Systems Thinking: Combining Hardware and Design Strategies

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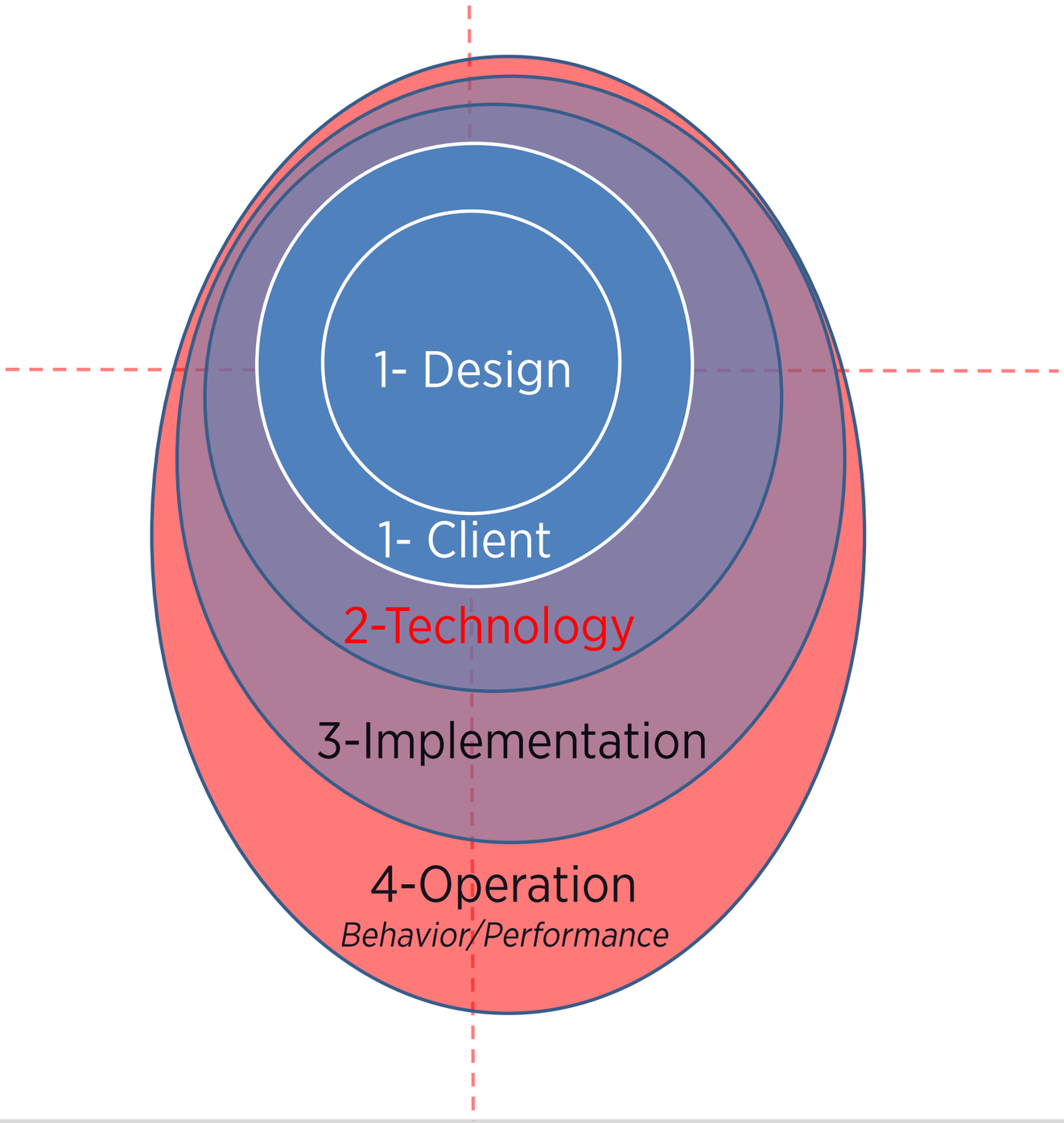
Design Excellence: the art of managing *RISKS, BUDGETS, TECHNOLOGY, AND PERFORMANCE*

Circle of impact: Challenges while aiming for design excellence



1- Design

- Understanding the design criteria
- Aligning expectations and potential solutions
- Defining “risk partnership”

2- Technology

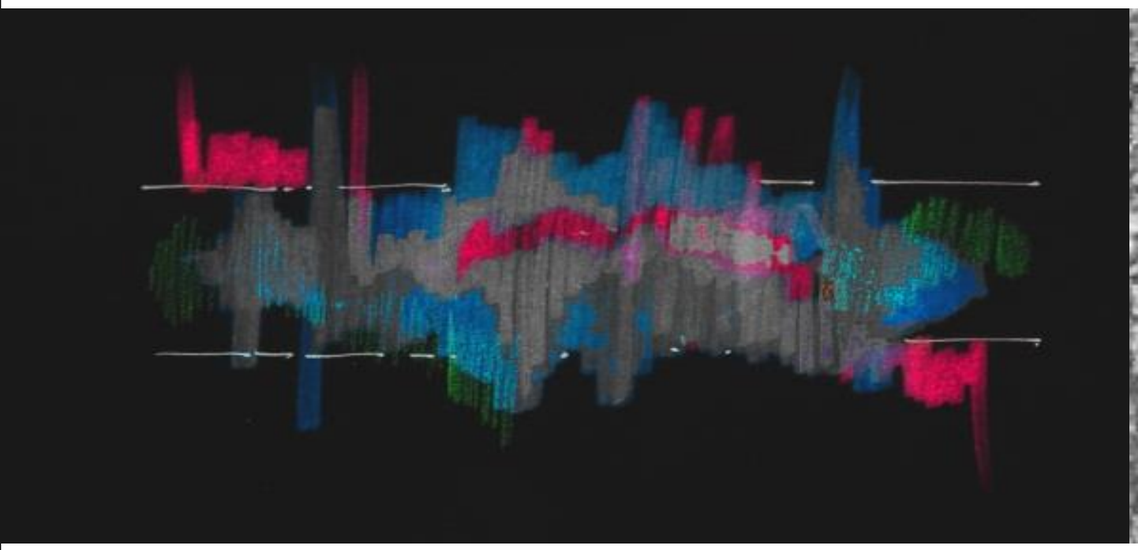
- Keeping up
- Understanding budgets
- Staying out of trouble

3- Implementation

- Delivery method
- Documentation quality
- Construction diligence

4- Operation

- Operational Appetite
- Behavioral preference
- Measured Performance/Commissioning



Aiming to subliminally affect the emotional state of the passerby in a hectic airport environment, the proposal alludes to the effective use of morphing hues, symmetry and reflections.

Northwest Airlines-Delta Airlines
Detroit, MI

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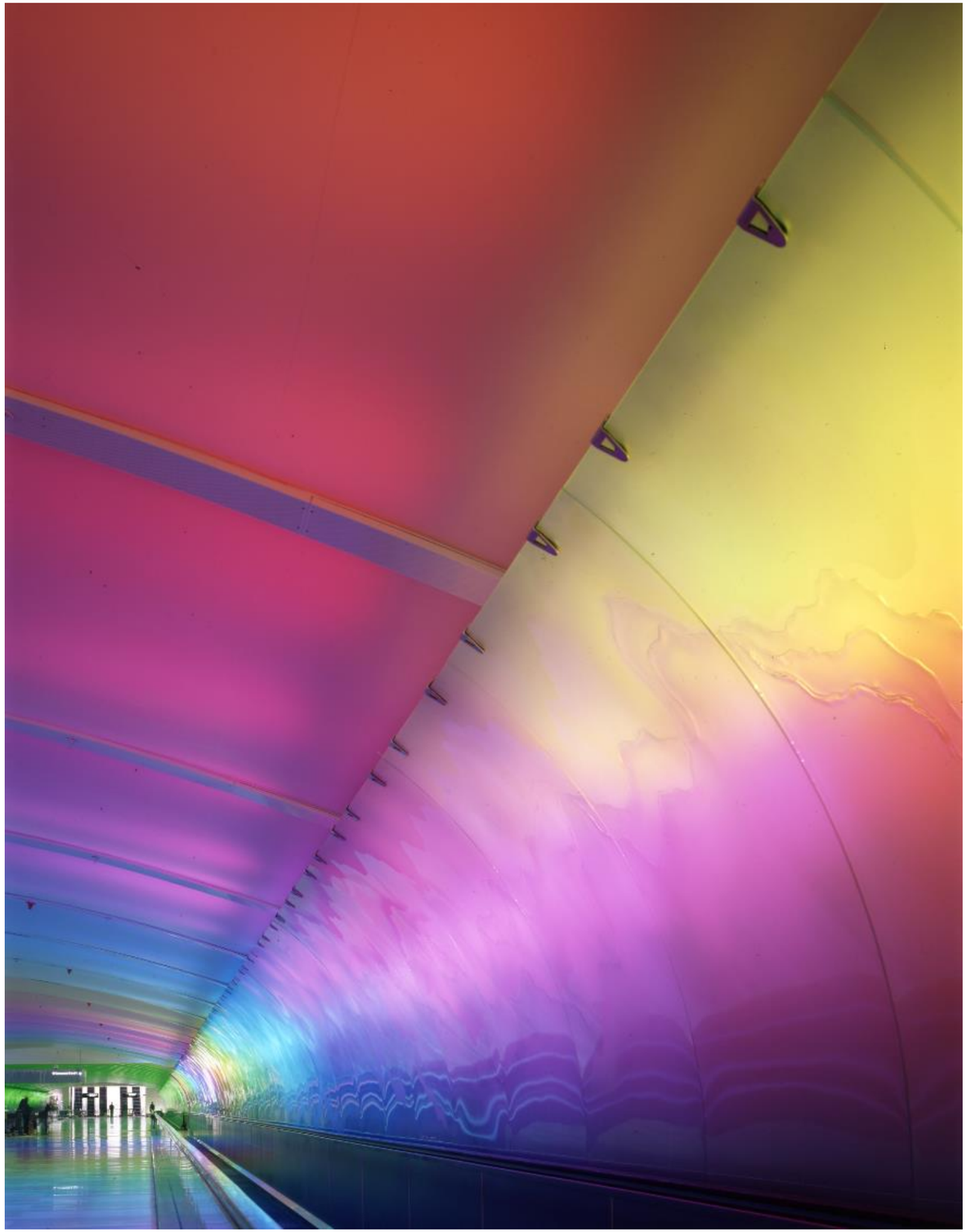

