Technology Transforming Academic Spaces: The Hunt Library at NCSU

© Jeff Goldberg/Esto

Kristin Antelman

2013 Annual Institute on the Library as Place

Toronto - July 9, 2013

NCSU LIBRARIES

Technology Transforming Academic Spaces: The Hunt Library at NCSU

© Jeff Goldberg/Esto

Kristin Antelman

2013 Annual Institute on the Library as Place

Toronto - July 9, 2013

NCSU LIBRARIES

Themes for Today

- The James B. Hunt Jr. Library (throughout)

Themes for Today

- The James B. Hunt Jr. Library (throughout)
- Developing a vision

Themes for Today

- The James B. Hunt Jr. Library (throughout)
- Developing a vision
- A few different ways to look at technology spaces in libraries

Themes for Today

- The James B. Hunt Jr. Library (throughout)
- Developing a vision
- A few different ways to look at technology spaces in libraries
- What does success look like?

Centennial Campus

James B. Hunt Jr. Library

162,000 gsf

~$100 m construction | $8.5 m technology

Opened January 2013

PBC+L
ARCHITECTURE

SEXTANT
GROUP

SKANSKA

Grand Opening April 4, 2013

The Hunt Library Story
How the vision was made real...

Developing a vision

Developing a vision

- Listen to your culture . . .

Developing a vision

- Listen to your culture . . .
- and build on your successes

Developing a vision

- Listen to your culture . . .
  - and build on your successes
- Listen to your users . . .

Developing a vision

- Listen to your culture . . .
  - and build on your successes
- Listen to your users . . .
  - but be open to be inspired by others

Listen to your culture

The Libraries: NC State's competitive advantage

Listen to your culture

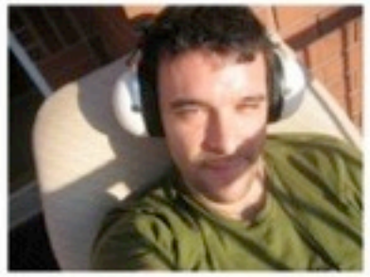
The Libraries: NC State's competitive advantage

Embrace Ambiguity

Build on successes

D.H. Hill Library Learning Commons (2007)

Listen to your users



MATTHEW CAMP

"The Learning Commons is OK if the homework is not hard, but now I'm doing the hardest work of my life. I've got to focus harder. I need to be isolated."

WHAT'S YOUR SCHOOL WORK LIKE?

Most of my homework involves in-depth design problems I complete in MATLAB. The way my classes are, I feel like I'm trying to understand another language and then figure out how to use it. I have to work hard to sort out complex problems. Sometimes I meet up with a friend to work on the problems together, but a lot of the time I work on my own. I don't really read my textbooks. I look up information in them. I submit my homework online. This is the hardest semester of my life. Every week I feel like I'm grappling to understand complex problems and find solutions.

I'm also taking one political science course. I have to write two small papers for it. I'll need to get some articles and books for that project.

WHERE DO YOU STUDY?

I've got three roommates and when I have really difficult work to do, it's impossible for me to study at home. I end up getting distracted by my friends or watching my favorite sports shows. I need to isolate myself so I can focus. When I really need to get work done, I like to go to DH Hill Library. I like to get one of the bigger tables along the windows on either the 7th or 8th floor. I can spread my stuff out – my laptop, notebooks, and my textbooks. I know the library checks out laptops but I like to have my own because it's got the programs I need and I've set up my files the way I like. When I've got a project deadline or a test coming up, I'll stay there for hours. Man, I'm glad for the coffee!

For more day to day studying, I've got a routine where I study in EB 2 between classes when I'm on Centennial Campus. It's not a very student-friendly building though. There aren't many couches or different kinds of tables and chairs. I usually just catch up on my notes for class. It's pretty quiet there. Sometimes I'll meet with one of my friends and we'll just read or work on small homework assignments for class.

I ride the bus to Centennial Campus every day. I try to set up my schedule so I don't have to go back and forth in one day, but some semesters it can be hard to avoid. On Mondays, Wednesdays, and Fridays I have my poli sci class in Caldwell. I'll usually get lunch on Main Campus because there's more food options on campus or on Hillsborough. Then I always go to the big open area in Caldwell Hall to read on the couches before class. It's my favorite place on Main Campus. I've also set up my schedule so I can work in Campus Housing every afternoon from 1-5 and that's on Main Campus too.

I don't usually bring my laptop to campus unless I know I need to camp out and work on a project. I usually just lug around my textbooks and notes.

ABOUT ME

- 20 years old
- Junior, Computer Engineering
- Lives near campus with three roommates
- Works for NCSU Campus Housing
- Hunt Library will be a great place to study on my own both between classes and when I need to get away and concentrate.

MY NEEDS

- A quiet place to isolate myself from distractions, a place to get away from friends and roommates
- Somewhere I can camp out
- Somewhere I can go late at night and feel safe
- Access to power to plug in my laptop and other technology
- Food and drink

WHAT'S IN MY BAG

- Heavy textbook
- Notebooks
- Laptop (when I need to work on a project, especially with MATLAB)
- Cell phone

Be inspired by others

Technology is just one dimension . . .

- natural light
- inspiring and varied interiors
- good acoustics
- users “own” space (food and drink, moving furniture, self-service)

Many ways to think about technology spaces

Many ways to think about technology spaces

- What activities are you trying to enable?

Many ways to think about technology spaces

- What activities are you trying to enable?
- How do you fit into your library users' technology world?

Many ways to think about technology spaces

- What activities are you trying to enable?
- How do you fit into your library users' technology world?
- What is your niche?
  (or–more importantly–the niche you aspire to fill)

Many ways to think about technology spaces

- What activities are you trying to enable?
- How do you fit into your library users' technology world?
- What is your niche?
  (or–more importantly–the niche you aspire to fill)
- What is the range of technologies you are ready to take on?

What activities are you trying to enable?

- Define broad use cases. For example, in:
  - collaboration
  - content creation
  - teaching
  - research

How do you fit with your users' technology?

How do you fit with your users' technology?

- How much will you support "BYOD"?

How do you fit with your users' technology?

- How much will you support "BYOD"?
- Will you augment what they have?

How do you fit with your users' technology?

- How much will you support "BYOD"?
- Will you augment what they have?
- Do your space and services work well with their tech world?

What is your niche?

(or aspiration)

What is your niche?

(or aspiration)

For the Hunt Library:

- To be a “technology incubator” for campus

What is your niche?

(or aspiration)

For the Hunt Library:

- To be a “technology incubator” for campus
- To support large-scale data visualization

What is your niche?

(or aspiration)

For the Hunt Library:

- To be a “technology incubator” for campus
- To support large-scale data visualization
- To be the academic center of Centennial Campus

What technologies are you ready for?

What technologies are you ready for?

For example:

What technologies are you ready for?

For example:

- YES
  - Video camera lending
  - 3D printing

What technologies are you ready for?

For example:

- YES
  - Video camera lending
  - 3D printing
- NO
  - iPad lending
  - Holographic projection

All of these should derive directly from the technology vision

NCSU Technology vision

NCSU Technology vision

- Make emerging technologies available to the entire NC State community

NCSU Technology vision

- Make emerging technologies available to the entire NC State community
- Provide diverse, technology-rich learning spaces

NCSU Technology vision

- Make emerging technologies available to the entire NC State community
- Provide diverse, technology-rich learning spaces
- Empower users to engage actively and creatively

NCSU Technology vision

- Make emerging technologies available to the entire NC State community
- Provide diverse, technology-rich learning spaces
- Empower users to engage actively and creatively
- Provide technologies that are open, integrated, and accessible

What does the technology vision look like at the Hunt Library?

What does the technology vision *not* look like at the Hunt Library?

