

# engineering center oakland university

lighting schematic initial design development presentation

JOHN CONLEY

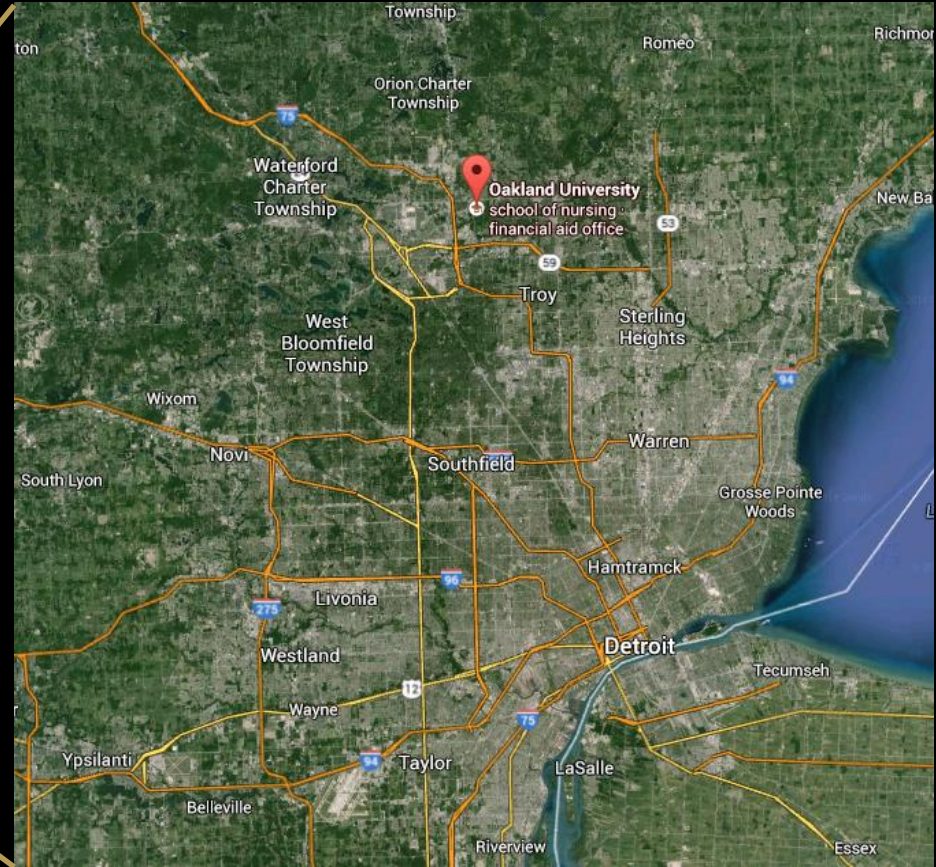
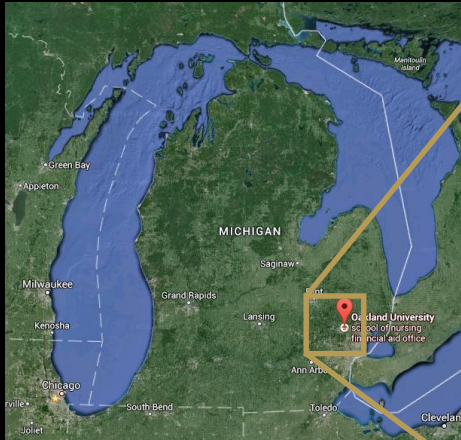


SMITHGROUPJJR

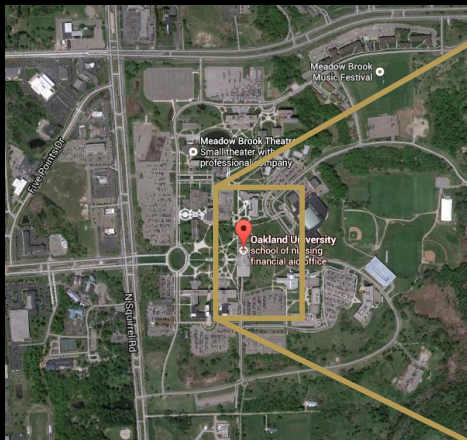
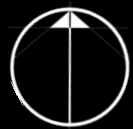
# | building

name	engineering center
location	rochester, mi
owner	oakland university school of engineering and computer science
size	136,653 sf
cost	\$57 million
architect	smithgroupjjr
construction	walbridge aldinger company

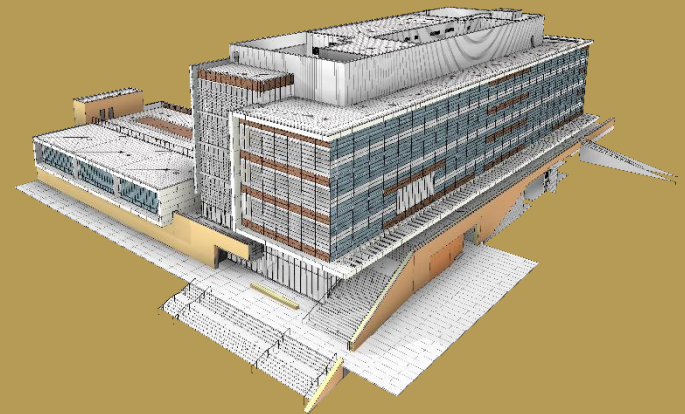
# location



# location



# program of the building



# | concept

## SECS Mission

In carrying out its mission the school will address the needs of the automotive and related industries in southeast Michigan for the:

- Education of engineers and computer scientists,
- Development of research programs and
- Fulfillment of the demands for professional service.

# | concept

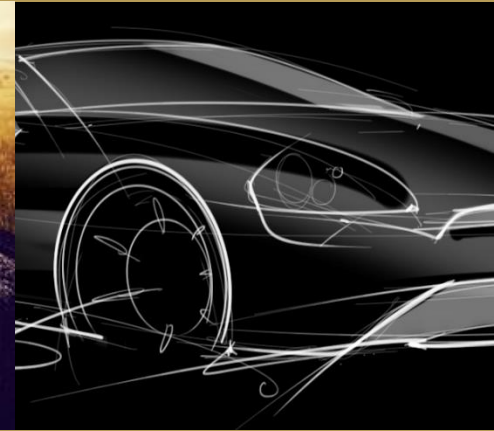
If GM had kept up with technology like the computer industry has, we would all be driving \$25 cars that got 1,000 MPG.

