

**Fraunhofer | Center for Sustainable Energy
Boston, MA
Schematic Lighting Design**



Xiaoyin Wu
2013.12.09



Project Overview

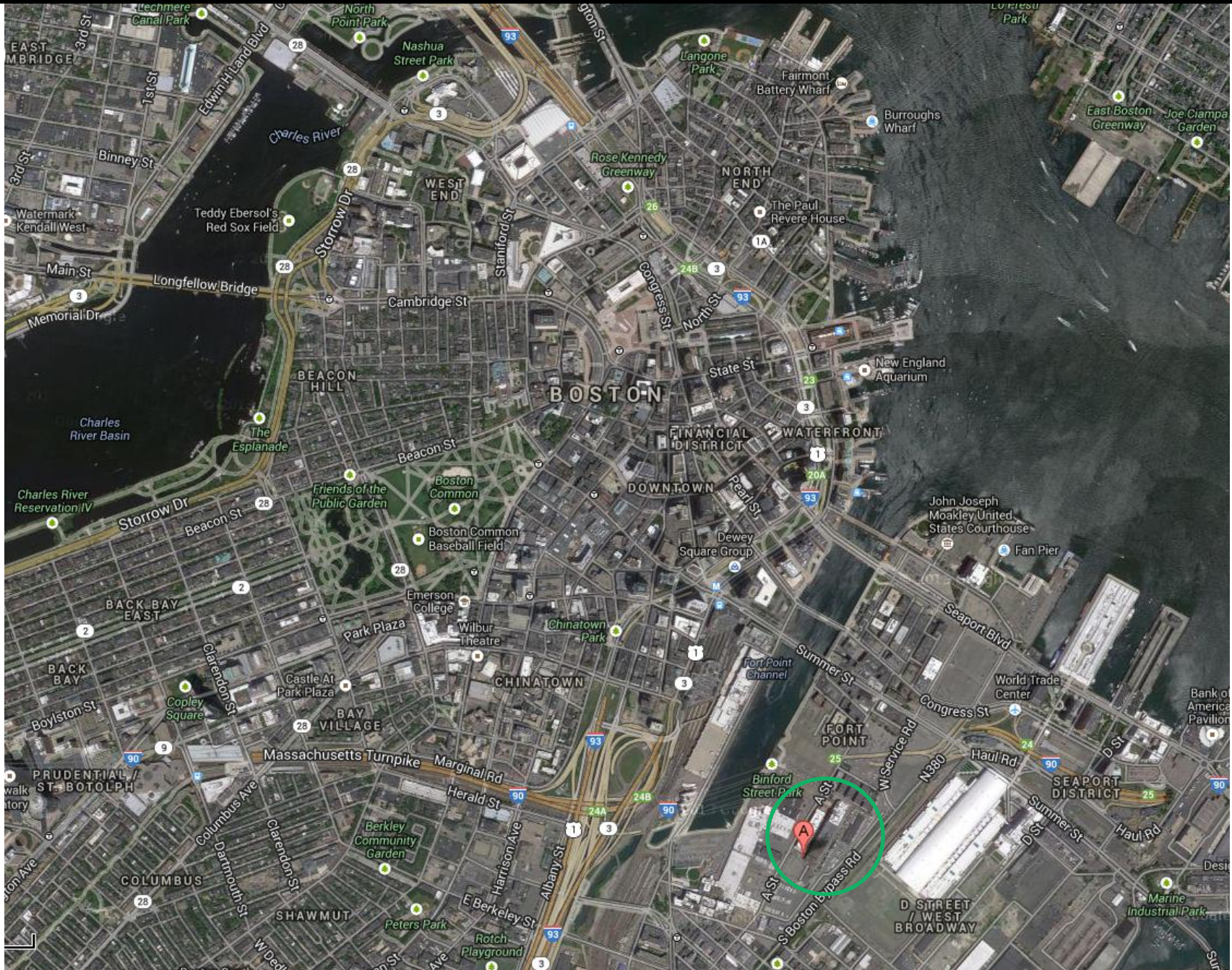
Building Name-	Fraunhofer CSE
Location-	5 Channel Center Street, Boston, MA
Occupancy Type-	Offices and research laboratories (Group B) Conference room (Group A-3)
Size-	42150SF
Stories above Grade-	6
Project Teams-	General Contractor: Gilbane Building Co. Architects: DiMella Shaffer Structural Engineer: McNamara/Salvia, Inc. MEP/FP/Tel Data Engineer: BR+A Consulting Engineers Lighting Consultant: Lam Partners Plumbing/HVAC Services: Northeastern Mechanical

Architecture



a renovation for a 100-year old **historical** building **classical revival-style** detailing the Fort Point Channel district is marked by an exceptional degree of **visual uniformity** buildings are elegantly proportioned, with classically inspired details concentrated at entrances and cornices the structure is left unchanged in this project to **conserve the significant continuity** throughout the District in terms of massing, scale, and style

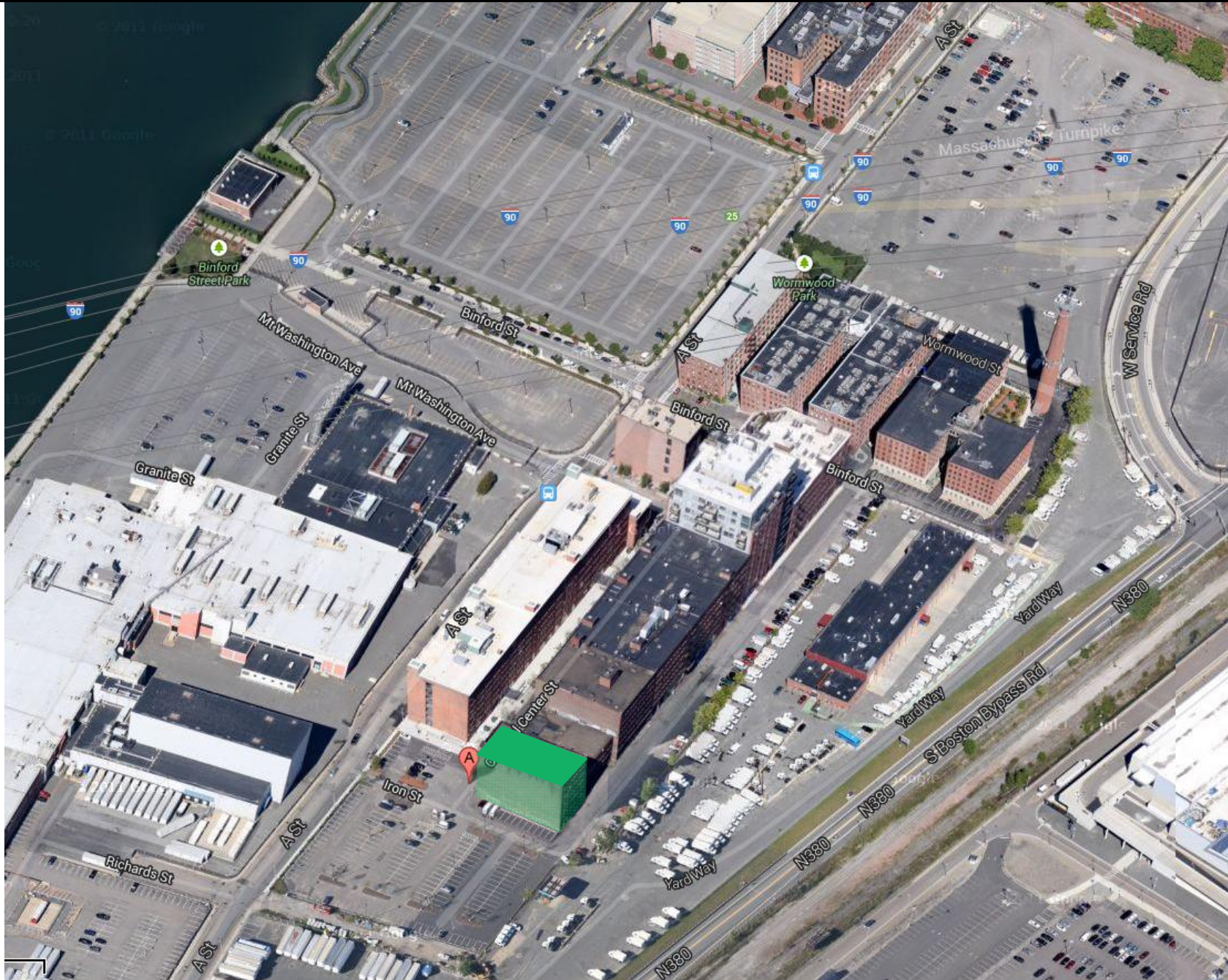
building | concept | four spaces | design solutions



building | concept | four spaces | design solutions



building | concept | four spaces | design solutions



Based in Boston, MA, the Fraunhofer Center for Sustainable Energy Systems (CSE) is an applied research and development laboratory dedicated to the commercialization of **CLEAN** energy **TECHNOLOGIES**. CSE engages in **COLLABORATIVE** research and development with private companies, government entities, and academic institutions, performing research that broadly benefits firms, industries, and society.

