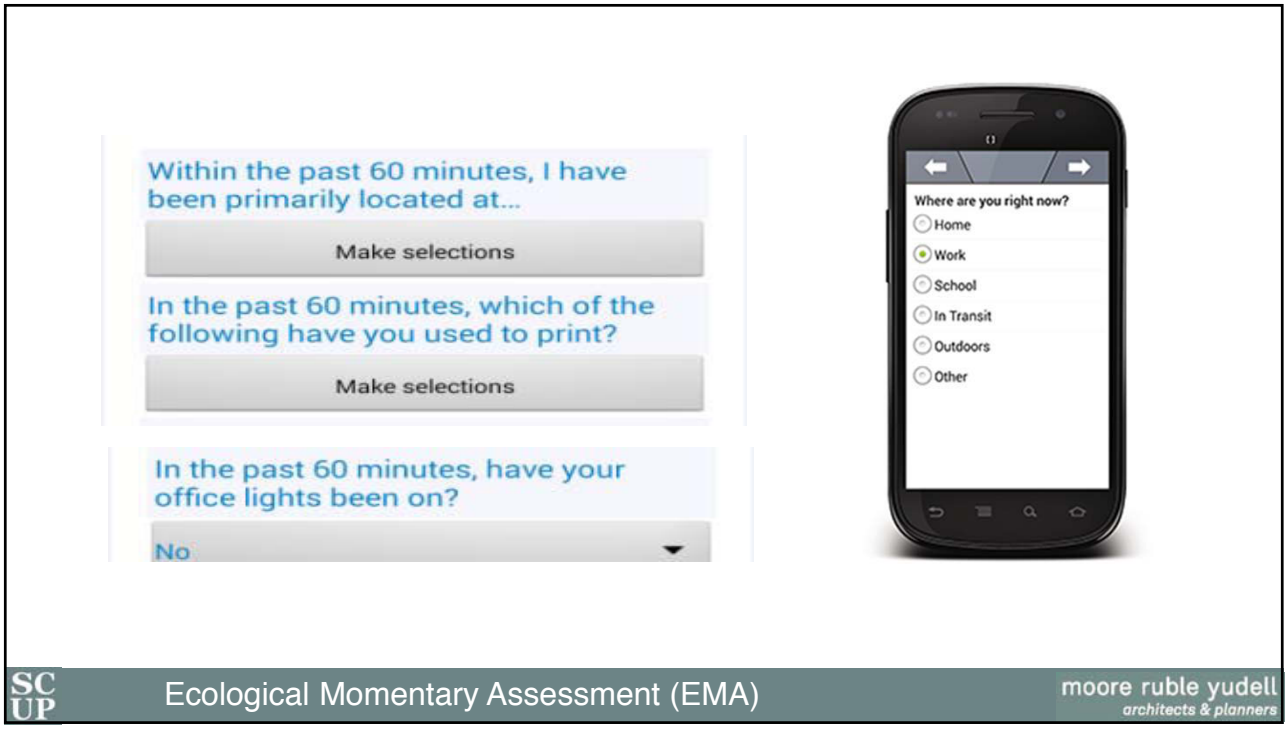
SC UP Measuring Health Impacts moore ruble yudell architects & planners

Tools & Methods

- Activity Monitors (ActivPAL Accelerometers)
- Ecological Momentary Assessments (EMA)
- Surveys
  - Physical Activity
  - Workplace Satisfaction
- Common Area Observations
- Focus Groups
- Stakeholder Interviews
- Social Network Analysis