rts Sports

The News&Observer

MONDAY, OCTOBER 8, 2012

newsobserver.com

FINAL EDITION

his week

Meet NCSU's robotic bookBot

Process

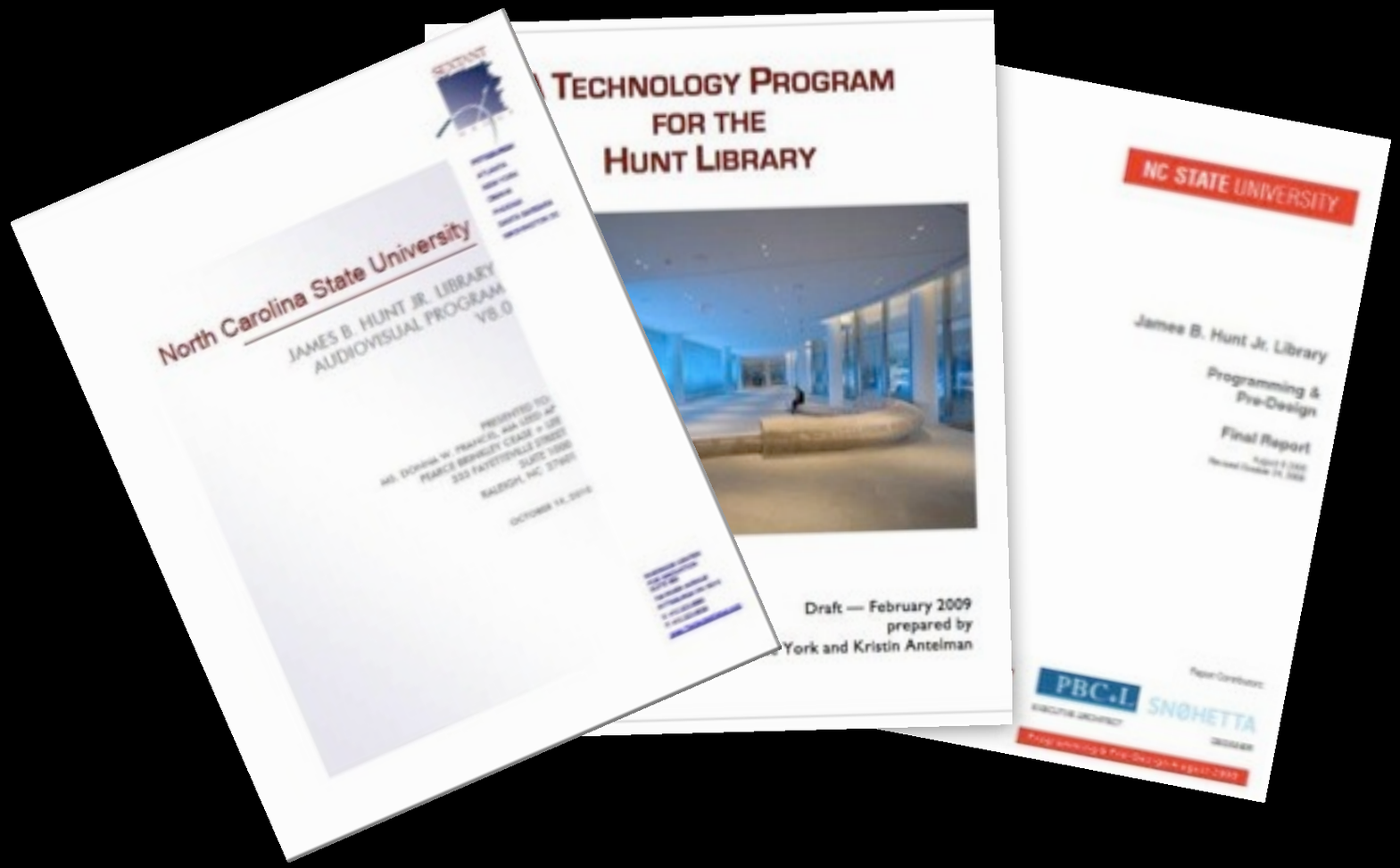
Process

Technology Plan

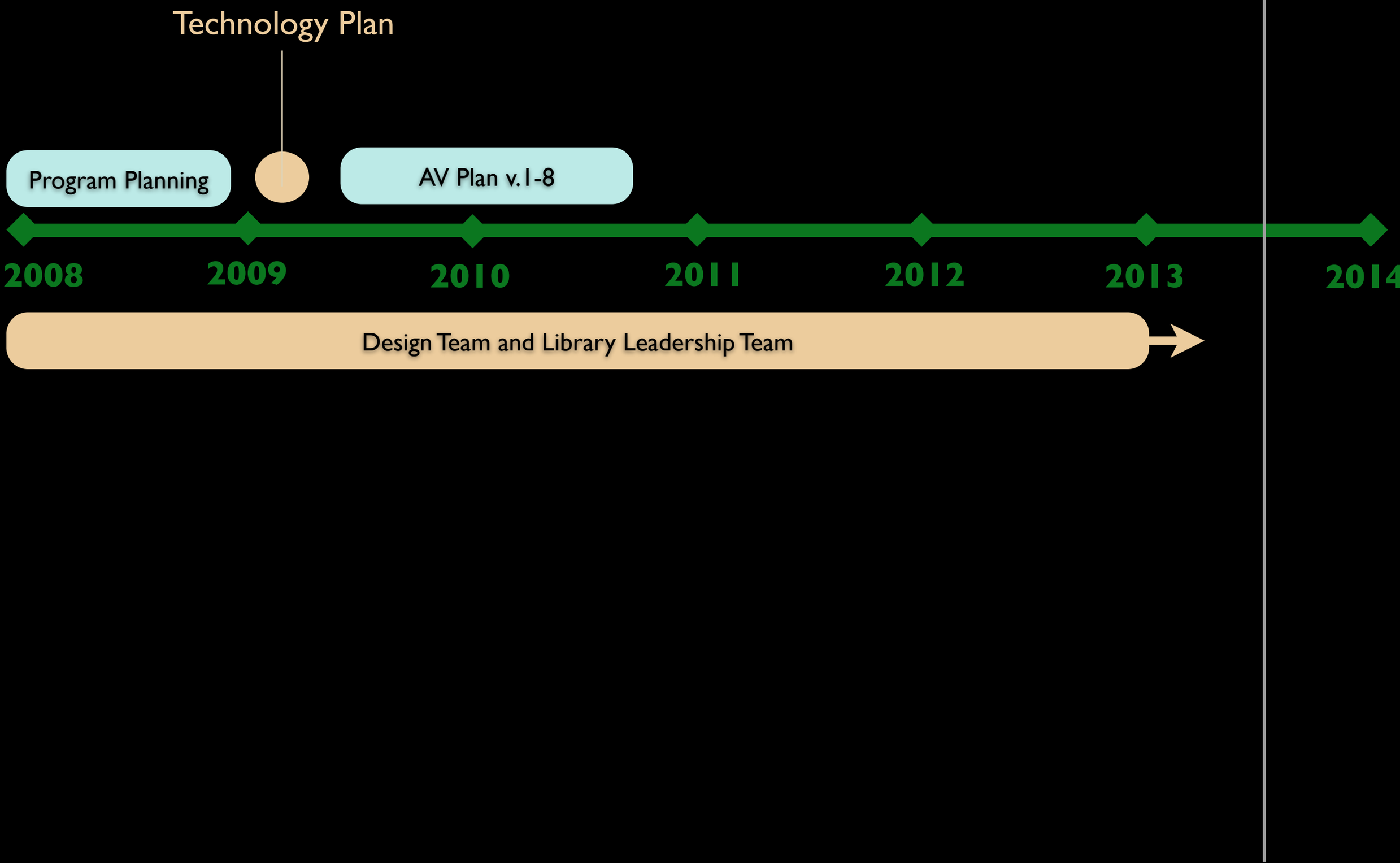
Program Planning

AV Plan v.1-8

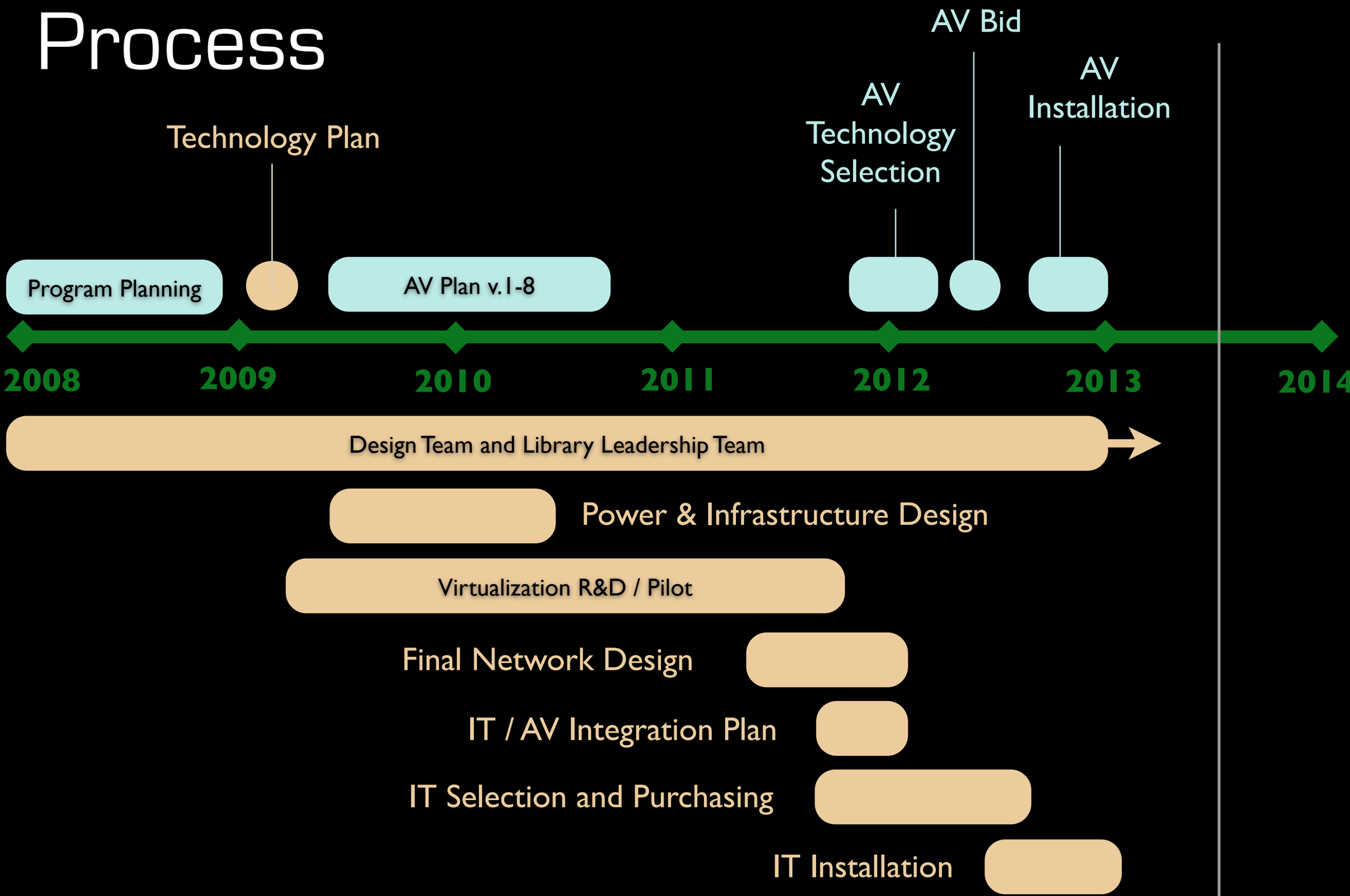
2008 2009 2010 2011 2012 2013 2014



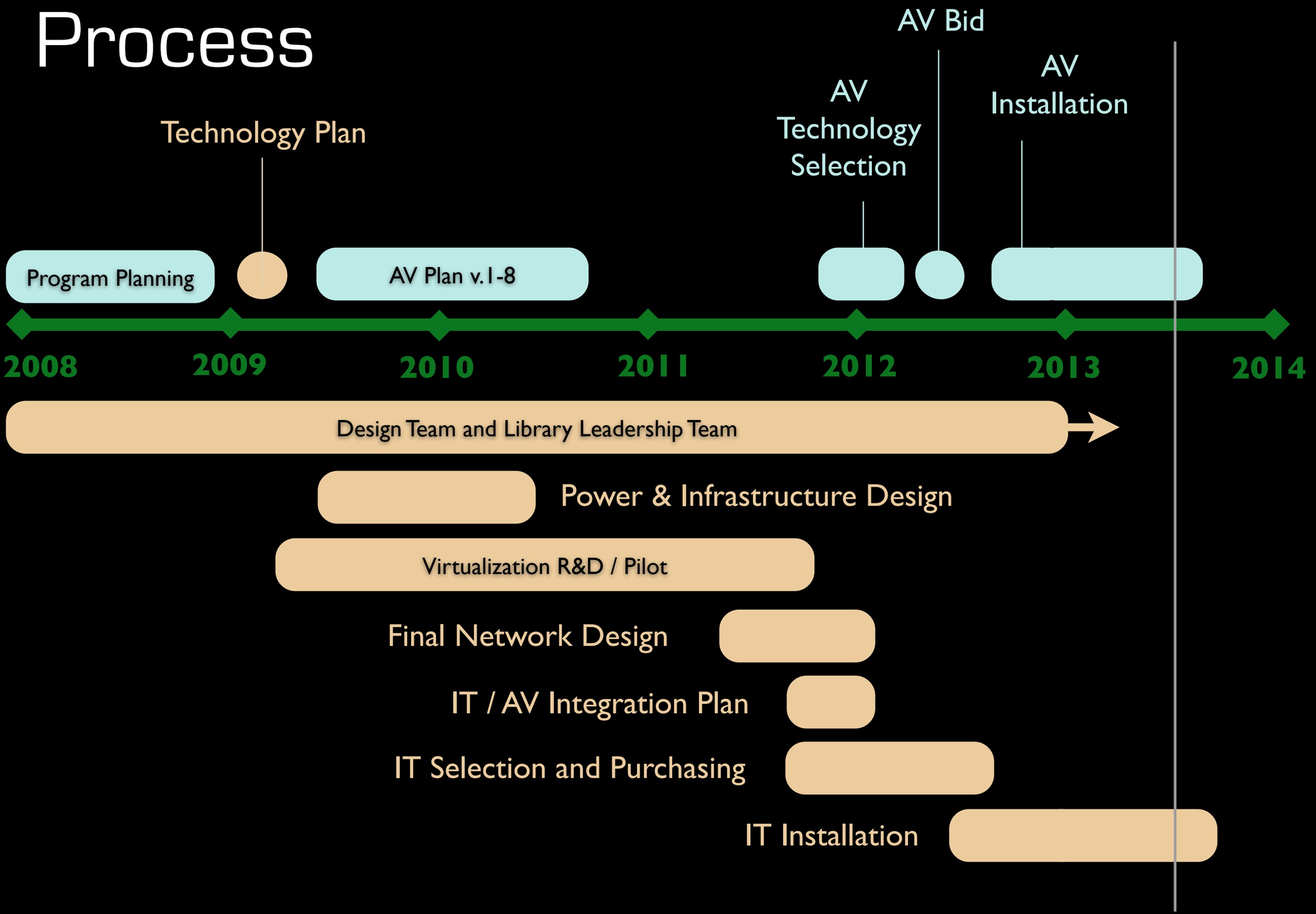
Process


Technology Plan
Program Planning
AV Plan v.1-8
2008
2009
2010
2011
2012
2013
2014
Design Team and Library Leadership Team

Process


Technology Plan
AV Technology Selection
AV Bid
AV Installation
Program Planning
AV Plan v.1-8
2008
2009
2010
2011
2012
2013
2014
Design Team and Library Leadership Team
Power & Infrastructure Design
Virtualization R&D / Pilot
Final Network Design
IT / AV Integration Plan
IT Selection and Purchasing
IT Installation

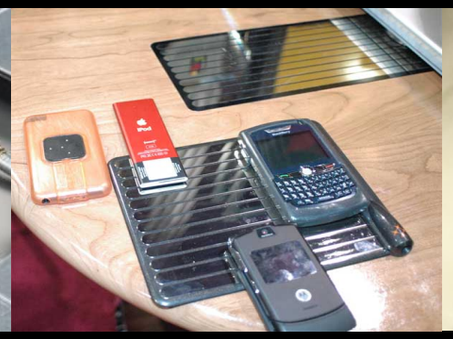
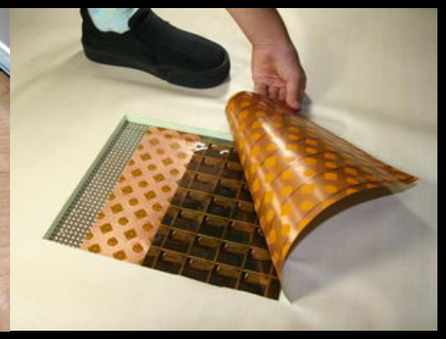
Process


Technology Plan
AV Technology Selection
AV Bid
AV Installation
Program Planning
AV Plan v.1-8
2008
2009
2010
2011
2012
2013
2014
Design Team and Library Leadership Team
Power & Infrastructure Design
Virtualization R&D / Pilot
Final Network Design
IT / AV Integration Plan
IT Selection and Purchasing
IT Installation

Infrastructure!

Technology Infrastructure

Technology Infrastructure

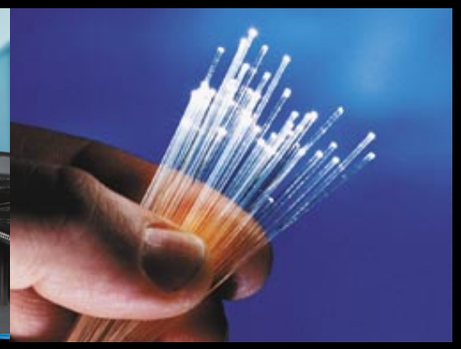



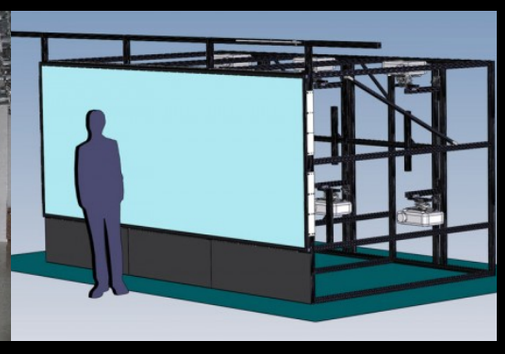
POWER

WIRED

NETWORK

HARD WIRE
WIRELESS
LOW-POWER
CELLULAR





BUILDING

FLOORS
WALLS
CEILINGS

4 PROPOSED POWER LAYOUT

TBD floor boxes (total)*
20 net additional wall outlets**

* not including A/V plan power and data
** remove 55 and add 75

# circuits	# outlets	# network	product	purpose
1-2	4	3	Wiremold Evolution 8AT brass finish (or similar)	library-accessible power & data
1	2*	0	Hubbell 53925 brass finish (or similar)	user-accessible power
1	4	3	FSR FL-710 (or similar)	library-accessible power & data
4	N/A	6	Stub up	systems furniture power & data

Additional wall receptacle (quad- or dual-)

Limited floorbox distribution (floorboxes occasional, only where indicated)
Consistent floor box distribution (floorboxes as indicated in key to left)
High-capacity access floor (6", exact location of underlying circuits TBD)
Wiremold two gang surface-mount extra deep device box (V-2444-2 or similar)
High-capacity pipe grid ceiling power
Floor boxes as drawn in AV plan

GENERAL NOTE: Reduce wall outlets by 44 from removed staff offices

NOTE: this layout represents a 20' grid of stub up power and data to feed systems furniture. Exact placement of stub ups needs to be coordinated more closely with furniture placement, with additional locations of user-accessible power in floor boxes TBD.

rev. 10.18.09

Technology Prototyping and Development

Technology Sandbox

“Mini Hunt” Prototype Lab

From inspiration to reality: Creativity Studio

From inspiration to reality: Creativity Studio

From inspiration to reality: Creativity Studio

From inspiration to reality: Creativity Studio

From inspiration to reality: Creativity Studio

From inspiration to reality: Creativity Studio

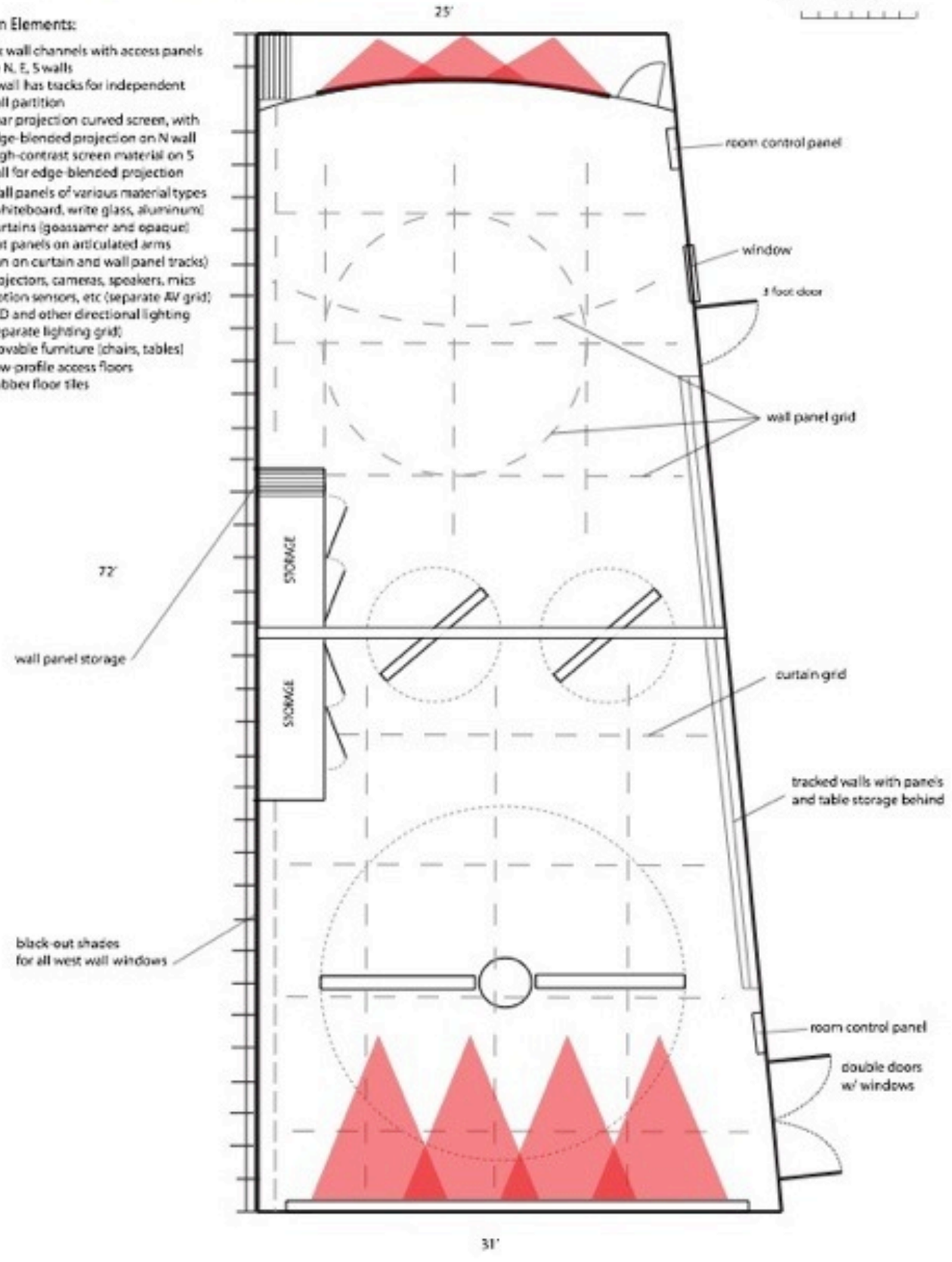
From inspiration to reality: Creativity Studio