Bill Gates

Read more at <http://www.brainyquote.com/quotes/quotes/b/billgates389269.html#baOwi0zo3fVrzdpZ.99>

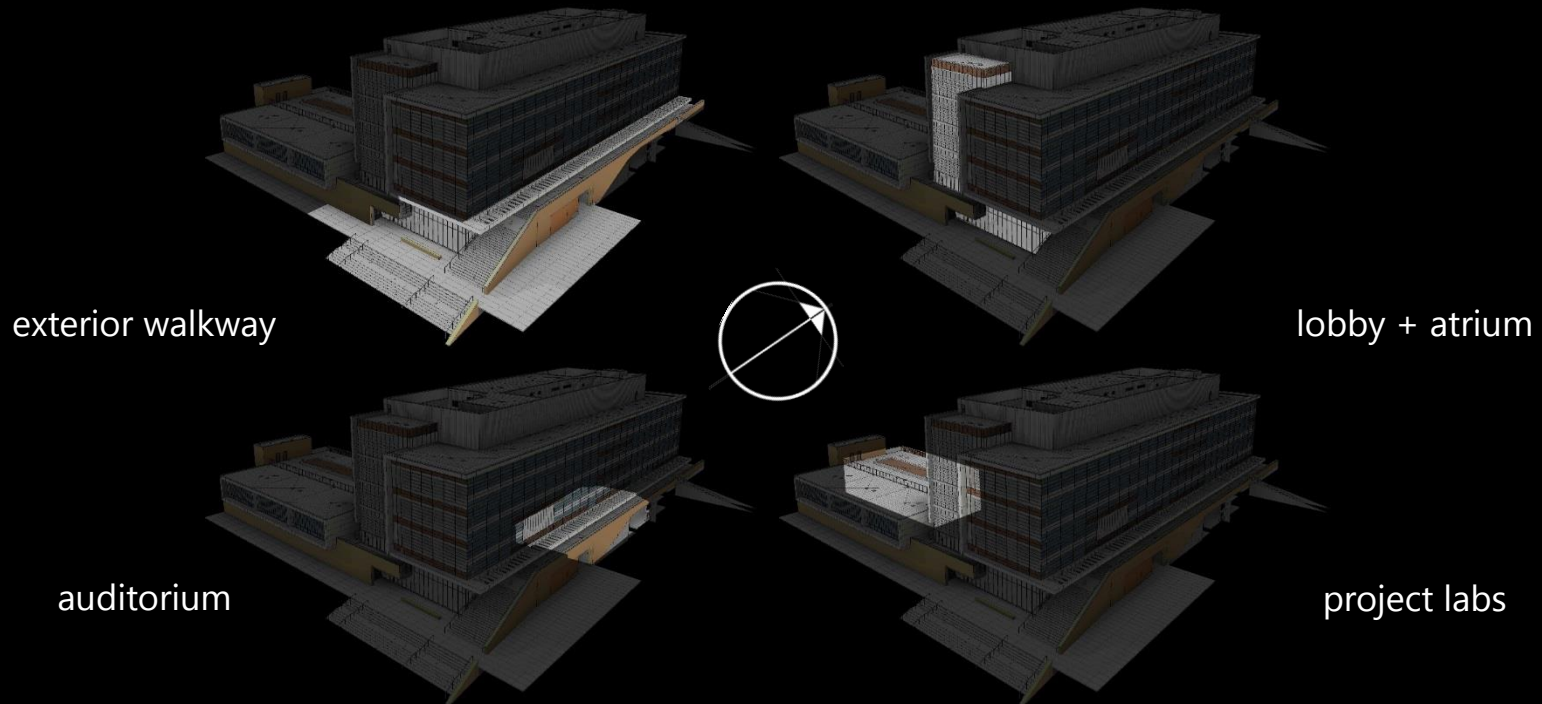
# | concept

## Paving the Road to Progress

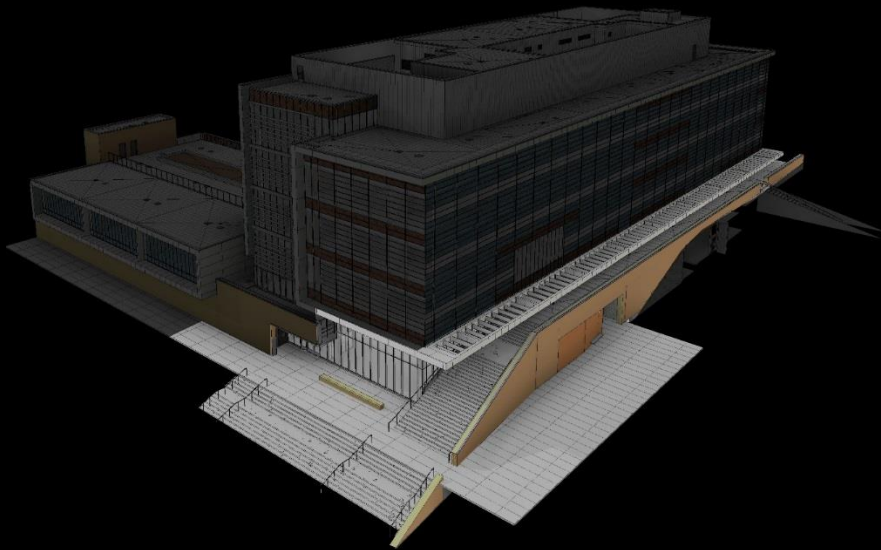




# spaces of interest



# exterior walkway



# exterior walkway

## design criteria

paths clearly laid out  
building as stop on the road  
campus safety  
minimize light to surroundings

