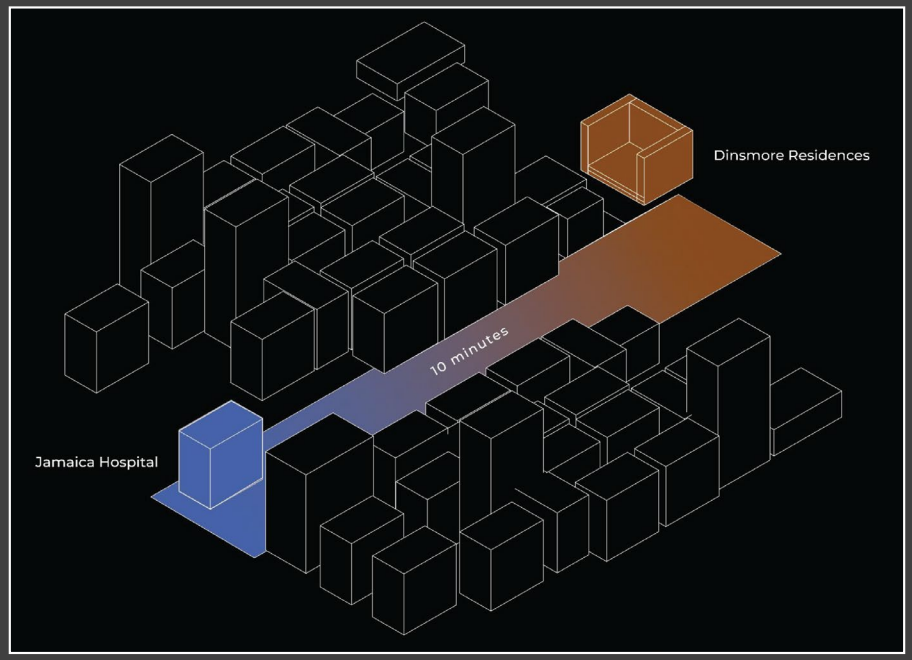
Light As Rhythm — Lighting Documentation