Northwest Airlines-Delta Airlines
Detroit, MI

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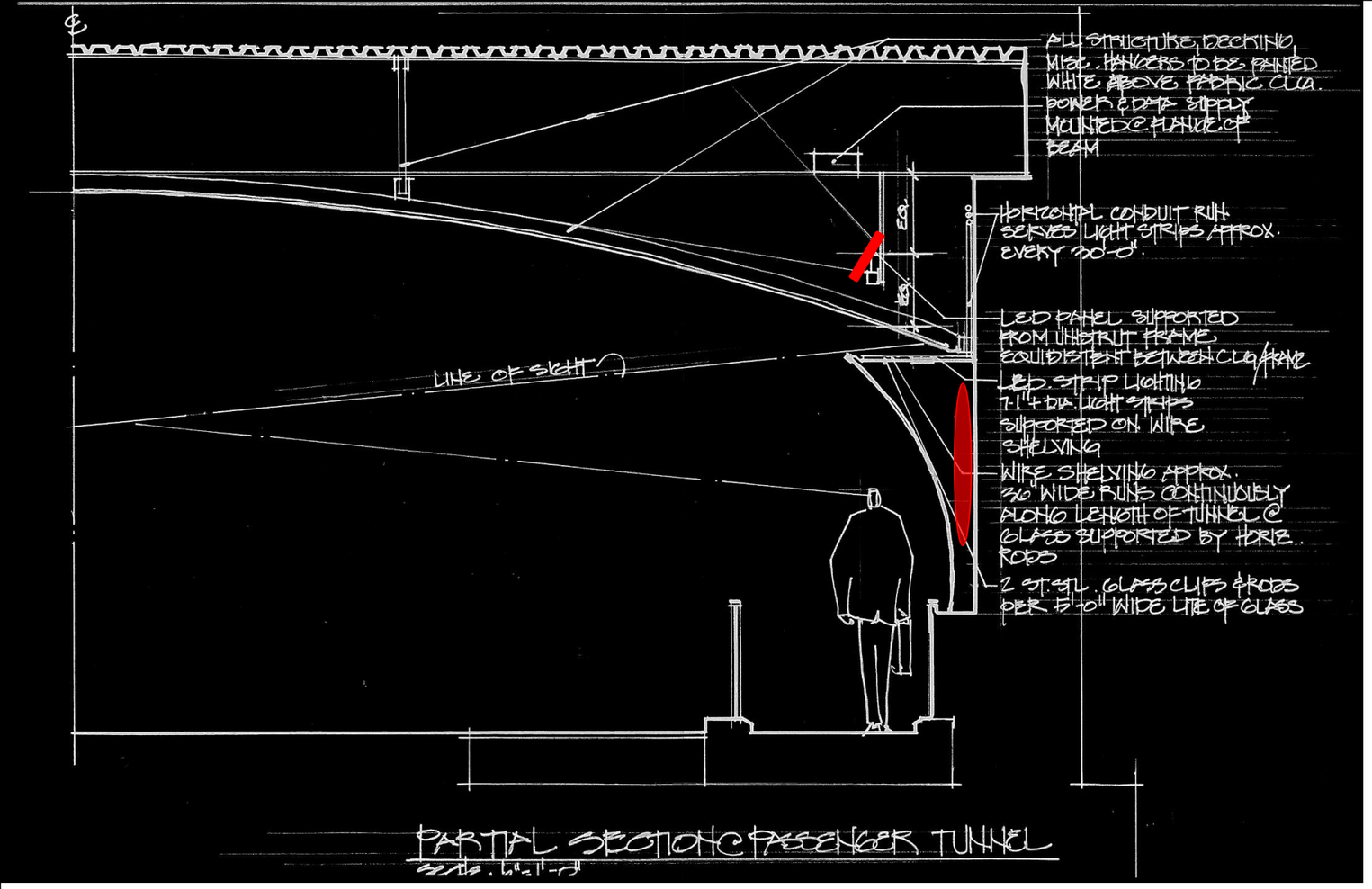
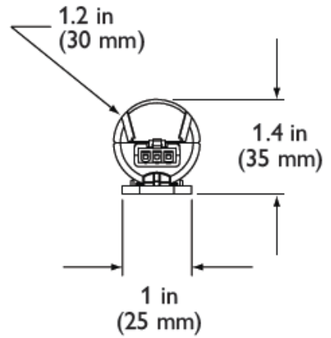
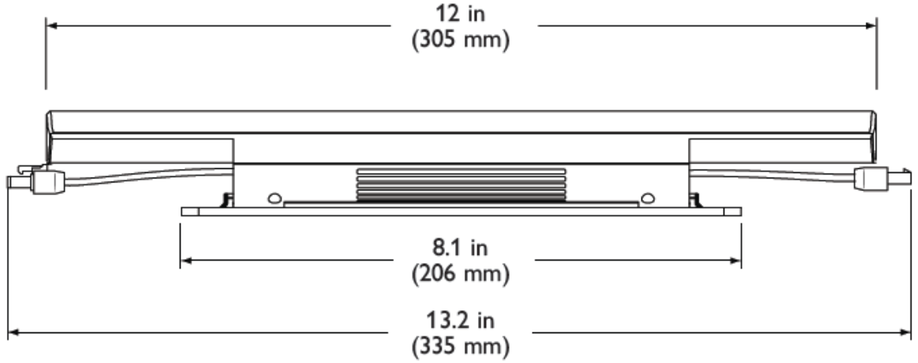
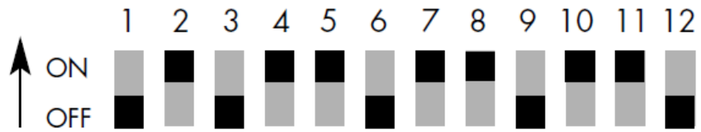




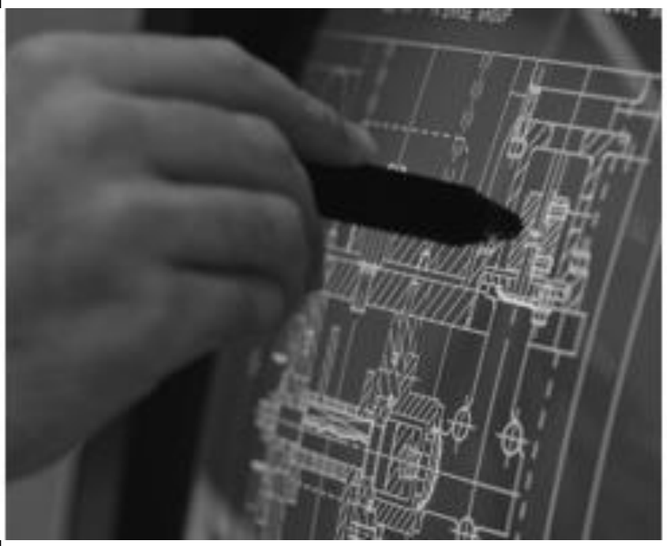


EXAMPLE OF COLOR WASH EFFECT

Speed of 20 seconds, Full Saturation, Full Brightness, in a clockwise direction (ROYGBIV)



- 800 ft. (2)(6)(12)=115,200 manually set Dip Switches
- 20 sec(800)(2)(6)=192,000/3600= 53hrs.



A place where innovation and exploration through engineering is experienced by faculty, students, staff, and visitors.

Oakland University, Engineering Center
Rochester, MI

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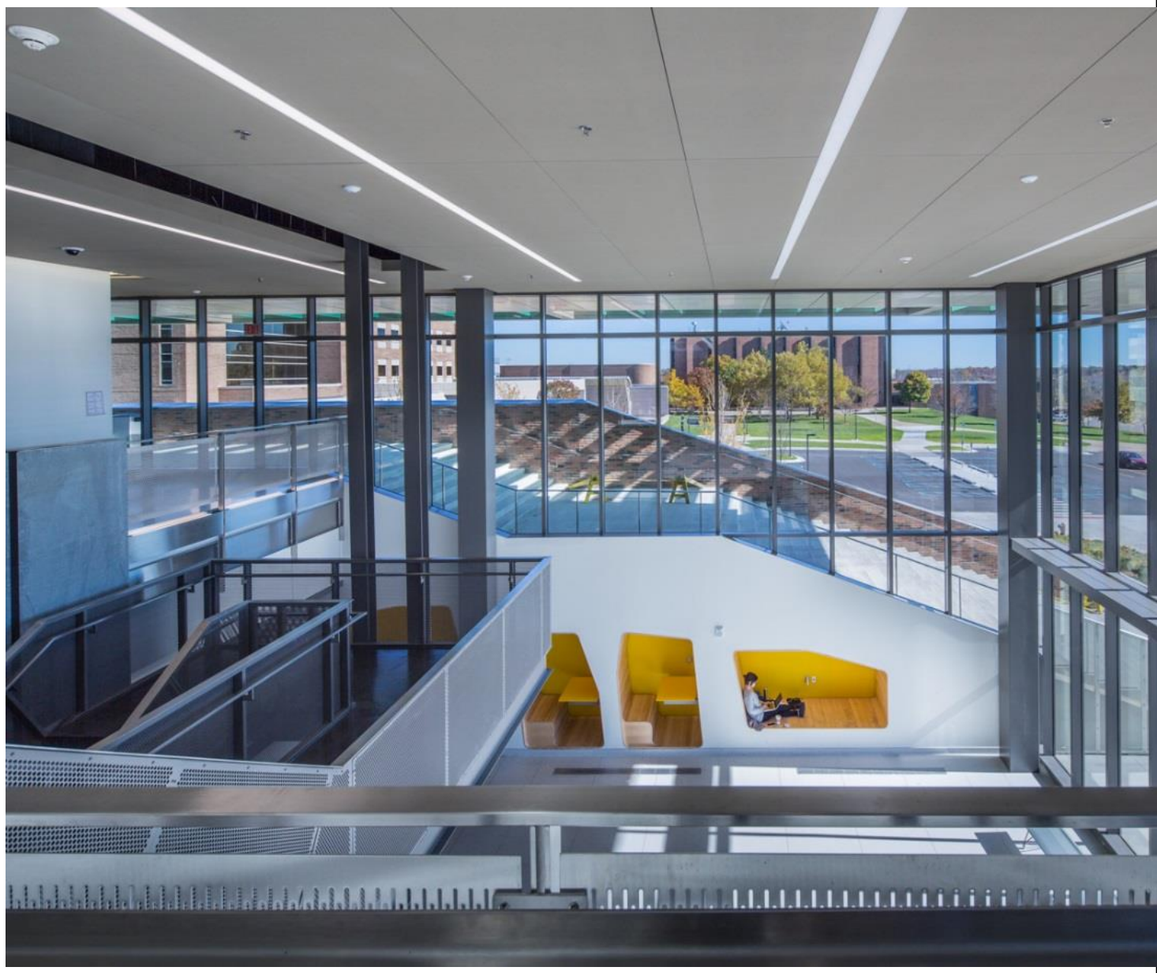