$$\text{LPD} = 0.16 \text{ W/ft}^2$$

LZ2 moderate ambient light  
trespass criteria

$$E_h = 3 \text{ lux pre-curfew}$$

$$= 1 \text{ lux post-curfew}$$

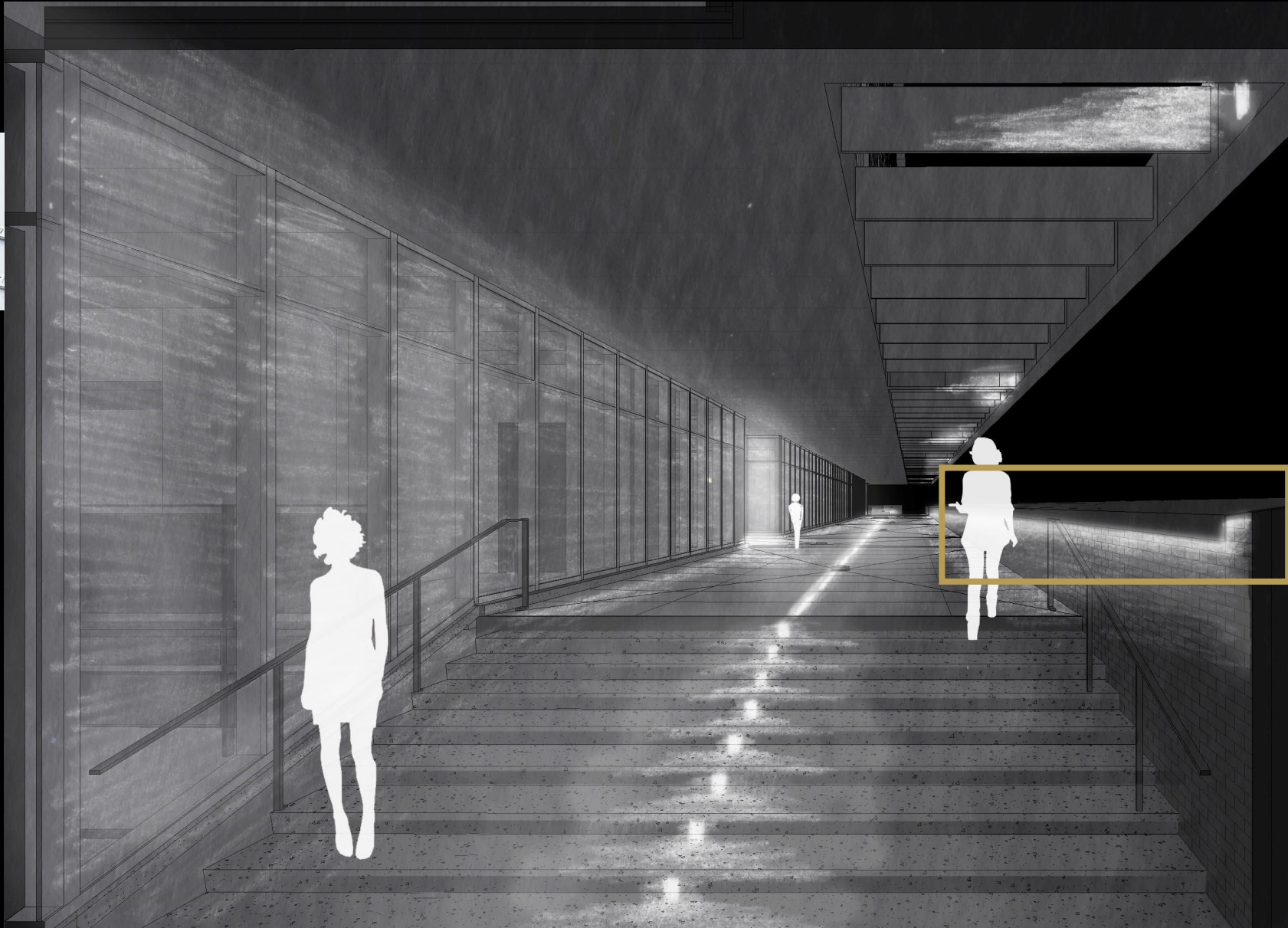
$$E_v = \text{N/A}$$



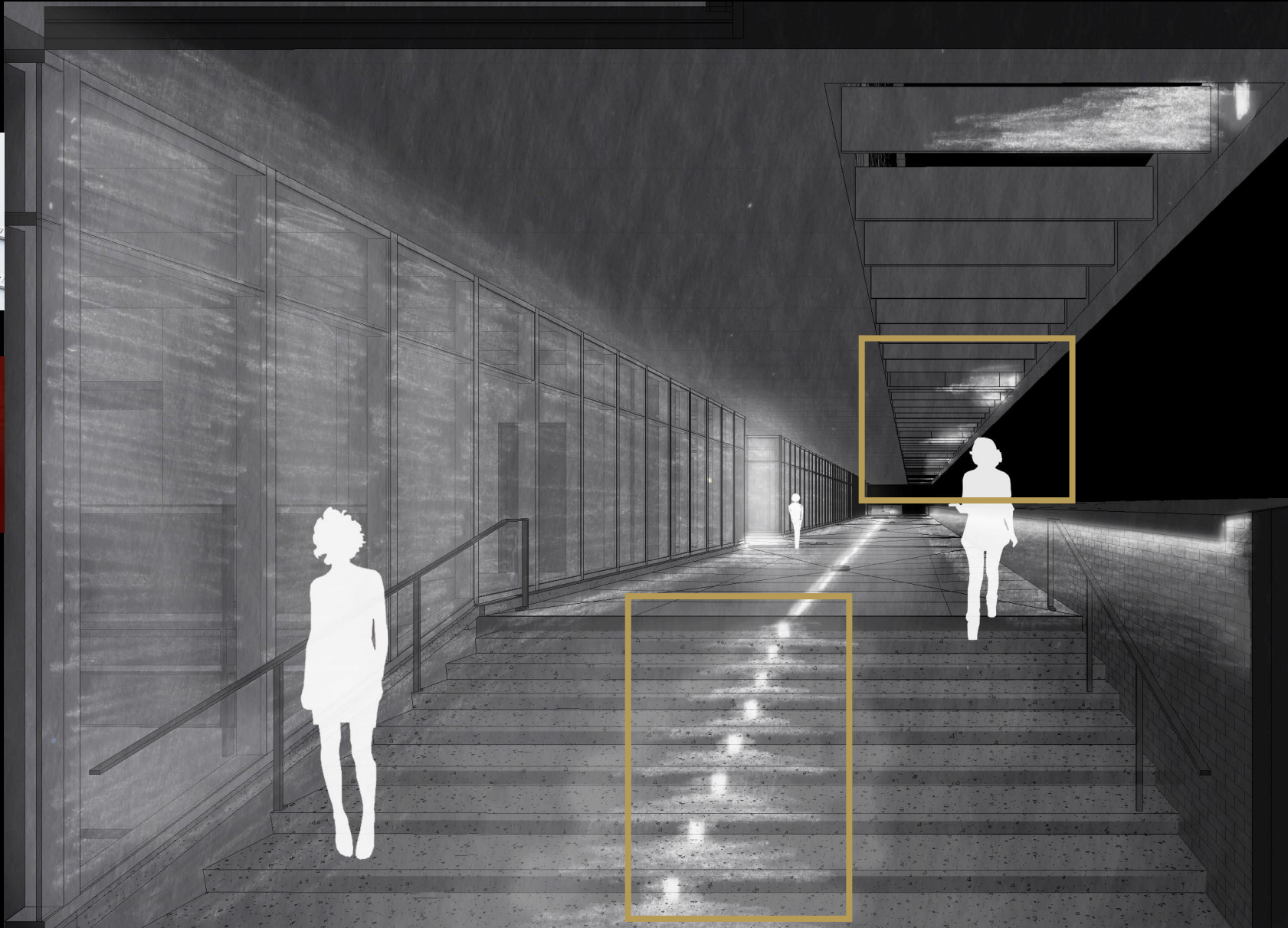
# exterior walkway



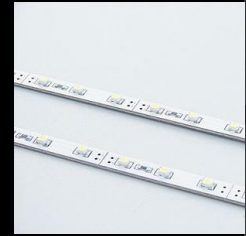