clean—SIMPLICITY

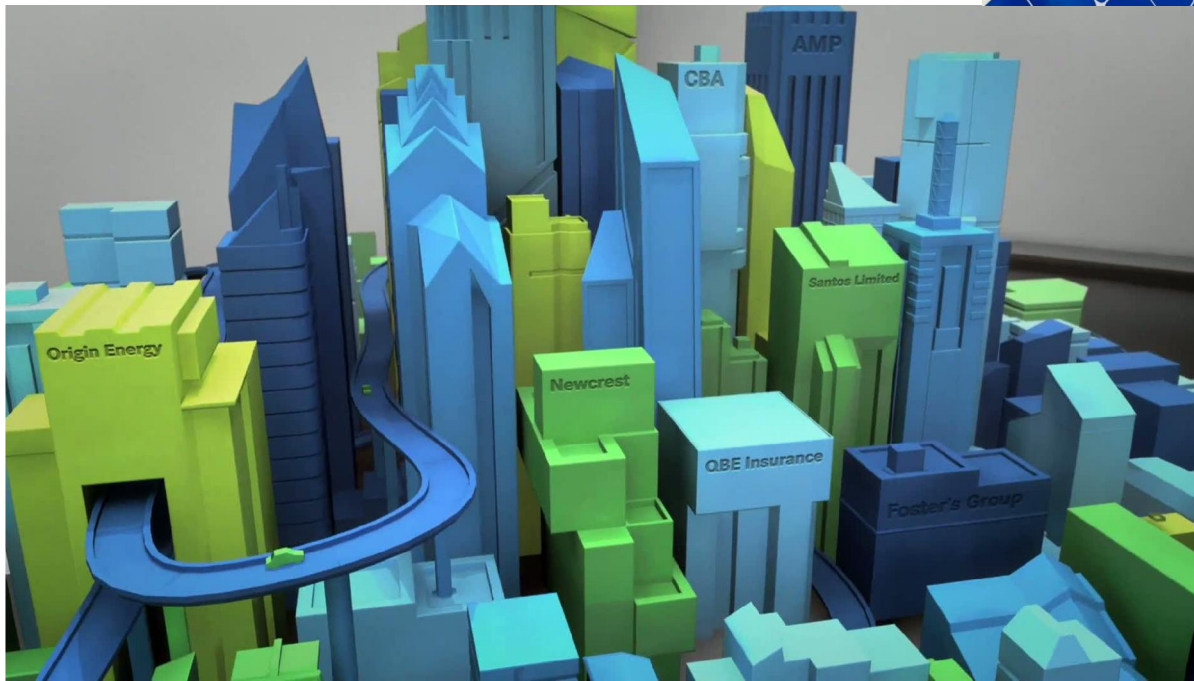
Based in Boston, MA, the Fraunhofer Center for Sustainable Energy Systems (CSE) is an applied research and development laboratory dedicated to the commercialization of CLEAN energy TECHNOLOGIES. CSE engages in COLLABORATIVE research and development with private companies, government entities, and academic institutions, performing research that broadly benefits firms, industries, and society.

