

BIOENGINEERING BUILDING

VICTORIA RIEDINGER
TECH REPORT III



BUILDING OVERVIEW

BUILDING NAME - Bioengineering Building

LOCATION - Eastern Region, USA

OCCUPANCY TYPE - Research Facility

SIZE - 184,239 GSF

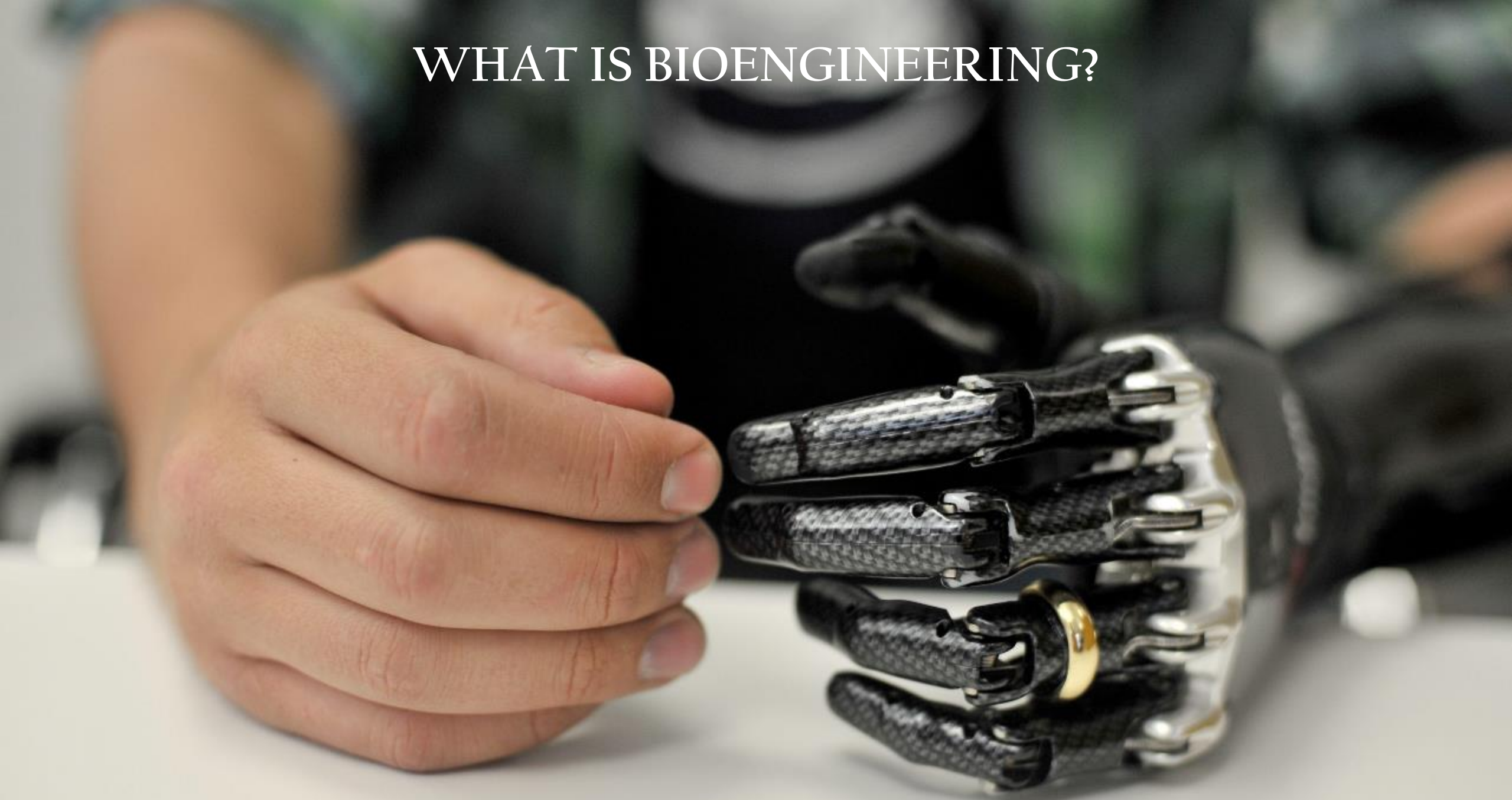
FLOORS ABOVE GRADE - 6

CONSTRUCTION DATES - July 2015-March 2017

TOTAL COST - \$120,000,000

PROJECT DELIVERY METHOD - Design-Bid-Build

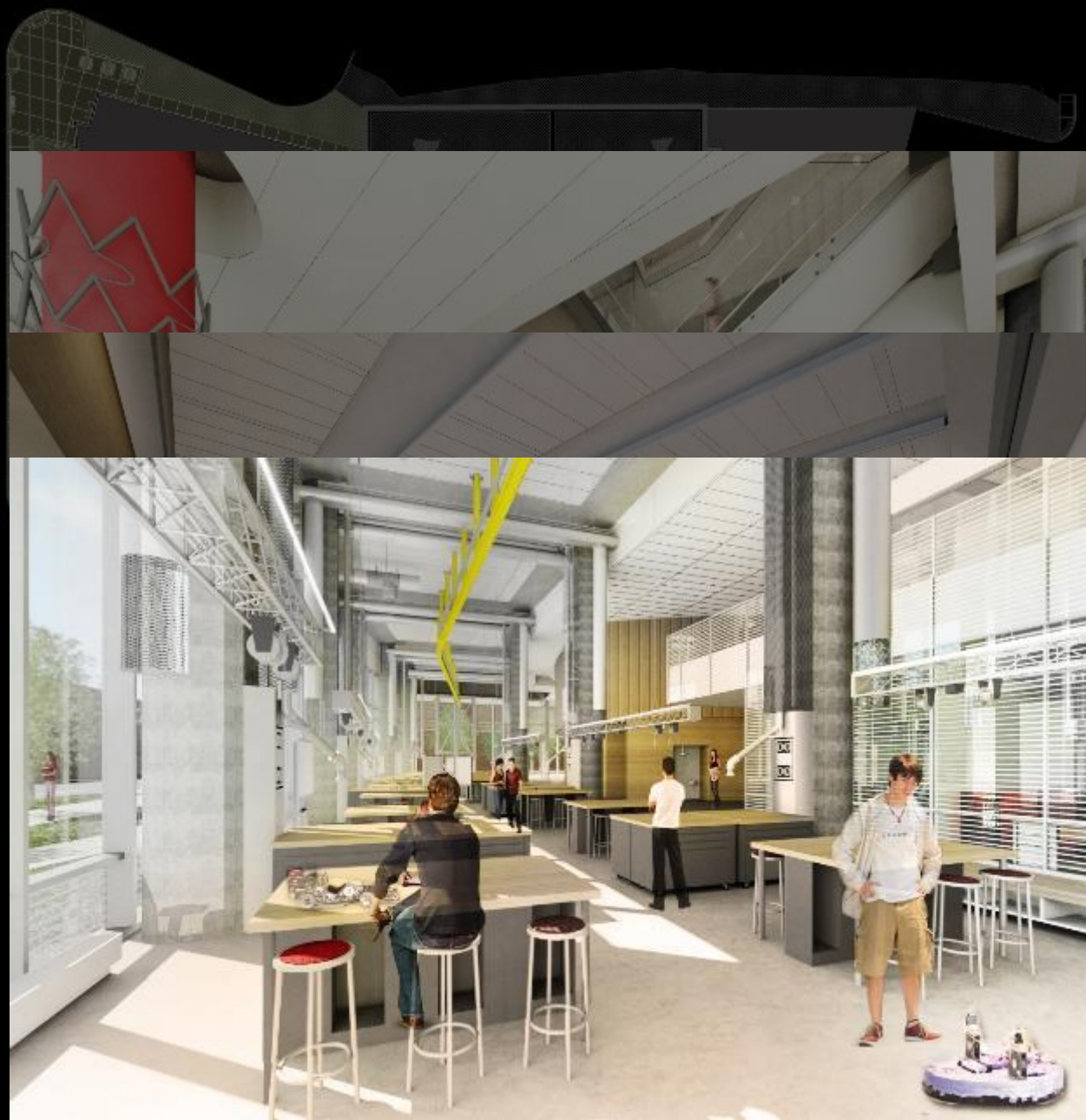
WHAT IS BIOENGINEERING?



