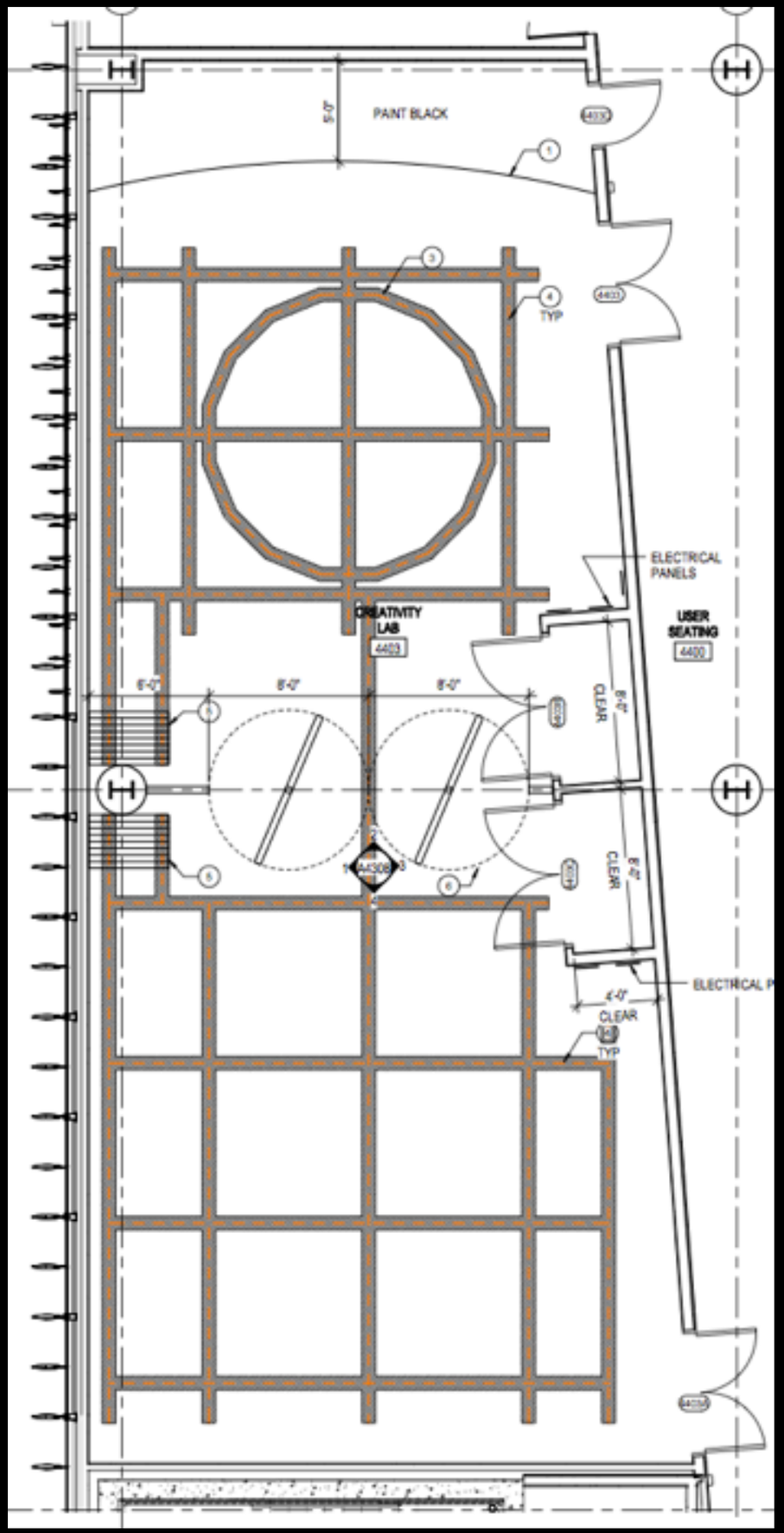
Hunt Creativity Zone Proposed Layout

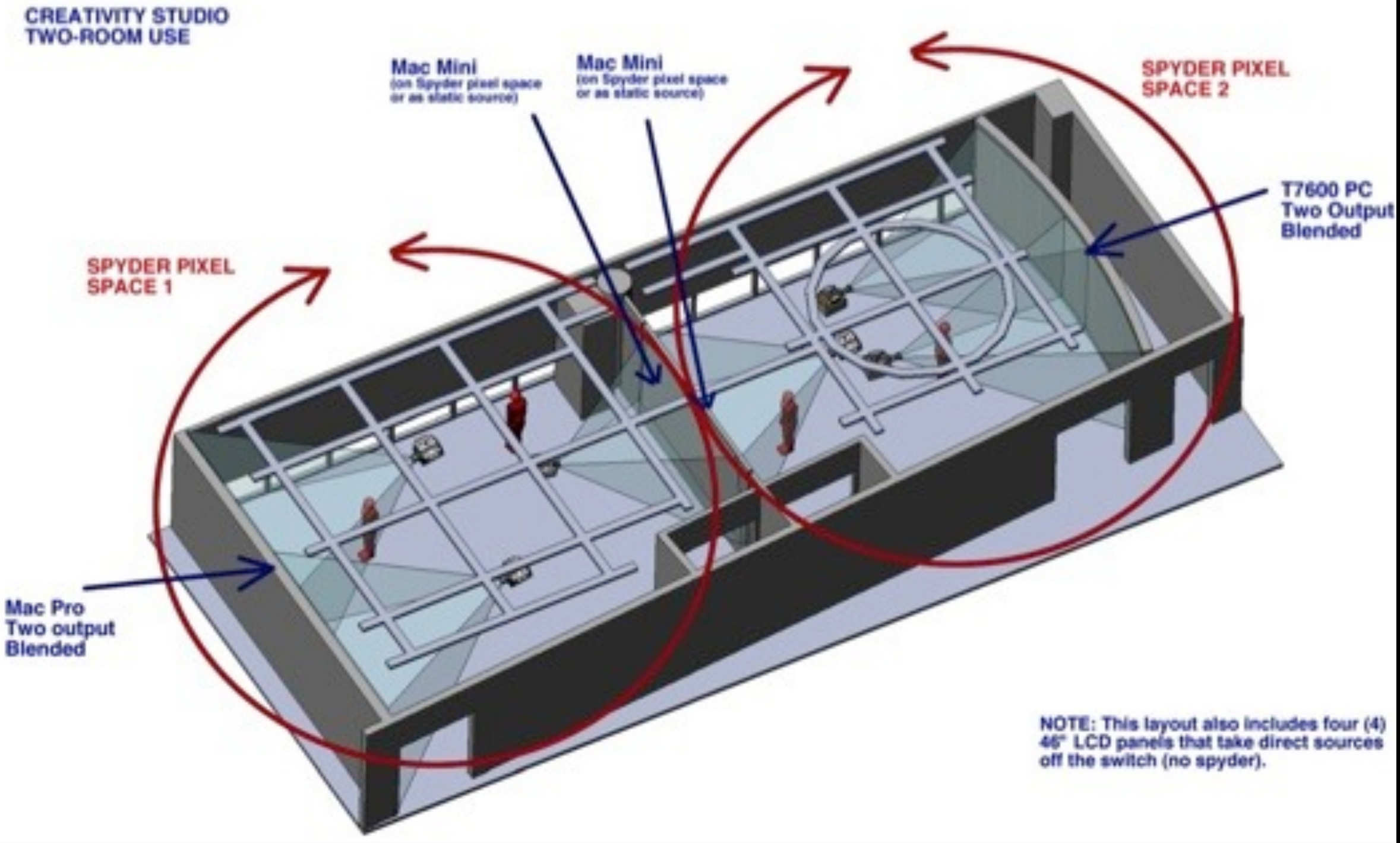
SCALE 1/8" = 1'

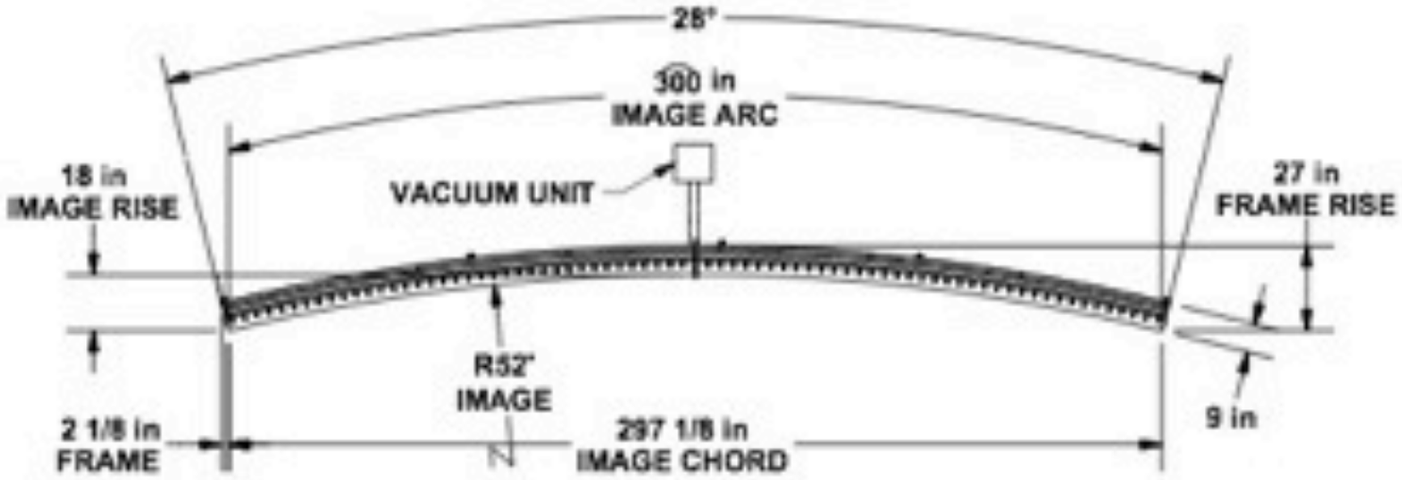
Room Elements:

- Six wall channels with access panels on N, E, S walls
- E wall has tracks for independent wall partition
- Rear projection curved screen, with edge-blended projection on N wall
- High-contrast screen material on S wall for edge-blended projection
- Wall panels of various material types (whiteboard, write glass, aluminum)
- Curtains (gossamer and opaque)
- Flat panels on articulated arms (run on curtain and wall panel tracks)
- Projectors, cameras, speakers, mics motion sensors, etc (separate AV grid)
- LED and other directional lighting (separate lighting grid)
- Movable furniture (chairs, tables)
- Low-profile access floors
- Rubber floor tiles

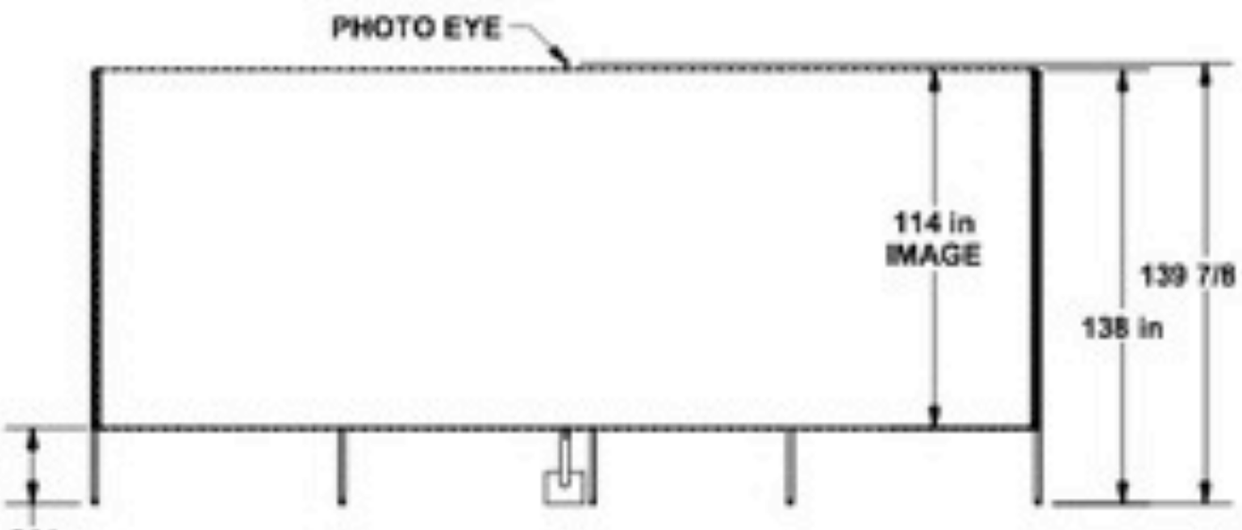



PAINT BLACK
5'-0"
TYP
ELECTRICAL PANELS
CREATIVITY LAB
4403
USER SEATING
4400
6'-0"
8'-0"
8'-0"
CLEAR
8'-0"
CLEAR
8'-0"
ELECTRICAL P
4'-0"
CLEAR
TYP

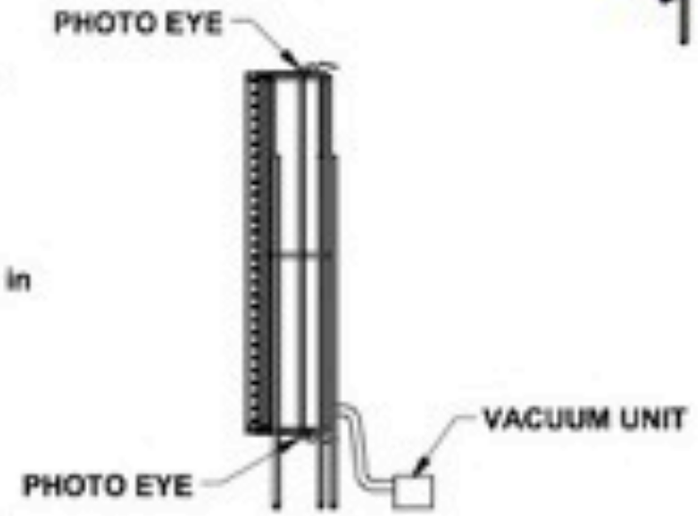

CREATIVITY STUDIO
TWO-ROOM USE
Mac Mini
(on Spyder pixel space
or as static source)
Mac Mini
(on Spyder pixel space
or as static source)
SPYDER PIXEL
SPACE 2
T7600 PC
Two Output
Blended
SPYDER PIXEL
SPACE 1
Mac Pro
Two output
Blended
NOTE: This layout also includes four (4)
46" LCD panels that take direct sources
off the switch (no spyder).



TOP VIEW



FRONT VIEW/VIEWING SIDE



AUDIENCE R. SIDE VIEW

NOTES:
1. APPROXIMATE WEIGHT = 718lbs
2. MOUNTING METHOD TO BE VERIFIED WITH CUSTOMER
3. UNIT WILL NOT STAND ON IT'S OWN AND NEEDS ADDITIONAL SUPPORT FROM EITHER THE CEILING OR WALL

LEVEL 3 NON-CONFORMING

Stewart Filmscreen Corporation (310) 784-5300 Customer Care (800) 762-4999 Fax (310) 326-6870	Quotation # 208982-1	Model Description Curved Vacuum Screen		Model # CURVED VACUUM SCREEN	
	Dealer SEXTANT GROUP, THE		Project Name/ID 1957 HUNT LIBRARY		Date 8/3/2010
Screen Material GRAYMATTE 70	Perforate for Sound N/A	Case Color BLACK	Baffles Color	Drawn N.Loesch	Customer Acceptance: Date:	Sheet 1 of 1	Rev A

THIS DOCUMENT IS PROPRIETARY PROPERTY OF STEWART FILMSCREEN CORPORATION AND SHALL NOT BE DUPLICATED OR DISCLOSED WITHOUT PERMISSION

Learning Spaces

Advanced Technology Spaces

Learning Spaces

Learning Spaces

Core Focus Areas:

Collaboration and customization

Content creation, presentation, sharing

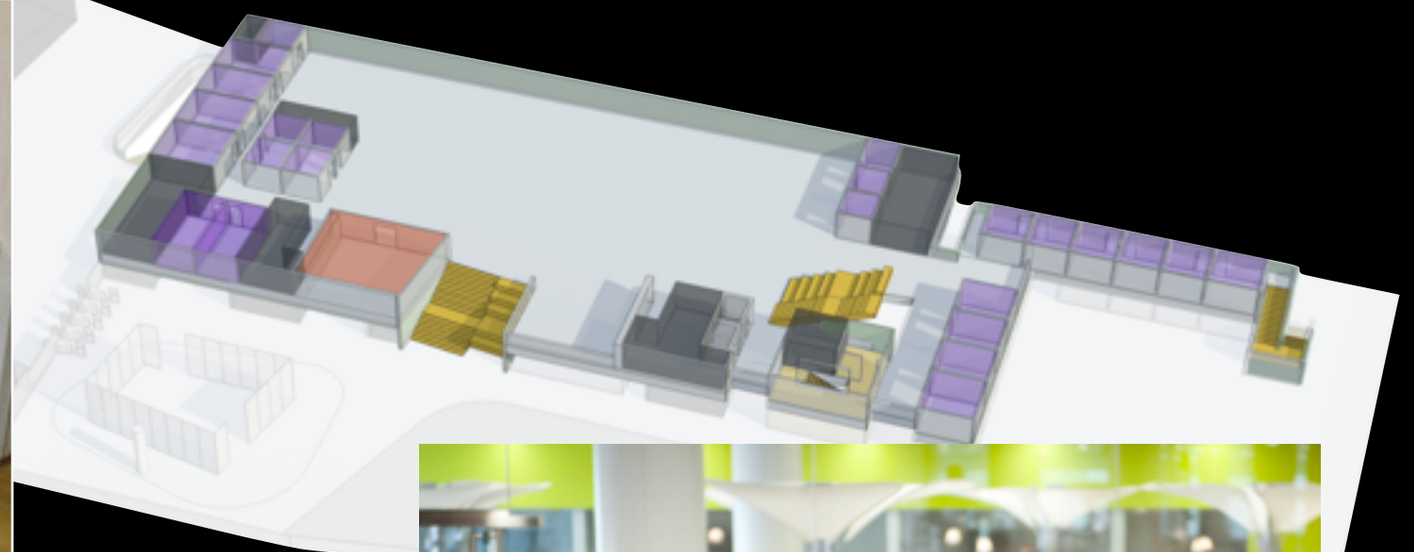
Mobility and communications

Interactive technologies

NC STATE UNIVERSITY

Collaboration Spaces

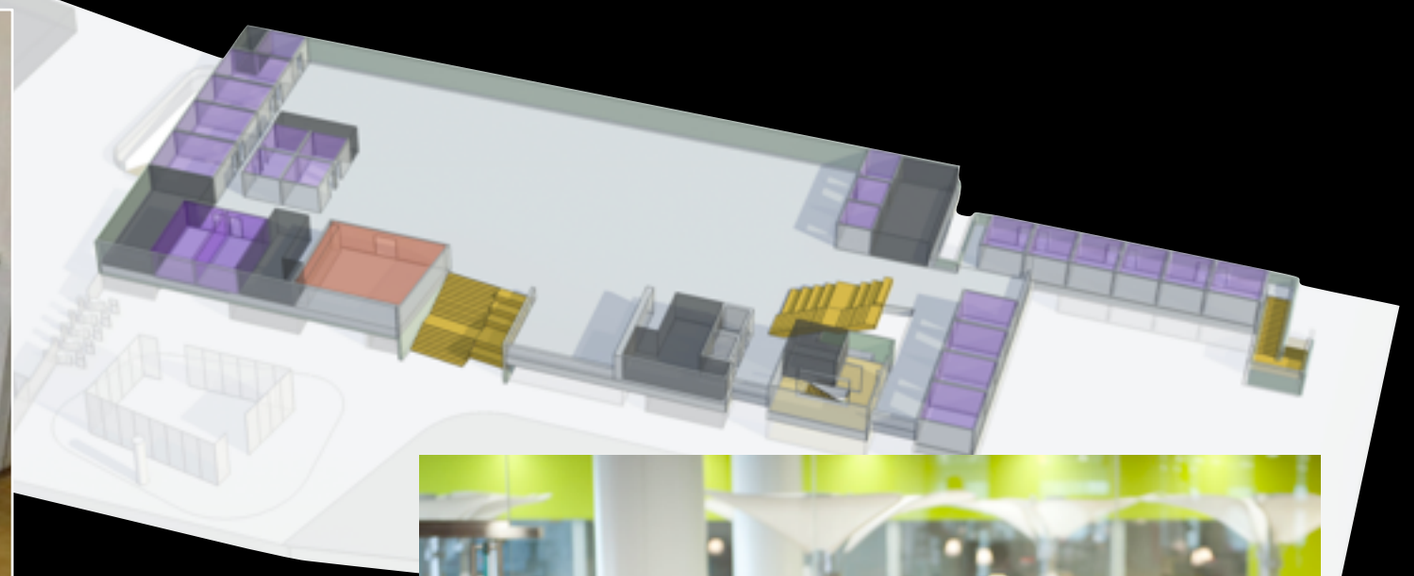
Learning Commons, Group Studies



NC STATE UNIVERSITY

Collaboration Spaces

Learning Commons, Group Studies

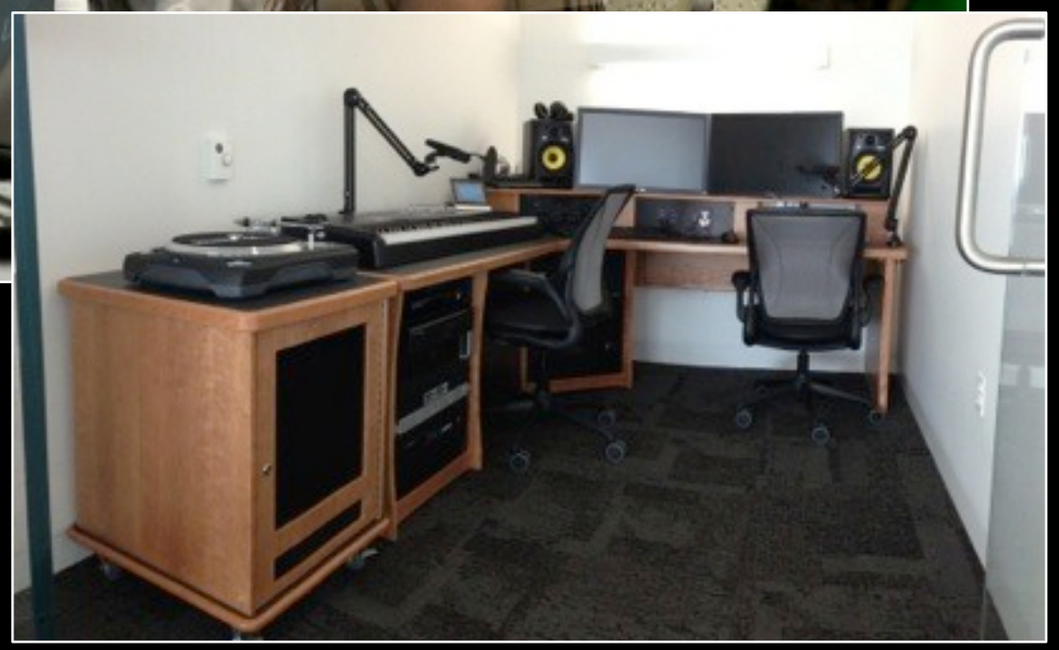


- Adaptable furniture
- Collaborative computing
- Video conferencing
- Abundant options