coordination—COLLABORATIVE

Clean | Simplicity



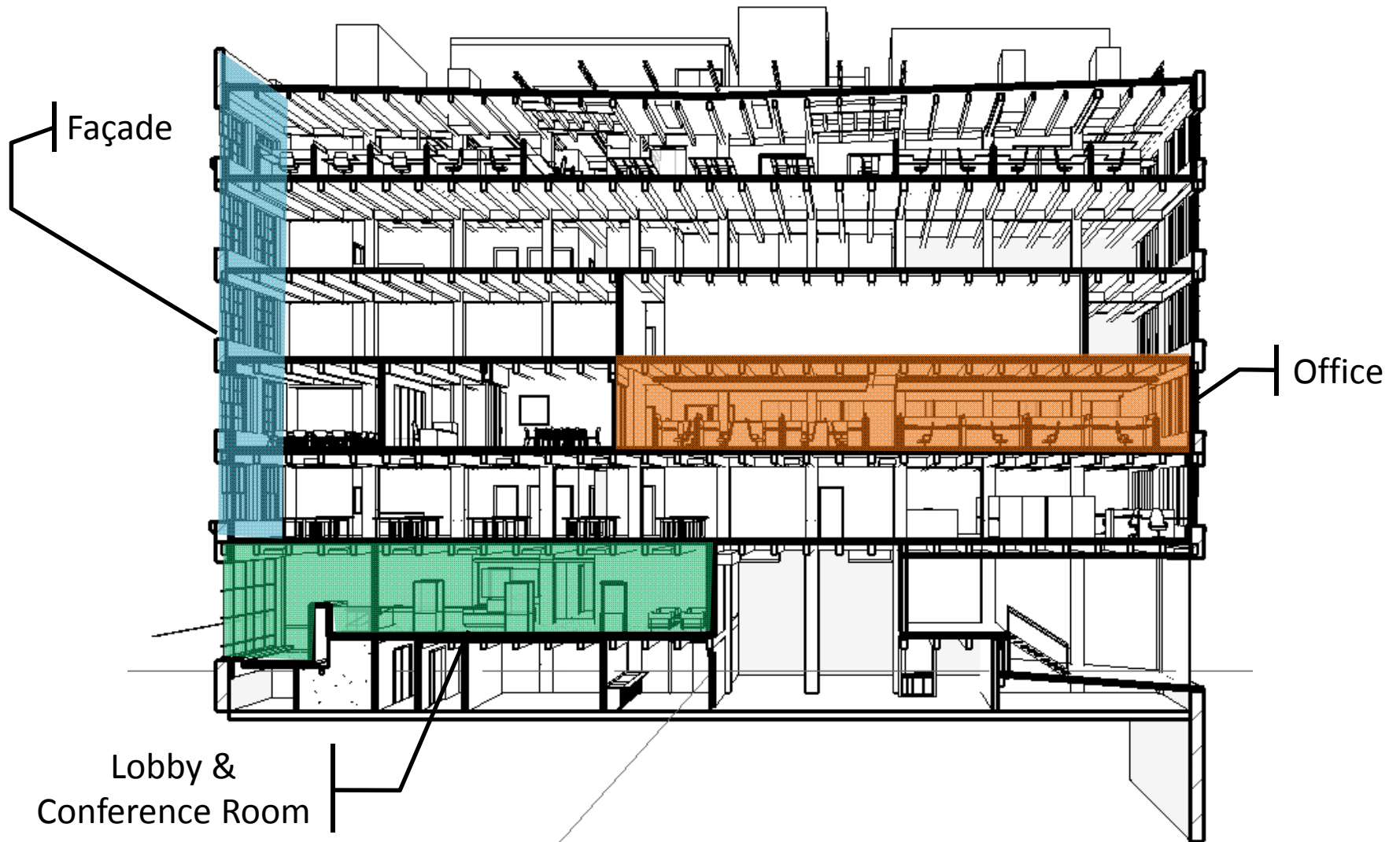
Technology | Intelligent



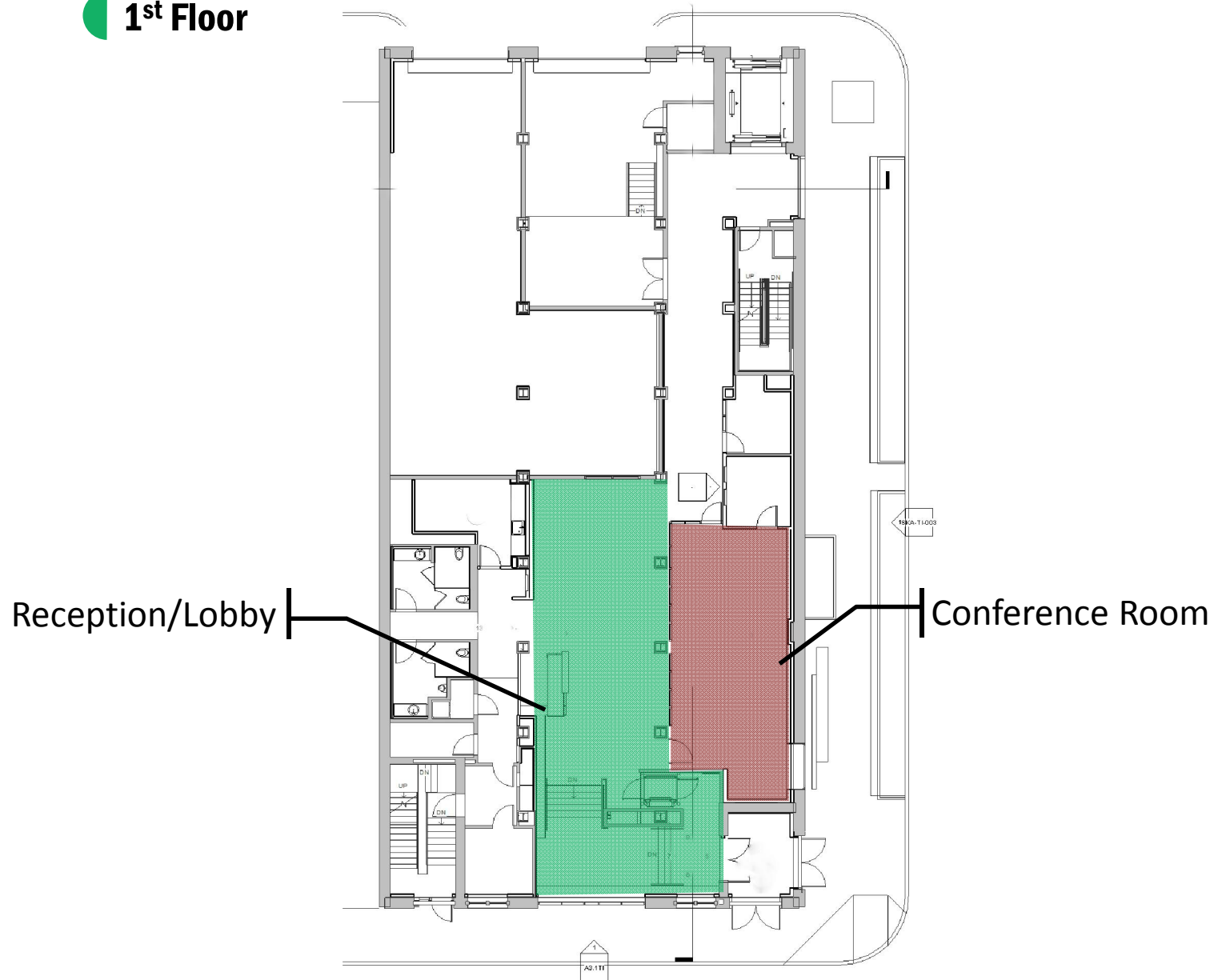
Coordination | Collaborative



Spaces



1st Floor