the
body



the hair



EXTERIOR PLAZA

QUANTITATIVE CRITERIA

Walkways:

E_h : 0.5 fc at grade

LPD: 0.2 W/ft² or 1 W/ft of walkway length

Entries:

E_h : 1 fc at grade

LPD: 30 W/ft of door width at main entry

LPD: 30 W/ft of door width at main entry

Entry Canopies:

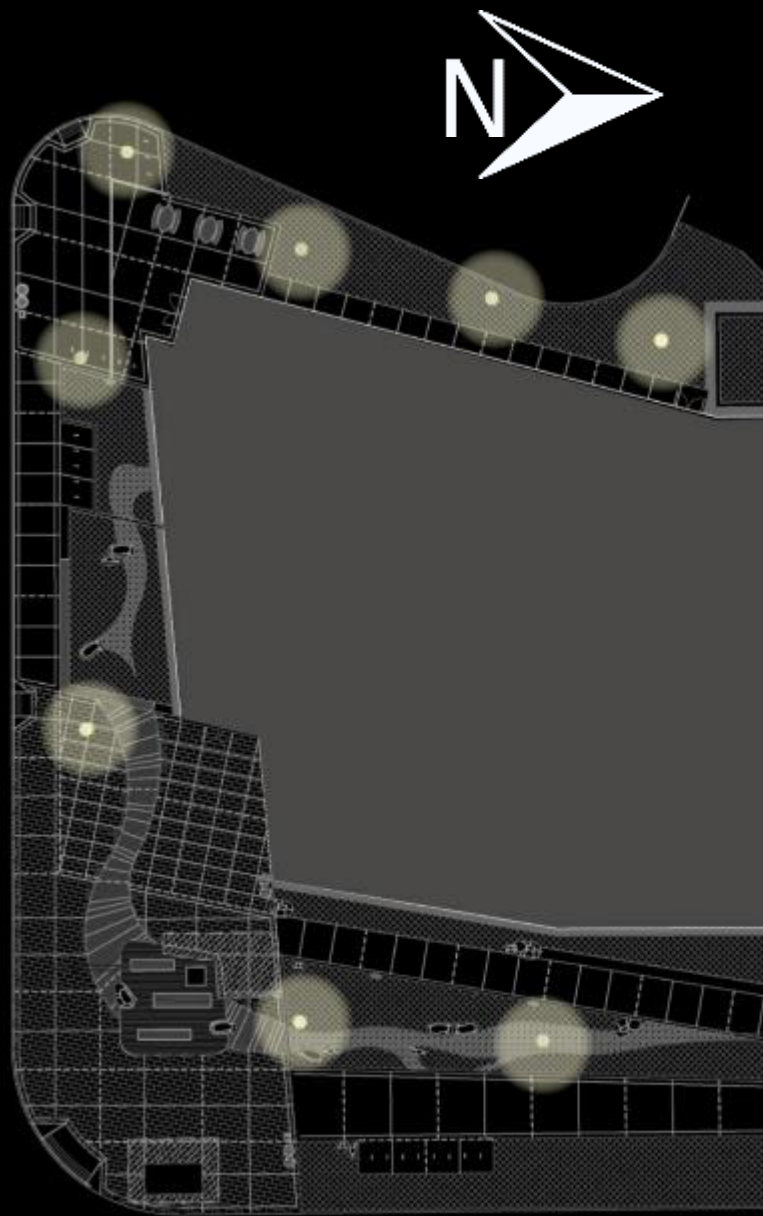
E_h : 4 fc at grade

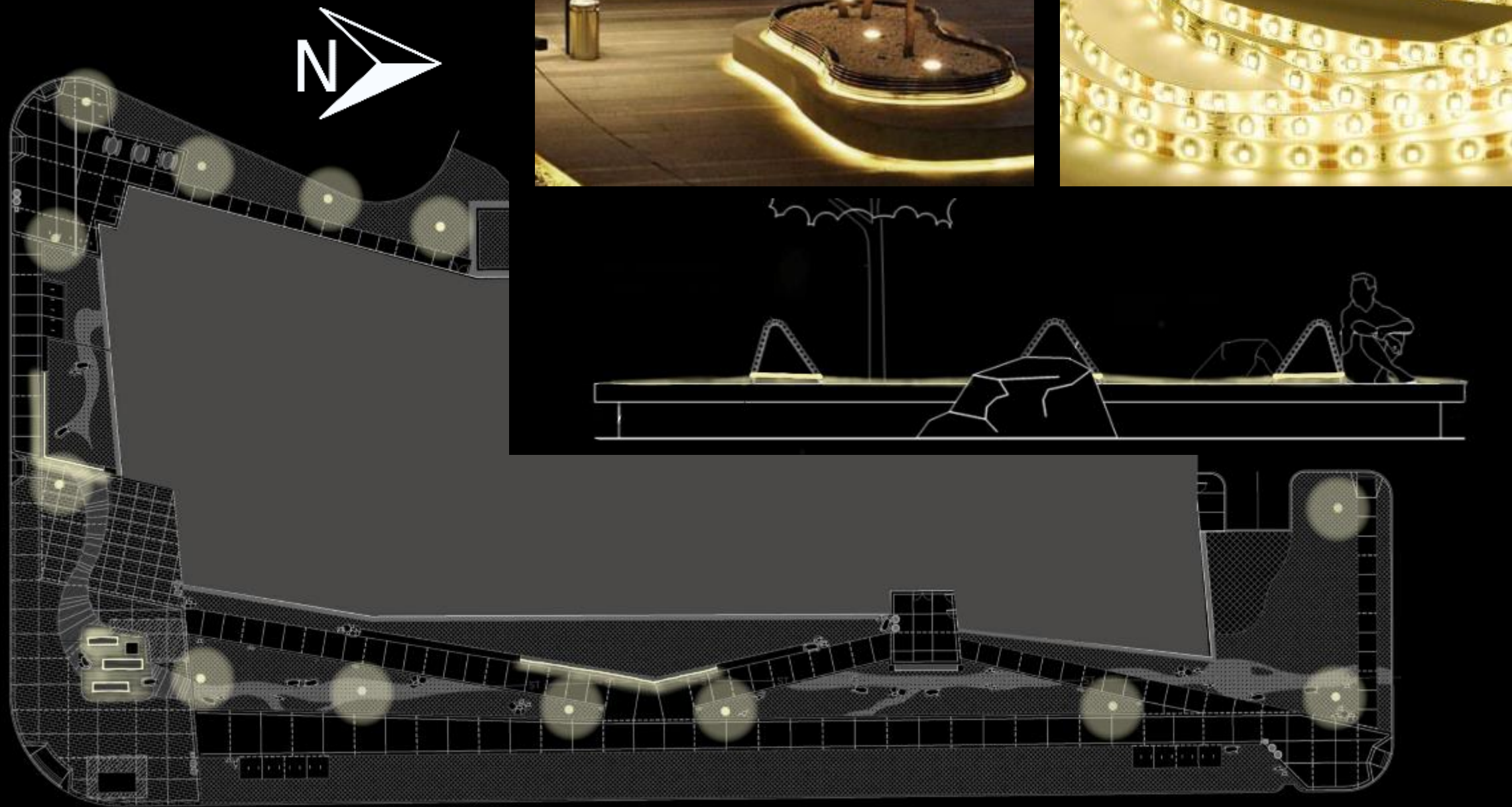
LPD: 0.4 W/ft²

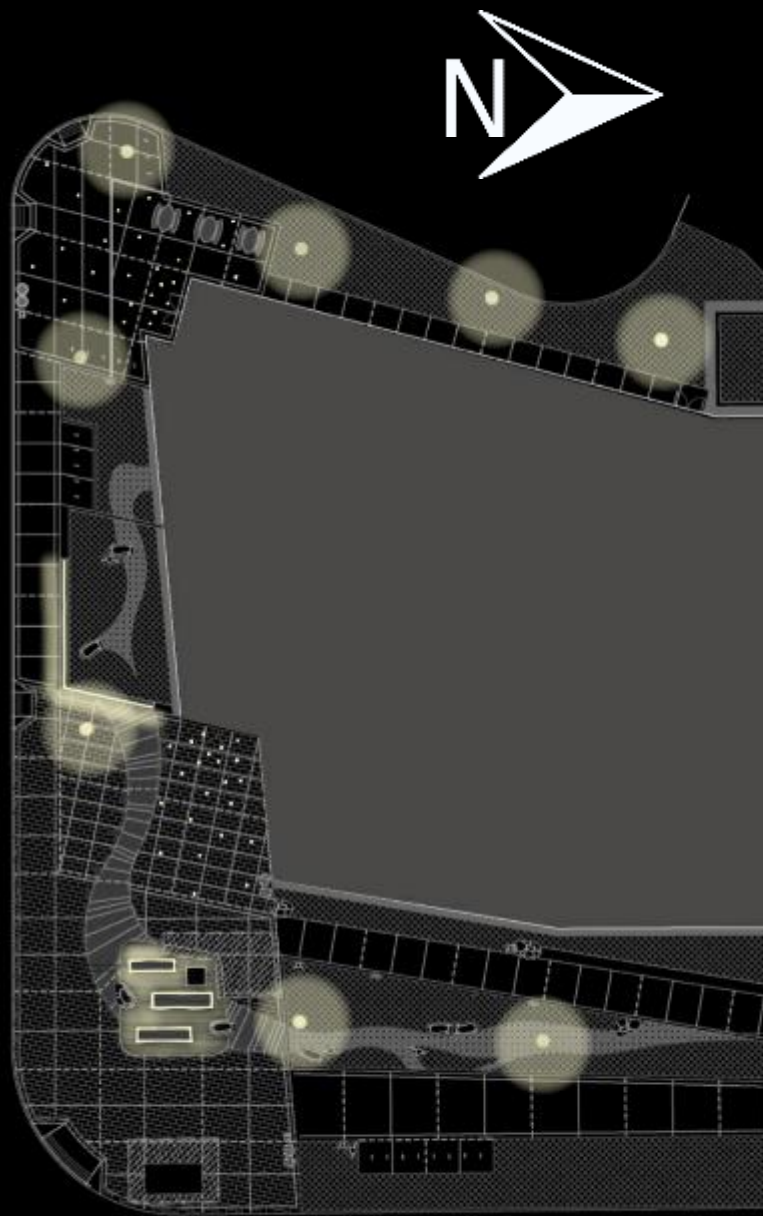
QUALITATIVE CRITERIA

- connection to surrounding buildings
- Transition
- relaxation
- safety
- Places for gathering
- consider light spill from building interior











LOBBY

QUANTITATIVE CRITERIA

Daytime:

E_h (at building entry): 10 fc at floor
 E_v : 5 fc at 5'
Uniformity (avg to min): 3:1
LPD: 1.36 W/ft²