Roberto Esquenazi Alkabes

December 11, 2024

Table of Contents

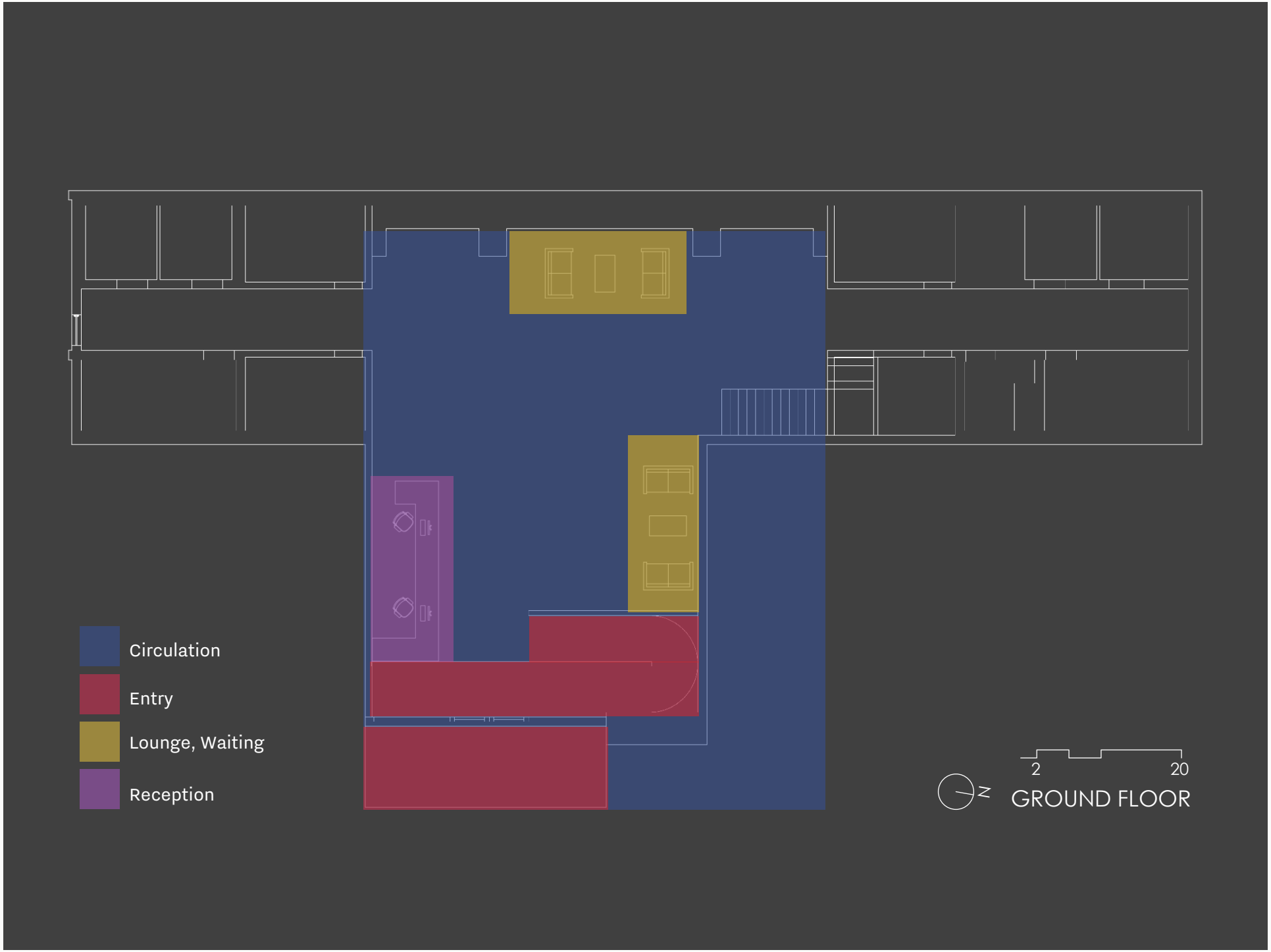


Our project, “Light as Rhythm,” adopts an intentionally focused lens on building design by centering night shift healthcare workers as the primary user group. This decision stemmed from our fascination with this critical population’s inverted work schedules and their unique rhythms compared to the broader world. The site’s immediate proximity to Jamaica Hospital—a mere 10-minute walk—reinforced our decision to narrow our scope to this essential group.

Recognizing the high-stress, rapidly changing environments healthcare workers operate in, we sought to create a building environment that adapts to their needs, offering a pathway for recovery and restfulness. Our design views the building as an adaptation pathway, gradually transitioning color temperature and light intensity to foster relaxation after a demanding night shift.

Our primary scenario focuses on the “return from work” period, occurring daily between 7:00 AM and 8:00 AM. During this time, the lighting environment subtly transforms, supporting the healthcare workers’ transition from alertness to restfulness. While we intentionally omitted considerations for other user groups at this stage, we acknowledge their unique needs and foresee addressing them in the future through scene and zoning configurations.

By concentrating on this specific group and timeframe, we aim to illustrate the potential of lighting as a dynamic tool for promoting health and well-being, particularly for those with unconventional rhythms.