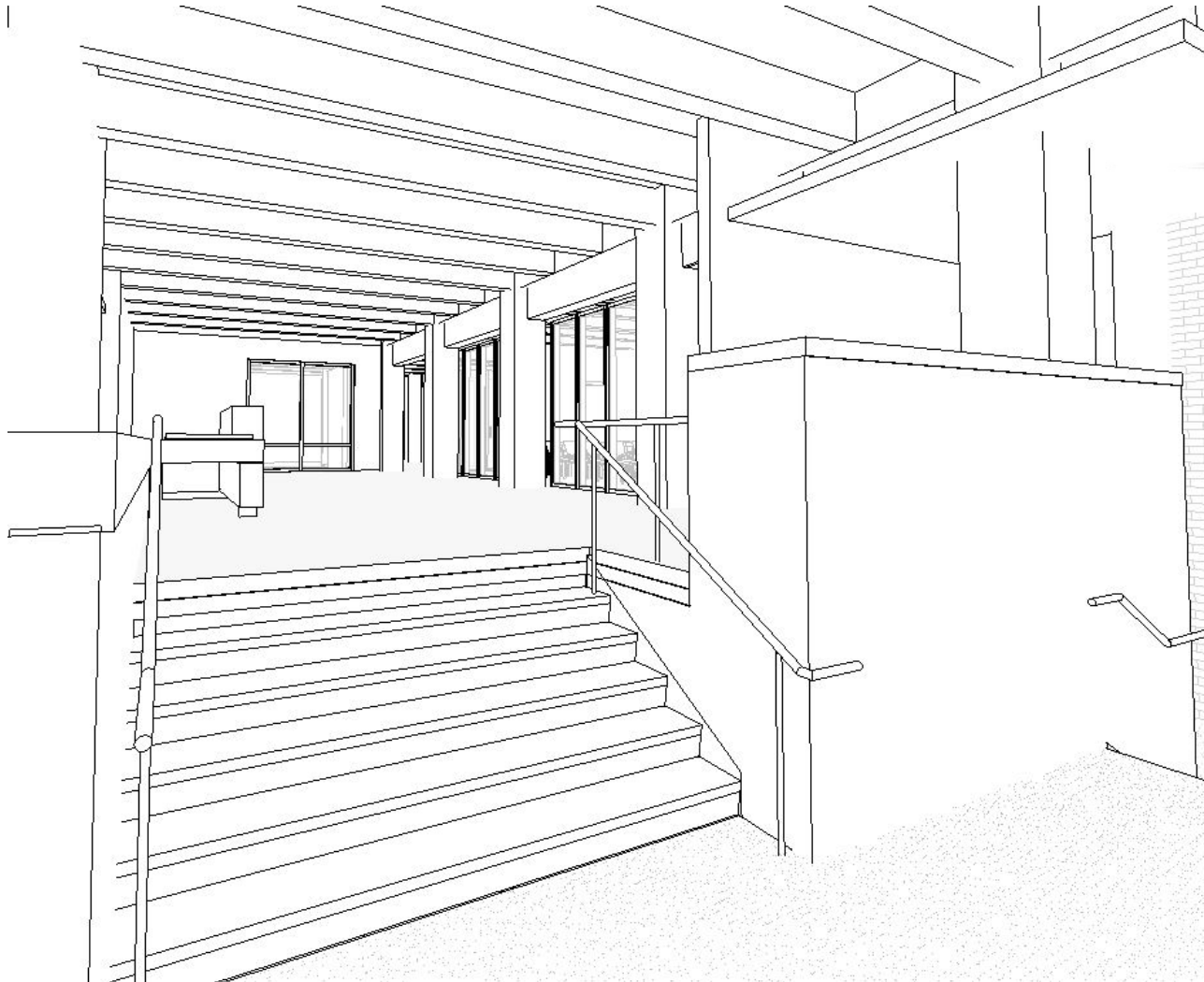


Criteria

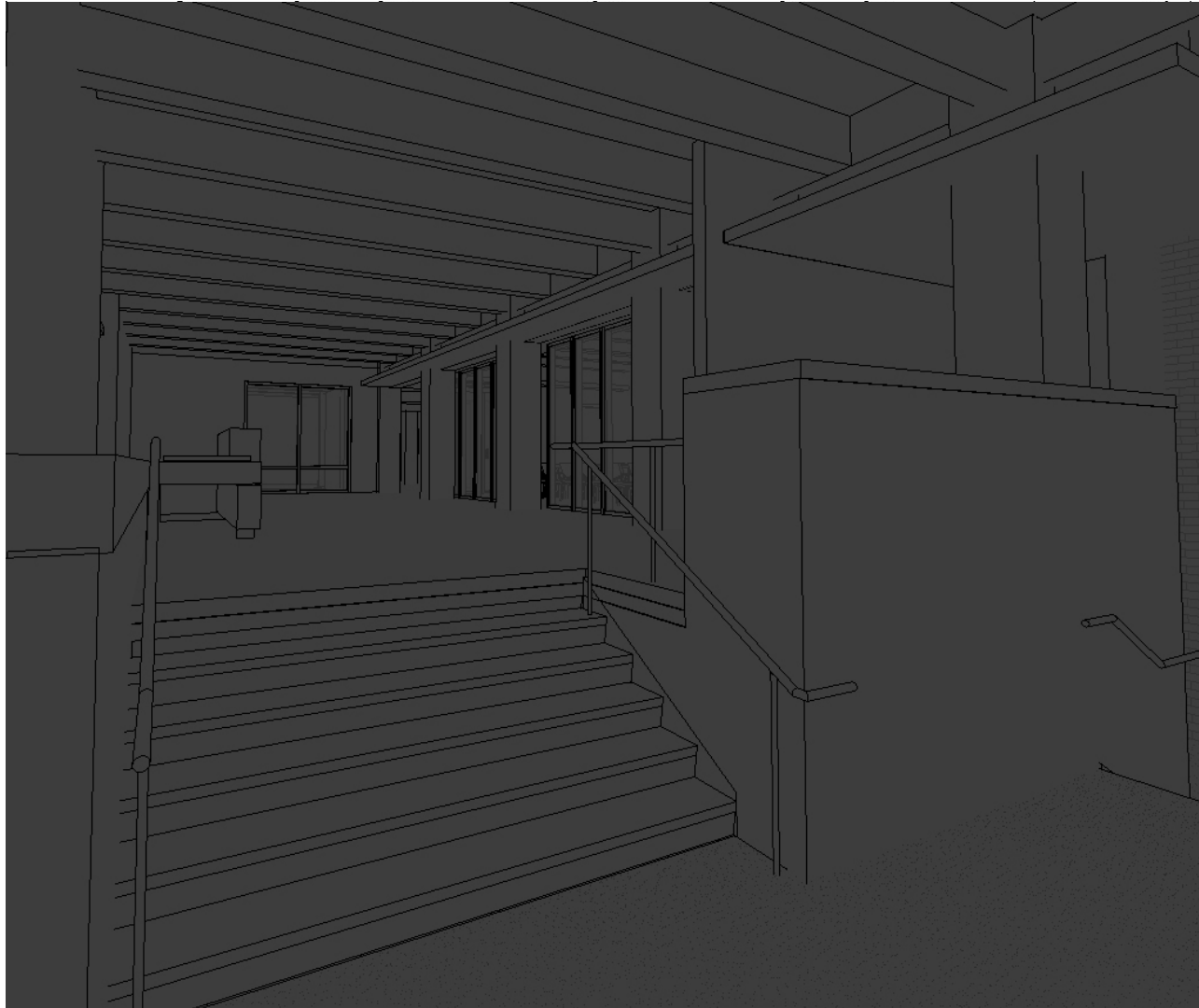
Space		Eh	Ev	Avg:Min
Lower Lobby (F112)		100 lux	30 lux	4:1
Upper Lobby (F113)	Reception Desk	150 lux	50 lux	4:1
	General Area	100 lux	30 lux	4:1