NC STATE UNIVERSITY

Creation Spaces

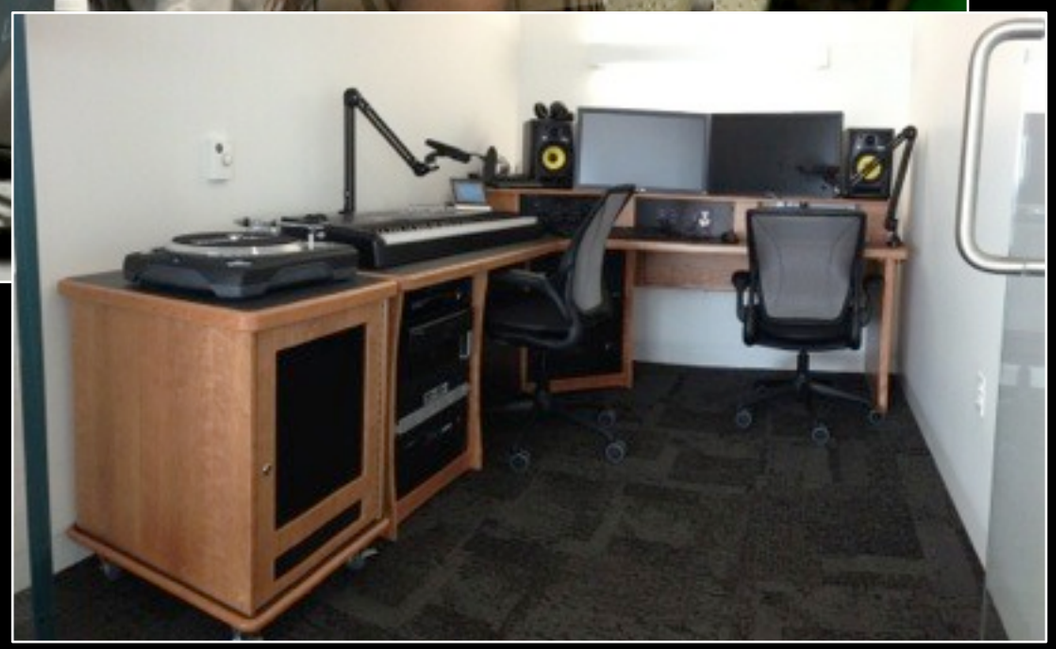
Media Production, MakerSpace



NC STATE UNIVERSITY

Creation Spaces

Media Production, MakerSpace



- HD, 3D, Ultra HD video editing and production
- Hi fidelity audio production
- 3D printing, laser engraving
- Capture, review, edit, share

SMART boards

Laptops

Mobile displays

Printing

Projectors

Technology-enabled furniture

Digital Signage

Cameras

Book scanners

Fixed computers

iPads

Personal storage

Display technologies

GPS

Flexible rooms

Video conferencing

Green screen studio

Short-throw projectors

Multi-touch displays

Room Reservation

Wayfinding

Advanced Technology Spaces

Advanced Technology Spaces

Core Focus Areas:

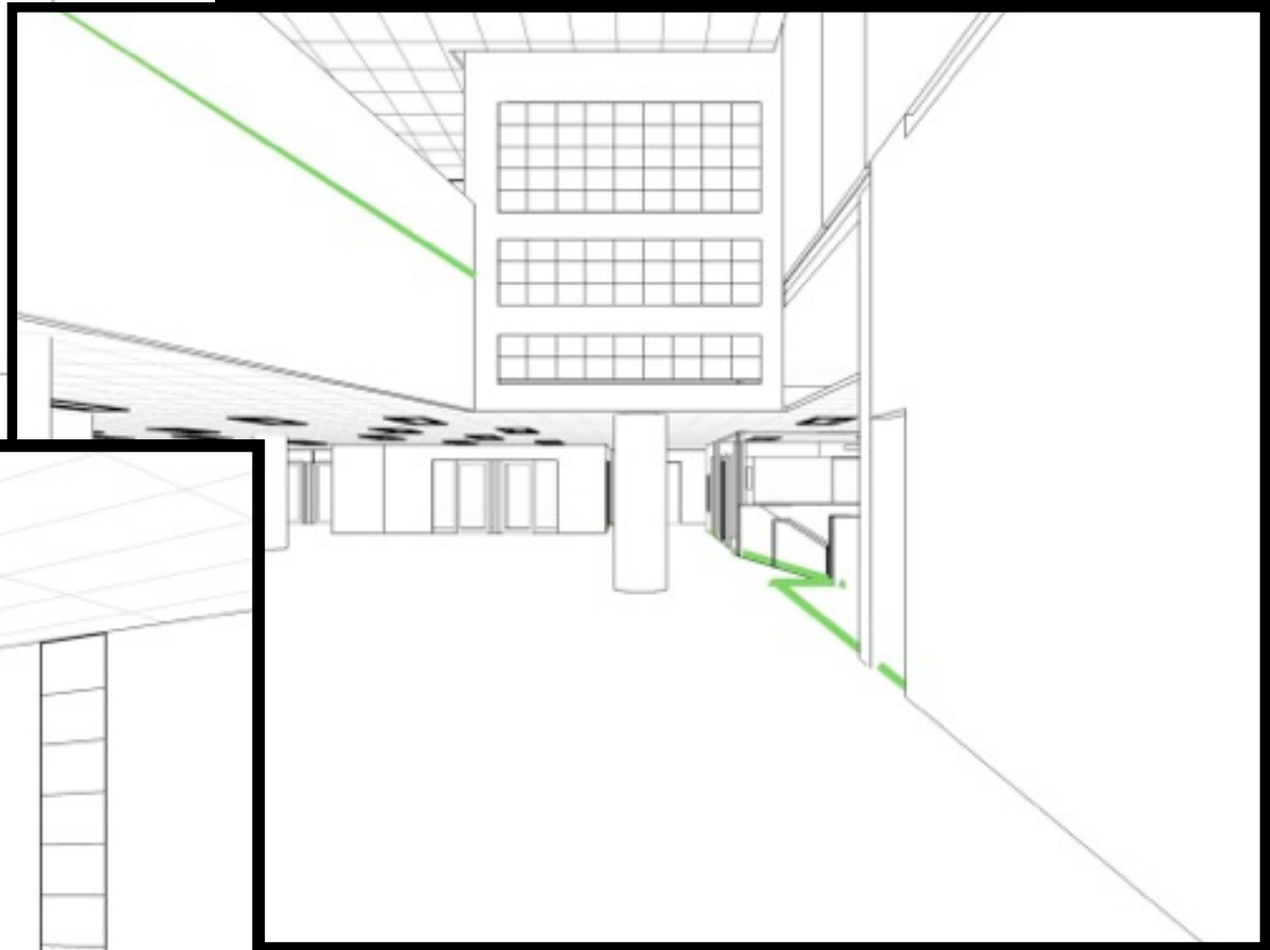
Large-Scale Display & Visualization

Interactive Computing

Communications and collaboration

Display Walls

Display Walls

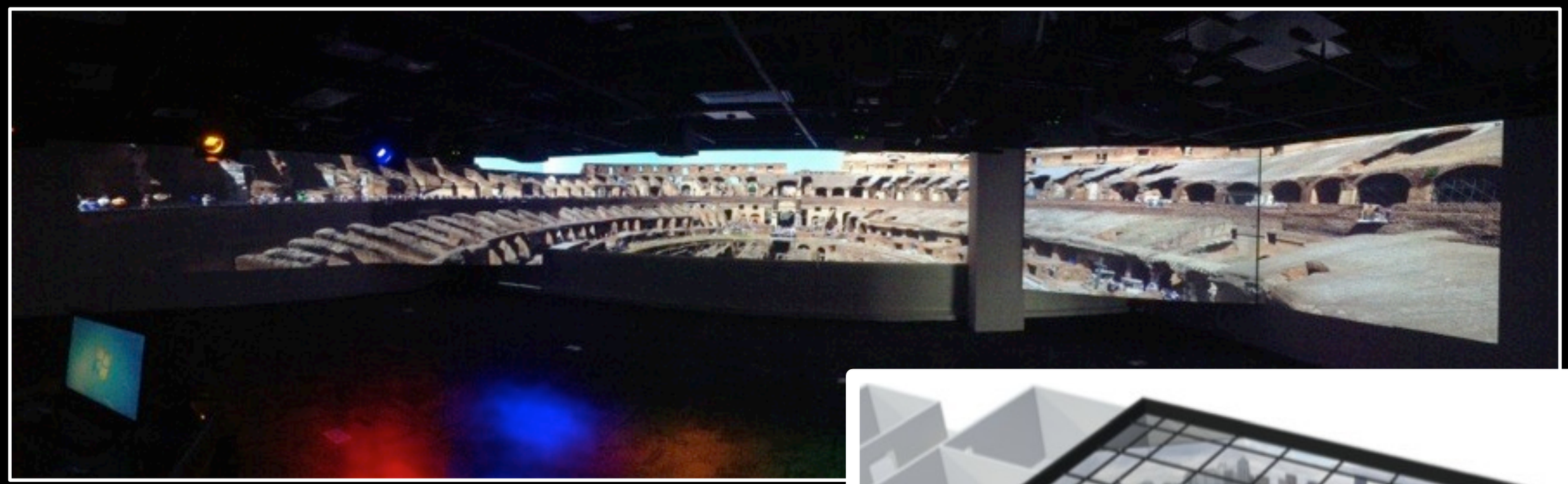


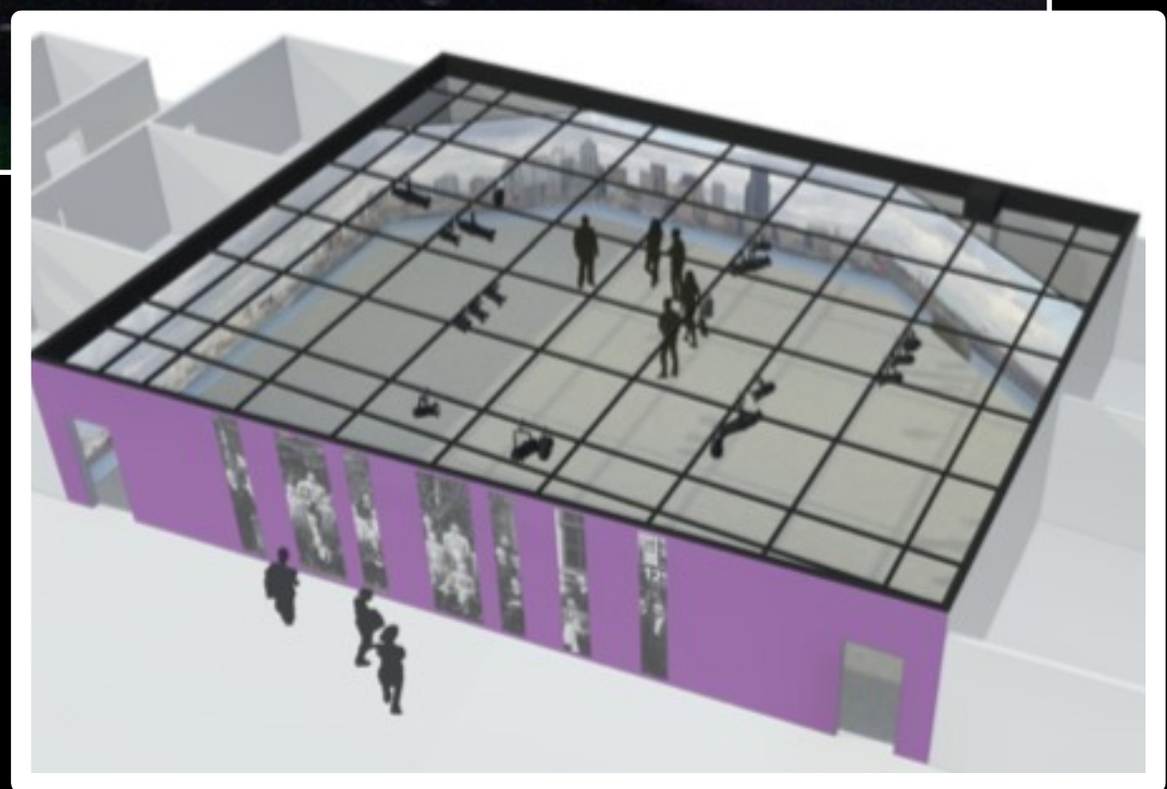
- Community engagement
- Showcase content
- Interactive visualization
- Collaborative problem solving