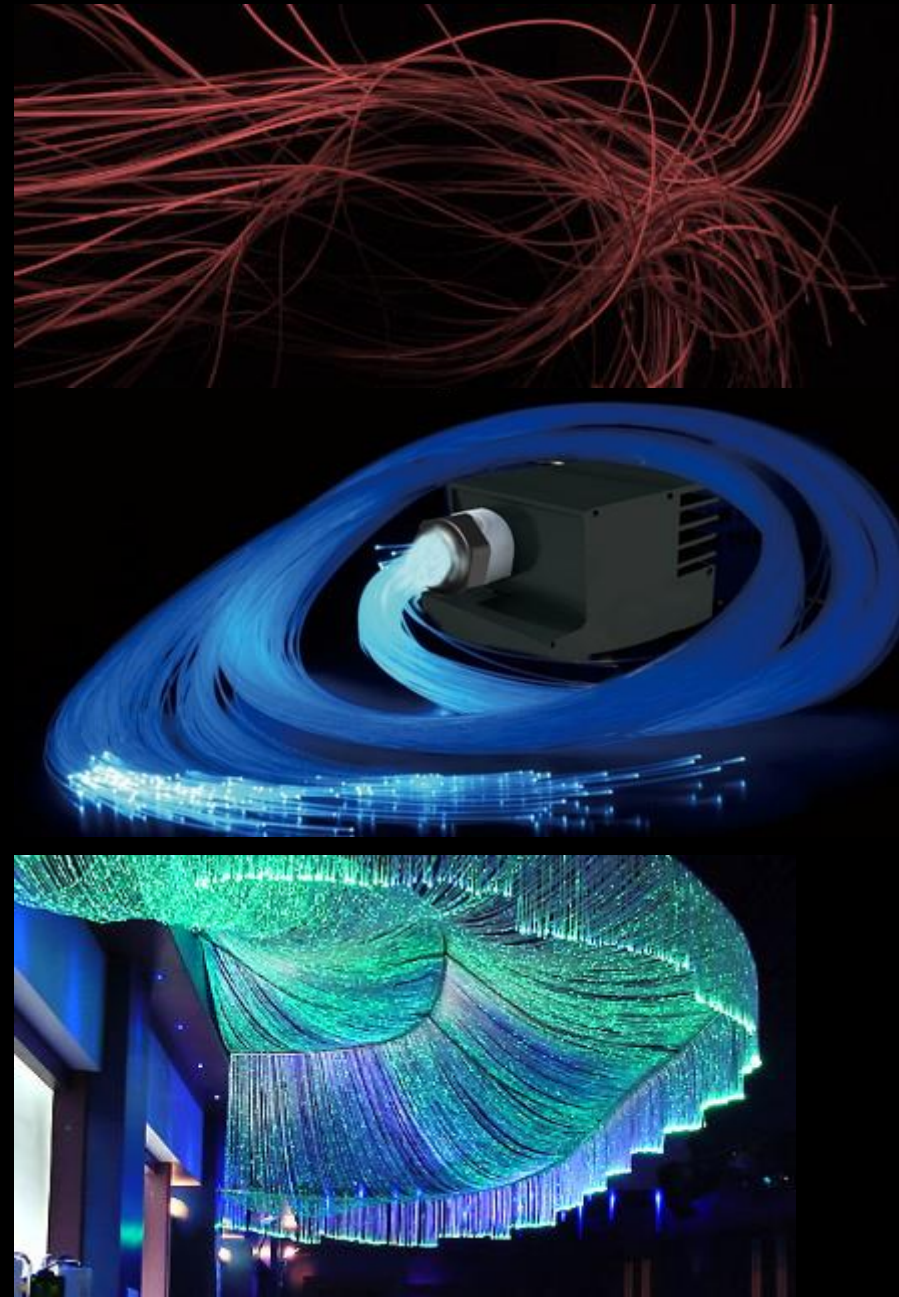
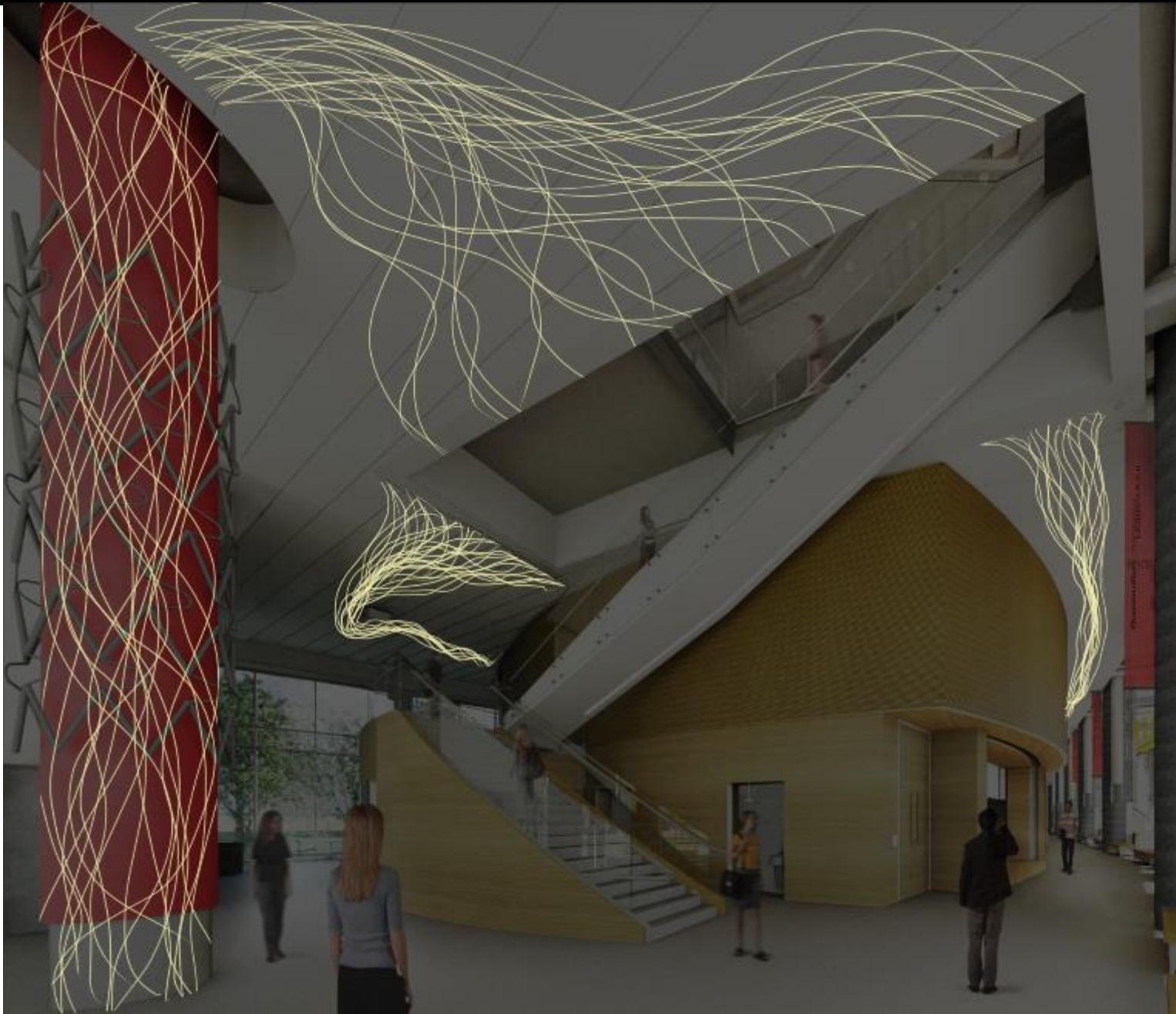
Night time:

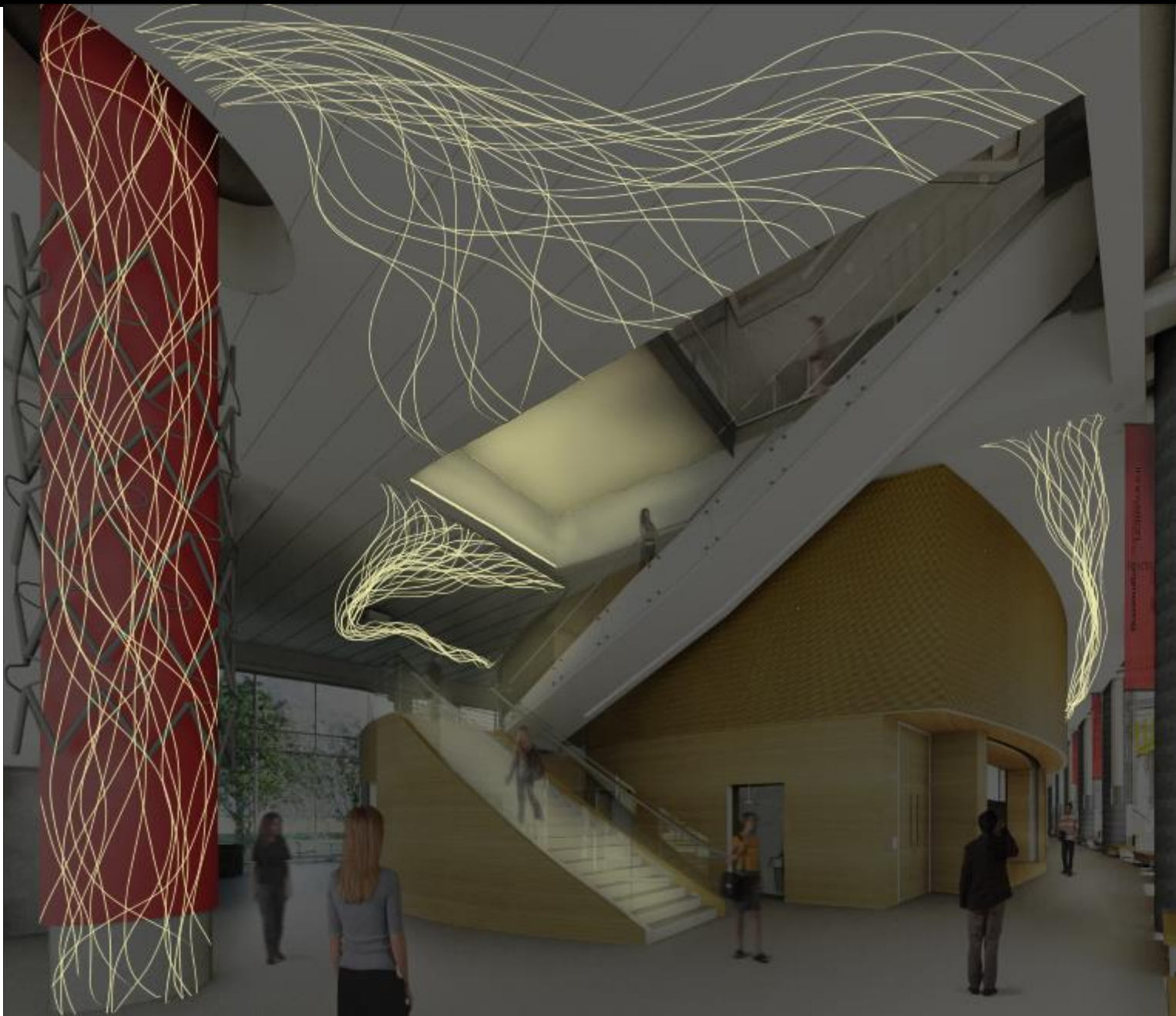
E_h : 5 fc at floor
 E_v : 2 fc at 5'
Uniformity (avg to min): 3:1
LPD: 1.36 W/ft²