- Professional
- Modern
- Technology Oriented

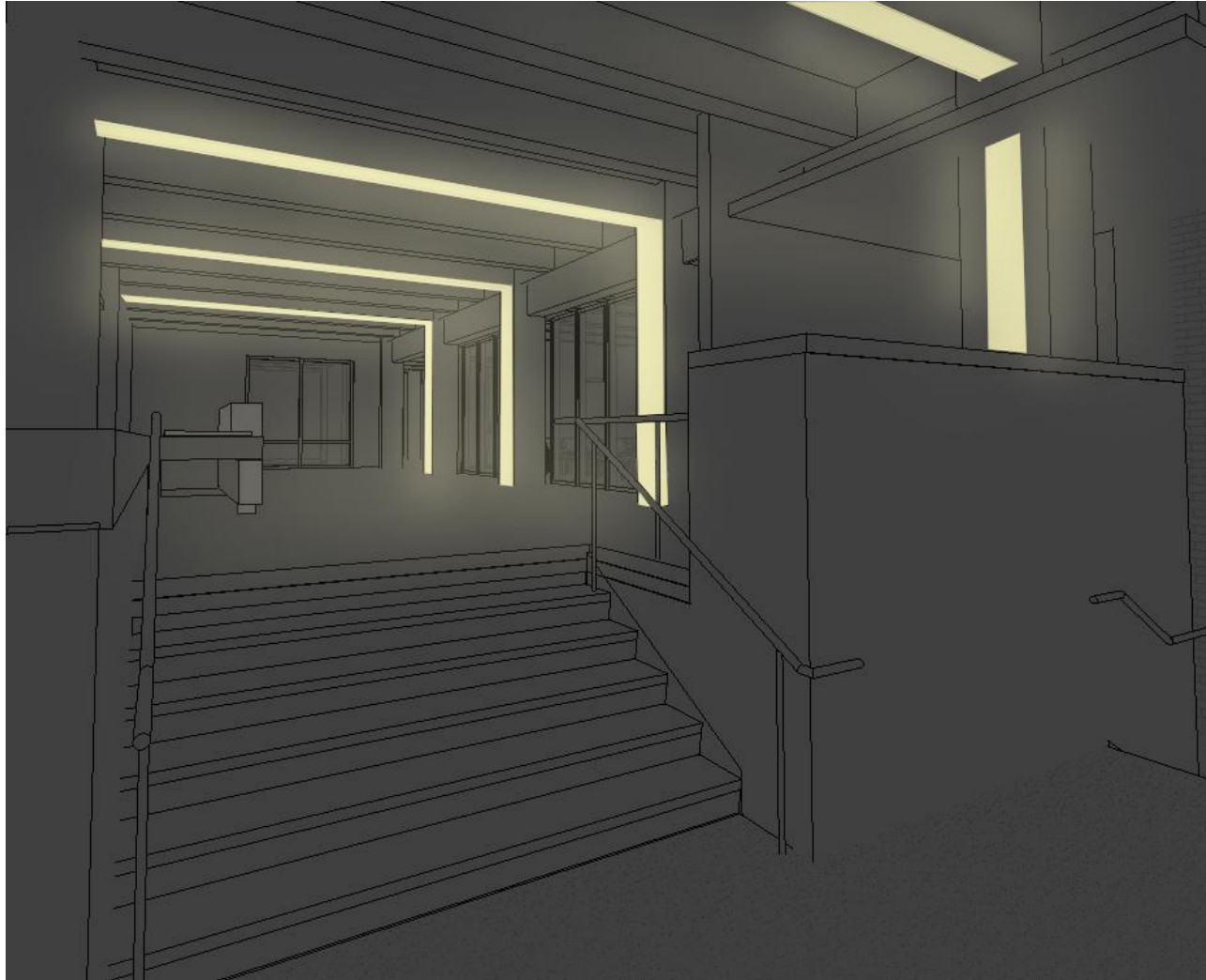
Lobby | Reception



Lobby | Reception



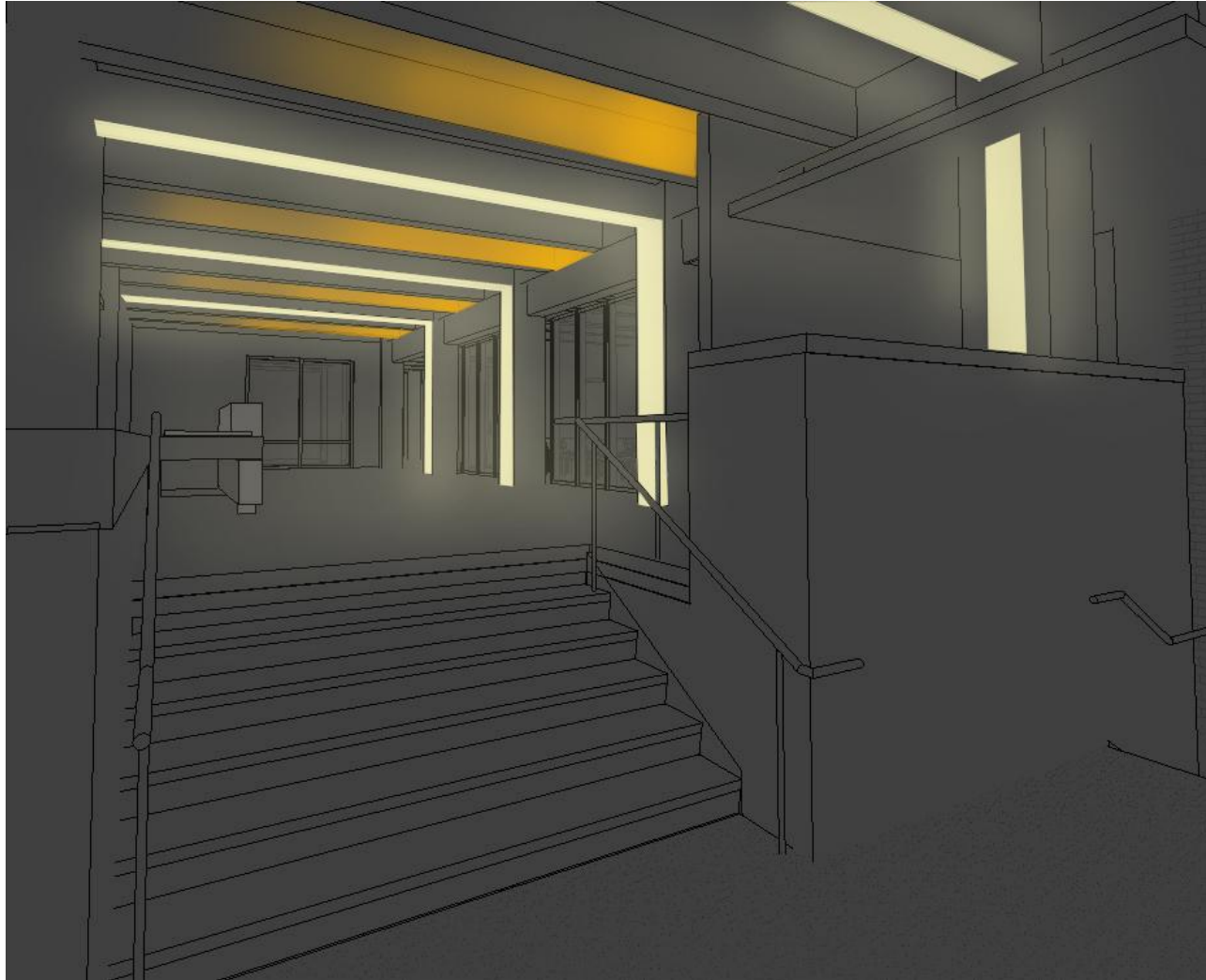
Lobby | Reception



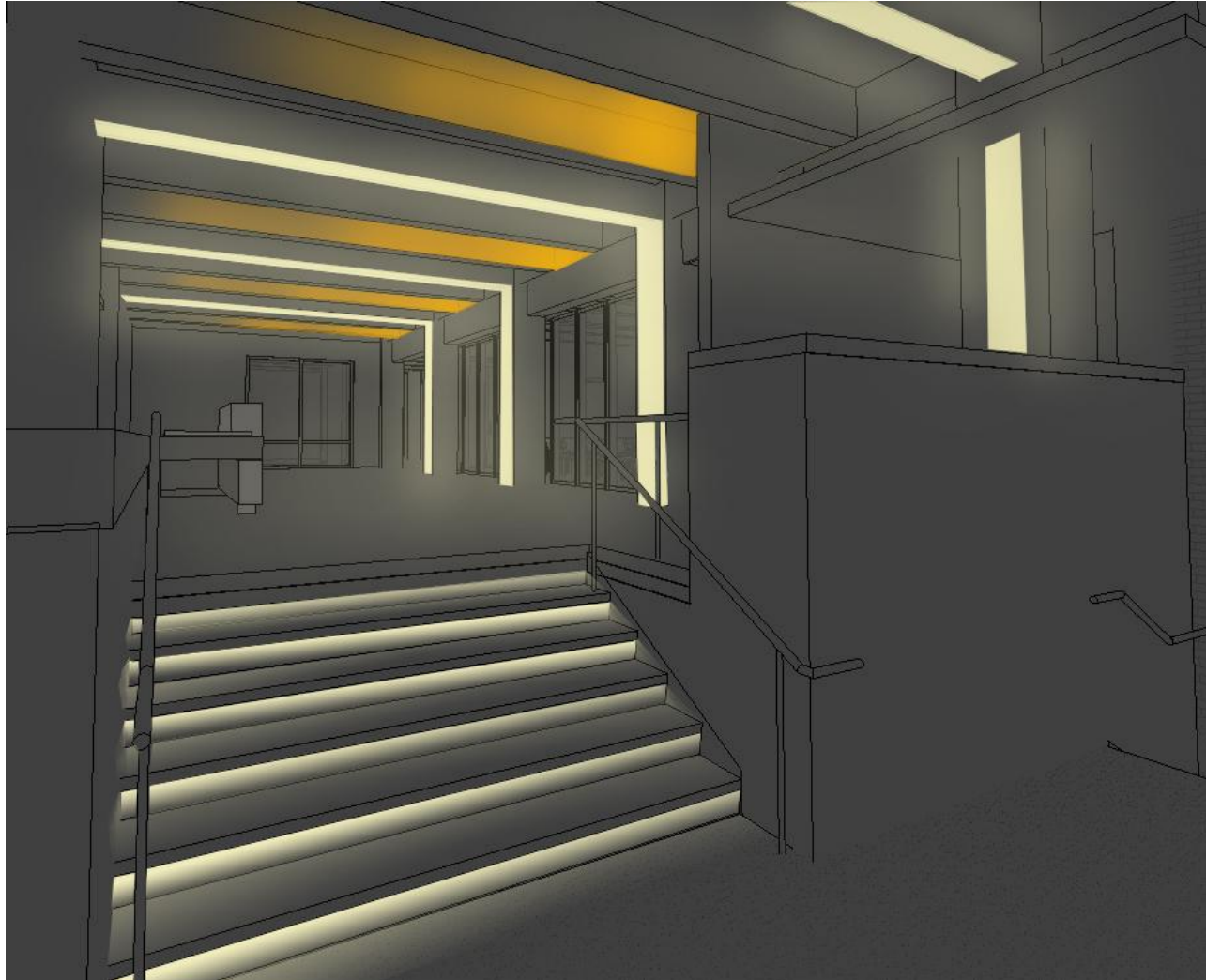
Lobby | Reception