NC STATE UNIVERSITY

Black box / White box Spaces

Teaching & Vizualization Lab

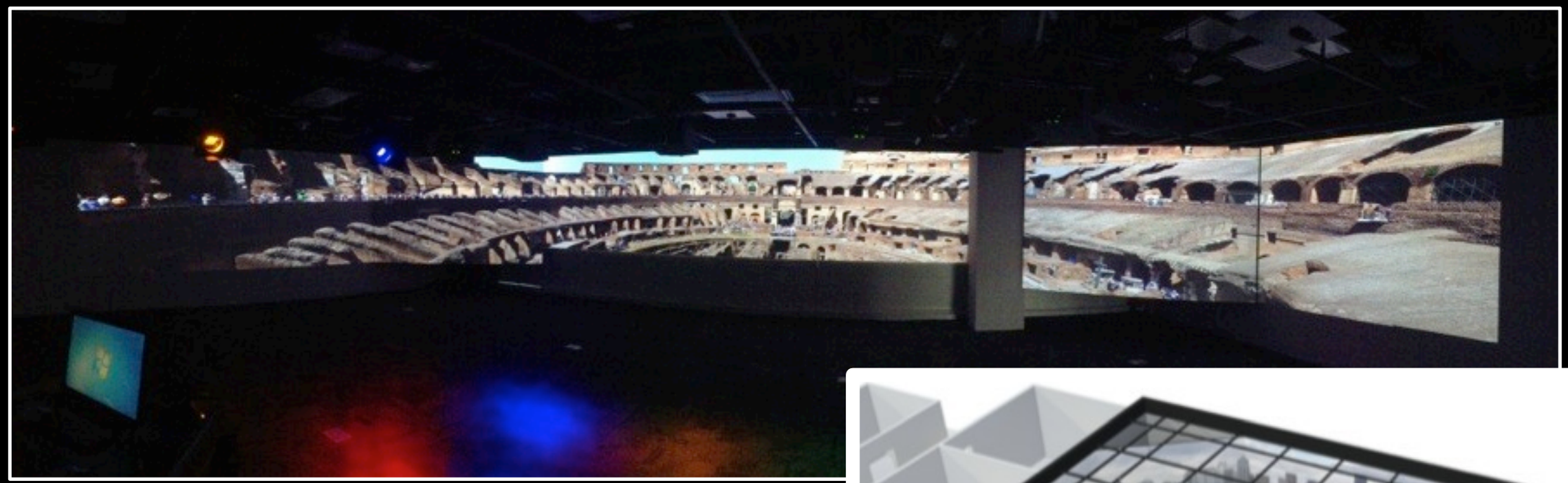




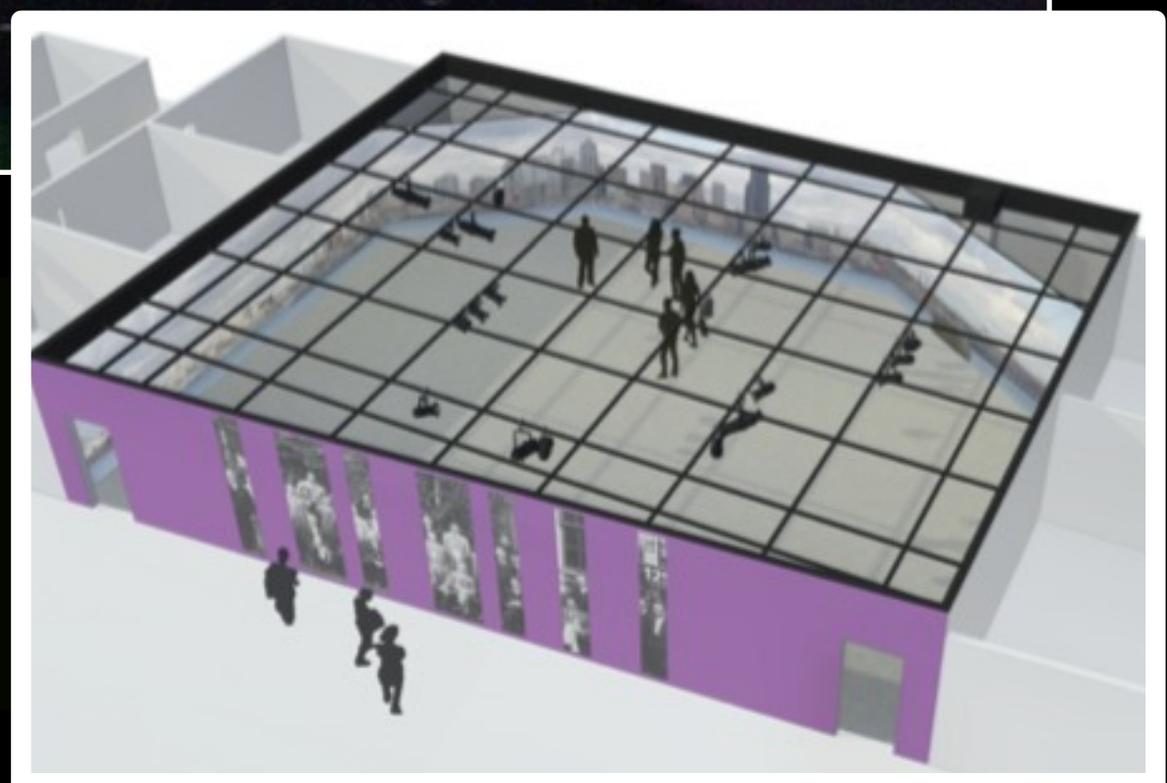
NC STATE UNIVERSITY

Black box / White box Spaces

Teaching & Vizualization Lab



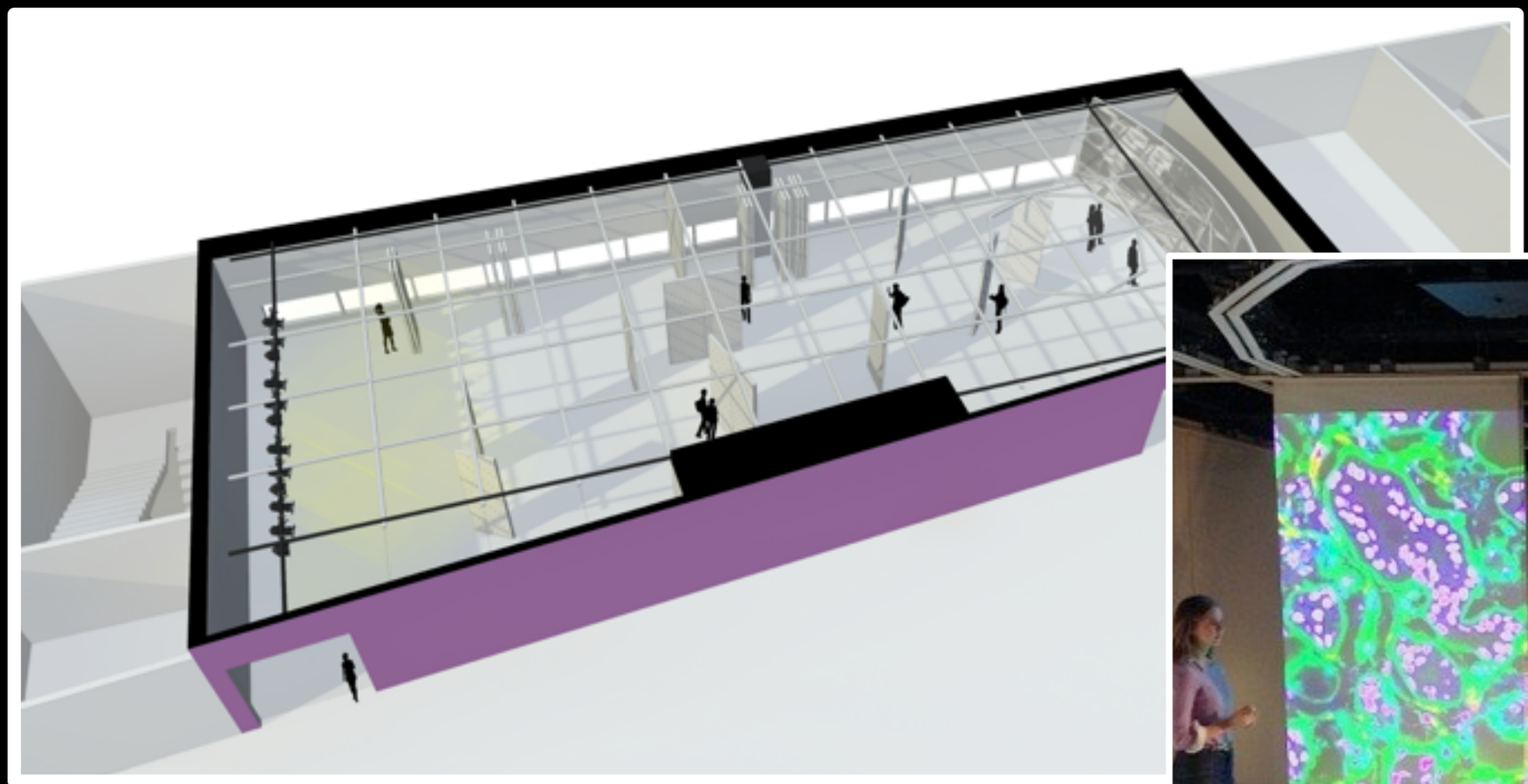
- Teaching and research
- Technology R&D
- Immersive environments
- Visualization & Sonification



NC STATE UNIVERSITY

Black box / White box Spaces

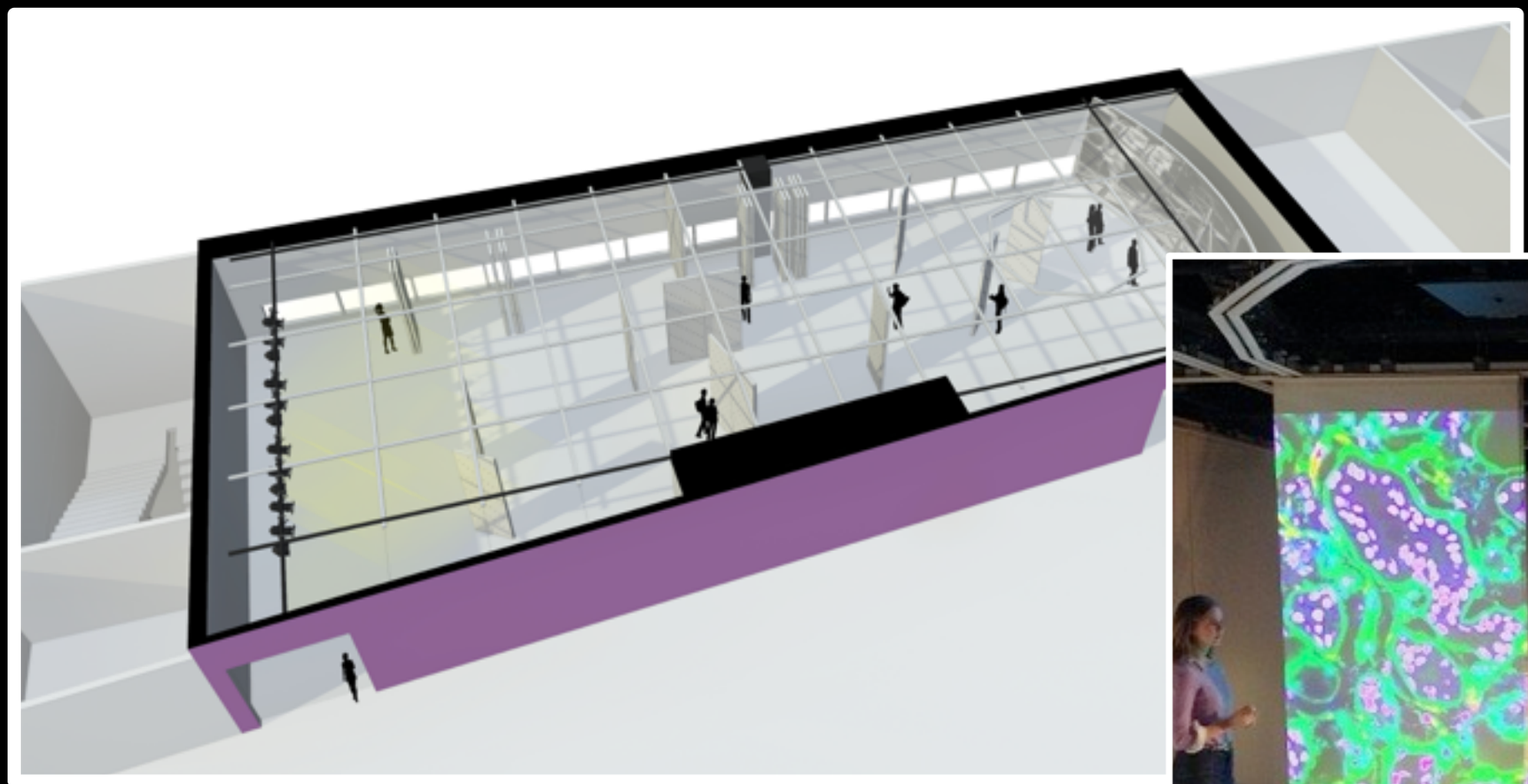
Creativity Studio



NC STATE UNIVERSITY

Black box / White box Spaces

Creativity Studio

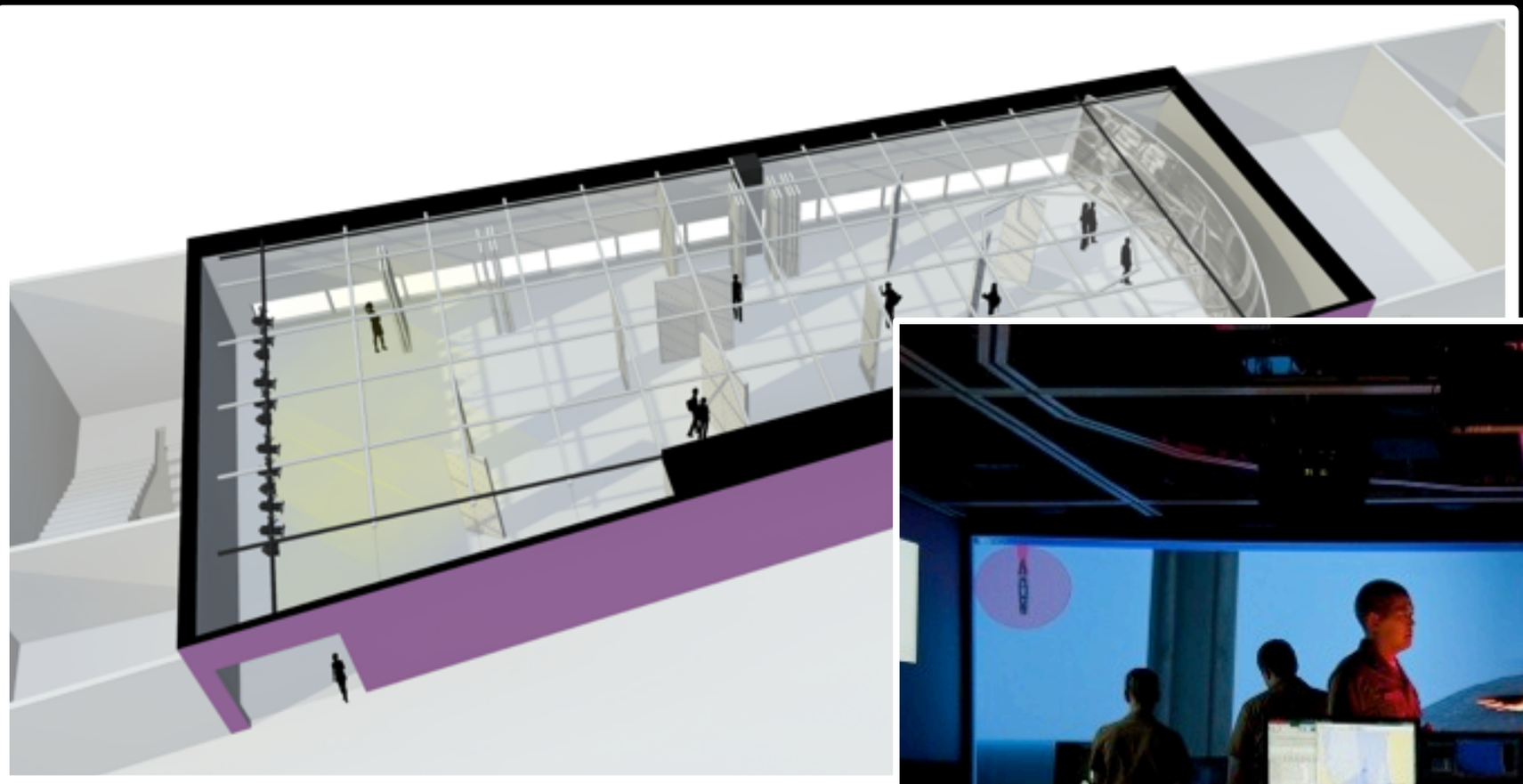


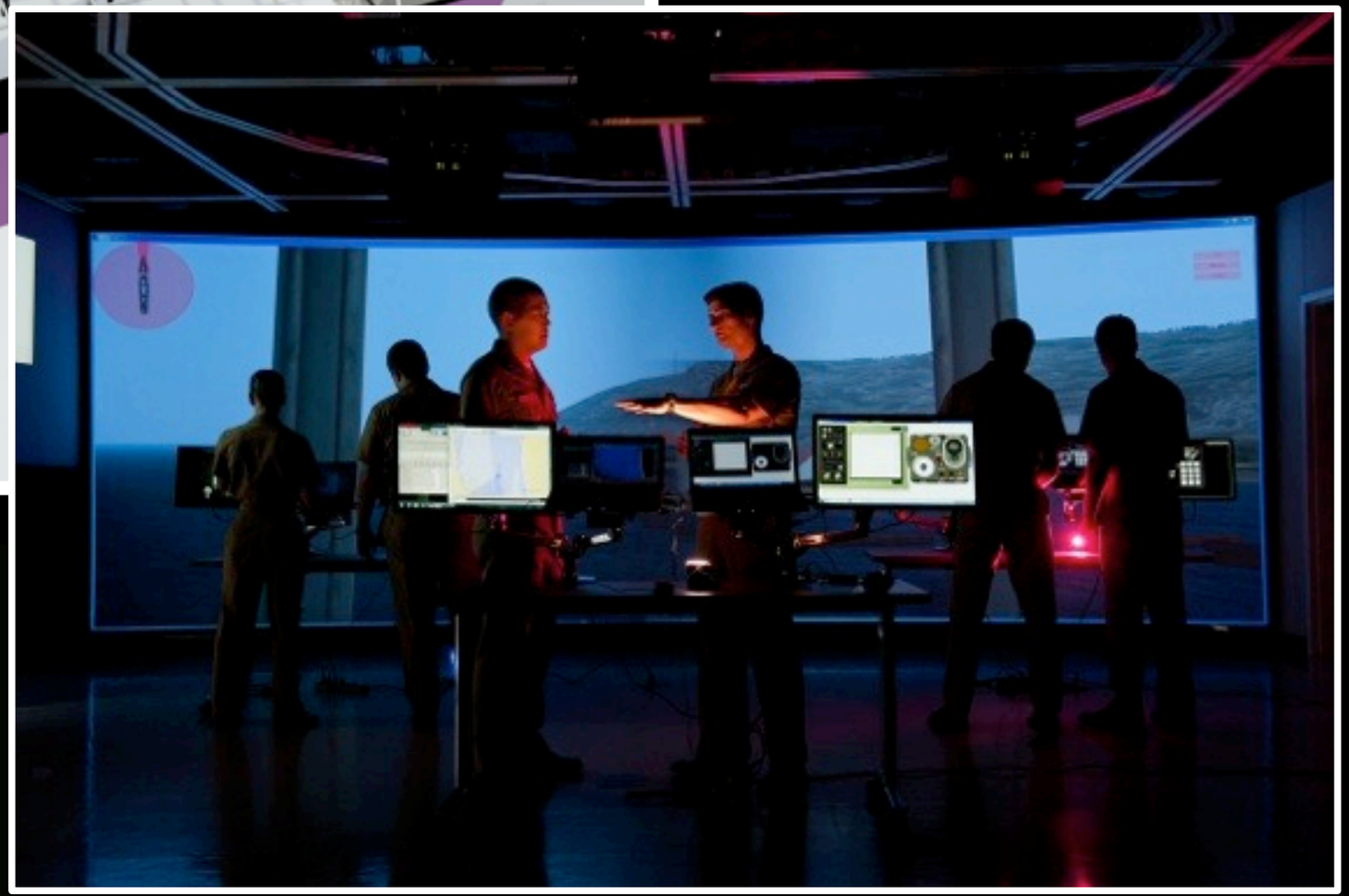
- Brainstorming
- Technology R&D
- Simulation
- Active collaboration