SC UP moore ruble yudell architects & planners

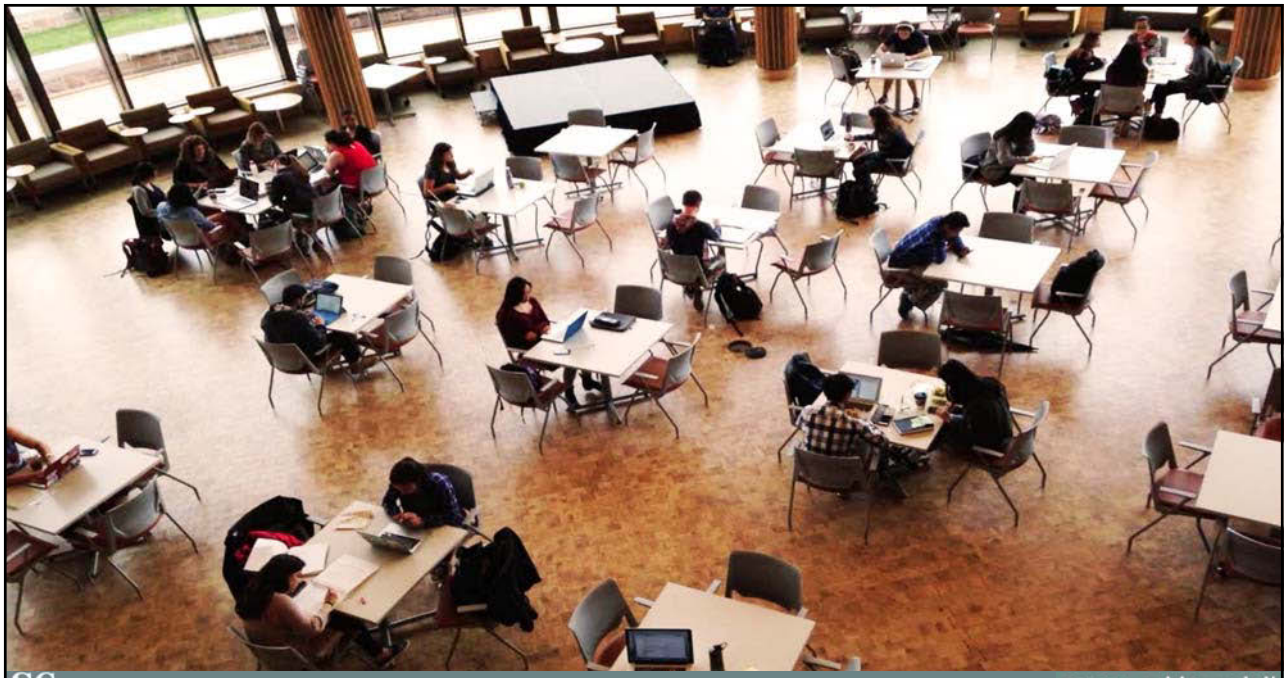
SCUP Physical Activity Monitors: ActivPAL moore ruble yudell architects & planners



SCUP Ecological Momentary Assessment (EMA) moore ruble yudell architects & planners

Please rate your level of agreement with the following:	Strongly agree						Strongly disagree	
I look forward to working in the building.	7	6	5	4	3	2	1	N/A
I am proud to show my building to visitors.	7	6	5	4	3	2	1	N/A
The overall appearance of the building is consistent with the mission of the Brown School.	7	6	5	4	3	2	1	N/A
There is a good sense of connection to the outdoors from inside the building.	7	6	5	4	3	2	1	N/A
There is a definite space that is the "heart" of the building.	7	6	5	4	3	2	1	N/A
I often stop and talk to others in corridors or break areas.	7	6	5	4	3	2	1	N/A
We have comfortable spaces to have lunch or take breaks inside the building.	7	6	5	4	3	2	1	N/A