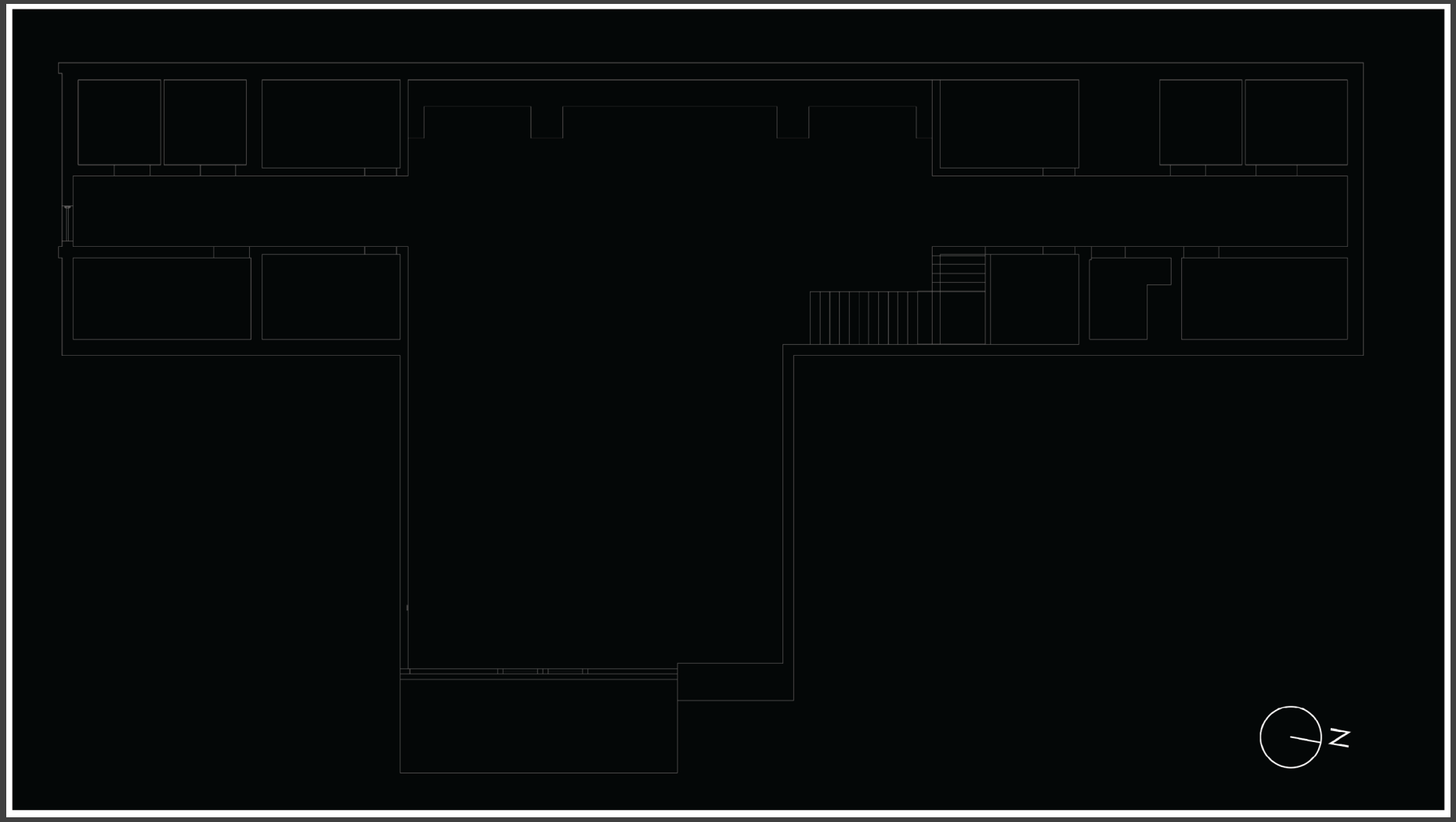

Circulation
Entry
Lounge, Waiting
Reception
2
20
N
GROUND FLOOR

Illuminance Criteria (IESNA 10TH EDITION)