NC STATE UNIVERSITY

Black box / White box Spaces

Creativity Studio



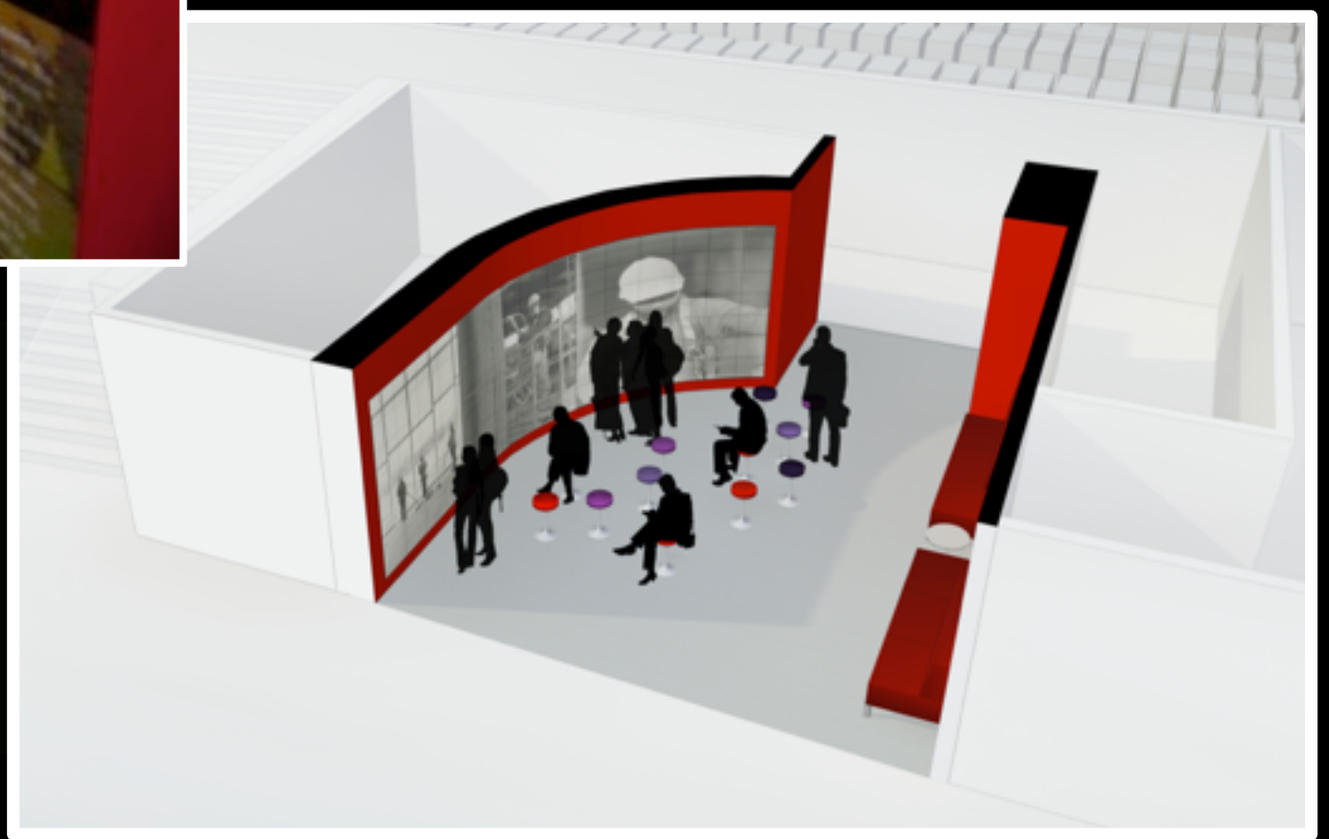


- Brainstorming
- Technology R&D
- Simulation
- Active collaboration

NC STATE UNIVERSITY

Large-Scale Interactive Display Spaces

Immersion Theater



- Simulation & Visualization
- Presentation
- Data analysis and problem solving

NC STATE UNIVERSITY

Large-Scale Interactive Display Spaces

Game Lab

NC STATE UNIVERSITY

Large-Scale Interactive Display Spaces

Game Lab

- Game research
- Simulation & Visualization
- Data analysis and problem solving

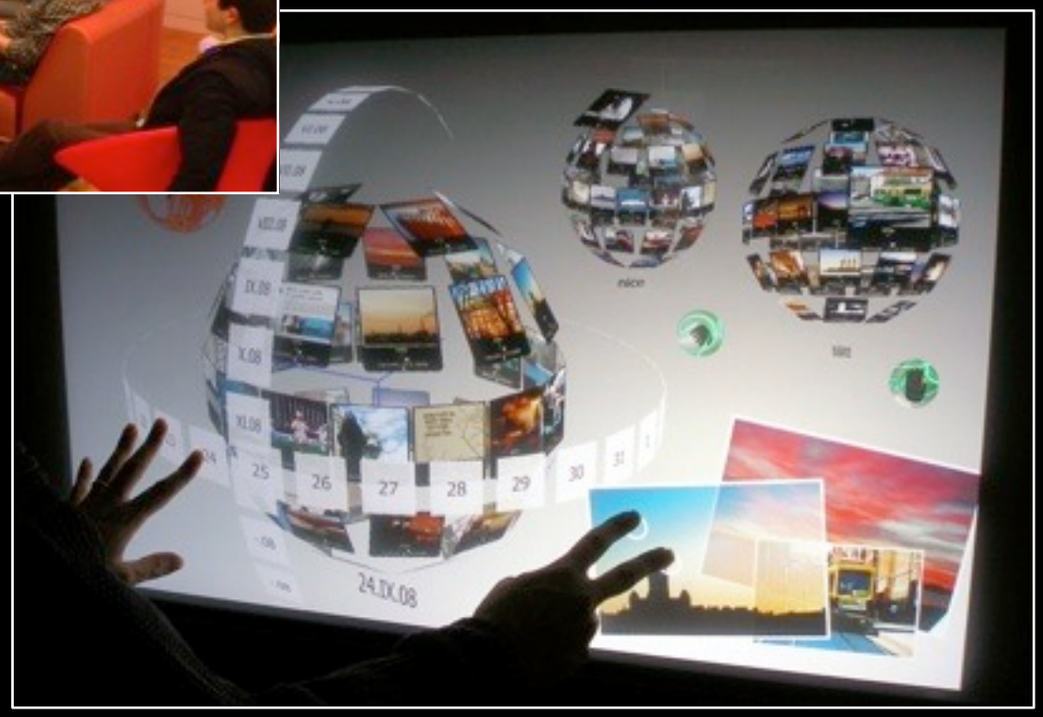
Technology-rich spaces support the creative lifecycle

Large-Scale Display

Graphics intensive applications

Media Production

Collaboration and Communication



Interactive Computing

Maurice York. NCSU Libraries. maurice_york@ncsu.edu

Early prototyping and POC

Cinematics, graphics, animation

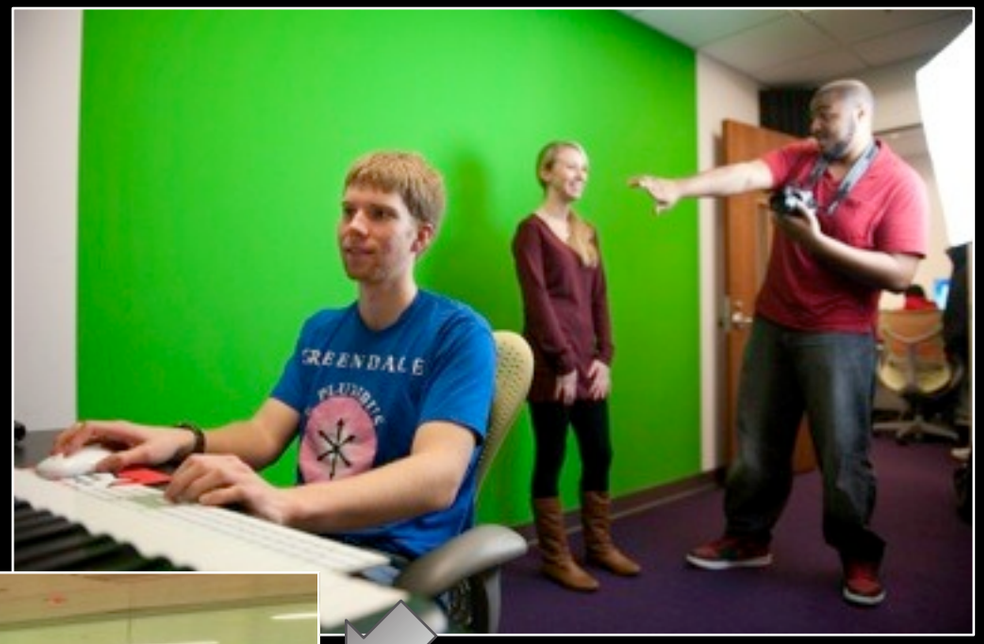
Critique, game play and demonstration

Concept development, Ideation and design

Game Design Example

Maurice York. NCSU Libraries. maurice_york@ncsu.edu

Early prototyping and POC



Cinematics, graphics, animation

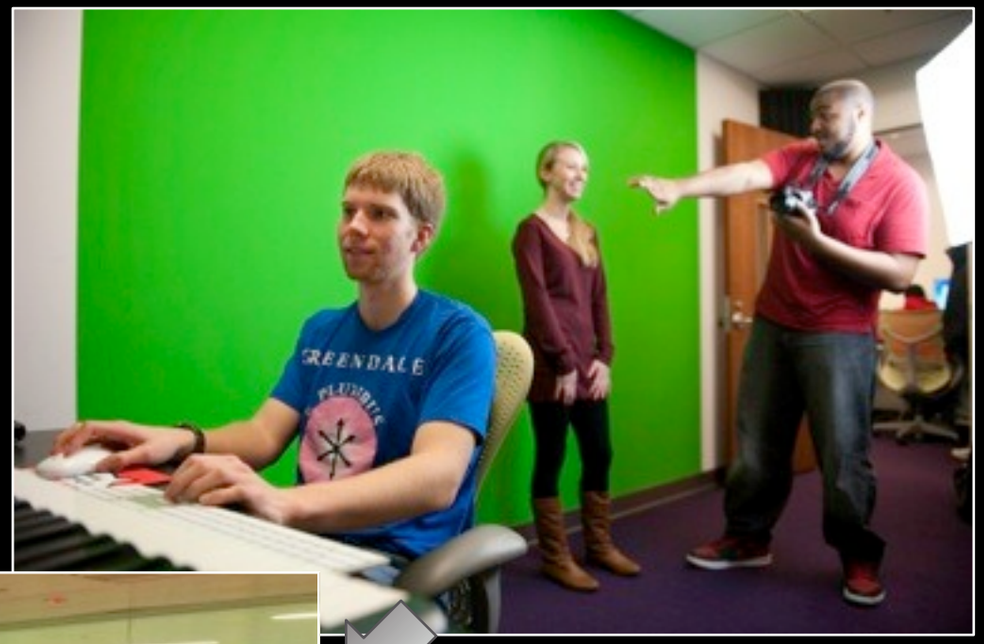
Critique, game play and demonstration

Concept development, Ideation and design

Game Design Example

Maurice York. NCSU Libraries. maurice_york@ncsu.edu

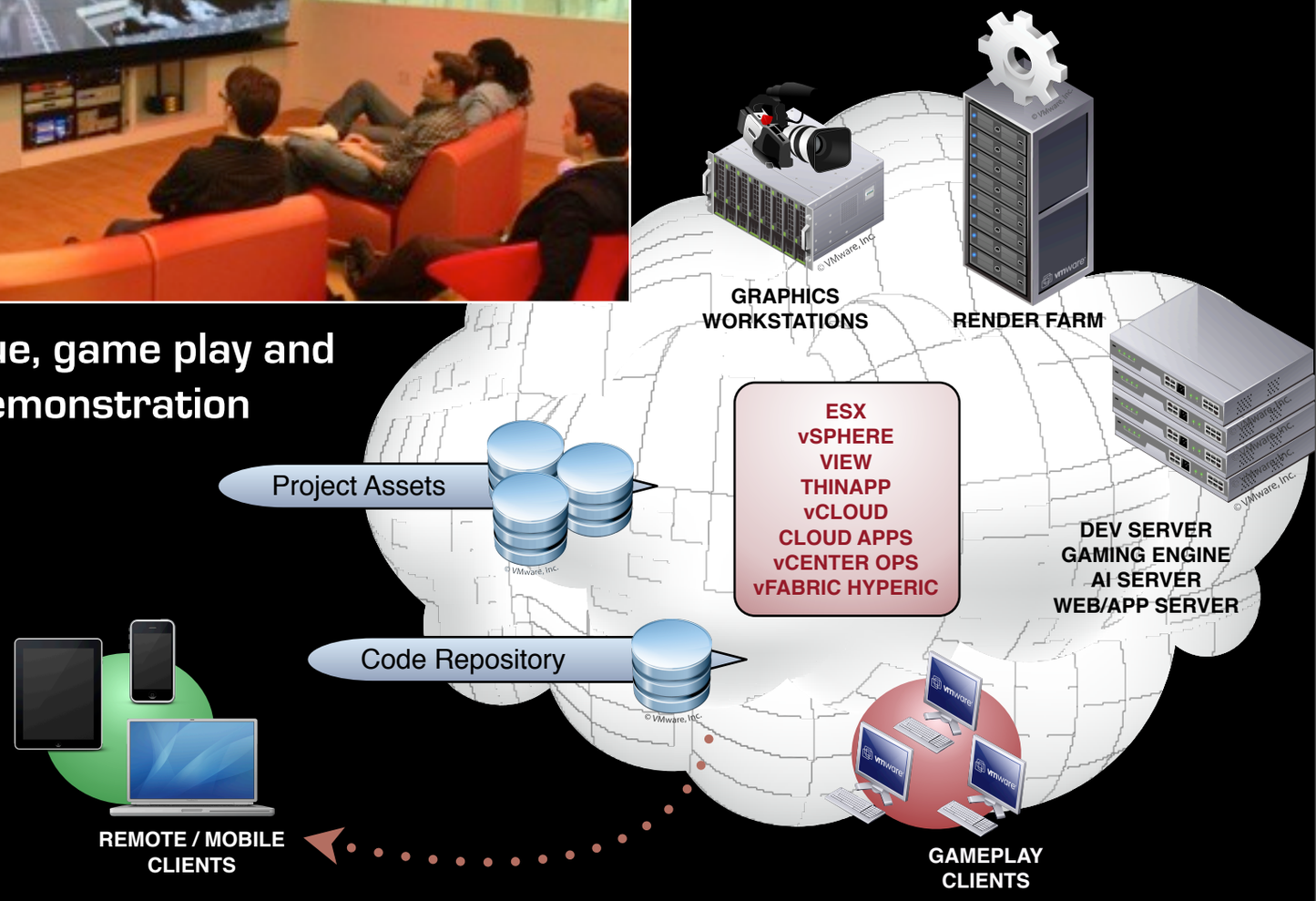
Early prototyping and POC



Cinematics, graphics, animation

Critique, game play and demonstration

Concept development, Ideation and design



Game Design Example

Maurice York. NCSU Libraries. maurice_york@ncsu.edu

What does success look like?

The Hunt Library in The American Conservative

Does the
reading a
Books or
the role of

Hunt Lil

While the
magazine

"An arc

The maga

Ploughs

Citing the
Library of
printing, w

The Hur

Comment
21st centu
a 2013 re

Boston

The Bosto

The Hur

The Hunt
Environm

"A plac

News 14
innovatior

US Nav

The Navy
University

Architect m

The official mag
technologically

ABC11 cove

ABC11's Elaina
this facility" and
you do them in

"A library u

WRAL's Renee
Chancellor Rai
that says that to

"A seat of h

The *News & Ob*
chair designed
students gathe
these things ma

Hunt Librar

Complex maga
list that include
ultra-modern U

Public radic

In an hour long
explores the fu

Hunt Librar

In its annual re
innovative com

Hunt Librar

For twenty year
that have contri
was chosen as

Hunt Library featured in *Architectural Rec*

In a "first look" pi
new Hunt Library

Hunt Library

In one week alor
magazines in the
the firm's impact

ABC11 featu

ABC11 continues
changing their ex

The academi

That's the conclu
across the count
Washington Obs

NC State's ne

The News & Obs

The News &

Chris Seward pr

New NCSU H

The new Hunt Li
tools of tomorrow

"Check it out

Arguing that whil
the art . . . . May i

The "Plugge

Raleigh-based S

"The World's

Curbed.com, the
MVRDV's Book M

"Let's Hope Snøhetta's New R

Architizer.com explore

Committing ours

Governor Hunt's home
Campus and step forw

A sneak peek into

Raleigh's WRAL prese

Books flowing in

The News & Observer
"building that aims to
library in the digital ag

Pearce Brinkley (

Architecture Magazine
executive architects, 1

The Hunt Library
construction coll

ENRSoutheast magaz
"intended to transform
builders" on collabora

"All you have to

Citing their record of d
designer, for the new

Snøhetta awarded co

"How will it inspire stu
"about to change how

Archdaily, a leading w
Cultural Building of th

Civil Engineering mag
State Designed for Dis

Snøhetta, the Hunt Lib

Everything you c

The NCSU Libraries h
less than the best lear

SFMOMA SI

The San Francis
course, Snøhett

'Heart' is co

According to Ja

Hunt Library

Chris Seward fr

Topping Ou

Completion of t

Lead Design

Snøhetta, the le
Environmental

Tech Test B

The new NCSU
Library, gets co

Lead Design
Expansion

Snøhetta, the le
architecture firm

New NCSU

The new NCSU
showcase for te
scale display ar

Hunt Librari

A *Library Journa*
the Hunt Library

Lead Design

Snøhetta, the le
European Awar
spaces and thei

The Place to

The March 201
as an example

TIME
Tech

Magazine | Video | LIFE | Earth From Space

Home | NewsFeed | U.S. | Politics | World | Business | Tech | Health | Science

Home | Gadgets | Video Games | Apps & Web | News | Reviews & Features | Videos | Lists

INNOVATION

The Future of Libraries: Short on Books, Long on Tech

This isn't your childhood library.