Oakland University, Engineering Center
Rochester, MI

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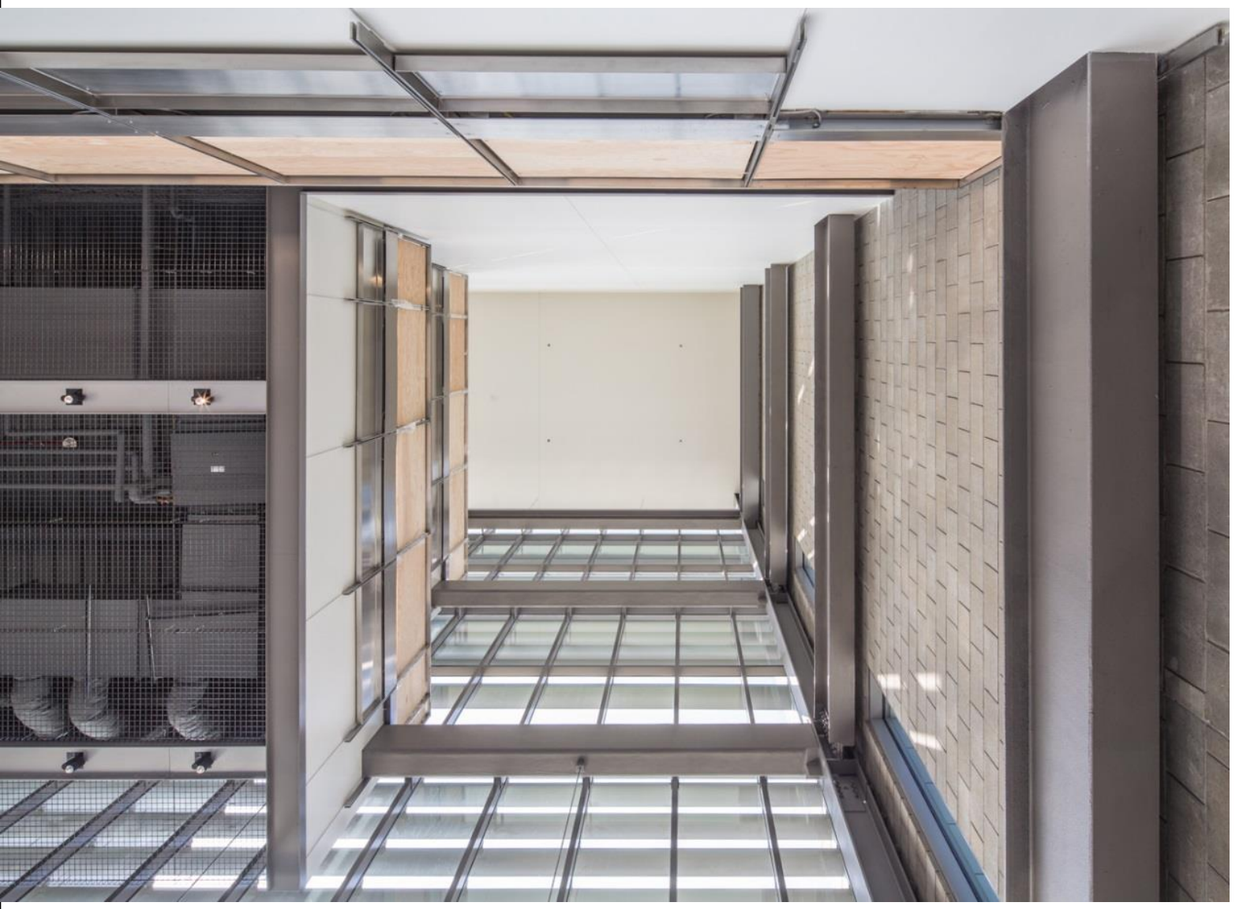

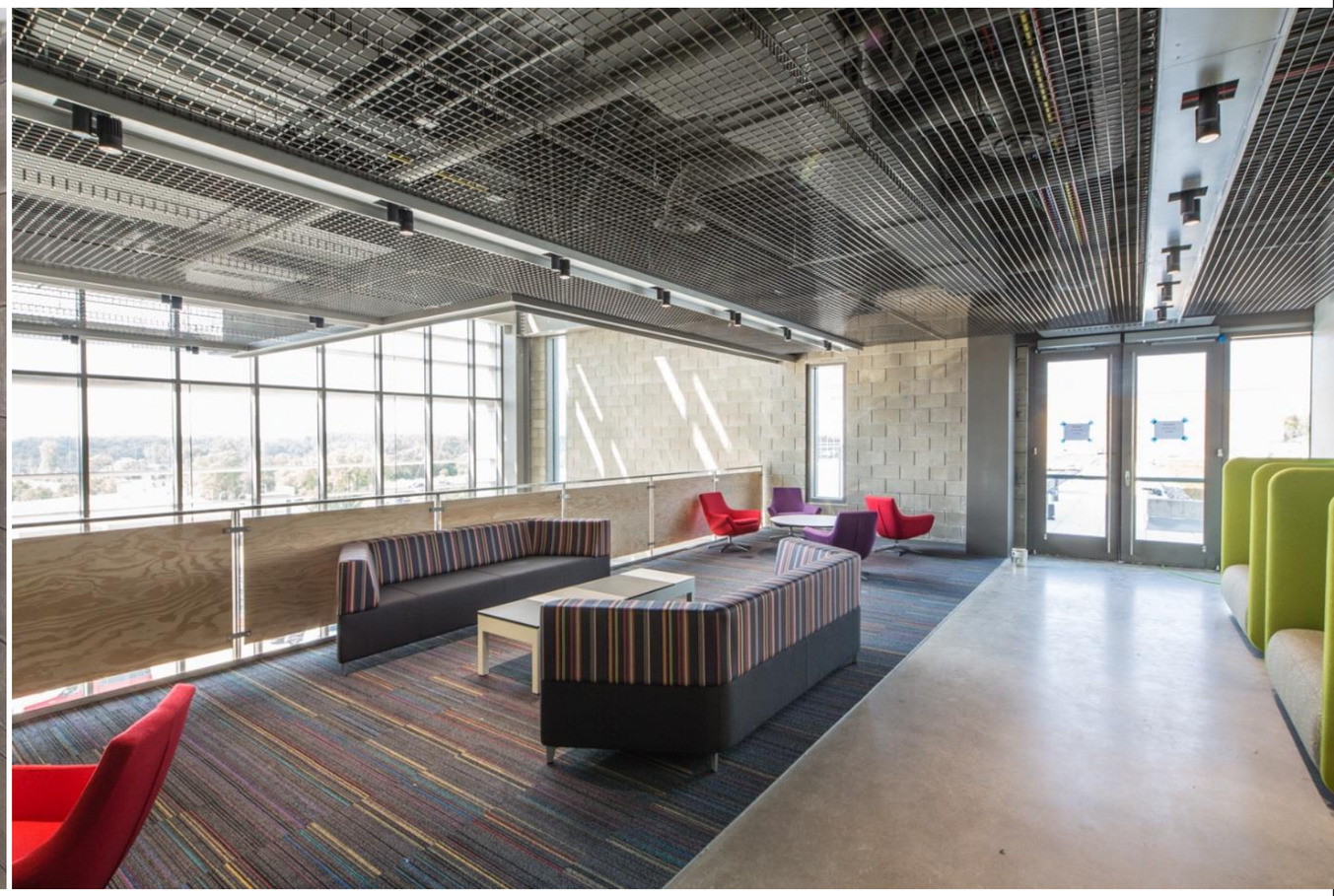

- 33% under ASHRAE 90.1
- 95% LED based systems
- 5.5 year payback by simple payback analysis

Oakland University, Engineering Center
Rochester, MI

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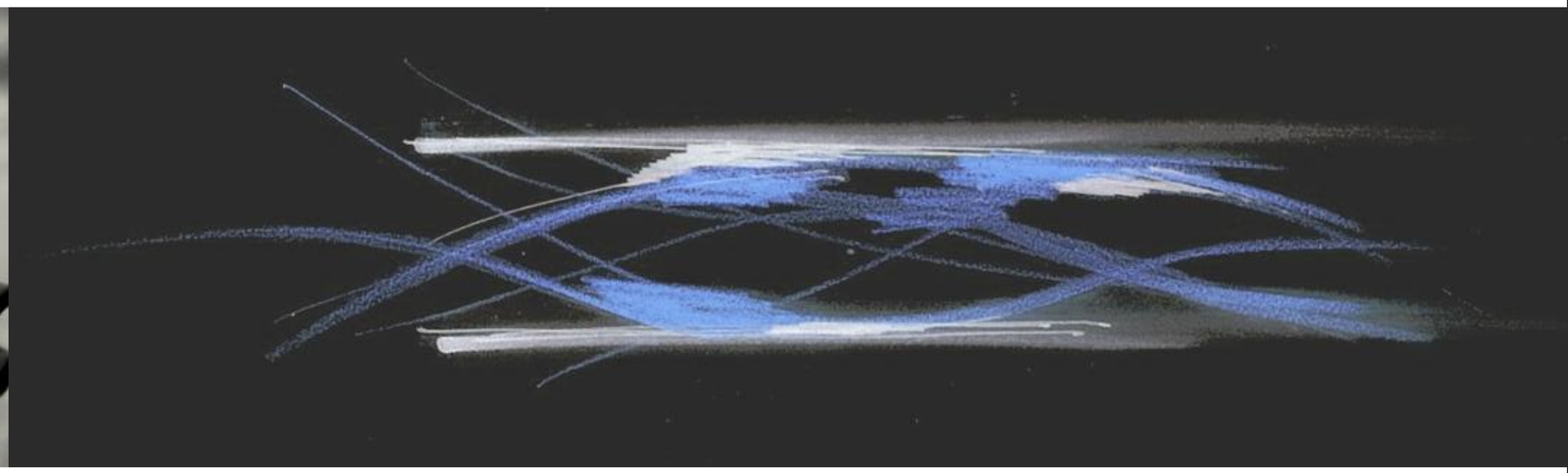

Discovering flow is a non-linear pattern that aims to redirect the public's transitional behavior in a retail environment.

Porta di Roma
Roma, Italia

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Porta di Roma
Roma, Italia

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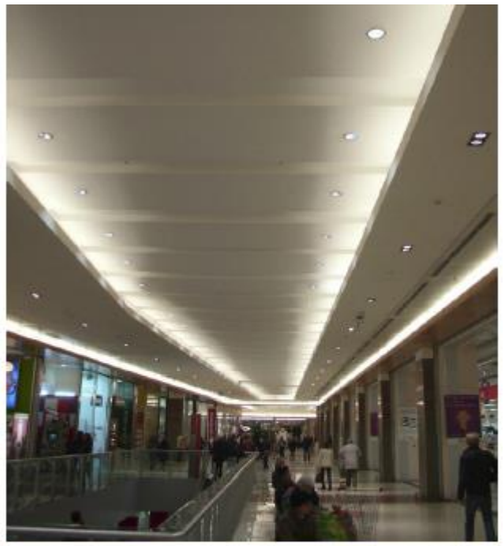

Porta di Roma
Roma, Italia

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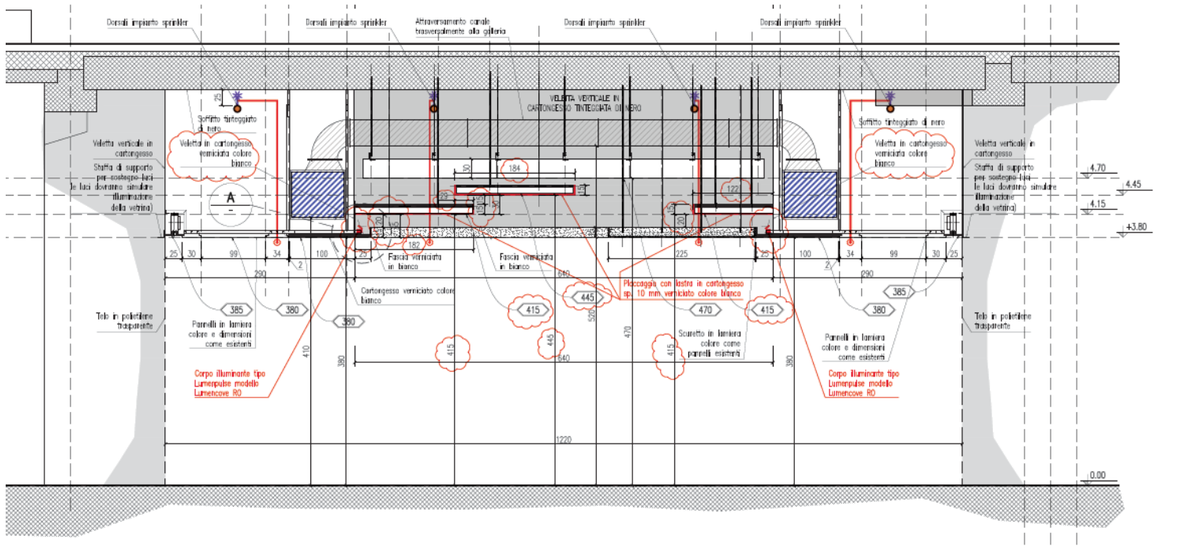
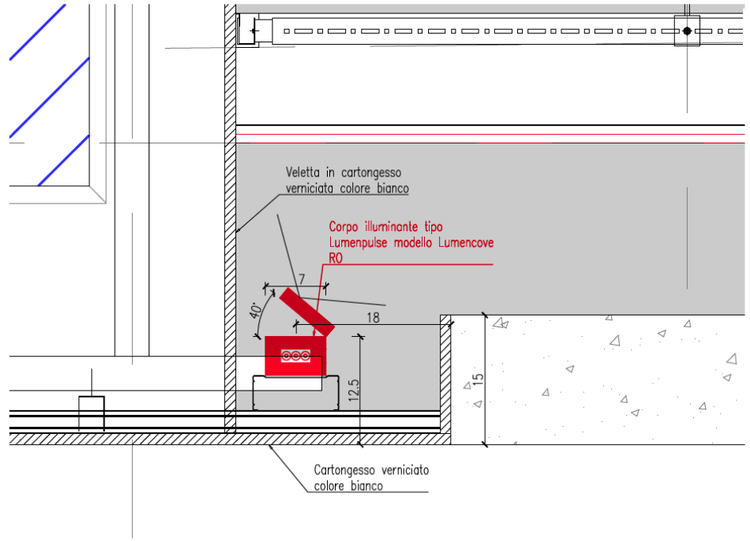
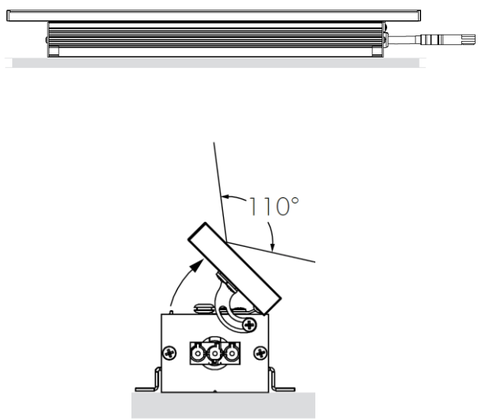
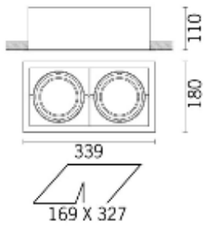