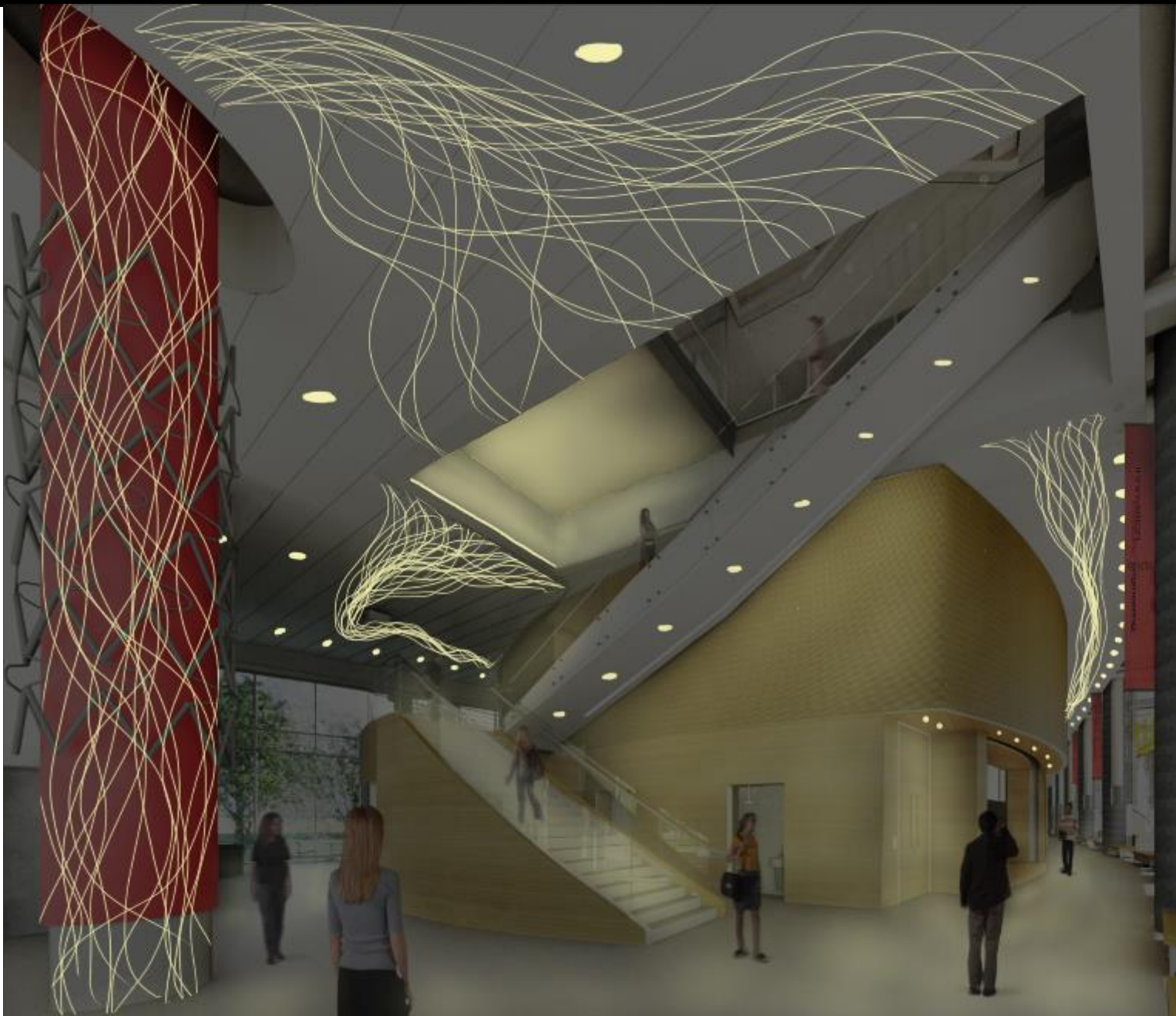
QUALITATIVE CRITERIA

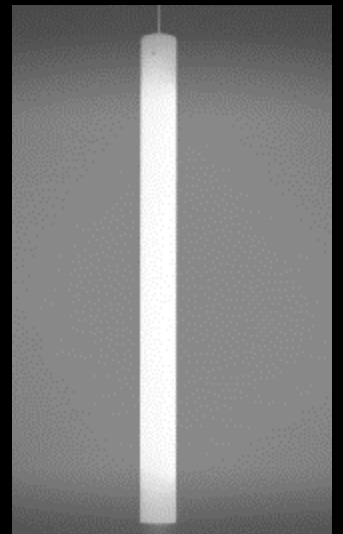
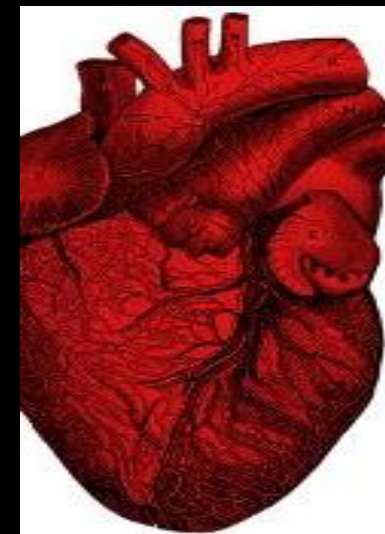
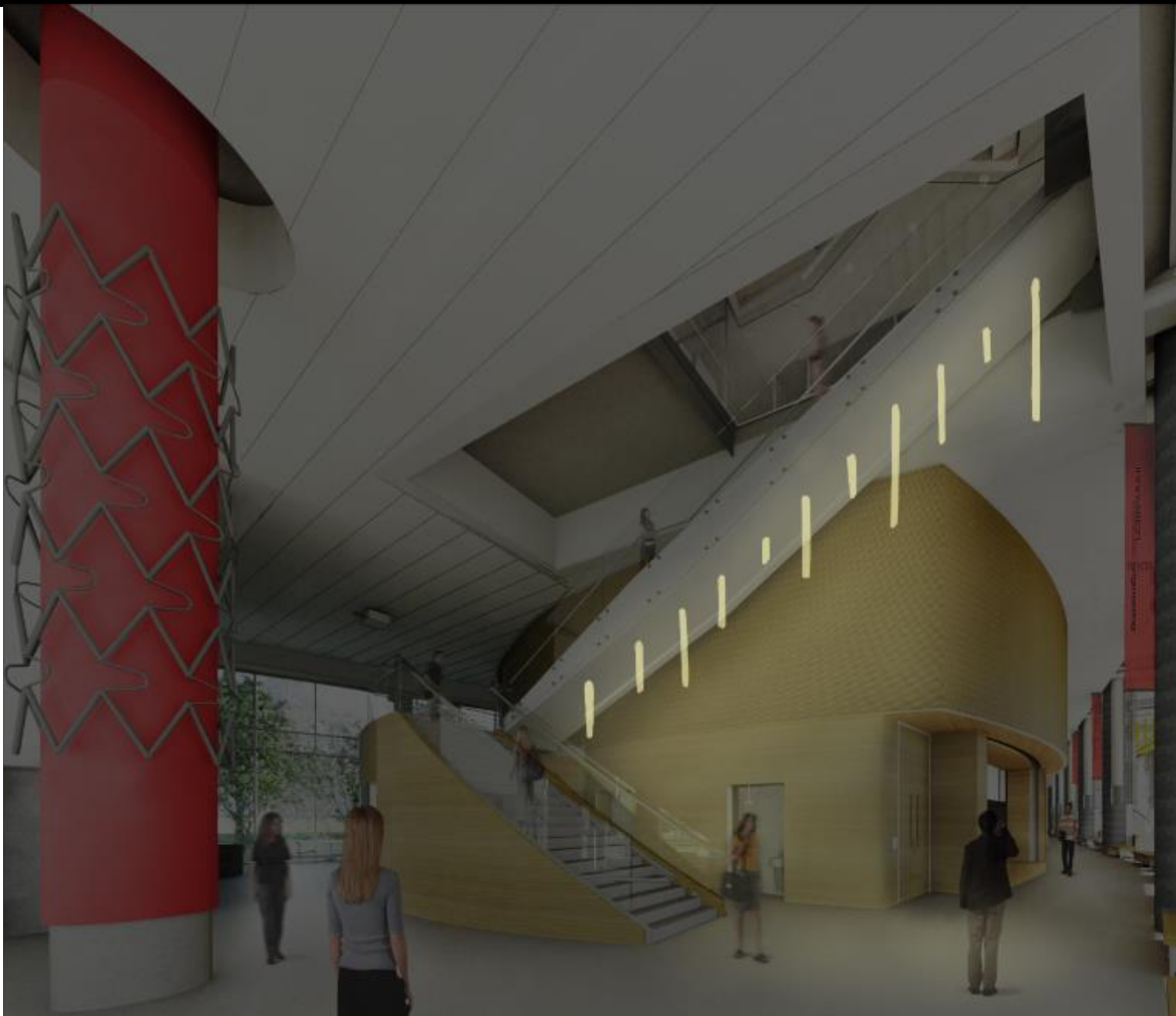
- Heart of the building
- Main entry
- Transition
- Wayfinding
- Height of space
- Connection to adjacent spaces