Lobby | Reception



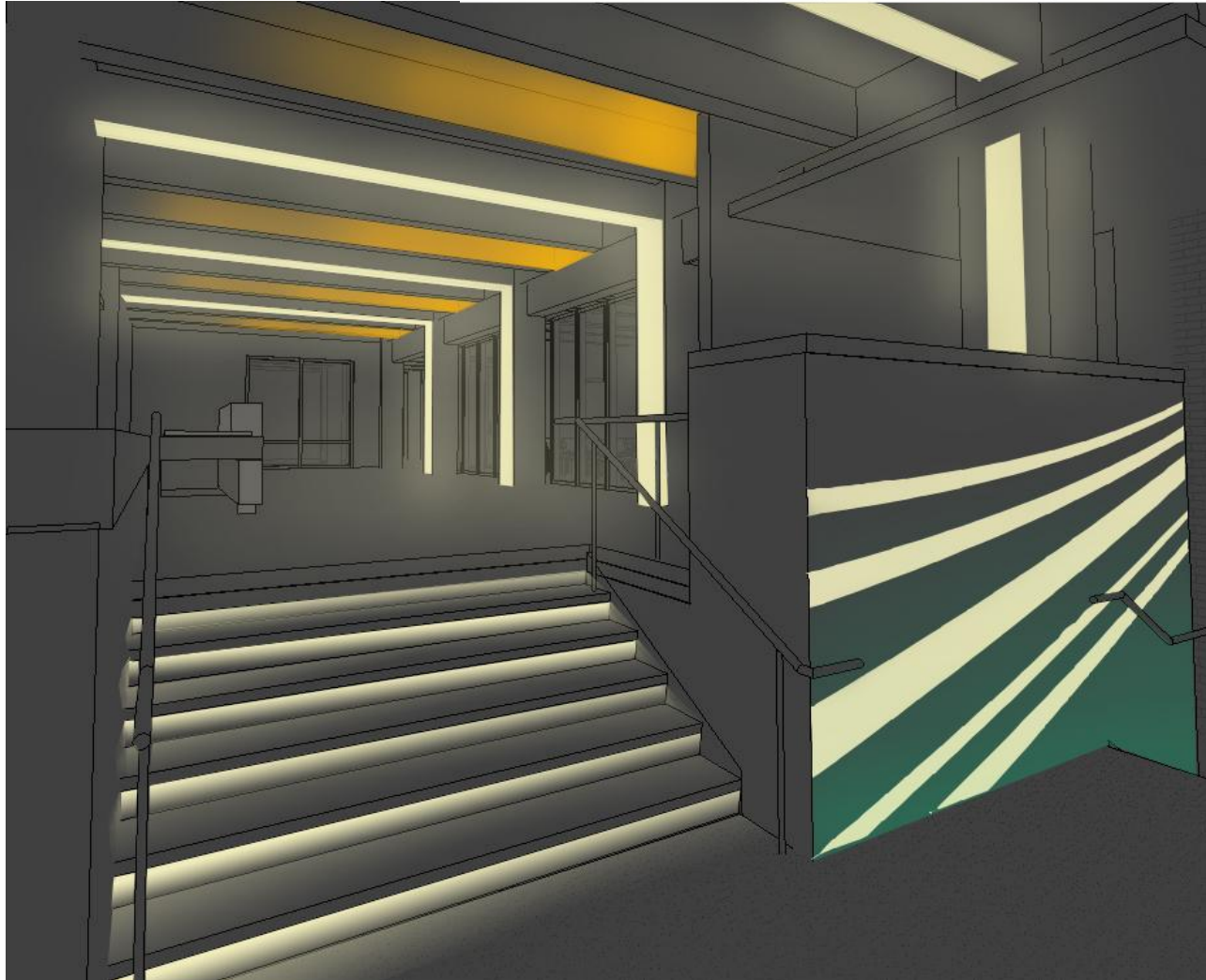
Lobby | Reception



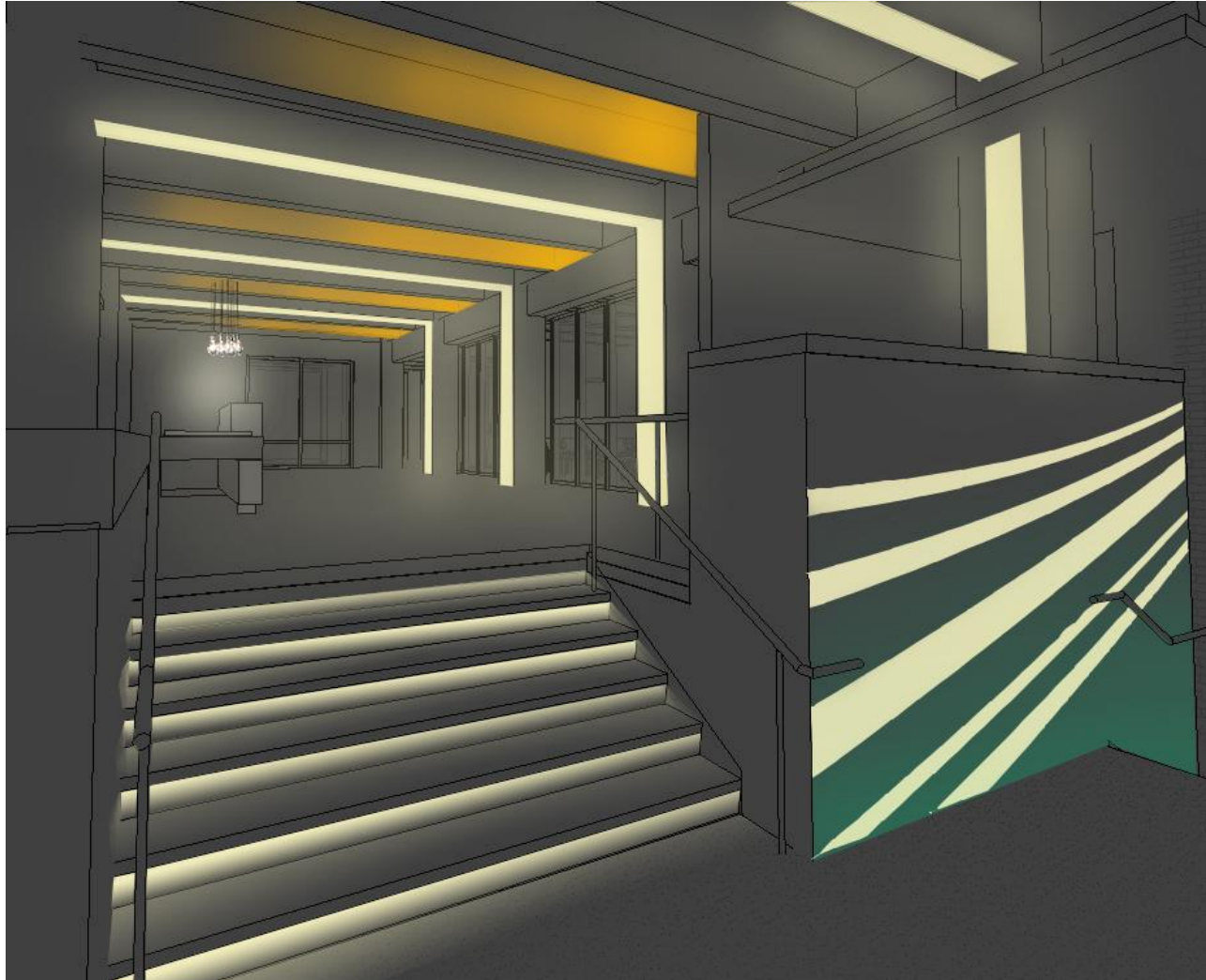
Lobby | Reception



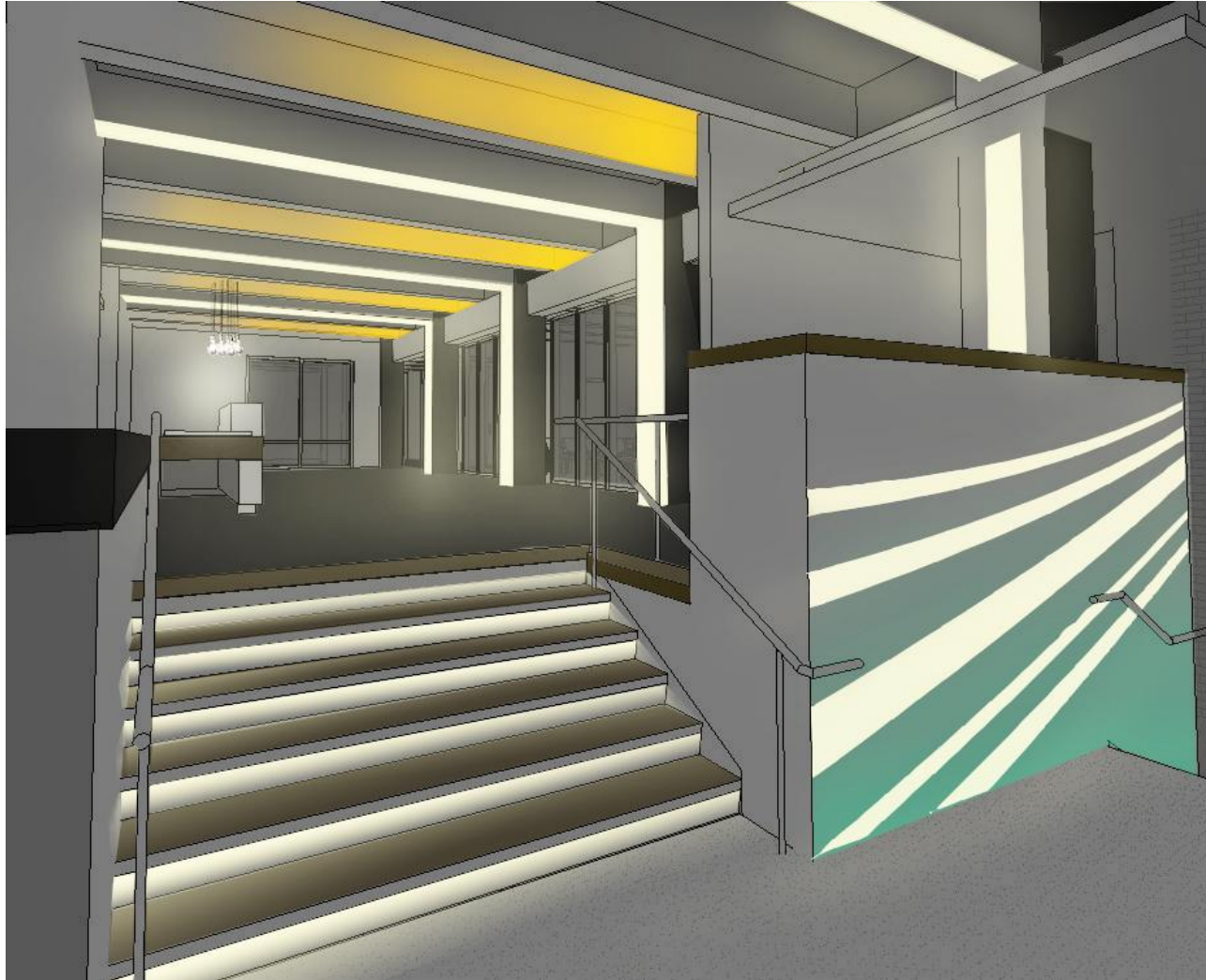
Fraunhofer



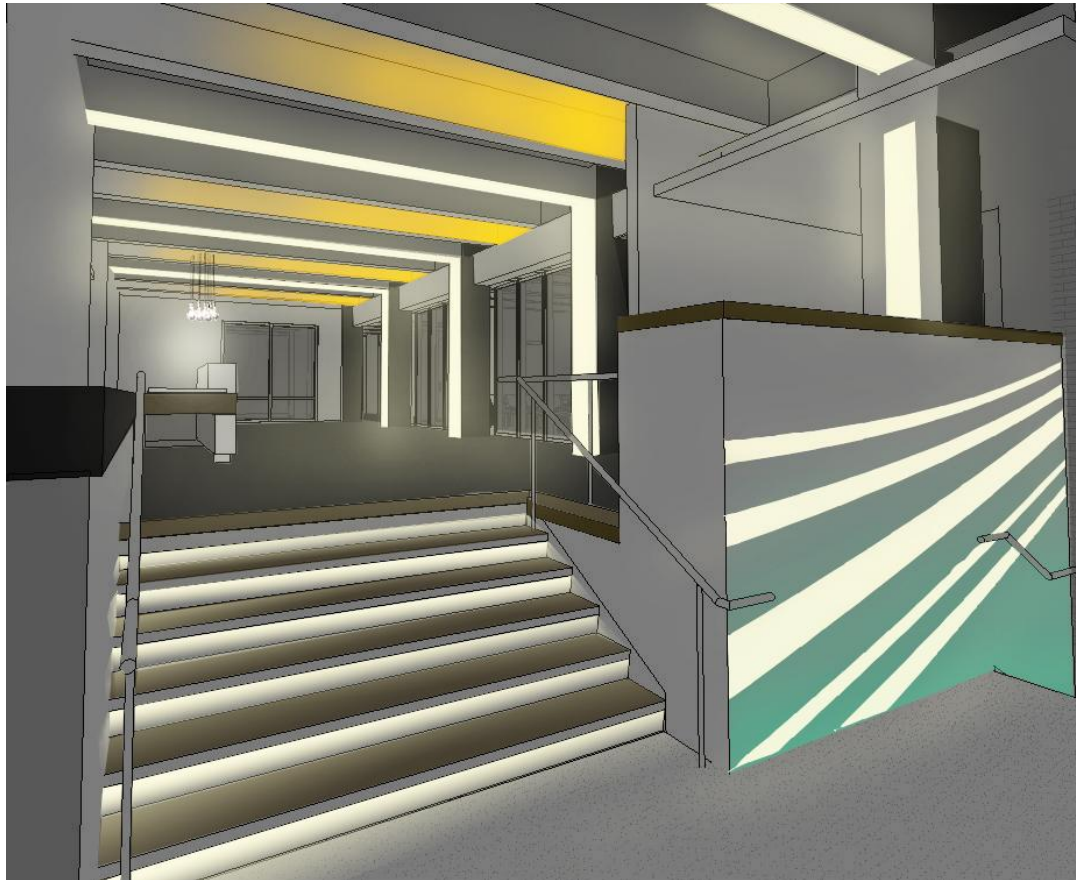
Lobby | Reception



Lobby | Reception