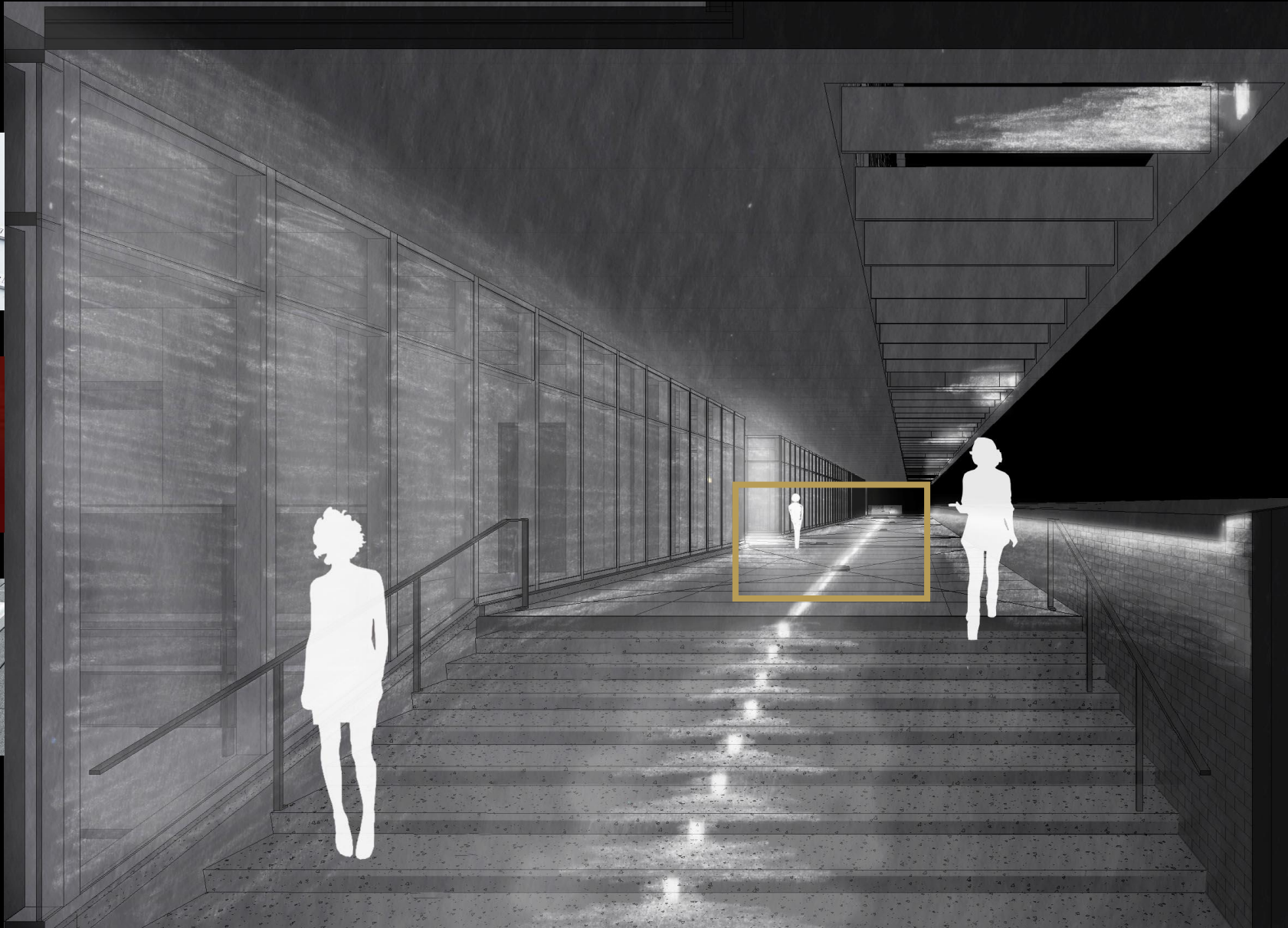
# exterior walkway



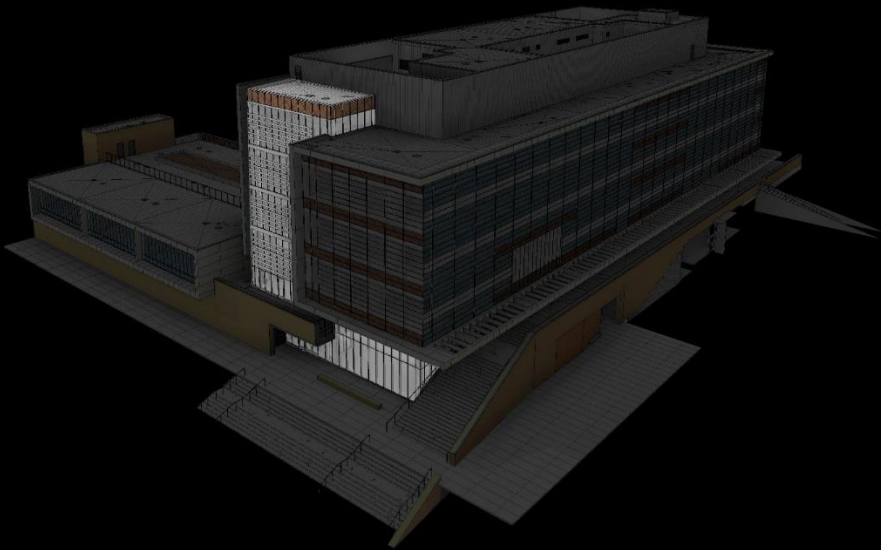
# exterior walkway



# exterior walkway



# | lobby + atrium





# lobby + atrium

## design criteria

paths clearly laid out  
architecture accented in clean lines  
points of higher traffic brighter  
points of respite with perimeter light