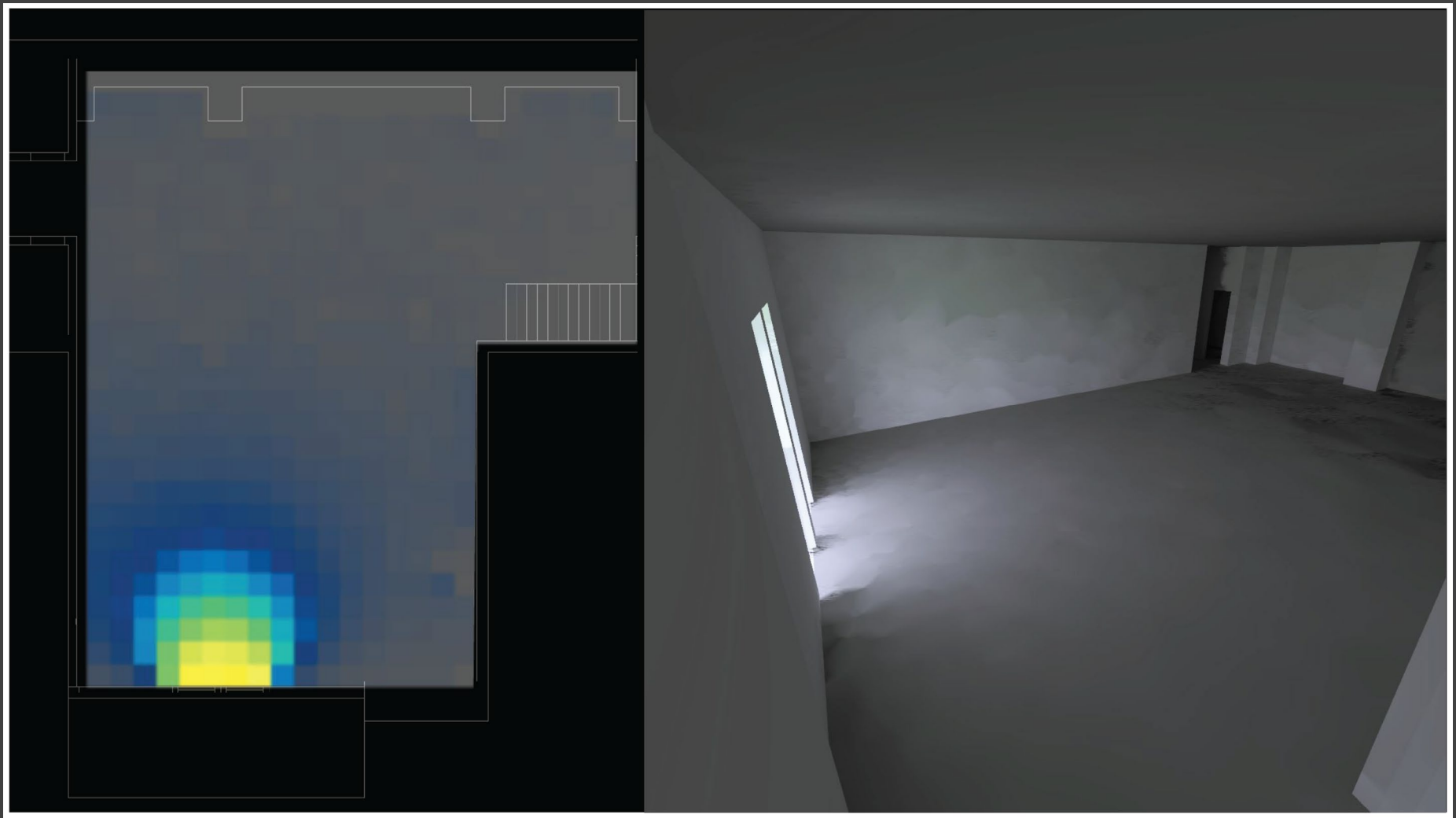
Illuminance Targets	Horizontal Illuminantion (Lux)	Vertical Illumination (Lux)
Lobby—General Circulation	50	Unspecified
Lobby—Entry	150	75
Lobby—Lounge—Social, Waiting	100	50
Lobby—Reception	150	20

Energy Requirements & Targets (ASHRAE 90.1)