- 3 designs



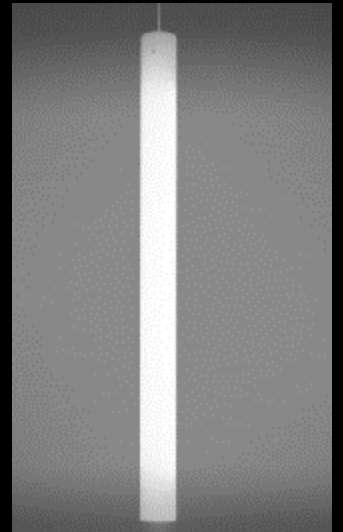
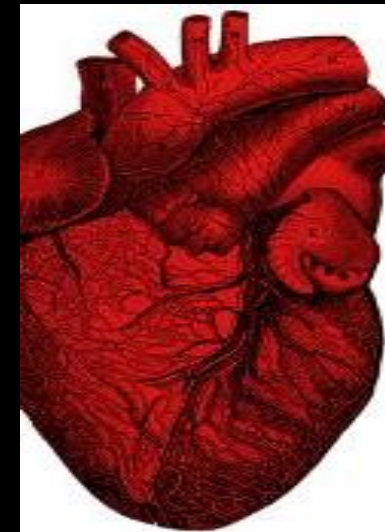
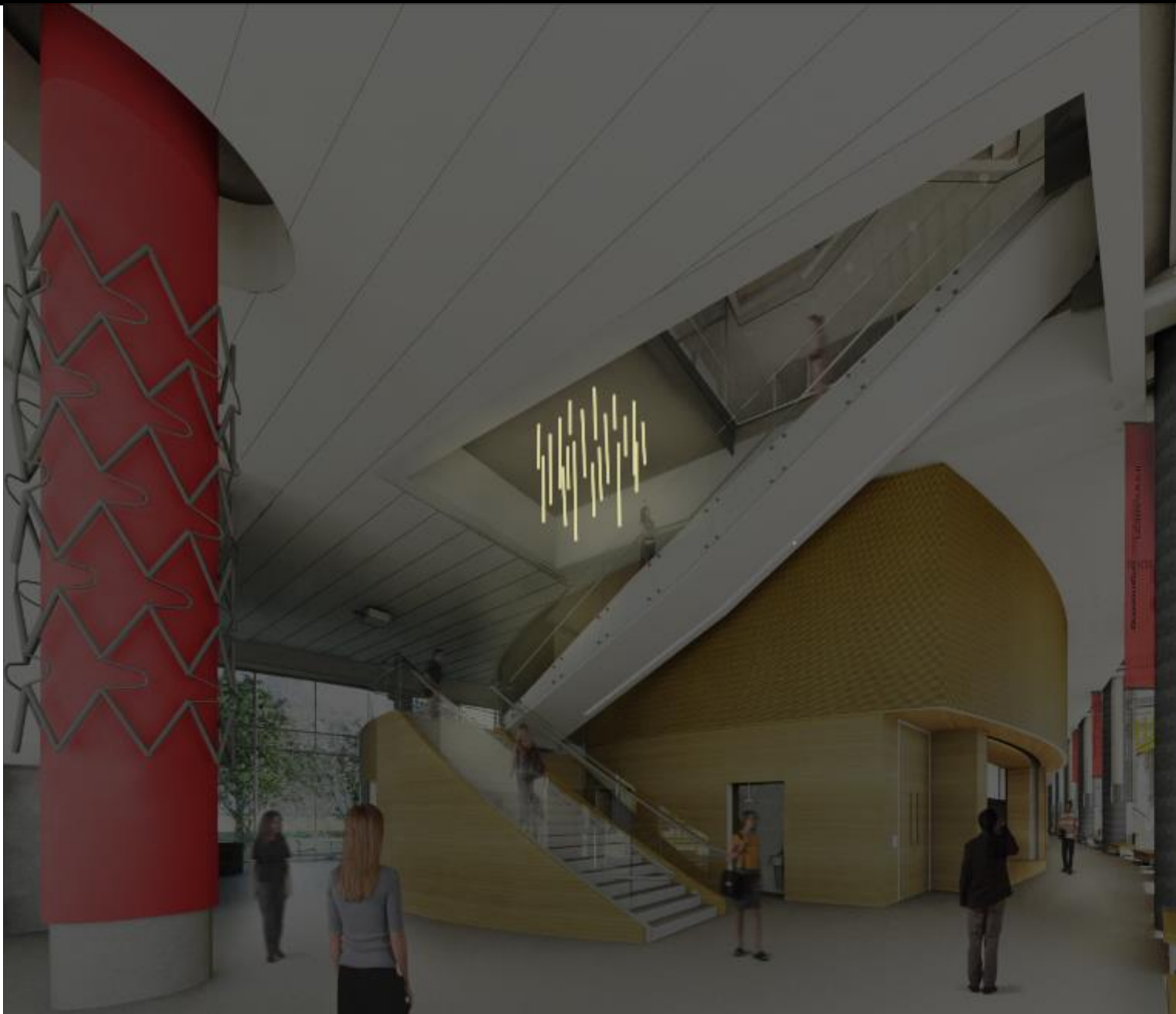