$$\text{LPD} = 1.23 \text{ W/ft}^2$$

Day

$$E_h = 100 \text{ lux}$$

$$E_v = 50 \text{ lux}$$

Night

$$E_h = 50 \text{ lux}$$

$$E_v = 20 \text{ lux}$$



# | lobby + atrium



# | lobby + atrium



# | lobby + atrium



# | lobby + atrium



# | lobby + atrium



# | lobby + atrium



# | lobby + atrium

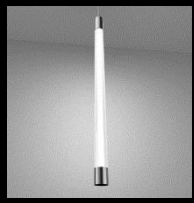




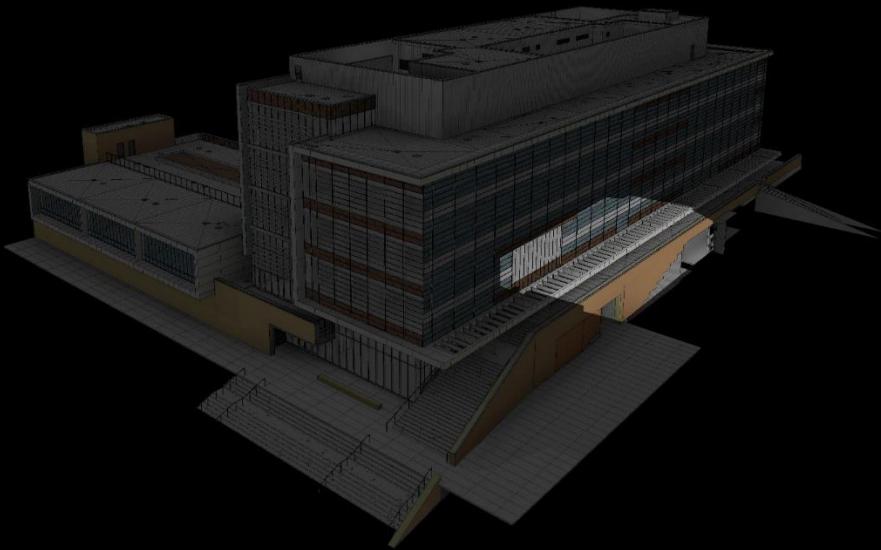
# | lobby + atrium



# | lobby + atrium



# | auditorium



# auditorium

race track

learn from the  
achievements of others



show room

let the world see your  
own achievements



crash testing

test your ideas against  
others



# auditorium

## design criteria

focus on the center  
perimeter highlighted  
rhythm + movement

$$\text{LPD} = 1.24 \text{ W/ft}^2$$

$$E_h = 300 \text{ lux}$$

$$E_v = 75 \text{ lux}$$

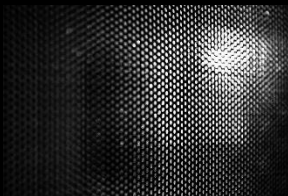
## race track



# auditorium



# auditorium



# auditorium

## design criteria

high-end feeling space

versatile

focused

$$\text{LPD} = 1.24 \text{ W/ft}^2$$

$$E_h = 300 \text{ lux}$$

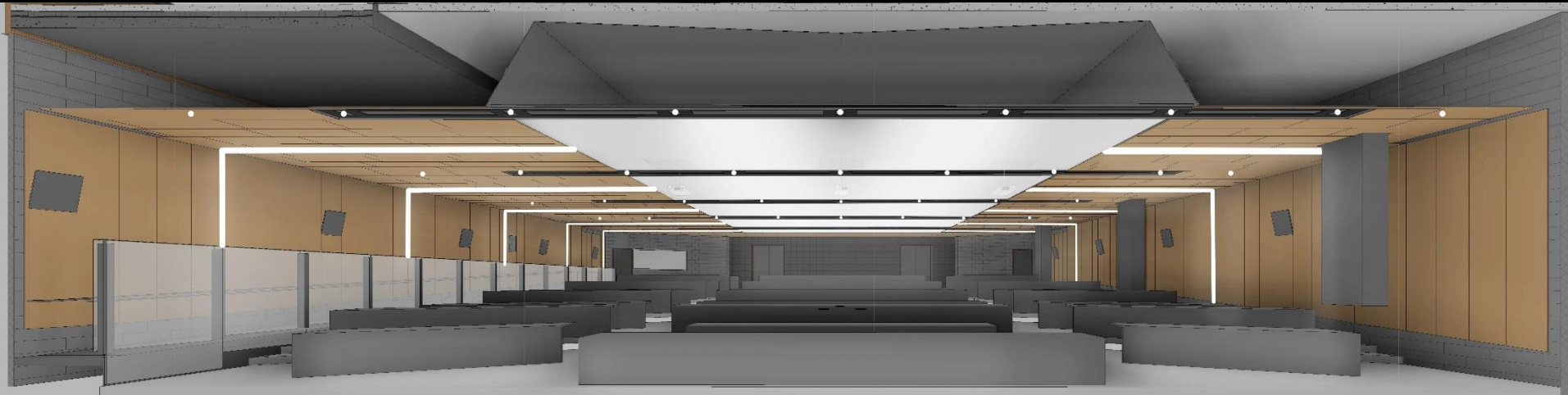
$$E_v = 75 \text{ lux}$$

## show room

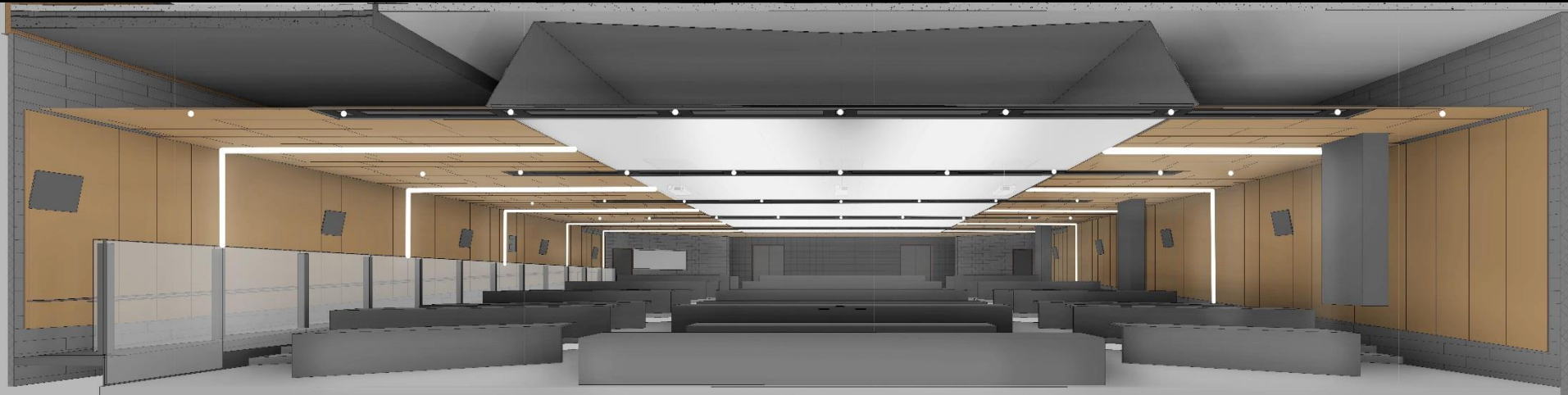




# auditorium



# auditorium



# auditorium

## design criteria

focus on the center  
light falls off at edges  
the interaction of ideas

$$\text{LPD} = 1.24 \text{ W/ft}^2$$

$$E_h = 300 \text{ lux}$$

$$E_v = 75 \text{ lux}$$

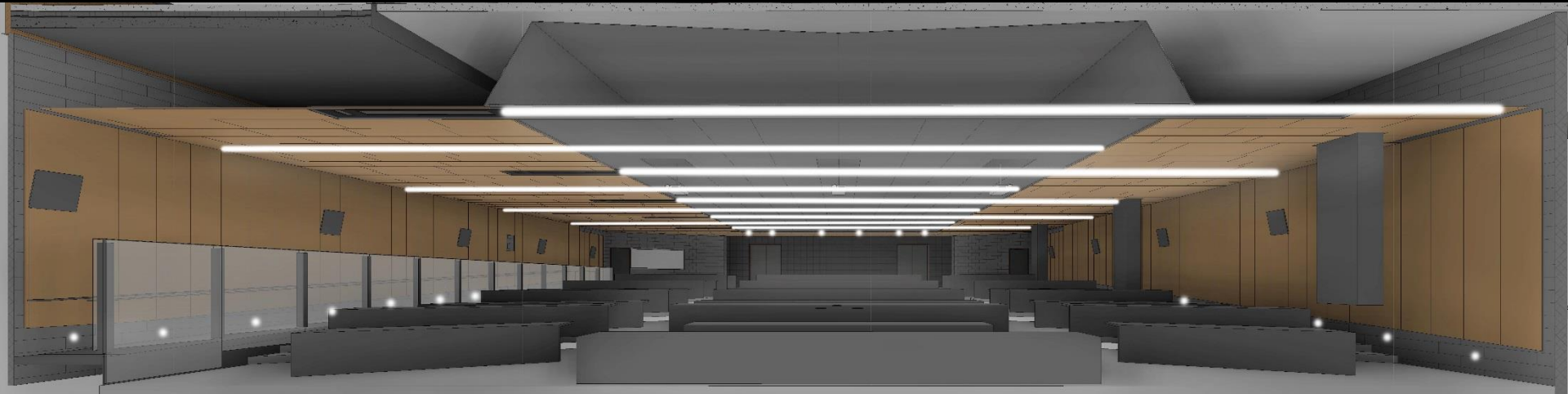
## crash testing



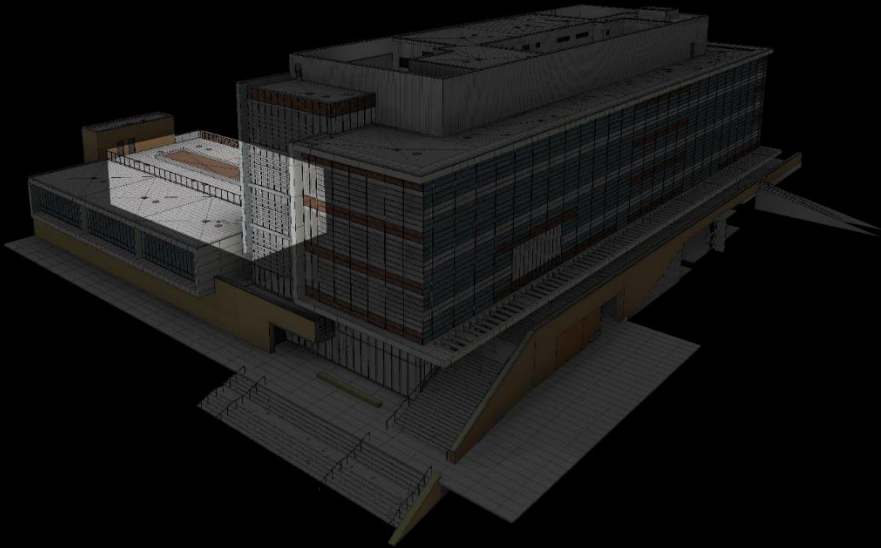
# auditorium



# auditorium



# | project labs



# project labs

## design criteria

starting gate of ideas  
very intensive task oriented  
shop + show room mix  
stylized industrial feel