SC UP Survey: Workplace Experience moore ruble yudell architects & planners



SC UP Common Area Observations moore ruble yudell architects & planners

SC UP
Common Area Observations
moore ruble yudell
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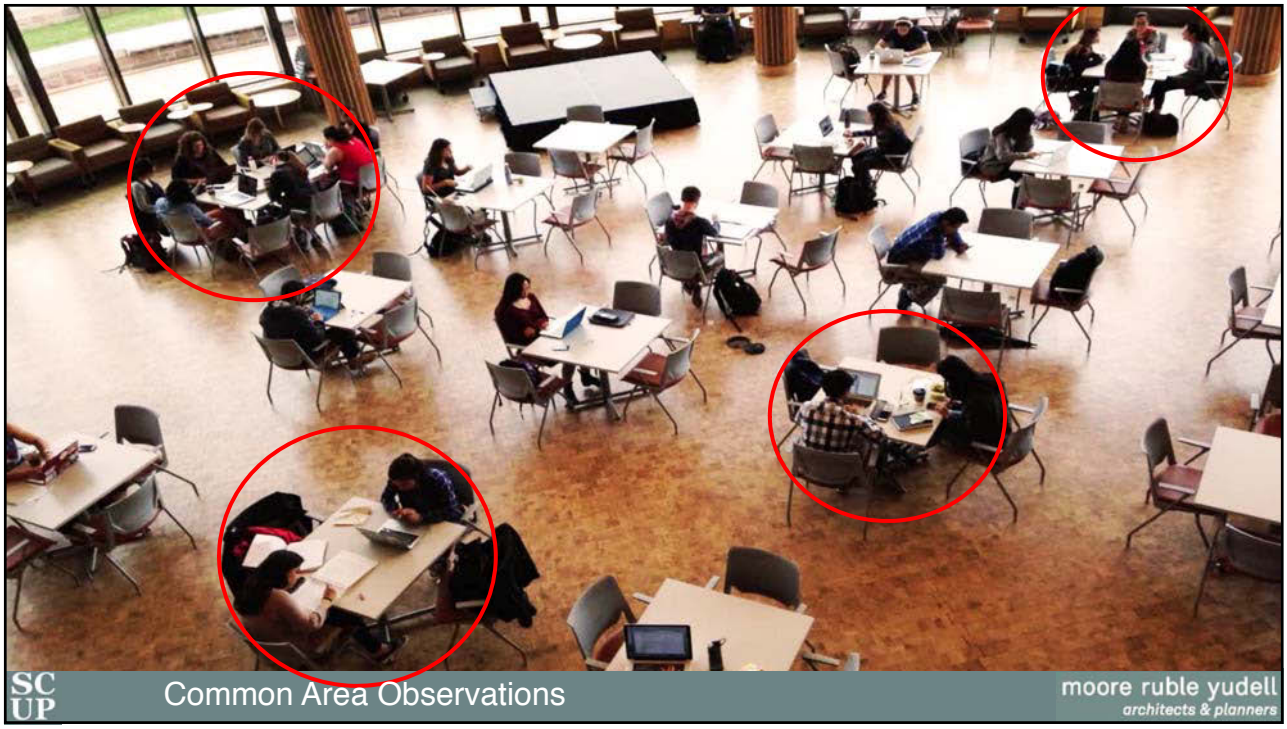
SC UP
Common Area Observations
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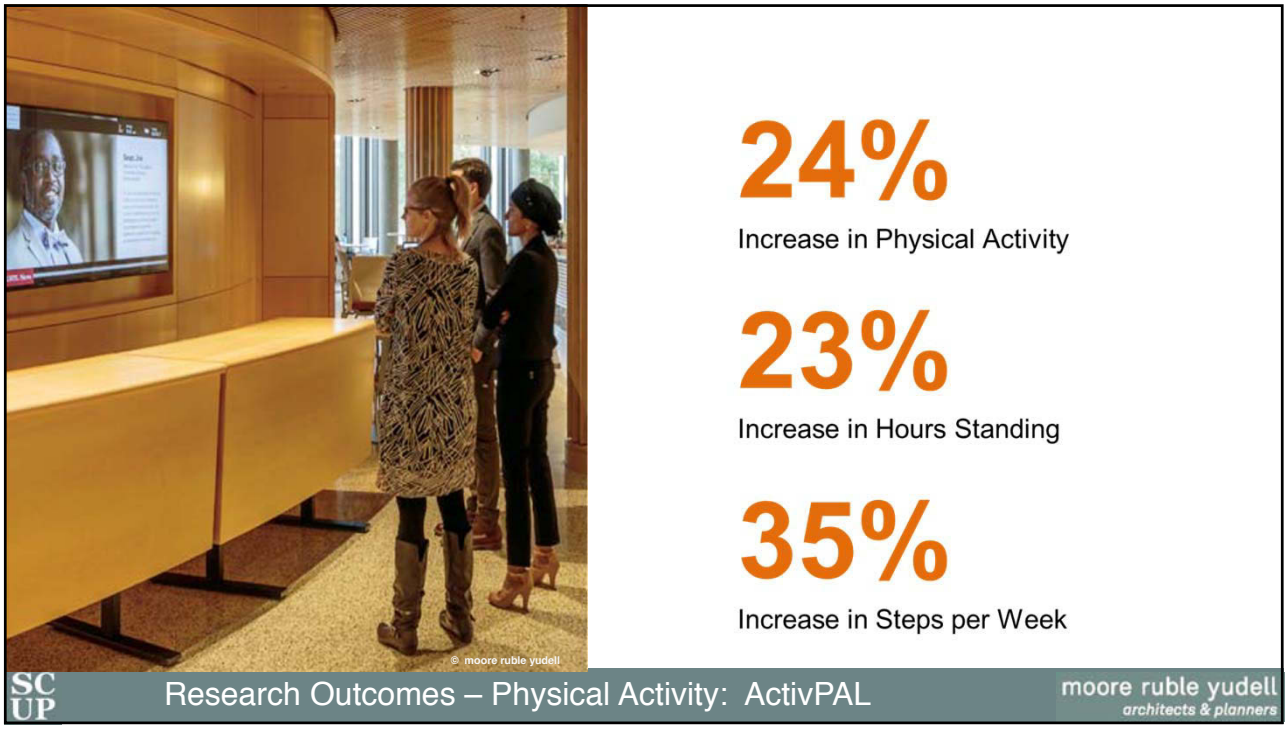
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24%
Increase in Physical Activity
23%
Increase in Hours Standing
35%
Increase in Steps per Week
SC UP
Research Outcomes – Physical Activity: ActivPAL
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SC UP
Team Science: Social Networks and Collaboration
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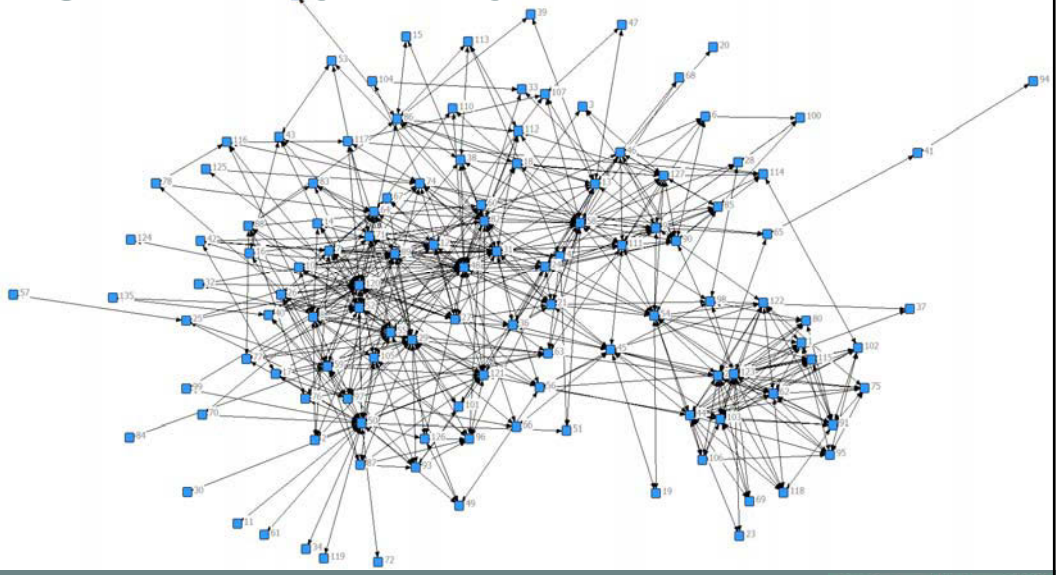
Before Hillman Hall