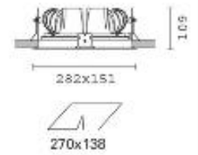
SEZIONE A-A Sc 1:50



DETTAGLIO A - Sc 1:5







Porta di Roma
Roma, Italia

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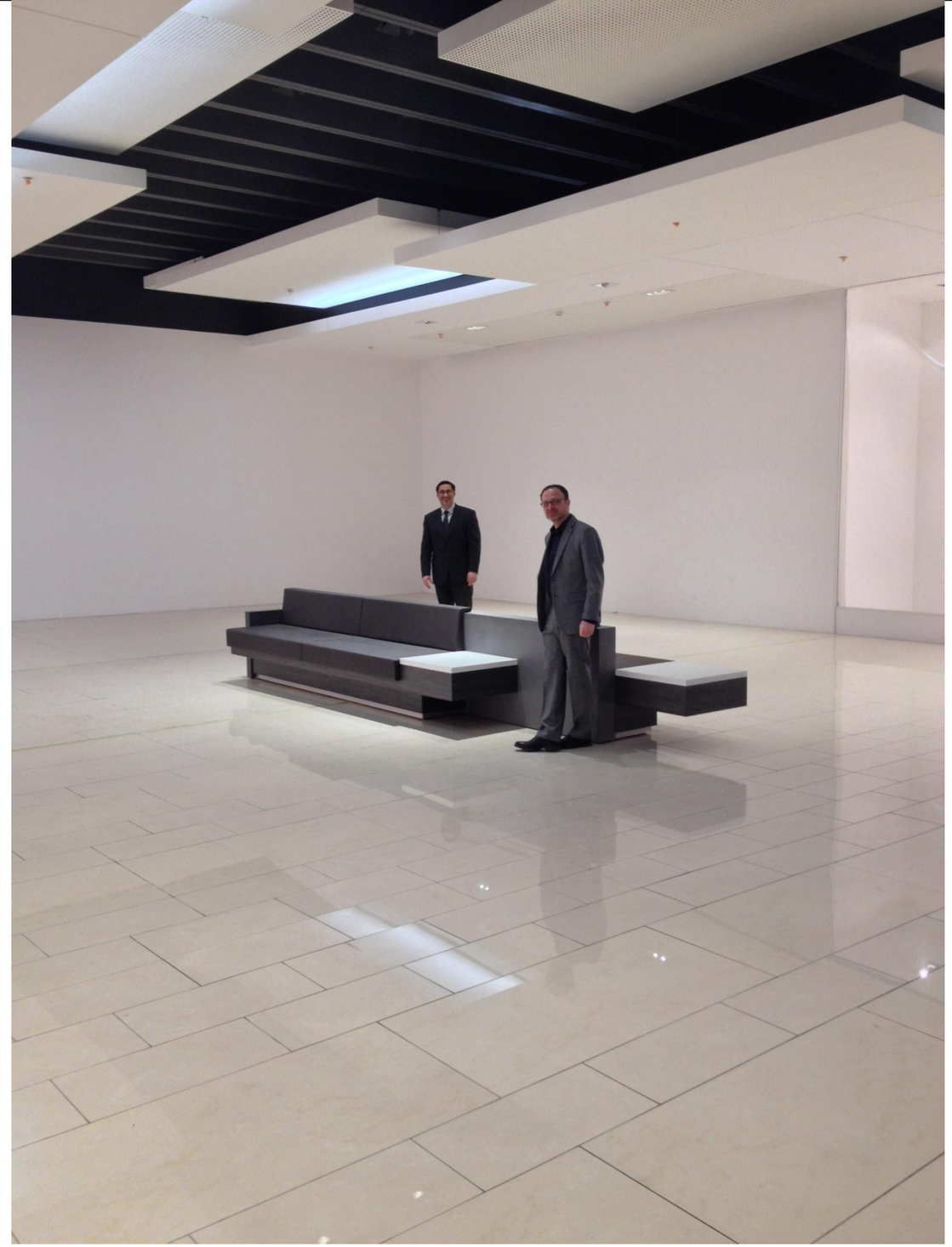

Porta di Roma
Roma, Italia

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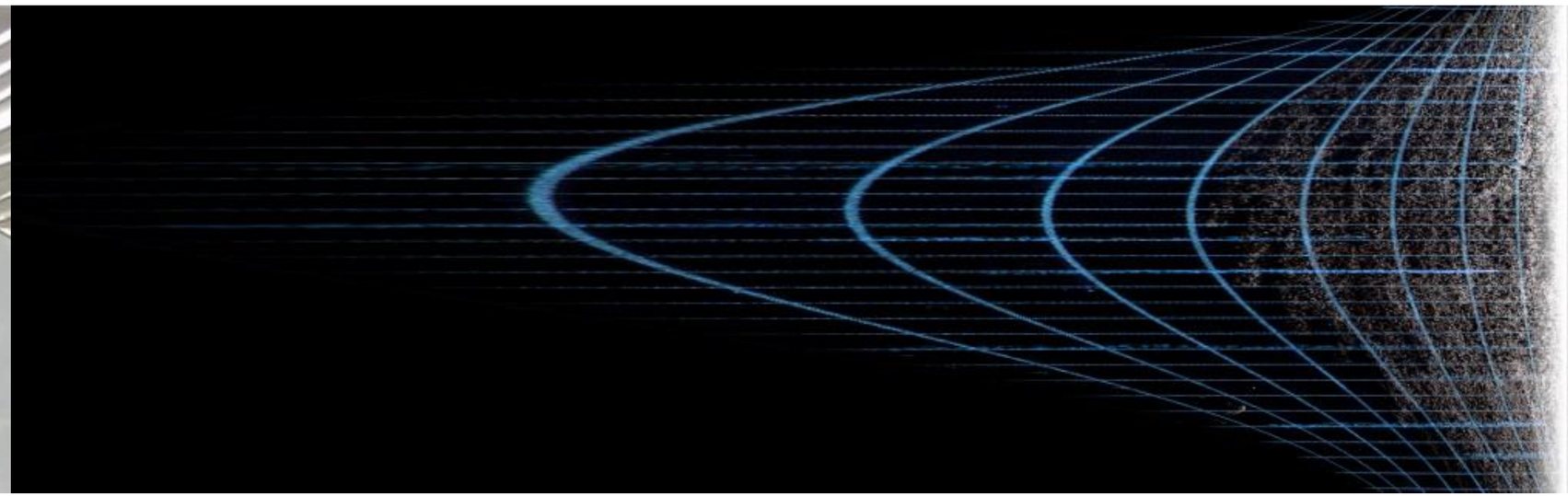

Hue and movement unite contemporary architectural forms to express the creativity and technical expertise of one of the world's leading technology firms.

Microsoft Training Center
Mississauga, Ontario

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Mississauga, Ontario

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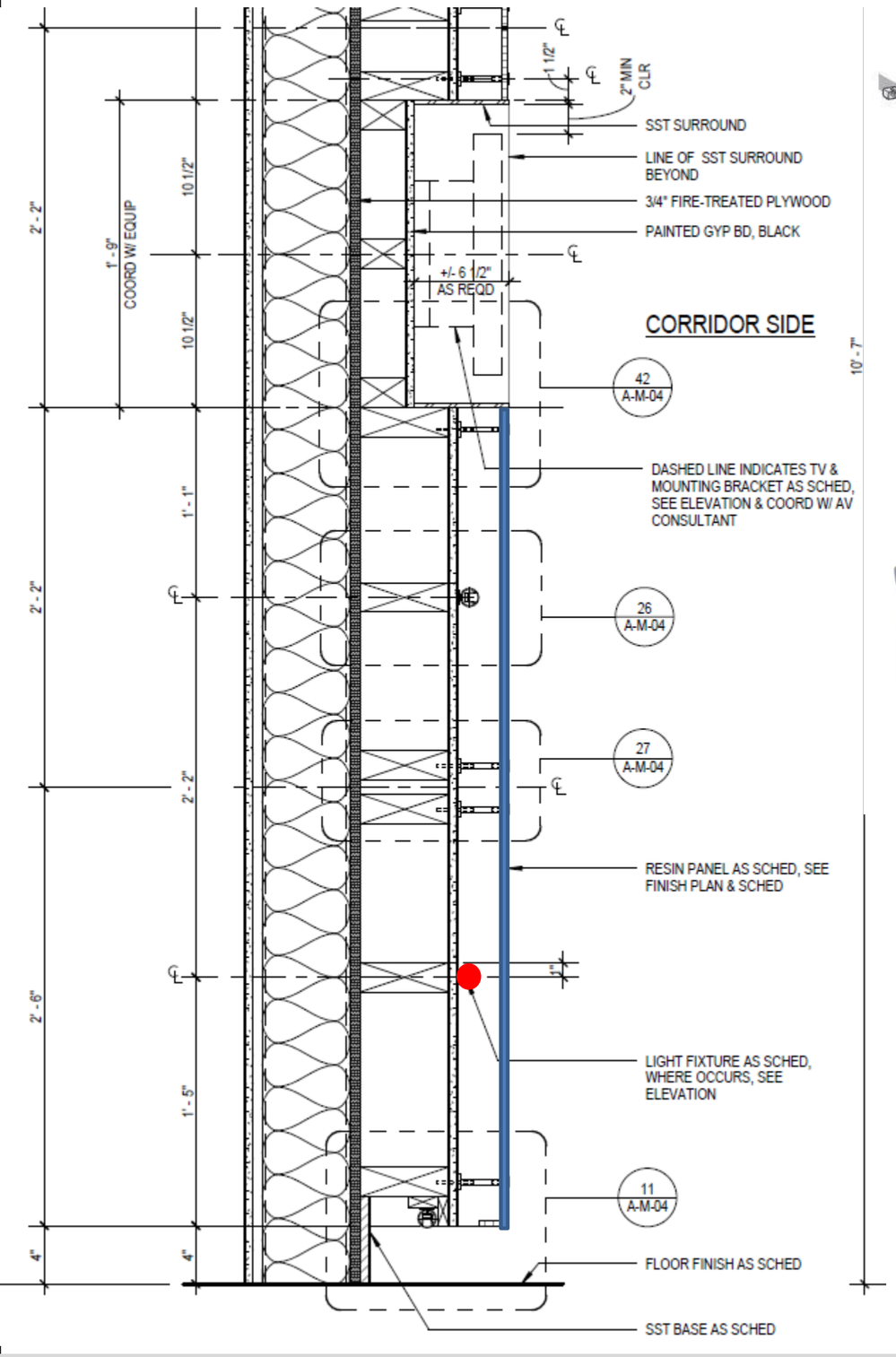