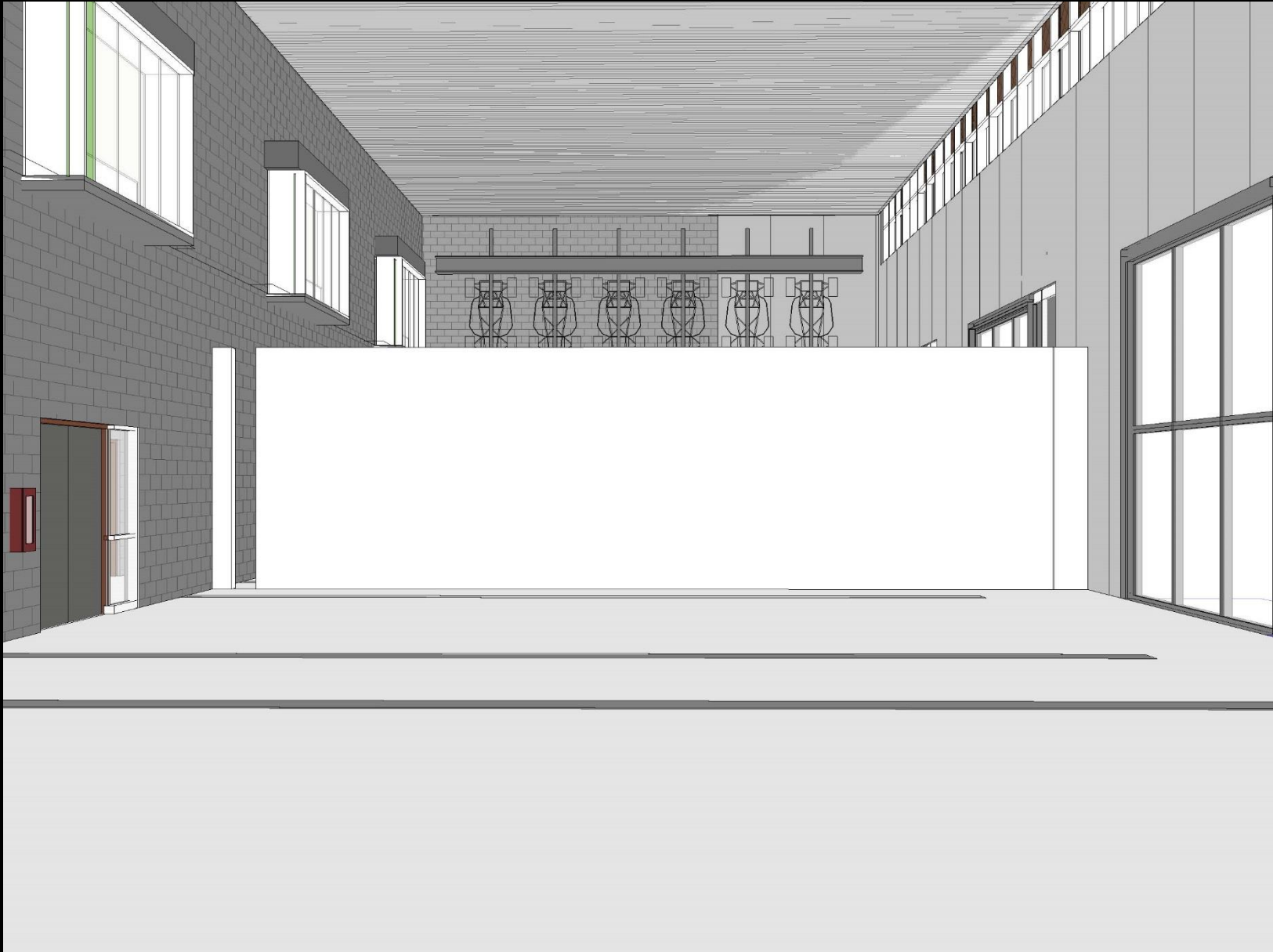
LPD = 1.4 W/ft<sup>2</sup>

$E_h = 1000 \text{ lux}$

$E_v = 500 \text{ lux}$

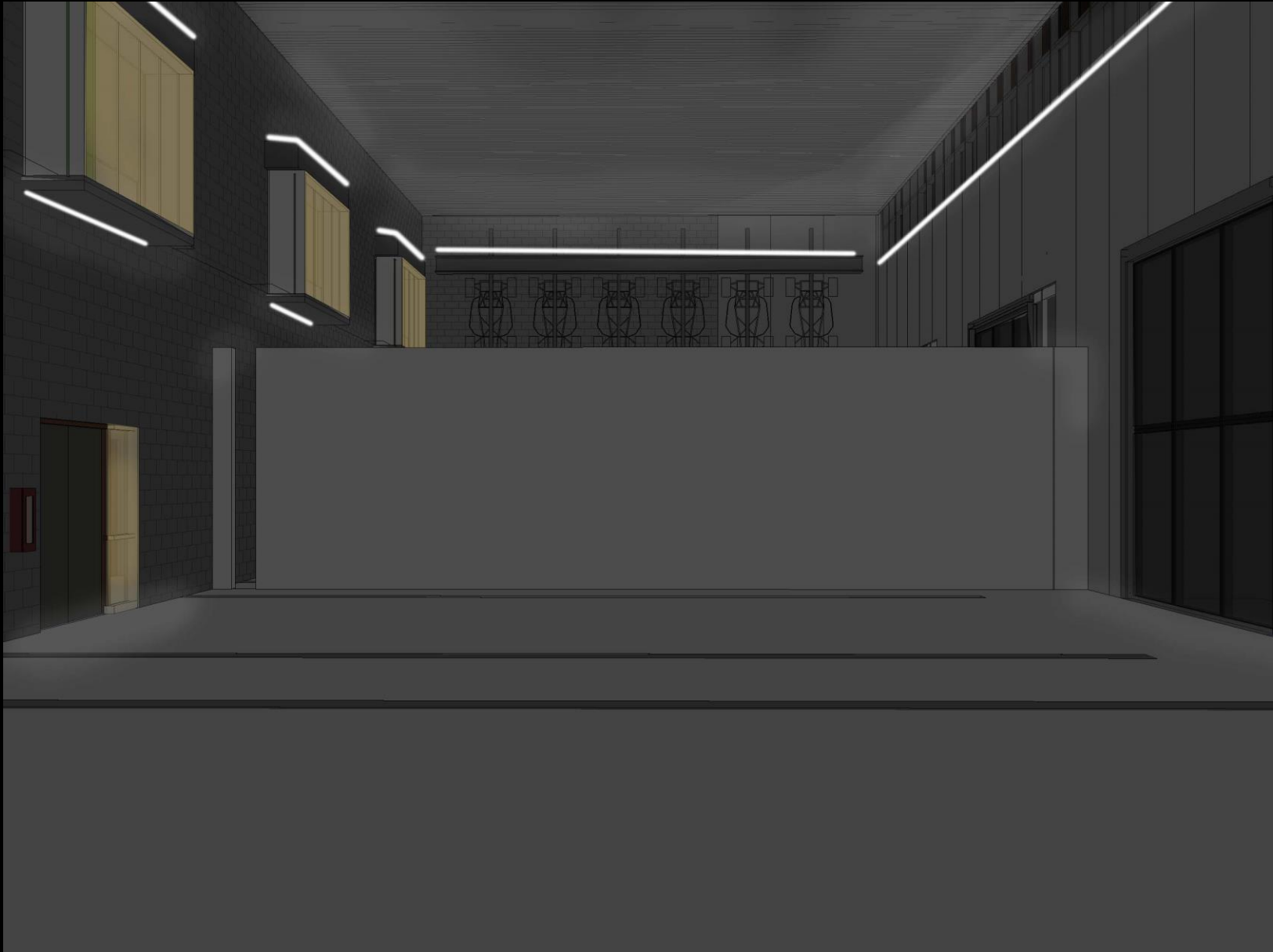
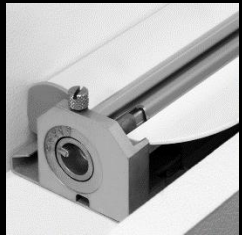