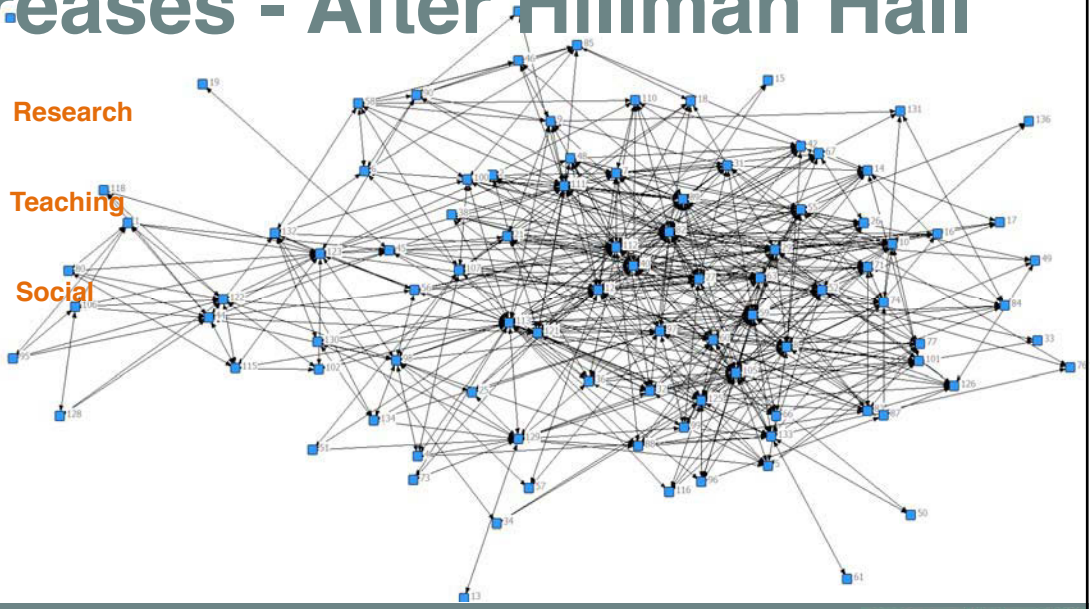
SC UP Social Network Density Analysis moore ruble yudell architects & planners