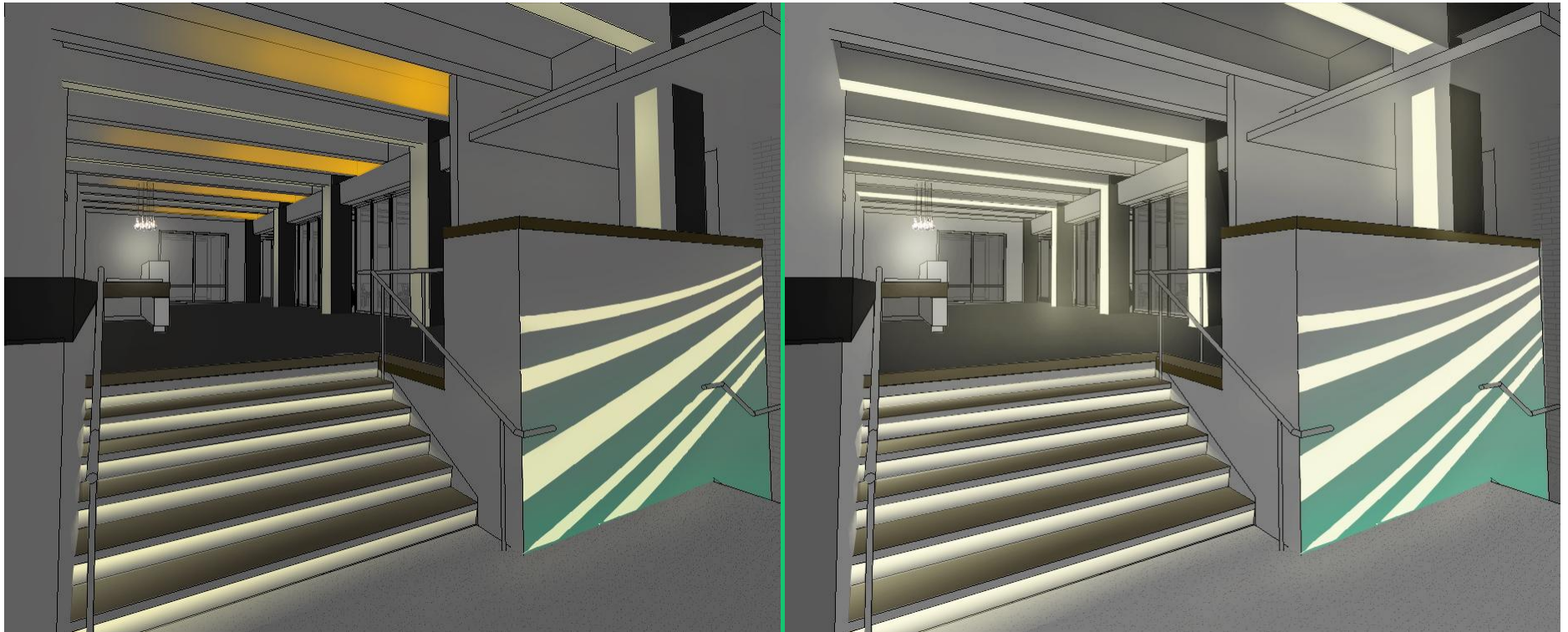
Lobby | Reception



Lobby | Reception

Psychological impression:

relaxation | tension



Criteria

Surface/Purpose	Eh	Ev	Avg:Min
Meeting	150	75	1.5:1
AV	30	30	
Front-screen projection		50	
Faces	300	400	1.5:1