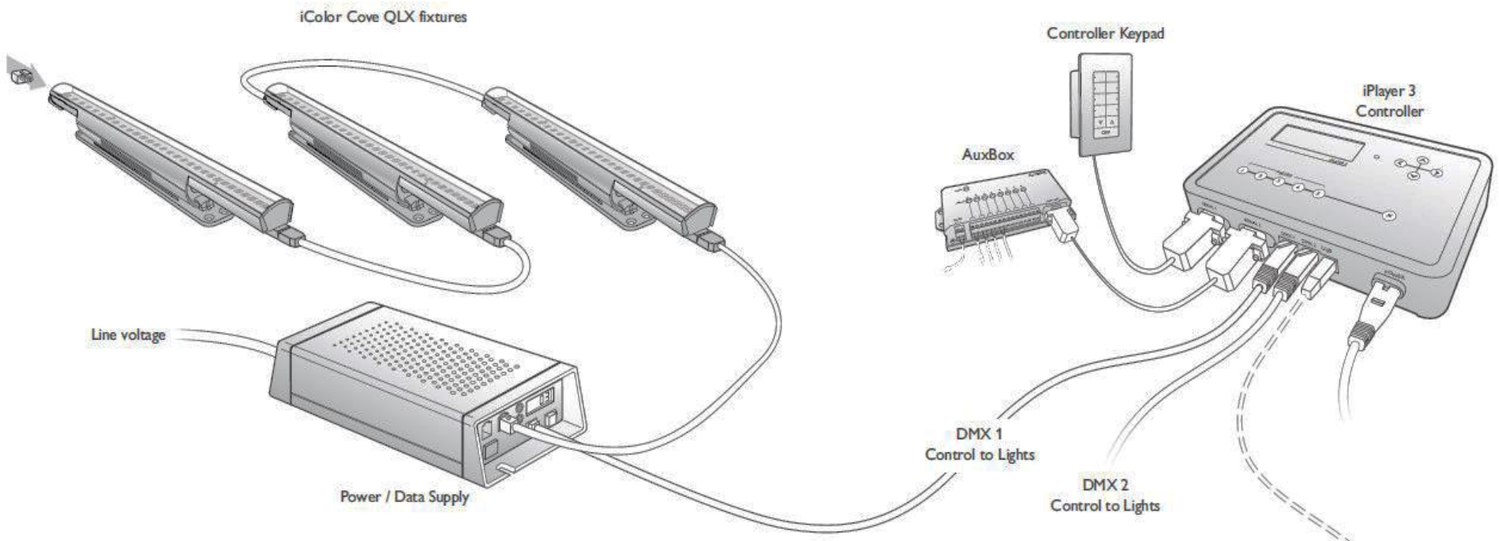

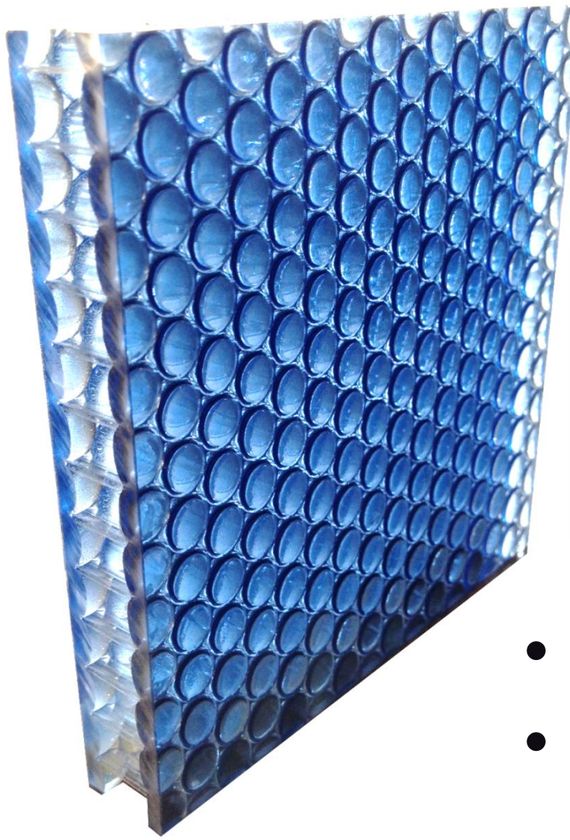

iColor Cove QLX Powercore

Customization : White LED, Digital Dimming

Precise digital control of white light output

- Global DMX address
- Remote Programming and field verification

Microsoft Training Center
Mississauga, Ontario

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Different venues converge in a mosaic gesture that represents the vibrancy and diversity of the student community gathered around great food.

- 48% under ASHRAE 90.1
- 10 different venues
- 90% LED based systems

University of Michigan, South Quad Renovation
Ann Arbor, MI

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University of Michigan, South Quad Renovation
Ann Arbor, MI

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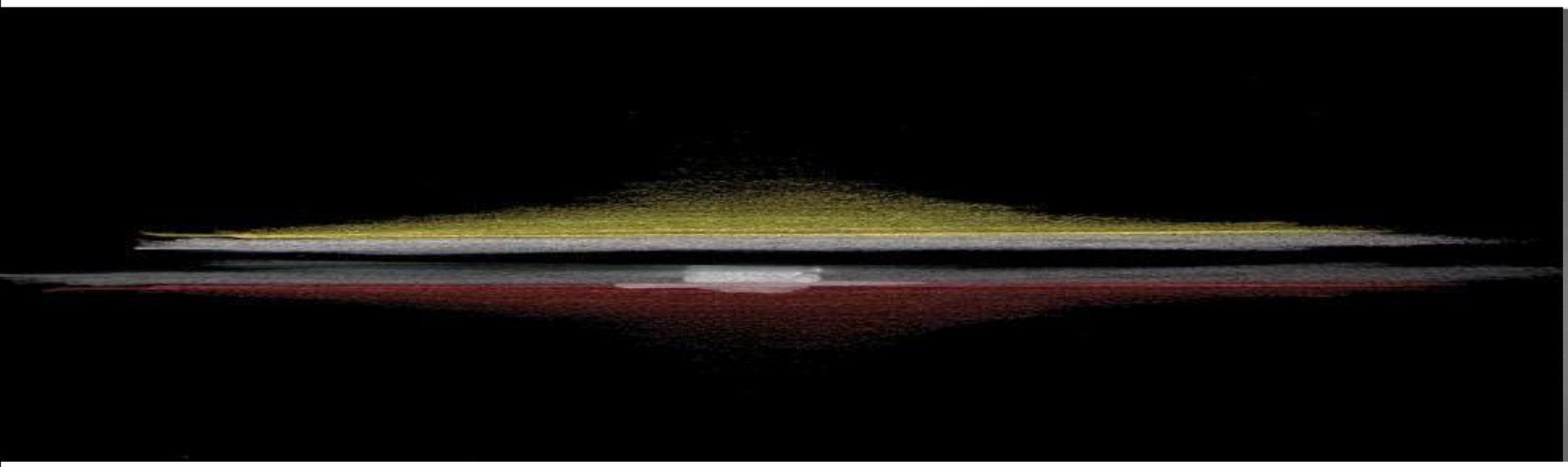
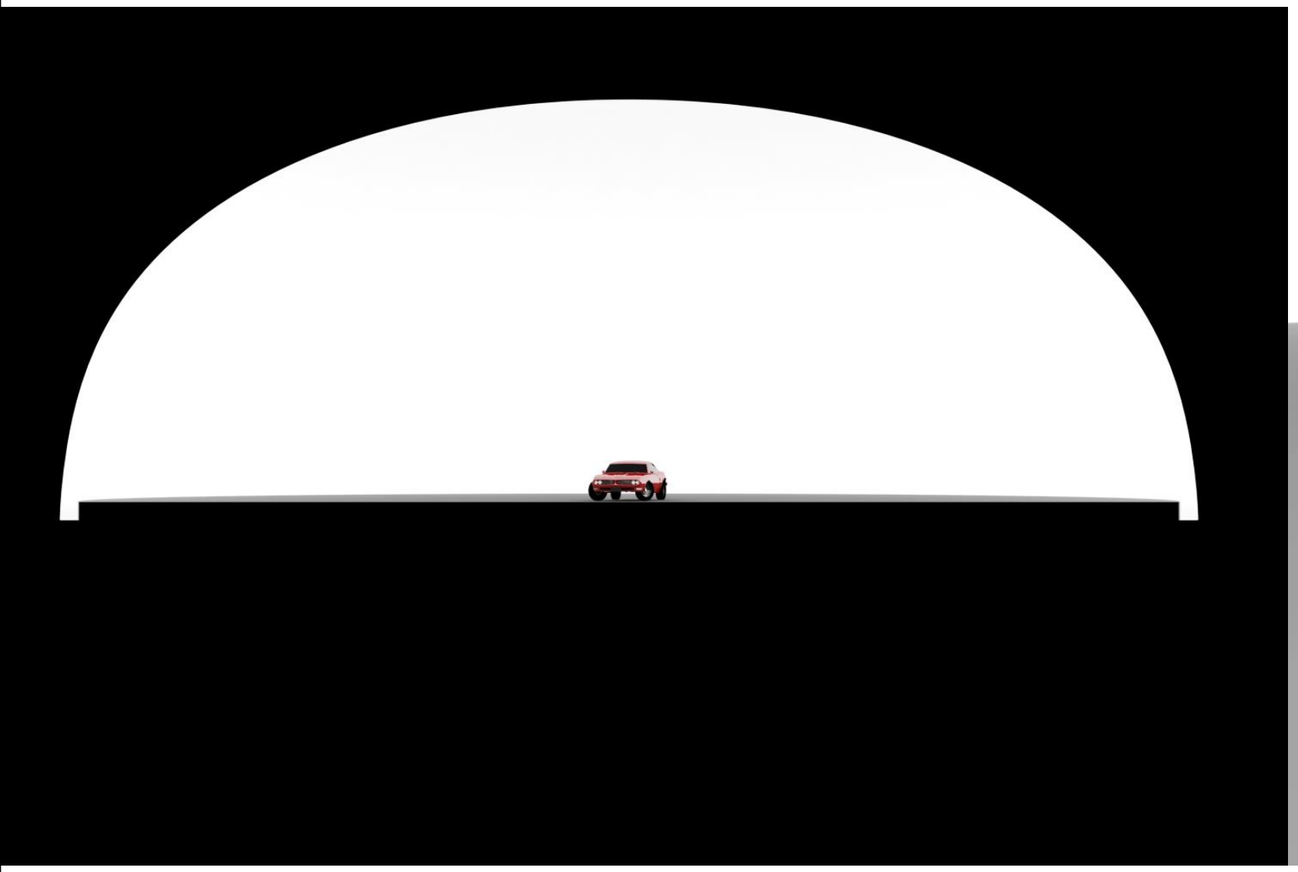


The essence of the design styling dome will allow the space to morph based on its current and future function. Performance relies on clear delineation of shape, horizon line, and reflection purity.