Increases - After Hillman Hall

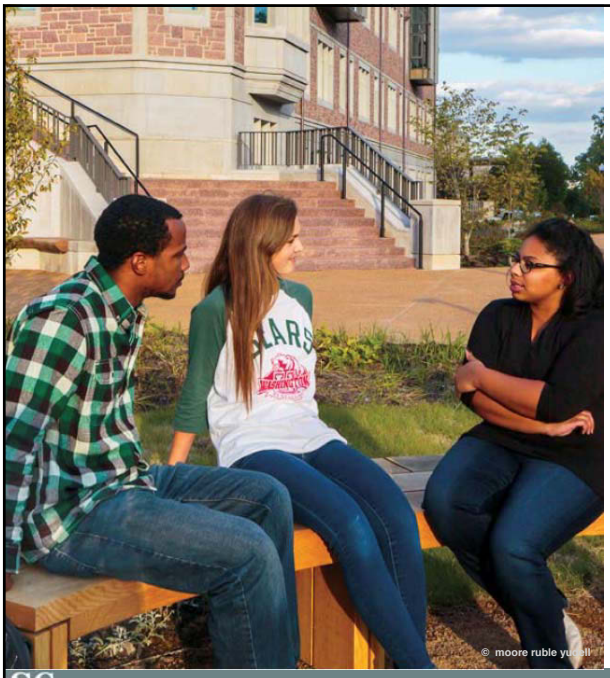
25% Research

72% Teaching

113% Social



SC UP Social Network Density Analysis moore ruble yudell architects & planners



18%
Increase
"Stop & Talk"

19%
Increase in
"Enhanced Work With Others"

48%
Increase in Social Connections

"Happenstance meetings are easier."

SCUP Team Science: Social Networks and Collaboration moore ruble yudell architects & planners

Workplace Satisfaction

Building Satisfaction

Individual Satisfaction

"There is the human factor that went into planning too.
Creating space that is healthy, beautiful, and productive for people who inhabit it."