By Mobiledia / Margaret Rock @techland | June 25, 2013 | 29 Comments

Share | Like 1.8k | Tweet 736 | +1 94 | Share 45 | Read Later

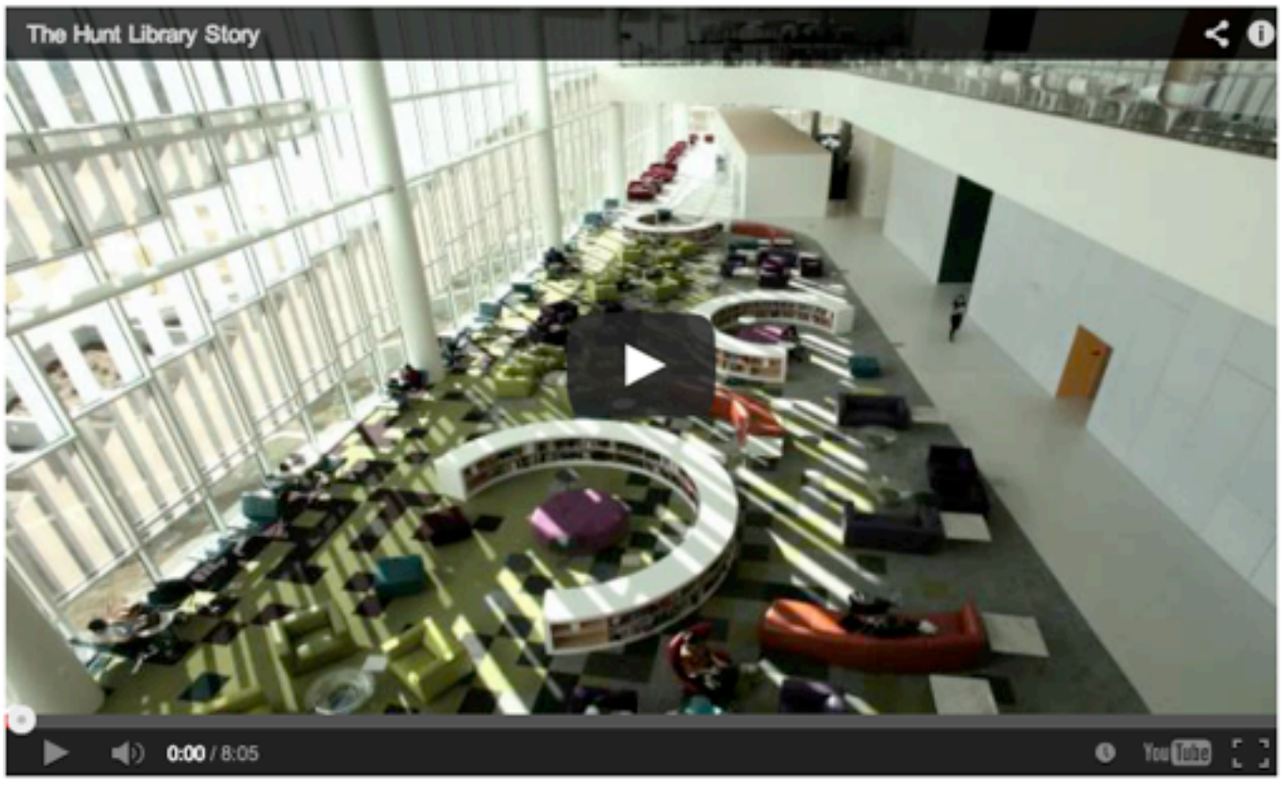
HUNT LIBRARY

This isn't your childhood library. The Hunt Library at North Carolina State University is beautiful. The main floor looks more like a sleek Apple showroom than a stuffy library. And instead of a Genius Bar, there's an Ask Me alcove, where you can get help on everything from laptops to flash drives.

Email | Print
+ Share | Comment
Follow @techland

Rather than the Dewey system, color-coded walls, stairs and elevators help you find not just books and research papers, but also media rooms, video game collections and even a 3-D printing lab to create plastic models. But the best part? Built with state funds and private donations, it's open to the public.

Welcome to the library of the future.



David Parkes
@daveparkes

Follow

Hunt Library at NC State a library unlike any other, most advanced academic library anywhere?
lib.ncsu.edu/huntlibrary shar.es/dETIf

5:14 AM - 6 Apr 2013

Maddie Poole
@maddie_poole

Follow

Not sure if I walked into Hunt Library or the future...

Trevian White
@TrevianW

Follow

Back at Hunt Library...the only place I can truly be productive. I feel energized to study when I enter the doors. @ncsulibraries

Sarah Wechsberg
@TheEcofoodie

Follow

Startup Madness at the new Hunt Library at NCSU. Very impressive student entrepreneurs launching real companies #smad13

David Parkes
@daveparkes

Follow

Hunt Library at NC State a library unlike any other, most advanced academic library anywhere? lib.ncsu.edu/huntlibrary shar.es/dETIf

5:14 AM - 6 Apr 2013

NC State University
@NCState

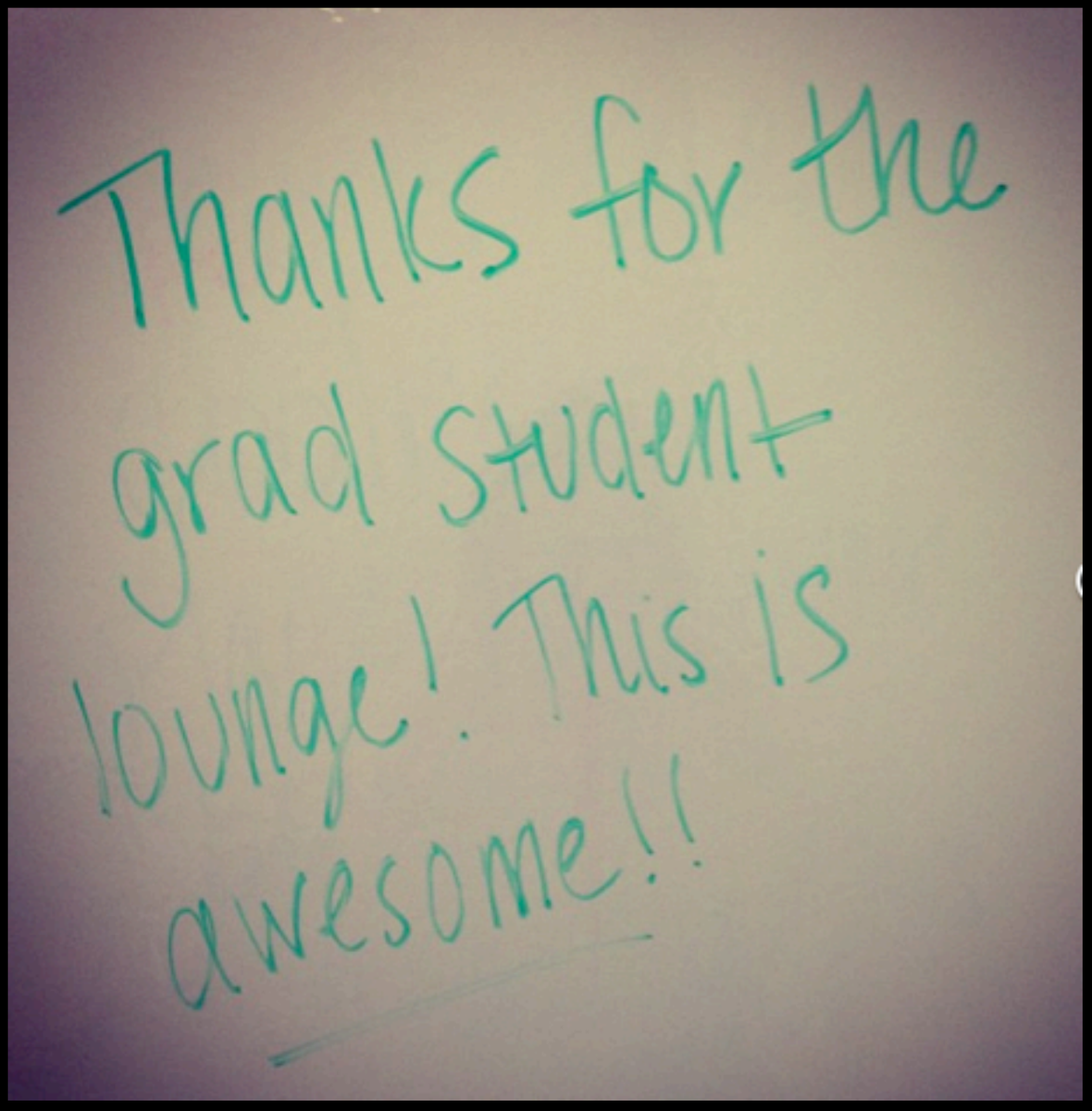
Follow

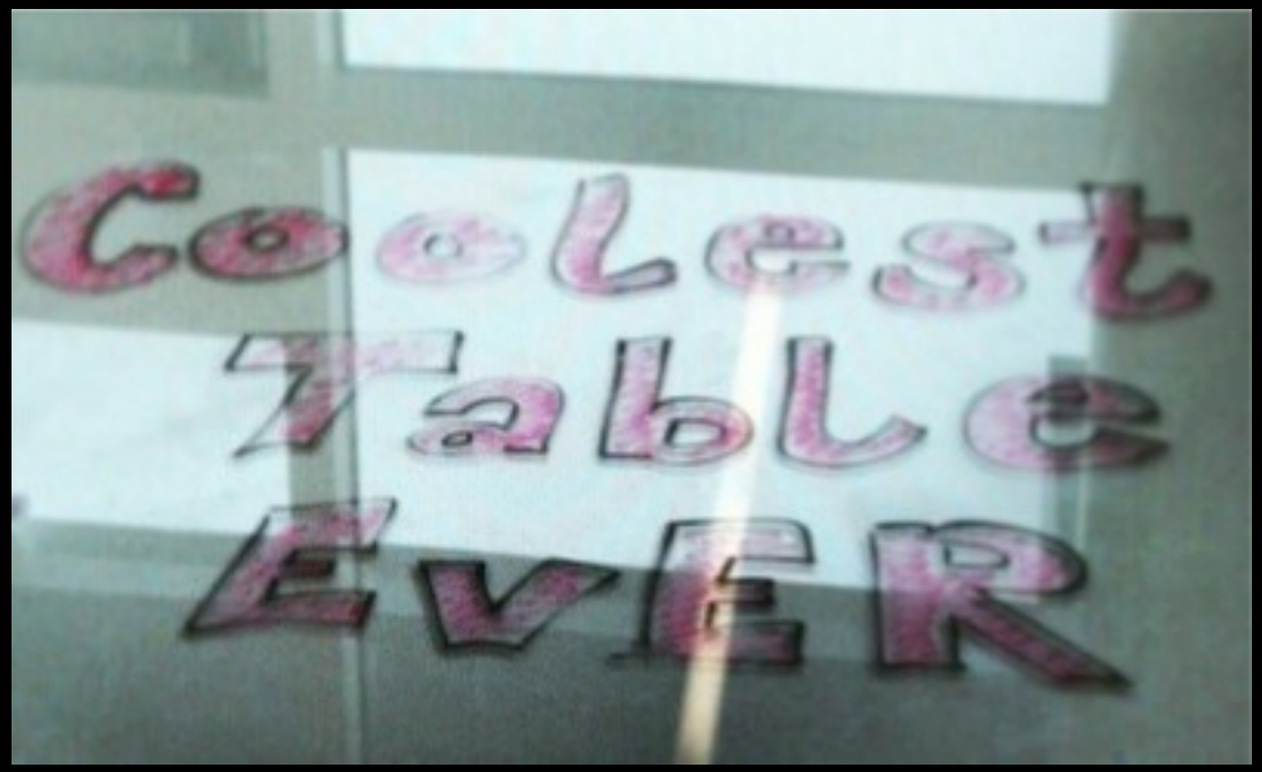
Woodson: "Place matters." #CentCampus, #HuntLibrary create spirit of entrepreneurship, serendipity that drive innovation. #ncsuinnovation

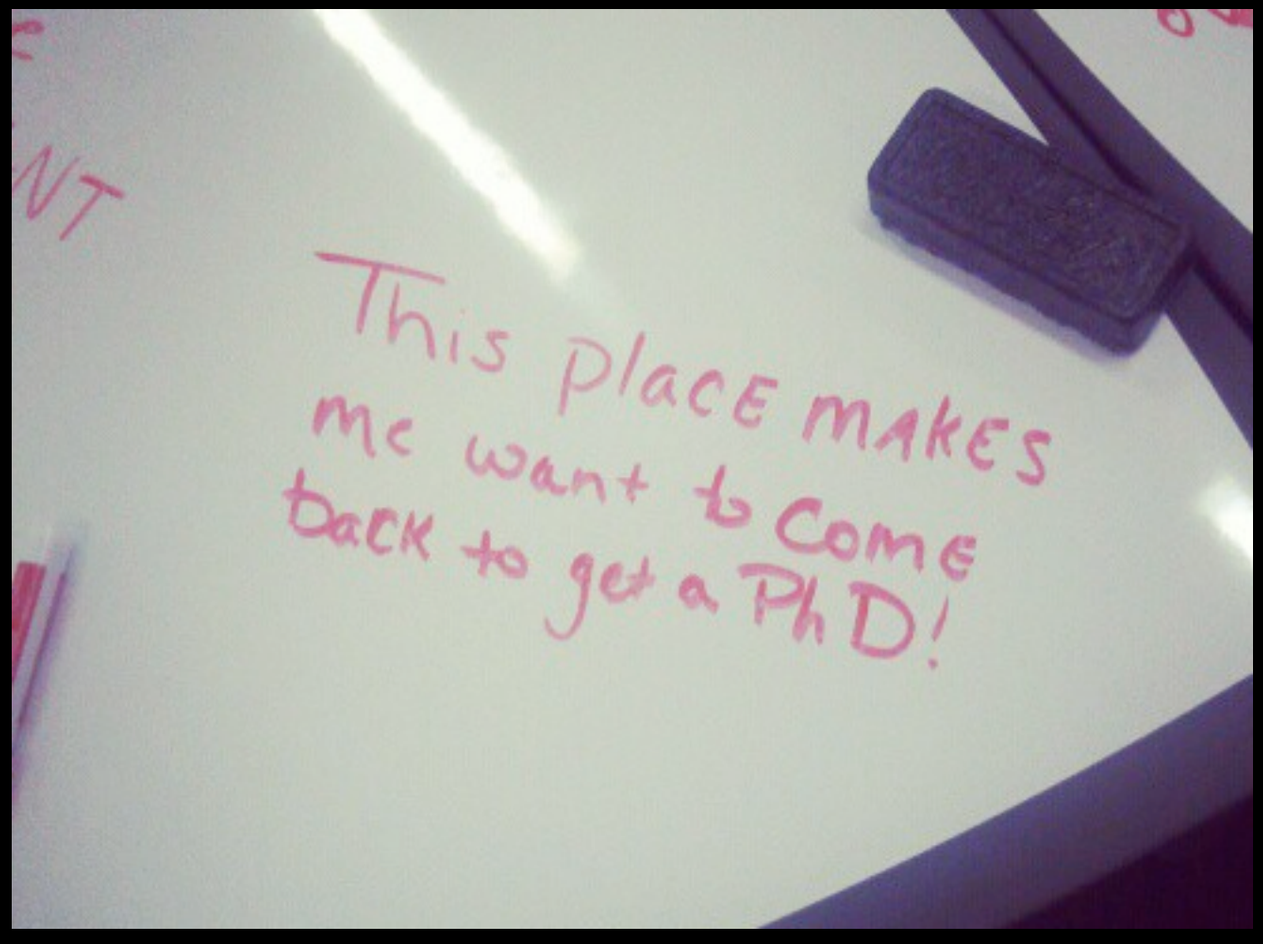
DowntownRaleighDigs
@dtrdigs

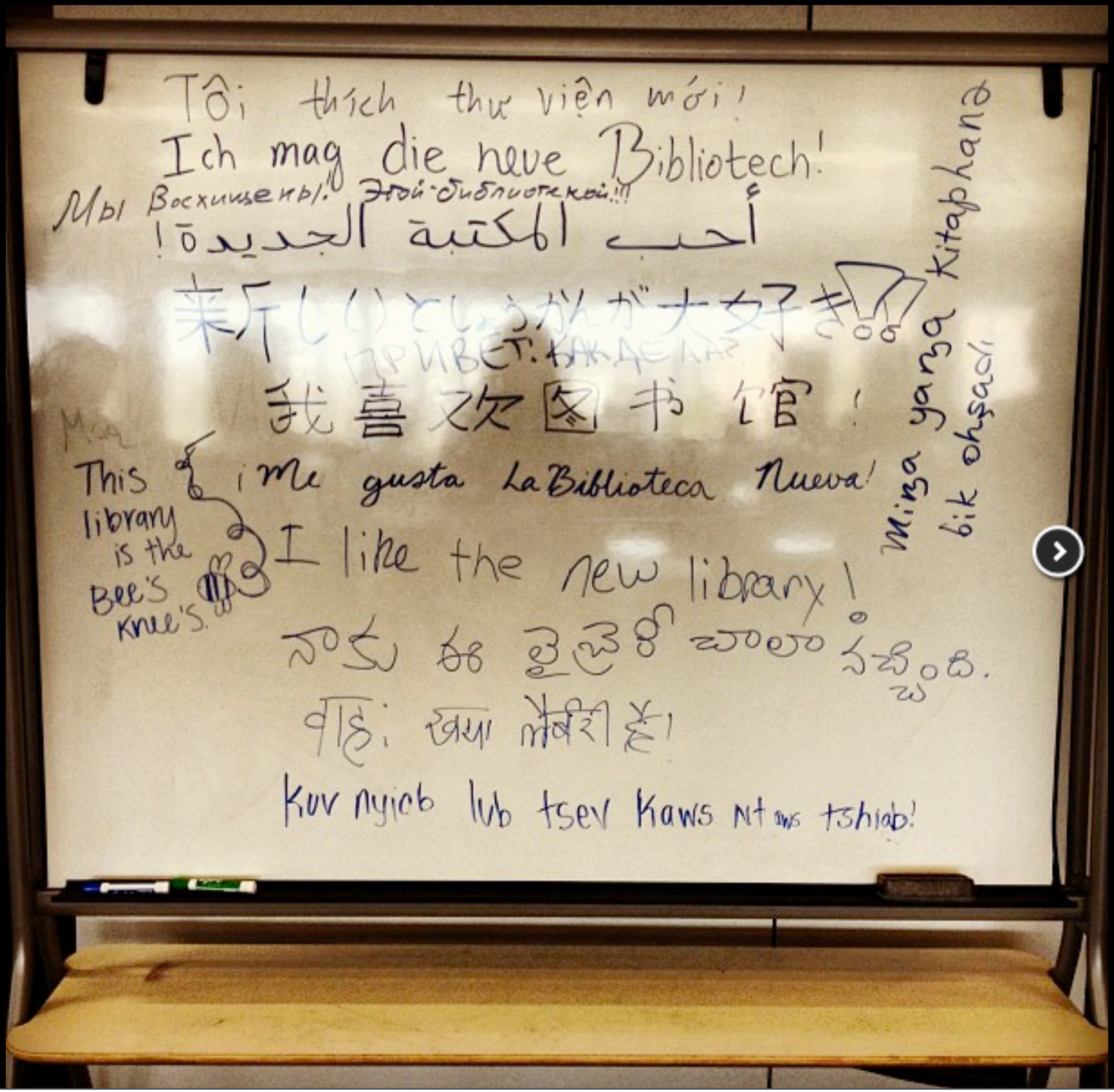
Follow

Wow. Have you been to the Hunt Library at NCSU? Coolest place in town. ow.ly/i/1yLmh #Iwanttogobacktoschool


Thanks for the
grad student
lounge! This is
awesome!!