- Professional
- Simple
- Task driven

Conference Room



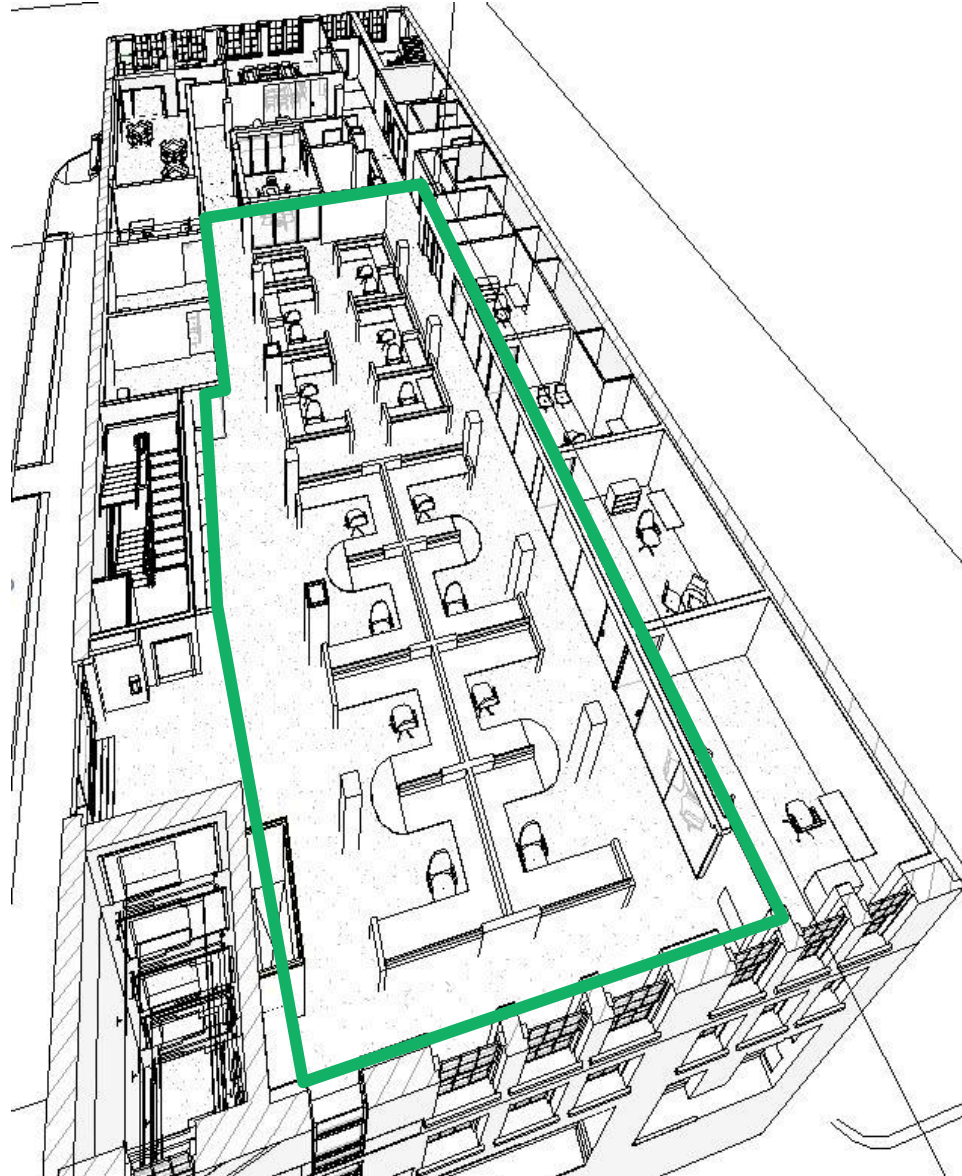
Conference Room



Conference Room



Open Office



Open Office



Criteria

Surface/Purpose	Eh	Ev	Avg:Min
Work plane (computer)	150	50	1.5:1

- Clean
- Modern
- Spacious

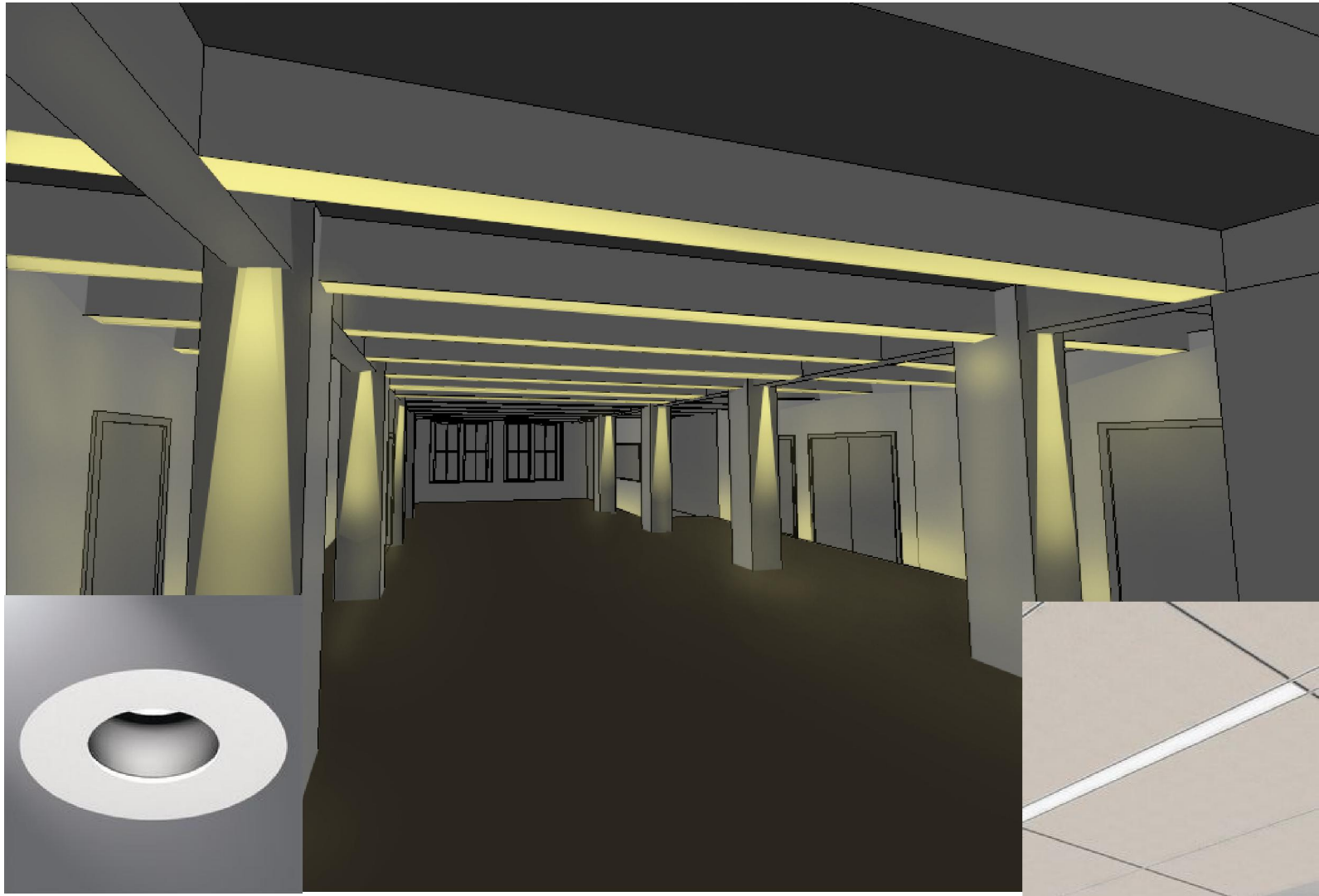
 **Open Office**



Open Office



 **Open Office**



Open Office



Open Office



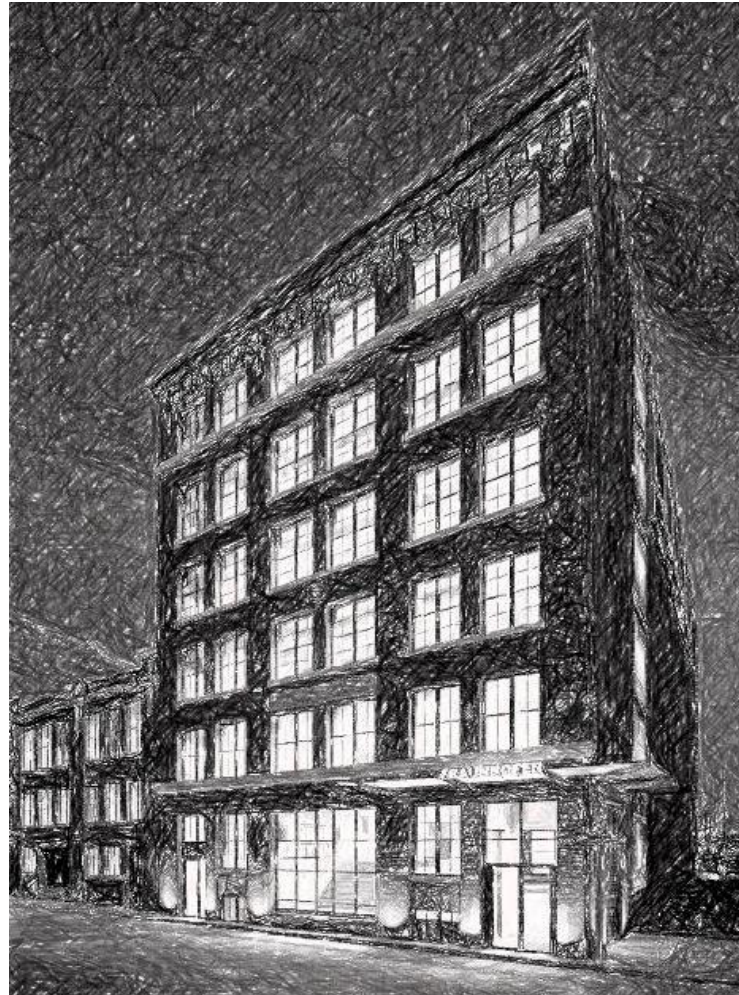
Open Office



Open Office



Façade



Criteria

IES Illuminance Recommendations

Façade with reflection < 0.5 and low activity: $E_v = 40$ lux

ASHRAE 90.1 (2010) Requirements

Building entrances and exits: main entries = 20W/linear-ft of door width

Façade: 0.1W/sf for each illuminated wall or surface or 2.5 W/linear ft for each illuminated wall or surface length

- Architectural Elements
- Layers
- Historical

 Façade



Façade



■ Façade



Horseshoe Casino, Cleveland

**Fraunhofer | Center for Sustainable Energy
Boston, MA
Schematic Lighting Design**



Xiaoyin Wu
2013.12.09

QUESTIONS?