Dr. Amy Eyler, Associate Professor and Assistant Dean for Public Health

SCUP **Overall Results – Increases** moore ruble yudell architects & planners

‘Building a Healthier Workplace
A Toolkit for Architects, Planners, Researchers and Decision Makers’

Prevention Research Center in St. Louis
www.prcstl.wustl.edu
Research And Findings: BEEP

‘Can Building Design Impact Physical Activity? A Natural Experiment’
Journal of Physical Activity and Health, April 2018

SC UP

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architects & planners

1. What is “Instagram Ready?”
   a. A Selfie Magnet
   b. A Recognizable Destination
   c. Connection HUBs
   d. Instagram is so Millennial

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moore ruble yudell architects & planners

1. What is “Instagram Ready?”
   a. A Selfie Magnet
   b. An Instantly Recognizable Destination
   c. Connection HUBs
   d. Instagram is so Millennial
   e. a, b and c

SCUP
moore ruble yudell architects & planners

2. Which of these behaviors is deemed "the new smoking"?

   a. Working
   b. Sitting
   c. Driving
   d. Walking

SCUP
moore ruble yudell
architects & planners

2. Which of these behaviors is deemed "the new smoking"?

   a. Working
   b. Sitting
   c. Driving
   d. Walking

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3. What is the average distance a person will choose to walk to a destination instead of drive?

   a. 0.25 mile
   b. 0.50 mile
   c. 0.75 mile
   d. 1 mile

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architects & planners

3. What is the average distance a person will choose to walk to a destination instead of drive?

   a. 0.25 mile
   b. 0.50 mile
   c. 0.75 mile
   d. 1 mile

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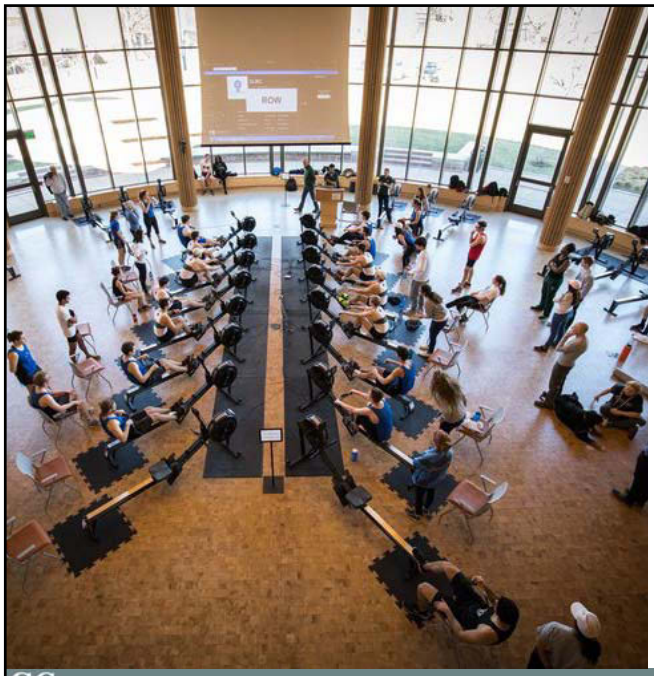

4. Of adults who own smartphones, what percentage report tracking a health behavior using mobile technology?

   a. 30%
   b. 50%
   c. 70%
   d. 90%

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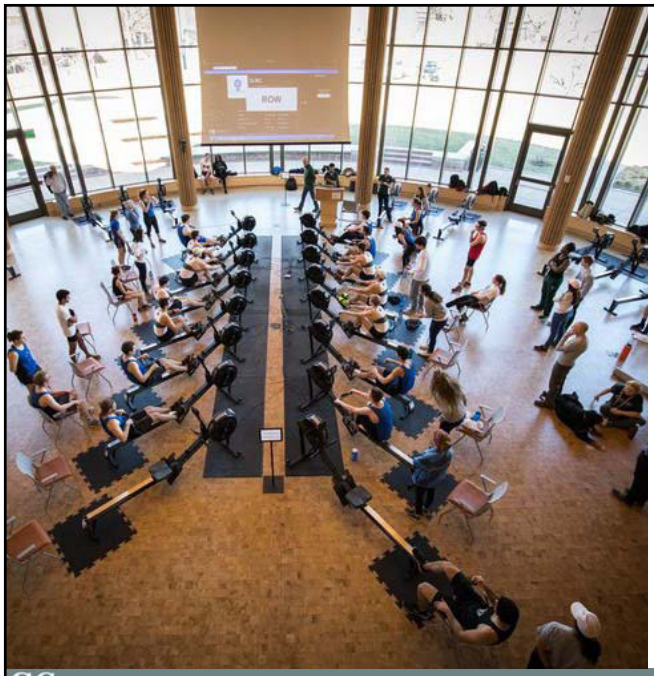