# | project labs

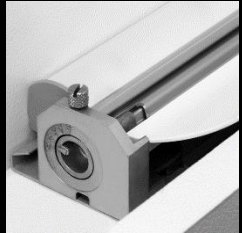




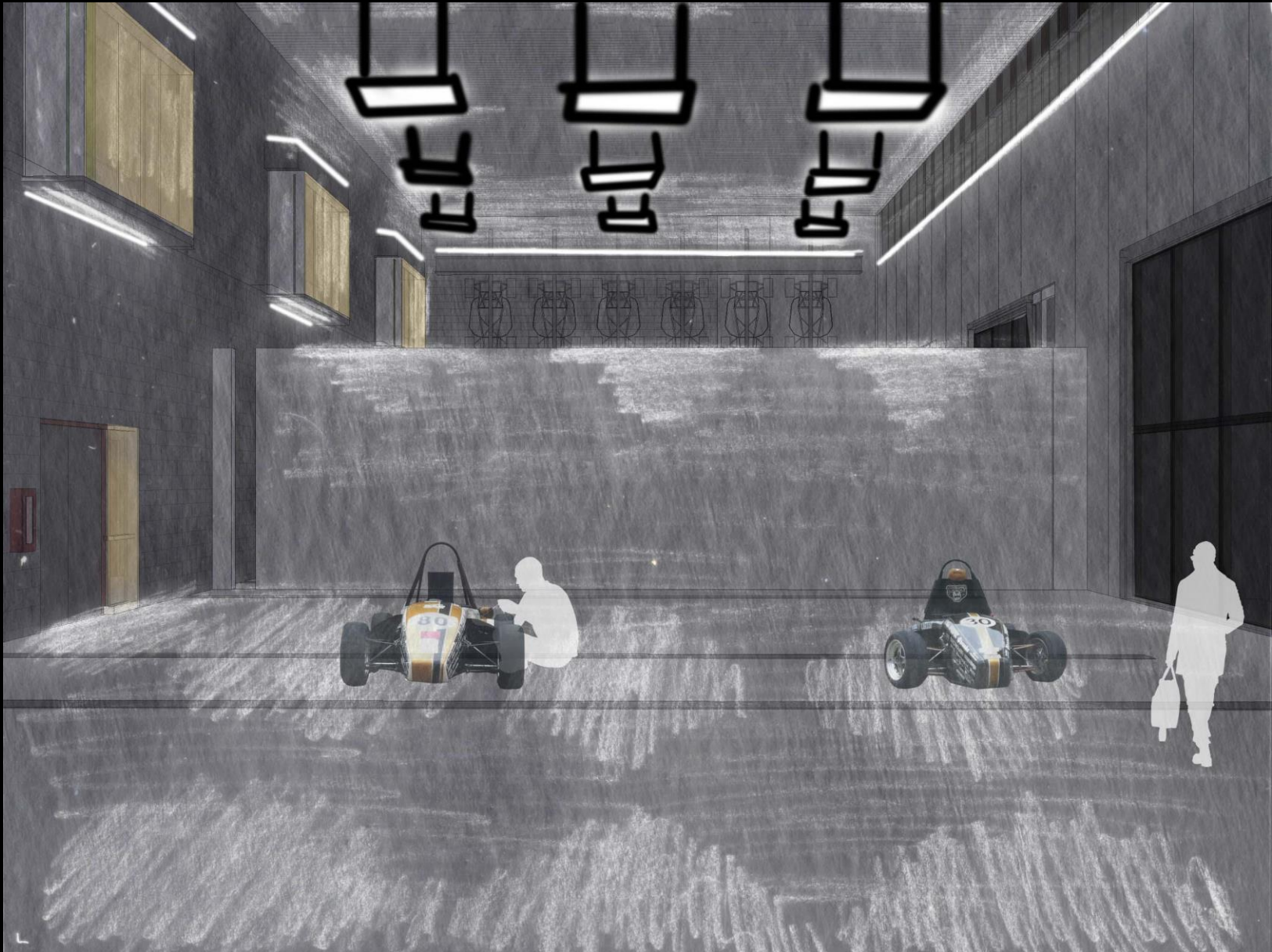
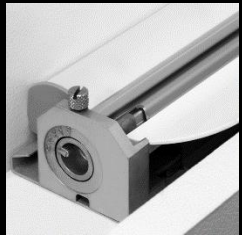
# | project labs