Coolest
Table
EVER

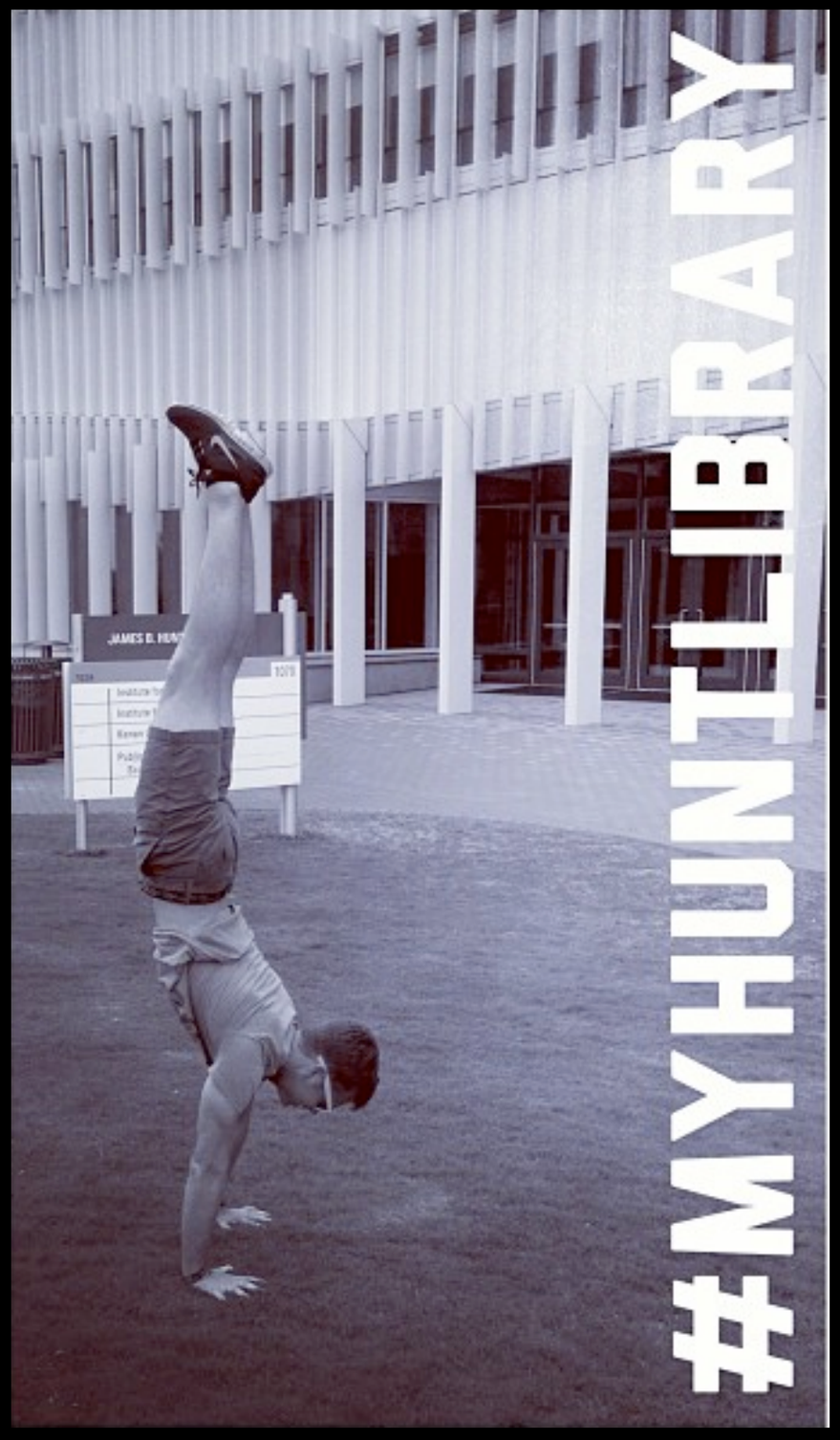

This place makes
me want to come
back to get a PhD!

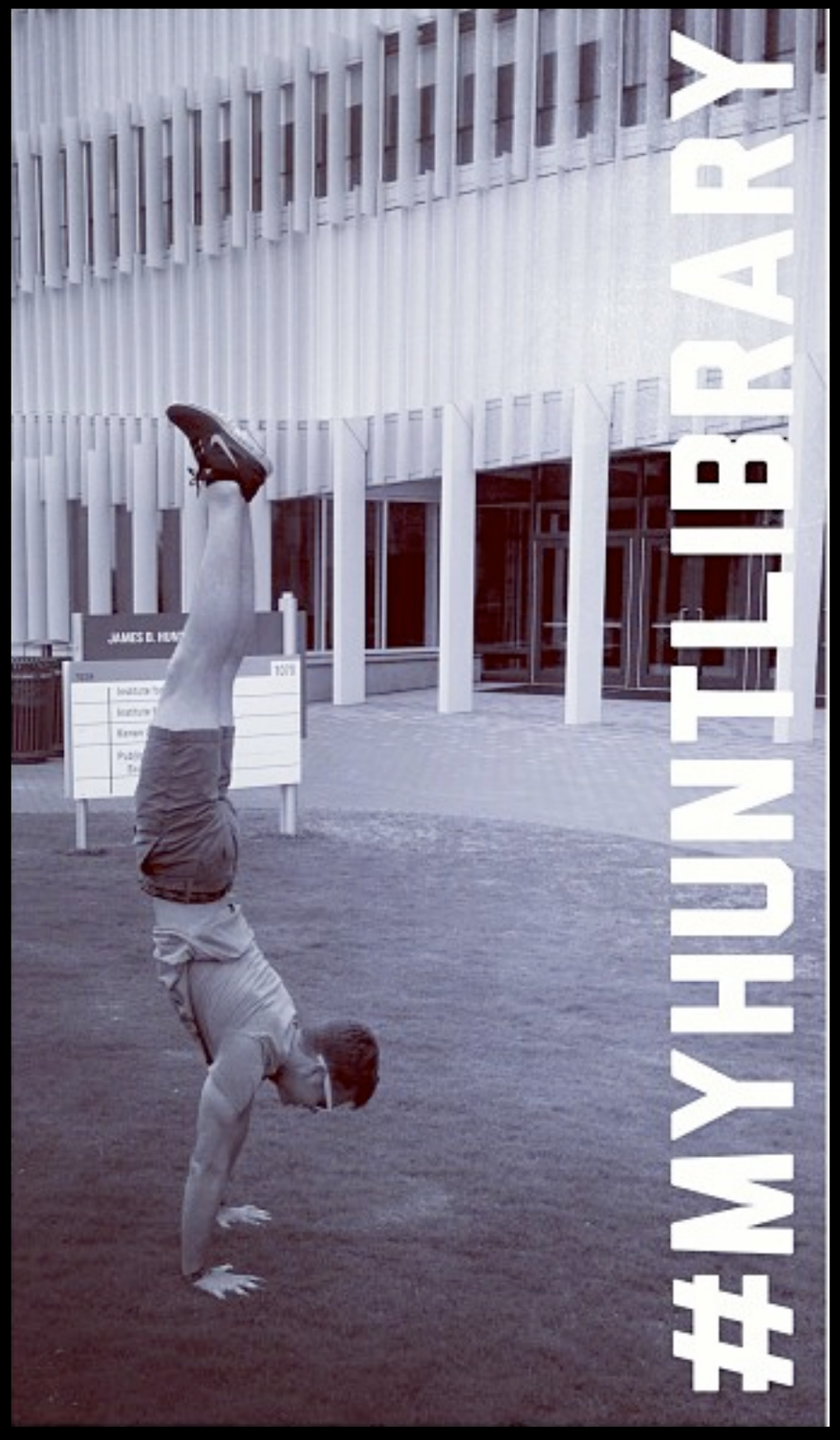

Tôi thích thư viện mới!
Ich mag die neue Bibliotech!
Мы Восхищены! Этой библиотекой!!!
أحب المكتبة الجديدة!
新しいとしょうかんが大好き!!
ПРИВЕТ: КАК ДЕЛА?
我喜欢图书馆!
This library is the Bee's Knee's.
¡Me gusta La Biblioteca Nueva!
I like the new library!
నాకు ఈ లైబ్రెరీ చాలా నచ్చింది.
वाह: खया लैबरी है!
Kuv nyiab lub tsev Kaws Ntaws tshiab!
Mina yanza Kitaphana bik ohşadi

It's *really* used

It's *really* used

more or less like
we imagined


LIBRARY
#MYHUNTL


#MYHUNTLIBRARY

Users “get it”

“

”

Users “get it”

“What I would have loved to see is an API for Hunt Library itself. Imagine if students actually had an interface where they could write Apps *for* the library, where students could launch the apps from any of the displays or study rooms in the building? Enterprising developers could leverage the touch screens and Microtile displays for any number of artistic, social, and educational purposes.... Give us the tools to add to the library! There is wisdom in the crowd, especially the crowd of Computer Science and Engineering students looking to make their mark on the world!”

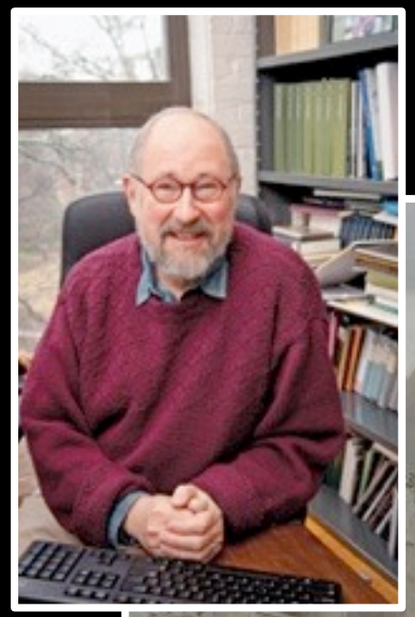
Barry Peddycord III
Computer Science Ph.D. Candidate

Faculty Projects

- **Big Data Harvester and Business Analytics**
  - College of Management
- **Maritime Skills Simulator**
  - US Naval Training Command
- **Game Design, Game AI & HCI**
  - Computer Science, Electrical & Computer Engineering, Design
- **Virtual Crime Scene Investigation**
  - Textiles Forensics, Computer Science
- **Virtual Forestry Environment**
  - College of Natural Resources
- **Virtual Recreation: St. Paul's Cathedral, 1622**
  - Department of English

NC STATE UNIVERSITY

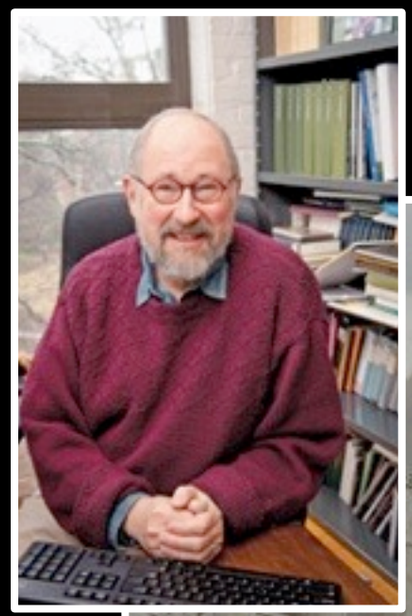
Digital Humanities: Virtual Paul's Cross

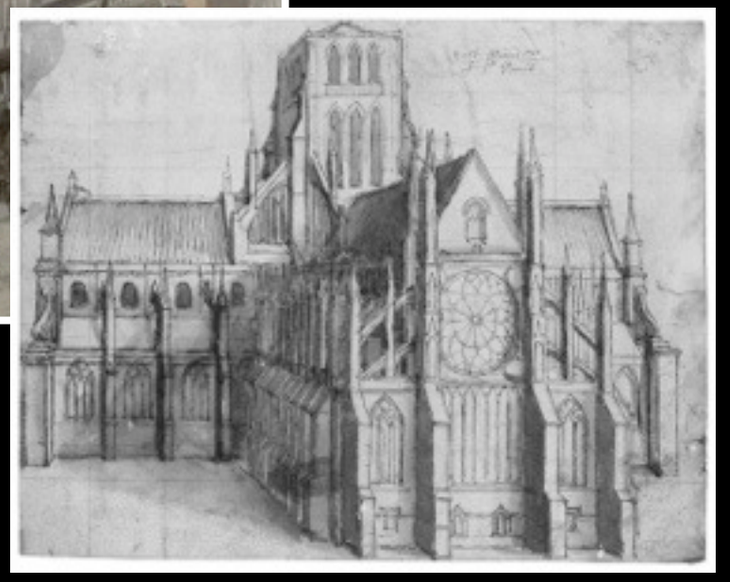


JOHN WALL, JOSHUA STEPHENS, DAVID HILL

NC STATE UNIVERSITY

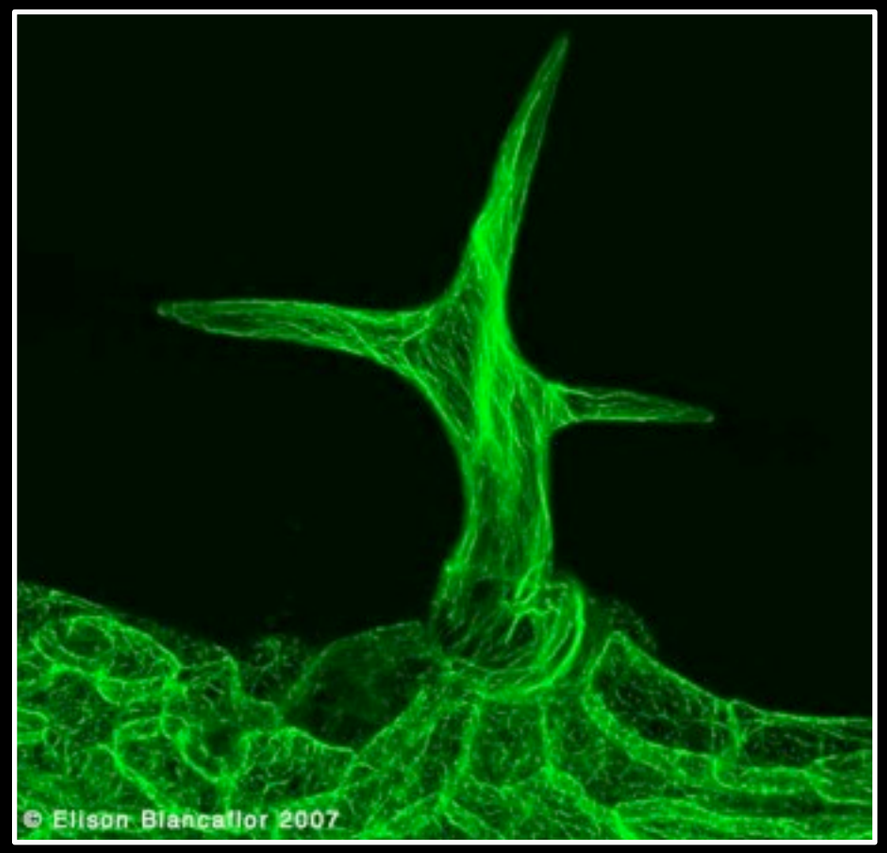
Digital Humanities: Virtual Paul's Cross





JOHN WALL, JOSHUA STEPHENS, DAVID HILL

Visualization & Sonification

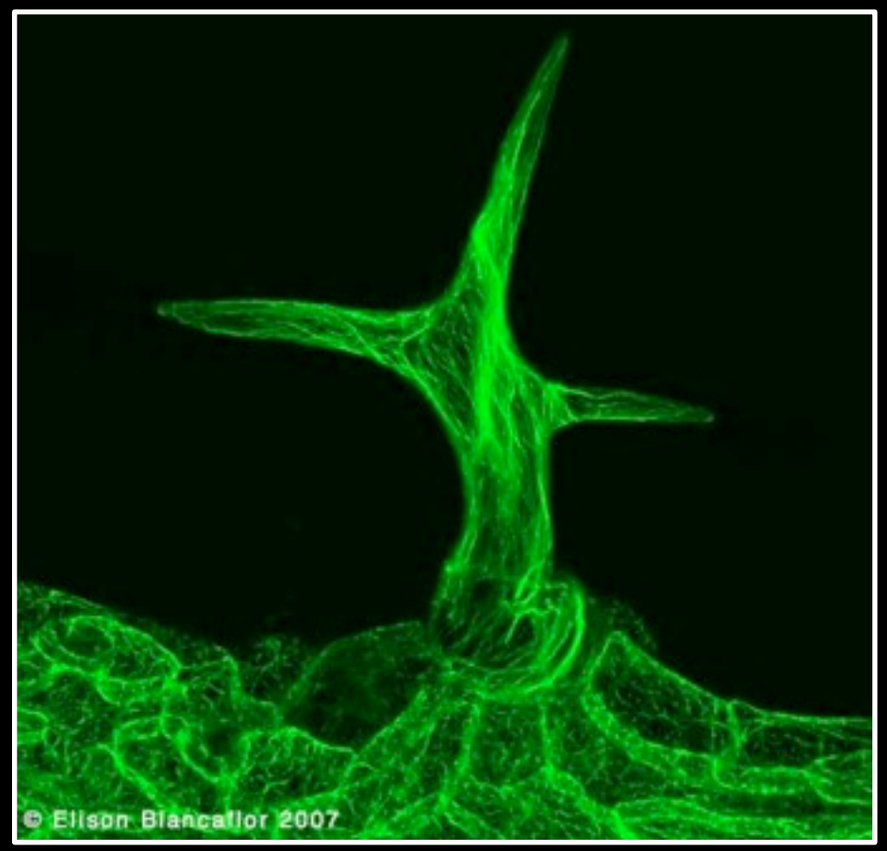


Rendered in Unity Game Engine

3D Sonification:
Aural Representation of Data in 3D Sound Space

NC STATE UNIVERSITY

Visualization & Sonification



3D Visualization:
Plant Cell component mobility through the cell wall
Rendered in Unity Game Engine

3D Sonification:
Aural Representation of Data in 3D Sound Space

SINA BAHRAM

ACC
MCAA
Ask Us

Comments, Questions?

Comments,
Questions?