4. Of adults who own smartphones, what percentage report tracking a health behavior using mobile technology?

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   c. 70%
   d. 90%

SC UP
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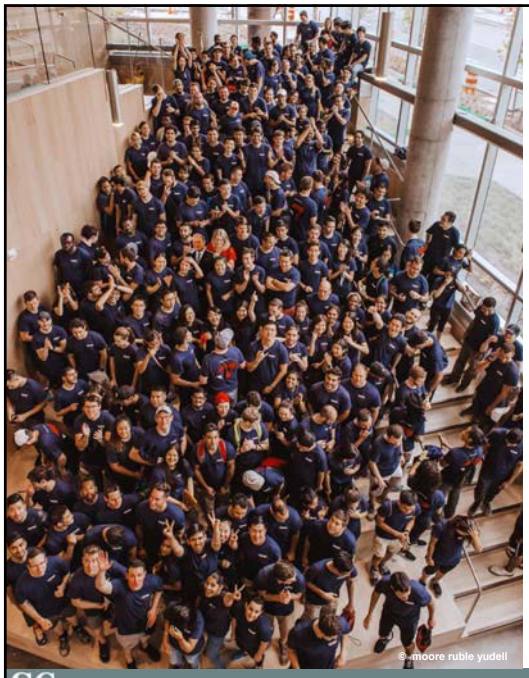
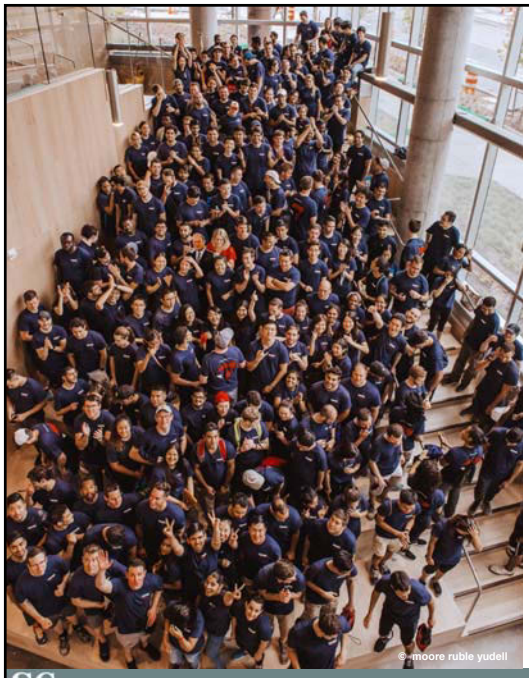
architects & planners



5. What is a Connection Ecosystem and Why would anyone want one?

   a. A Hub for collaboration
   b. A place that encourages exploration and face-to-face interaction
   c. Hornbostel's Swamp
   d. A Place to be and be seen

SCUP
moore ruble yudell
architects & planners



5. What is a Connection Ecosystem and Why would anyone want one?

   a. A Hub for collaboration
   b. A place that encourages exploration and face-to-face interaction
   c. Hornbostel's Swamp
   d. A Place to be and be seen
   e. All but c

SCUP
moore ruble yudell
architects & planners

Connection HUBS
Building Community in the Digital Age
SC UP
moore ruble yudell
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Connection HUBS
Building Community in the Digital Age
Adam Padua, ASSOC. AIA, LEED AP
Senior Associate, Moore Ruble Yudell Architects & Planners
Jeanne Chen, FAIA, LEED AP BD+C
Principal, Moore Ruble Yudell Architects & Planners
James Kolker, FAIA, LEED AP BD+C
Associate Vice Chancellor and University Architect
Washington University in St. Louis
Neal Matsuno, AIA, LEED AP BD+C
Principal, Moore Ruble Yudell Architects & Planners
Carnegie Mellon University, Tepper Quad
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