# project labs



# project labs



## Paving the Road to Progress



# questions

special thanks to

SmithGroupJJR for all  
models and images  
used

shawn good (advisor)

richard mistrick

All of those that came  
here to critique today



# appendix | design criteria

## exterior

Task	E <sub>h</sub> (lux)	E <sub>v</sub> (lux)	Avg:Min
LZ2 Moderate Ambient Light			
Pre-curfew	3	---	---
Post-curfew	1	---	---

## lobby + atrium

Space	Task	E <sub>h</sub> (lux)	E <sub>v</sub> (lux)	Avg:Min
South Lobby	Lobbies   Circulation   Building Entries   Day	100	50	3:1
	Lobbies   Circulation   Building Entries   Night	50	20	3:1
	Lounges   Pleasure Reading	200	100	1.5:1 (Table 12.6)
	Stairs   High Activity	100	50	2:1
Café and Seating	Dining Areas   Coffee Shops	100	30	3:1
	Kitchens   Food Preparation	500	200	1.5:1 (Table 12.6)
	Cashiers	200	75	2:1

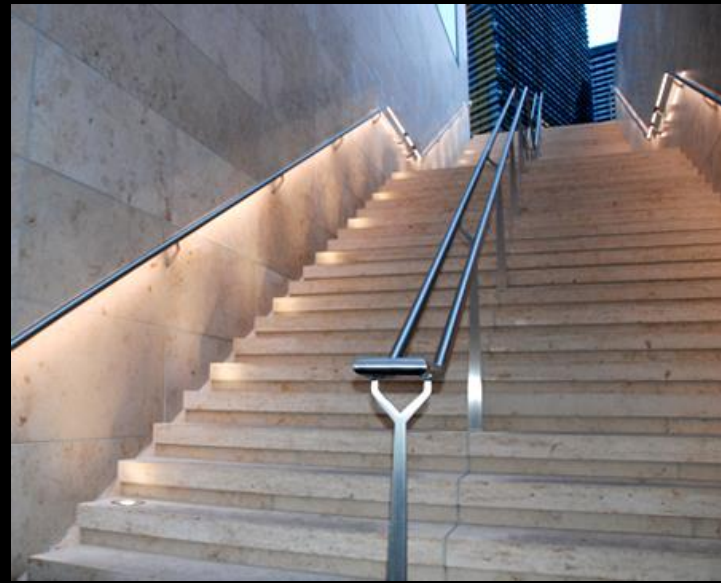
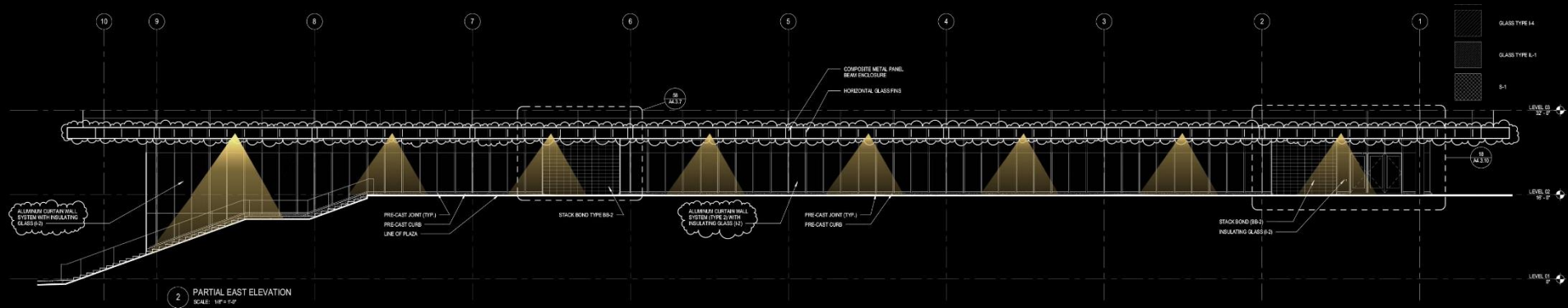
## auditorium

Task	E <sub>h</sub> (lux)	E <sub>v</sub> (lux)	Avg:Min
Reading + Writing	300	75	1.5:1 (Table 12.6)
Whiteboard w/ Presenter	---	300	3:1
AV + Notes	50	15	2:1
Circulation   AV	2	10	5:1
Circulation   All other	10	30	10:1

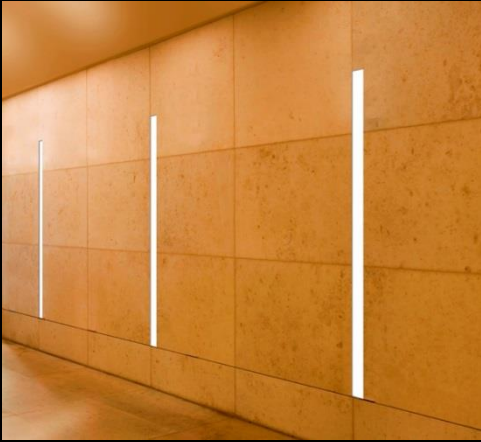
## project labs

Task	E <sub>h</sub> (lux)	E <sub>v</sub> (lux)	Avg:Min
Classrooms   Shops	1000	500	1.5:1 (Table 12.6)
Reading + Writing	300	75	1.5:1 (Table 12.6)

# appendix | exterior

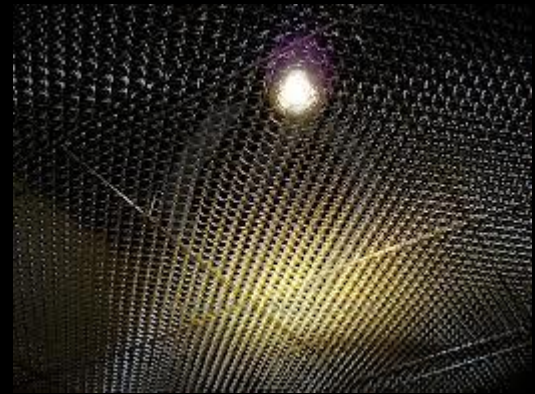
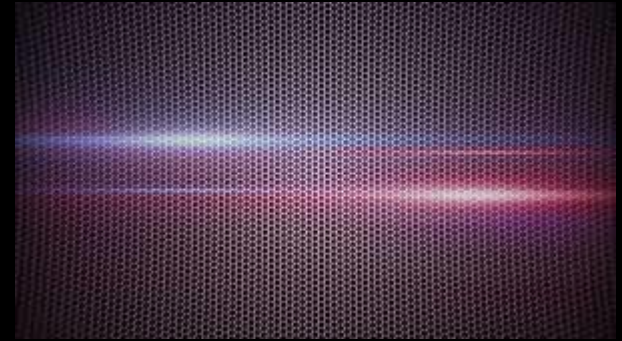


# appendix | lobby + atrium





# appendix | auditorium



# appendix | project labs