Automotive Design Dome
Shanghai, China

SMITHGROUP JJR



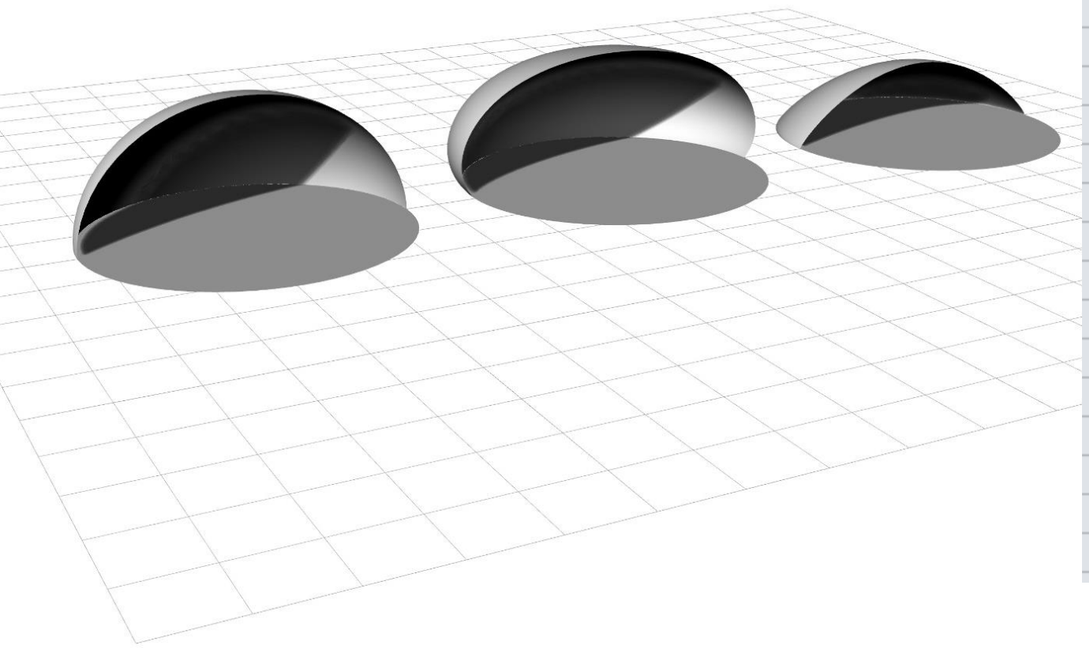
Option 1: Floor perimeter 选项1：地面边界

Automotive Design Dome
Shanghai, China

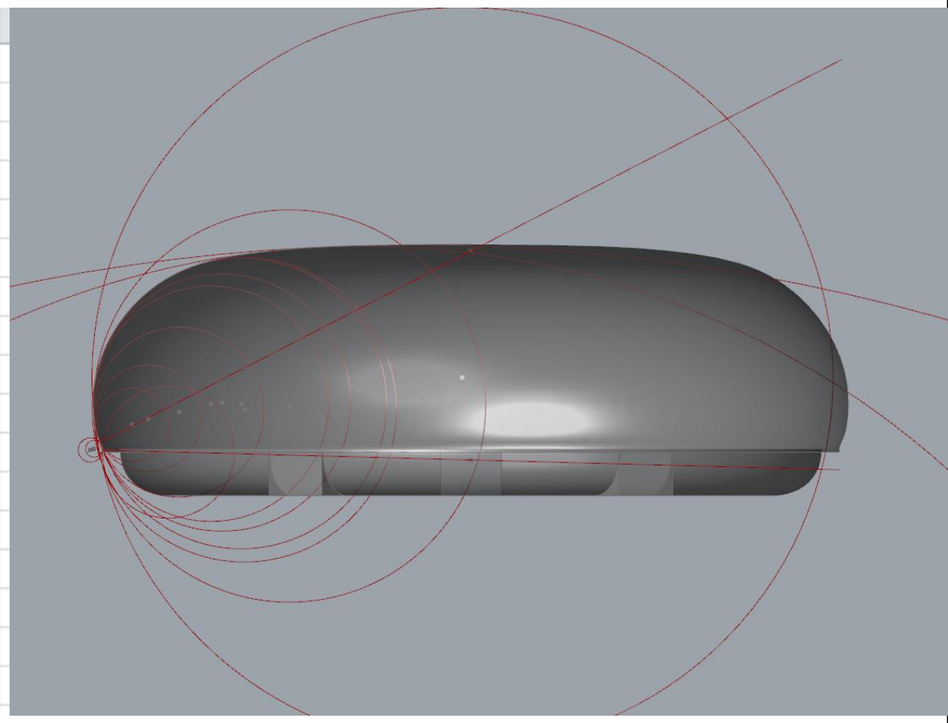
SMITHGROUP JJR

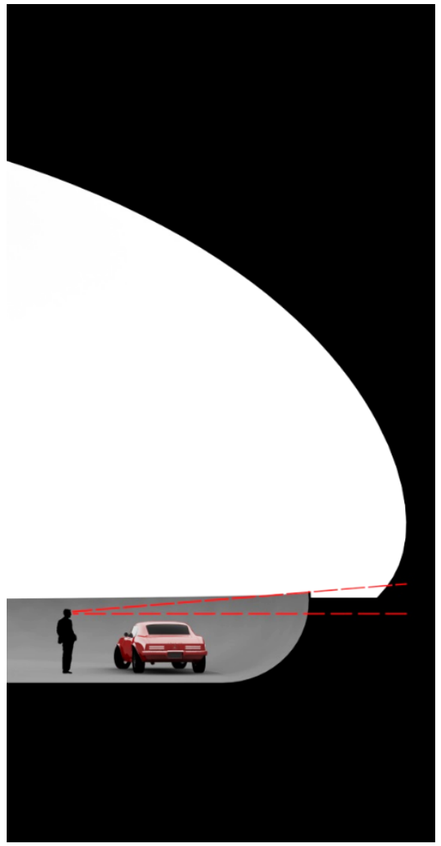
Option 2: Raised Walls 选项2：提升墙面

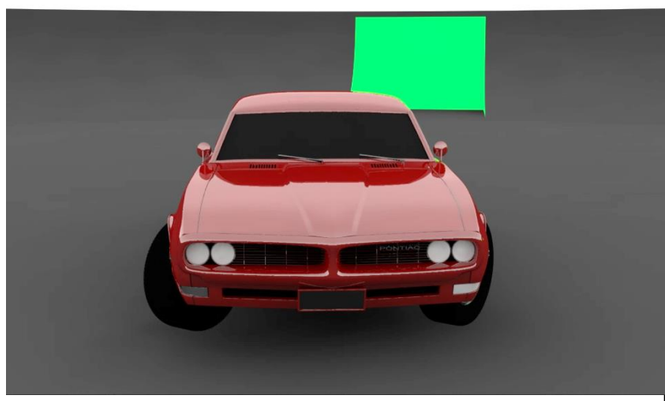
Curve Translation: 数据化曲线



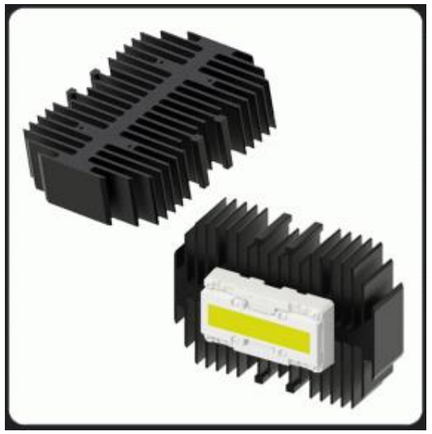
	A	B	C	D
1	x	y	z	radius
2	56.97635	0	8.177501	12.4137
3	0	0	6.725679	69.40866
4	70.9777	0	8.827736	1.597485
5	71.6427	0	8.607722	2.297018
6	0	0	46.06229	78.53612
7	63.71034	0	13.32273	6.906332
8	60.79872	0	14.54504	10.05785
9	54.99098	0	15.71175	15.98409
10	1.589369	0	22.16181	69.77702
11	48.94067	0	17.31492	22.1762
12	34.16201	0	16.88215	36.93273
13	46.87855	0	17.52352	24.22963
14	42.6656	0	16.16567	28.65824
15	43.23142	0	17.36864	27.36722
16	20.25407	0	-118.041	165.0306
17	11.28292	0	-322.001	369.2013