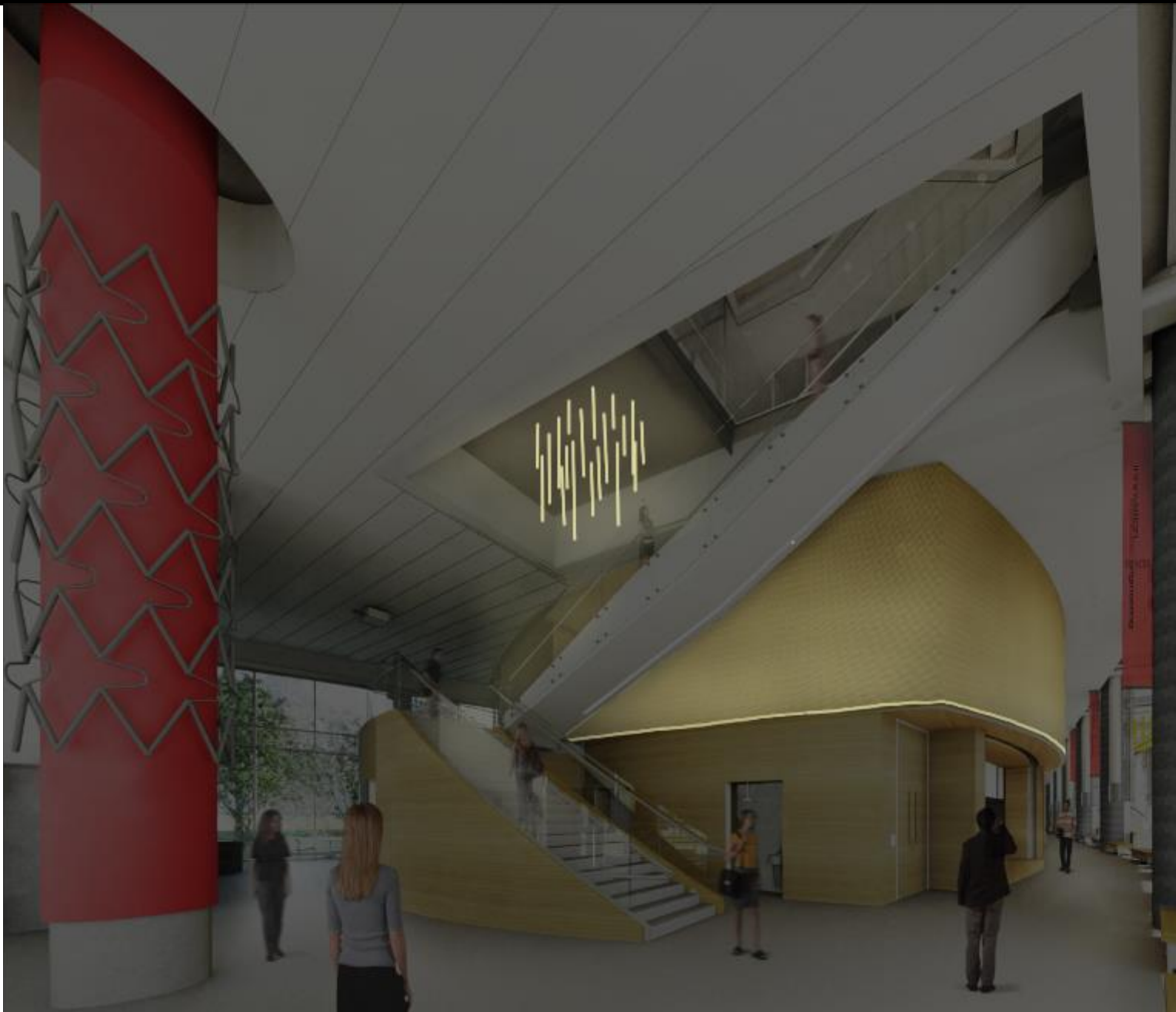


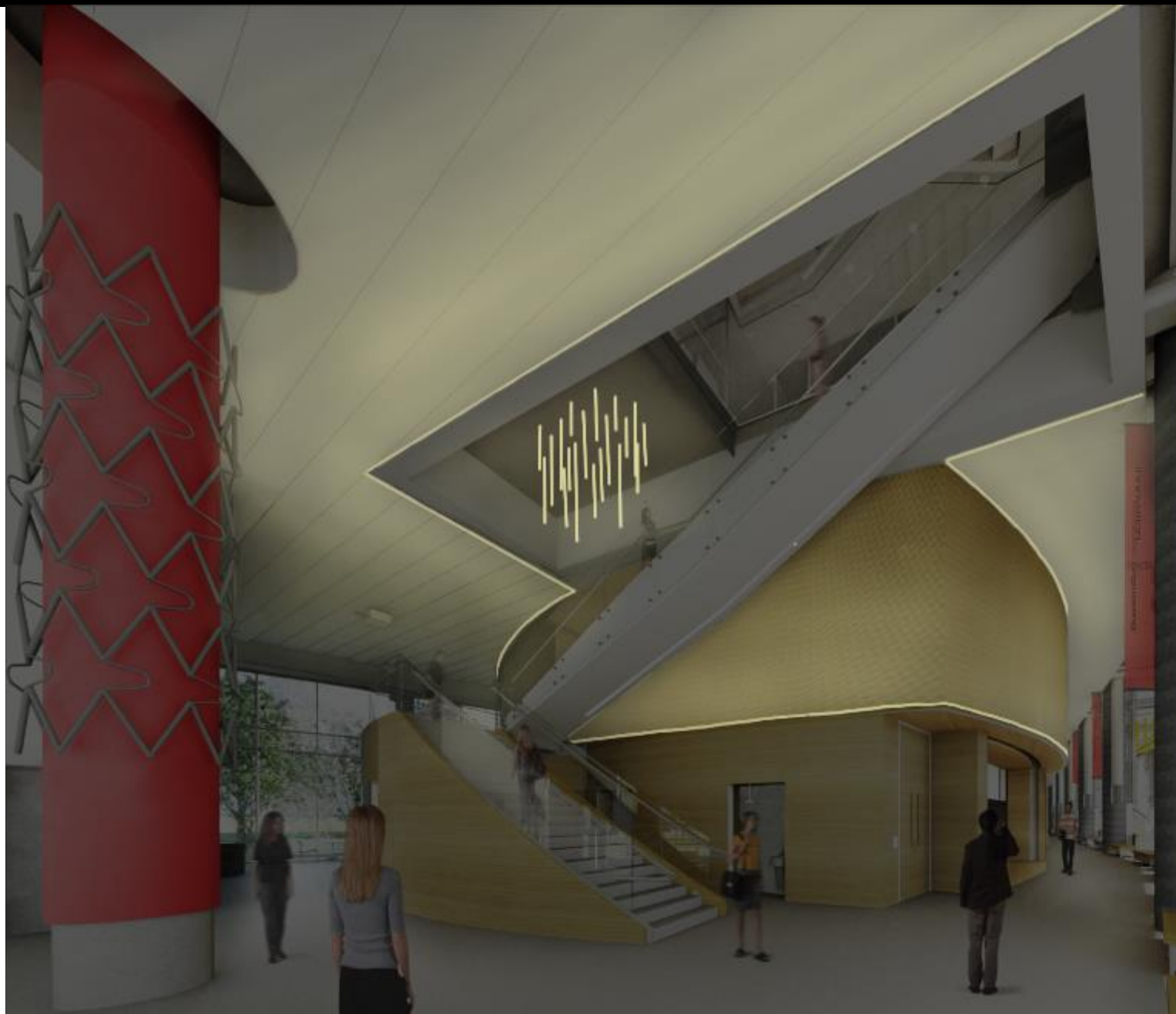




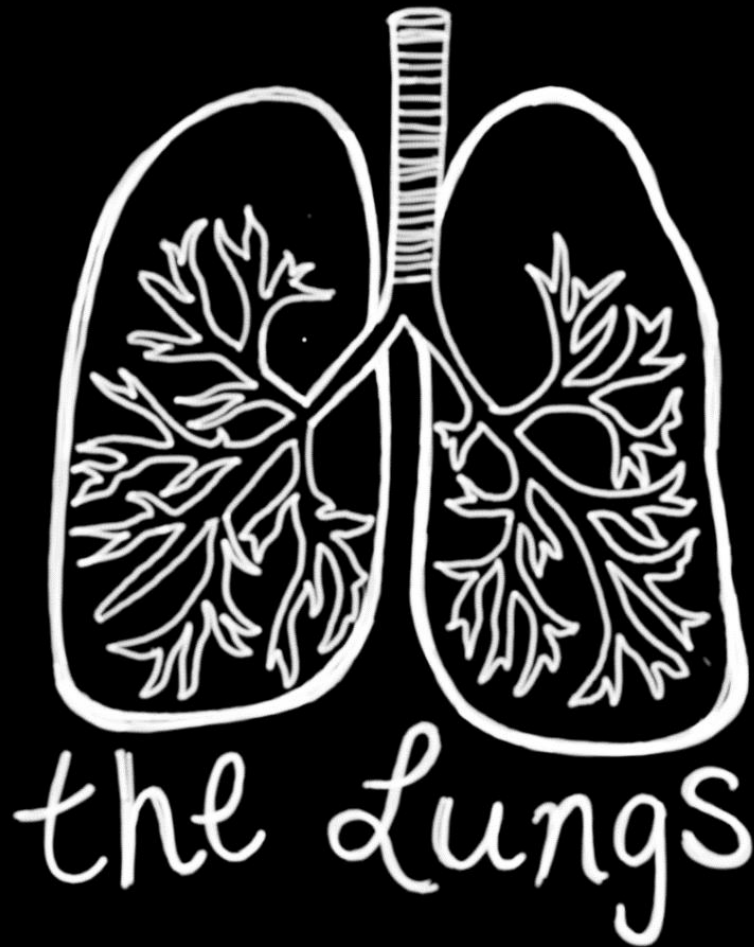












FLEX CLASSROOM

QUANTITATIVE CRITERIA

Lectures w/ AV and notes Scene:

E_h : 5 fc at 2'

E_v : 1.5 fc at 4'

E_v (at screen): 1.5 fc at 4'

Uniformity (avg to min): 2:1

LPD: 1.24 W/ft²

Classroom Scene:

E_h : 40 fc at 2.5'

E_v : 1.5 fc at 4'

Uniformity (avg to min): 2:1

LPD: 1.24 W/ft²

QUALITATIVE CRITERIA

- Flexibility
 - Variety of spaces (1, 2, or 4 spaces)
 - Lecture vs. Event gathering
 - Illuminance
 - Uniformity
 - Controls
-
- Psychological Impression: Public vs Private
 - Public- Events
 - Private- Classroom instruction









FLEX LAB

QUANTITATIVE CRITERIA

Lab Bench:

E_h : 50 fc at 3'

E_v : 30 fc at 4'

Uniformity (avg to min): 1.5:1

LPD: 1.81 W/ft²

Demonstration Area:

E_h : 100 fc at 3'

E_v : 30 fc at 4.5'

Uniformity (avg to min): 3:1

LPD: 1.81 W/ft²

QUALITATIVE CRITERIA

- Illuminance
- Uniformity
- Daylighting influence
- Controls
- Individual task lighting
- Mechanical and lab equipment
- Openness to surrounding spaces
- Height of space









THANK YOU

SPECIAL THANKS TO:

BALLINGER
THE LIGHTING PRACTICE
DR. HOUSER