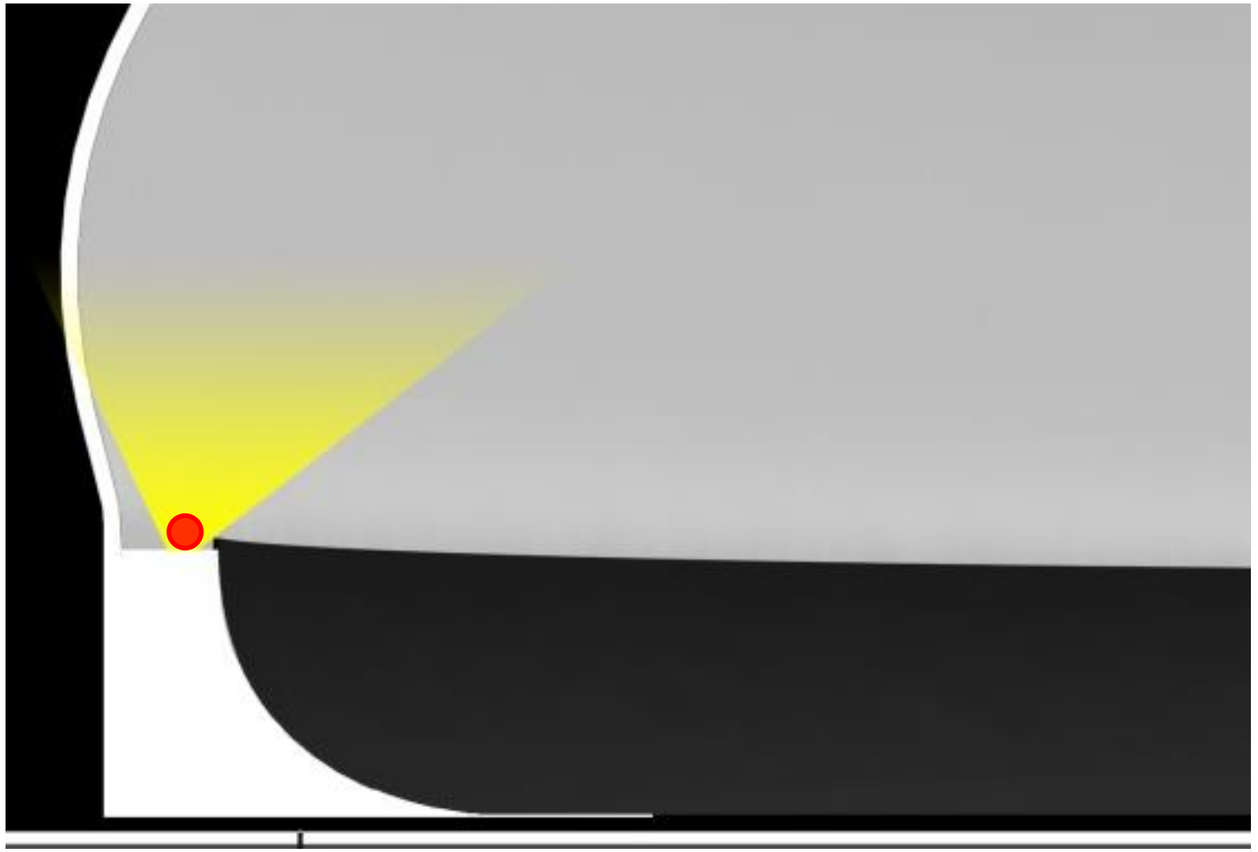


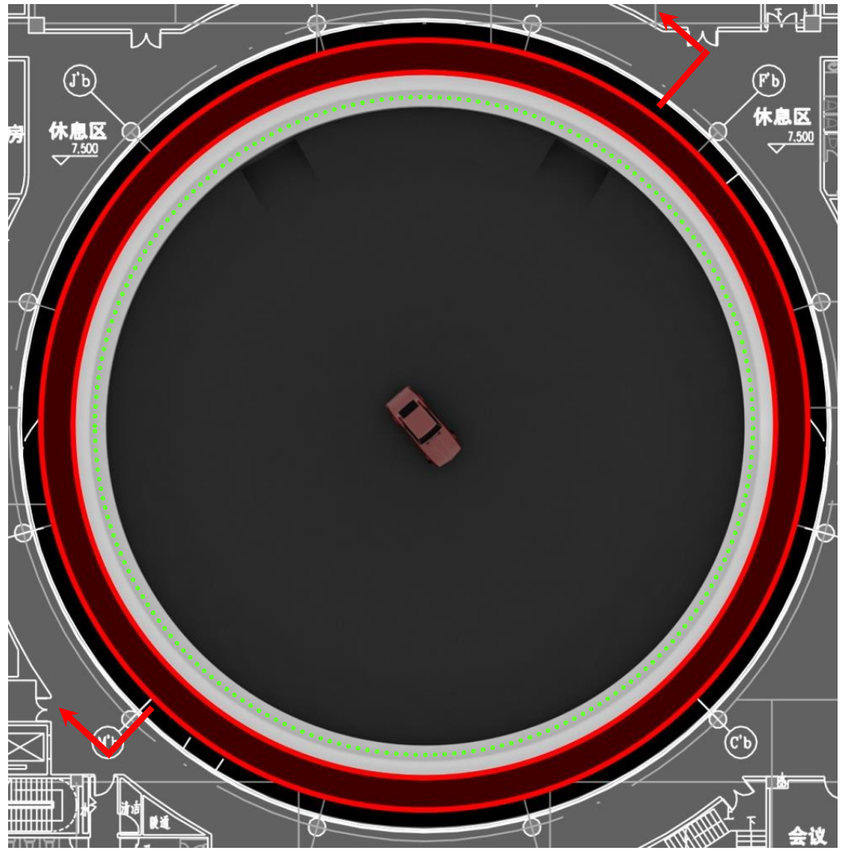


Horizon Line: 地平线



- 4000K CCT
- 3000 lm
- 95+ CRI
- No Optic - efficient
- 50,000 hour life
- Affordable
- Less than 30W/m^2

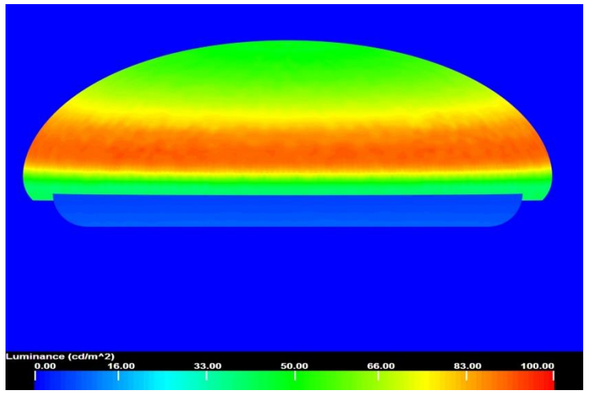


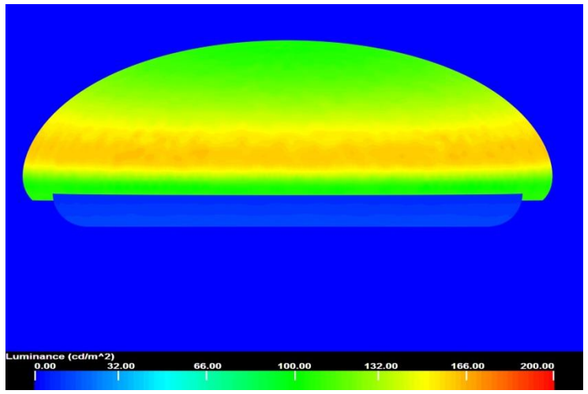


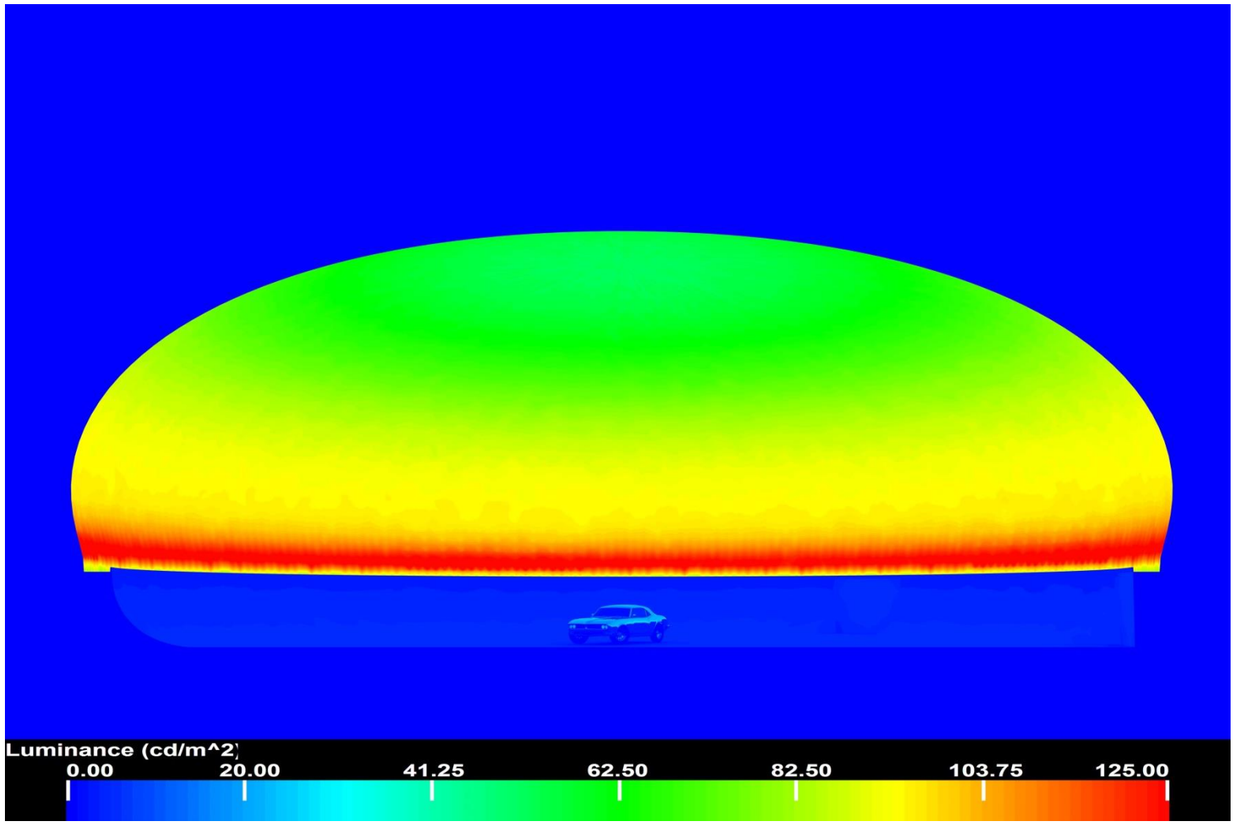
- Indirect Lighting 非直射灯:

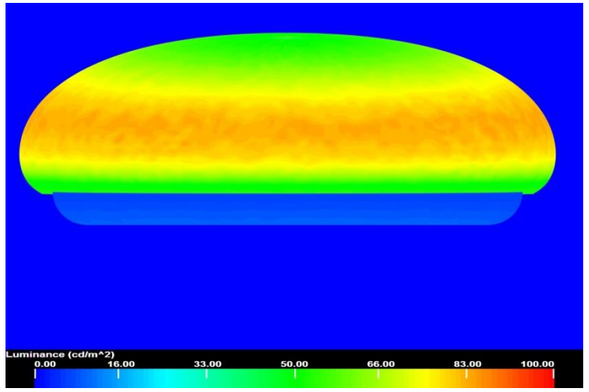
Automotive Design Dome
Shanghai, China

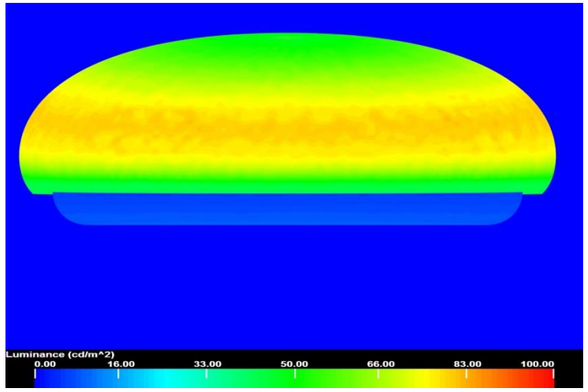
SMITHGROUP JJR



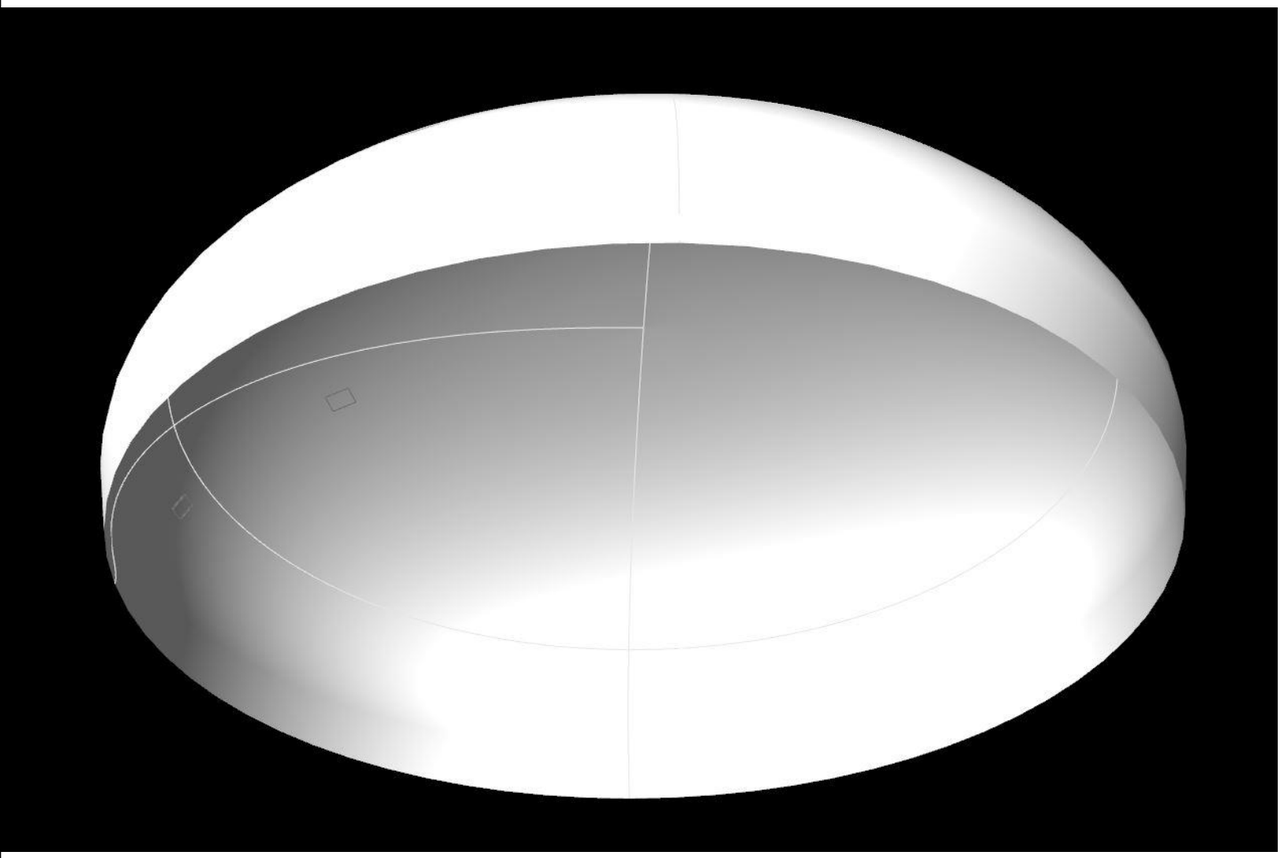




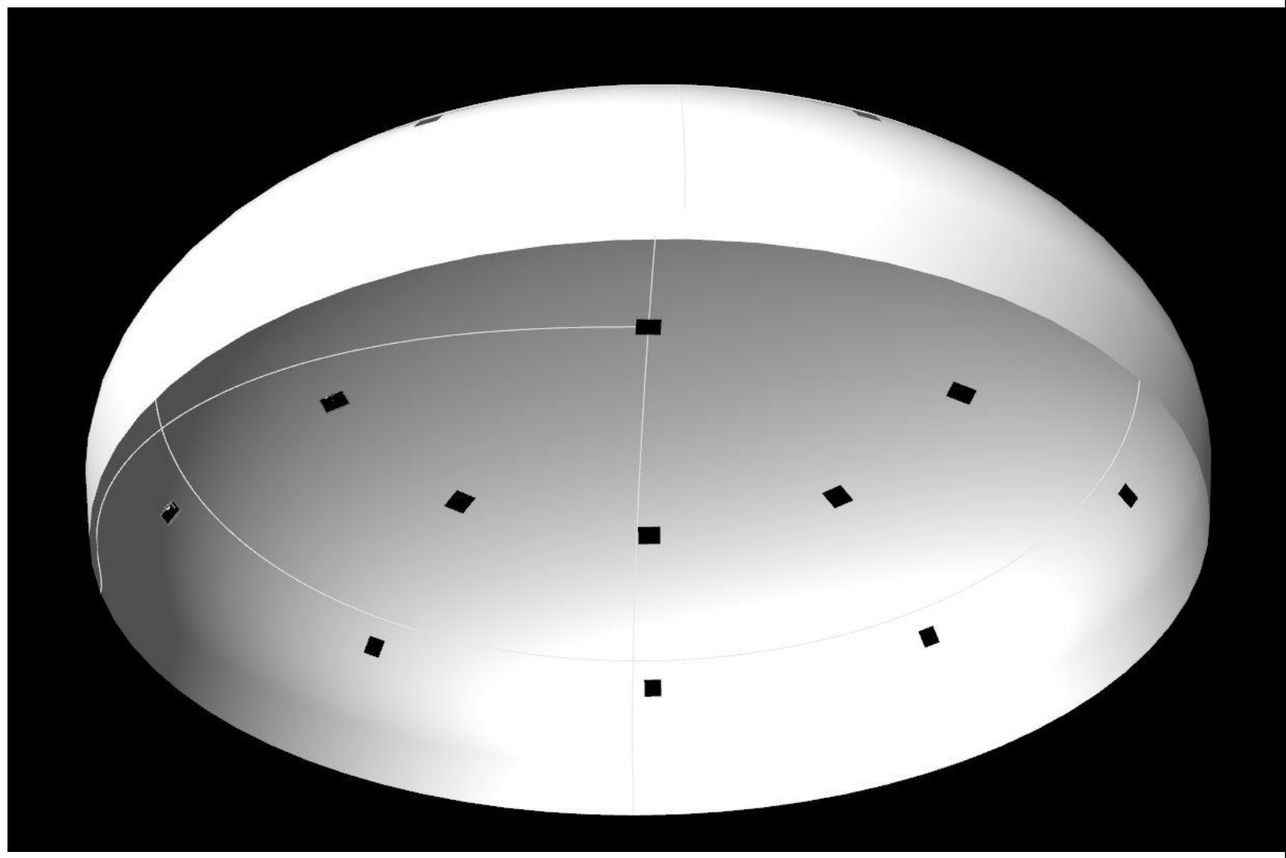




Dome Shape　穹顶形状:



Closed Hatches 灯洞关闭

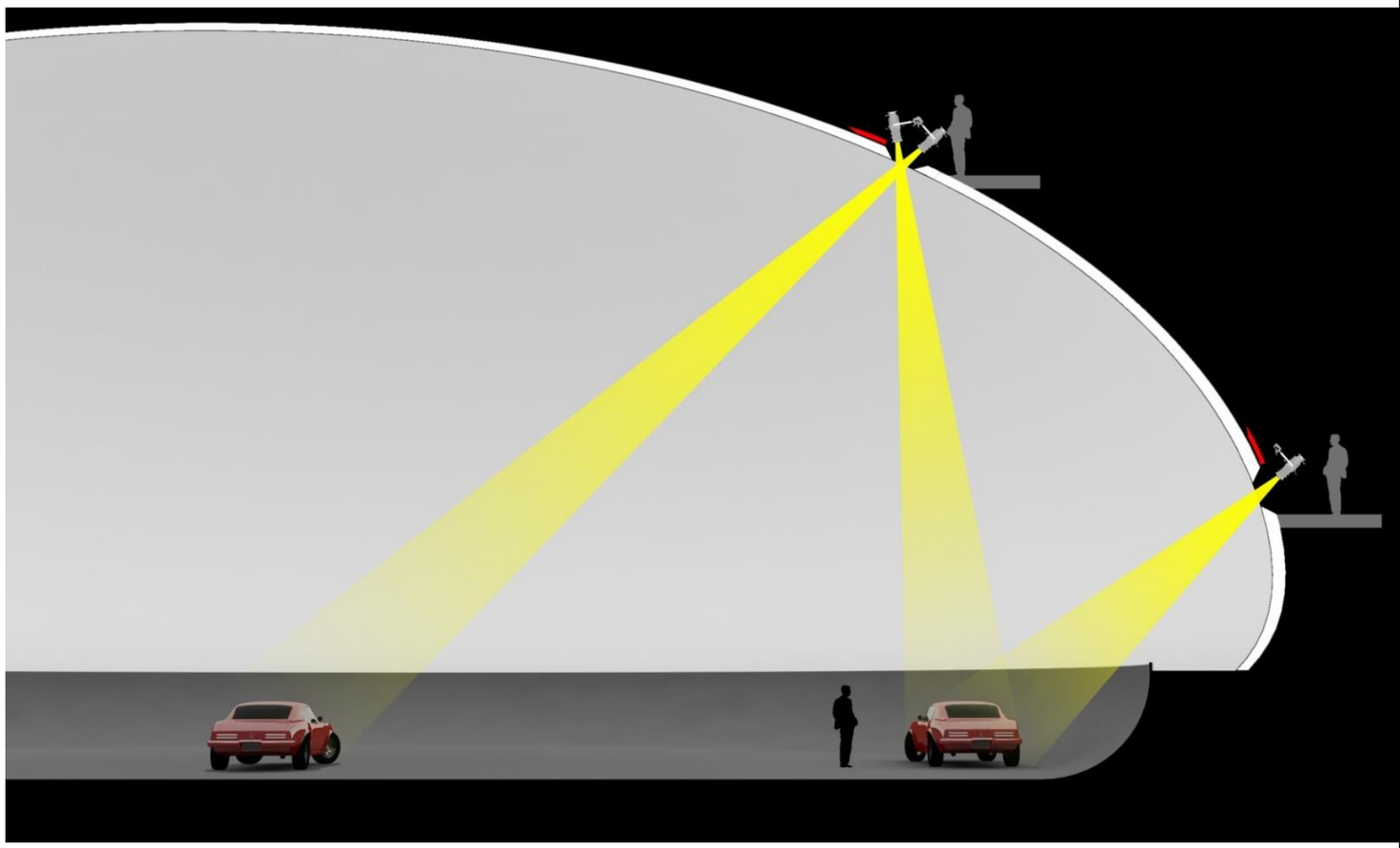


Open Hatches 灯洞开

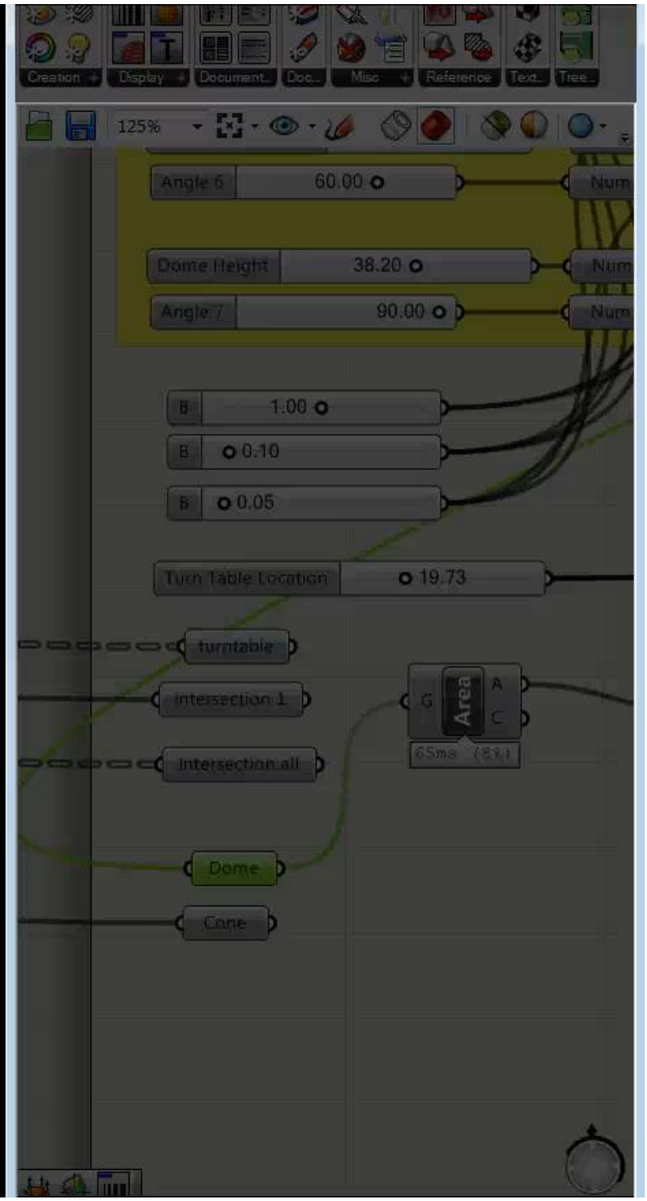
Automotive Design Dome
Shanghai, China

SMITHGROUP JJR

- 40 fixtures
- 160 Watts/fixture
- 95+ CRI (great color)
- Field replaceable optic
- 50,000 hour life
- 7 Channel LED
- DMX-RDM (remote device management)
- Variable CCT 3200-5600 K



Direct Lighting System 直射灯光系统



Automotive Design Dome
Shanghai, China

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