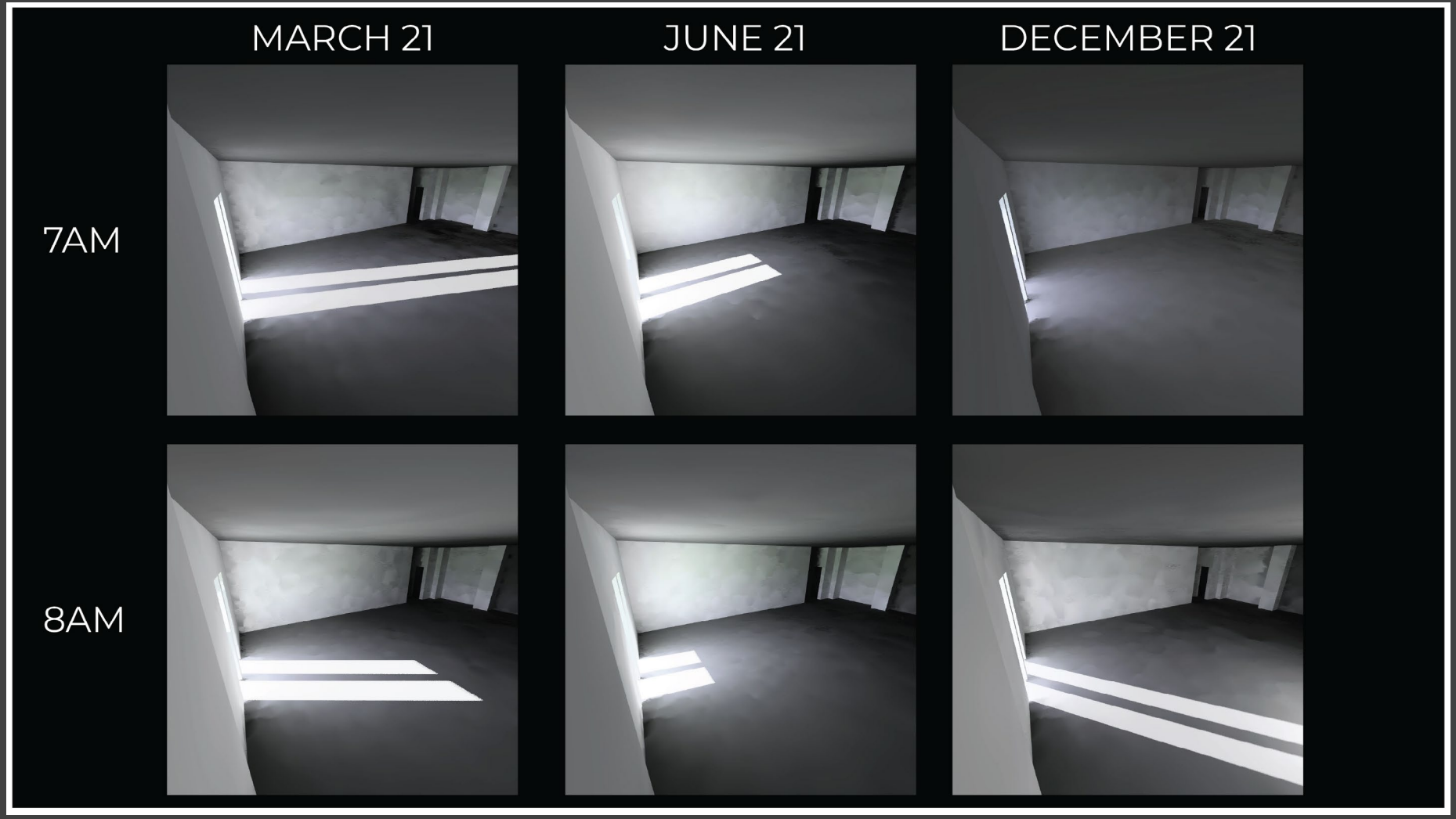
	Lighting Power Density (w/ft2)	Area of Space (ft2)	Allowable Load
Lobby	0.84	2062.68	1732.6512



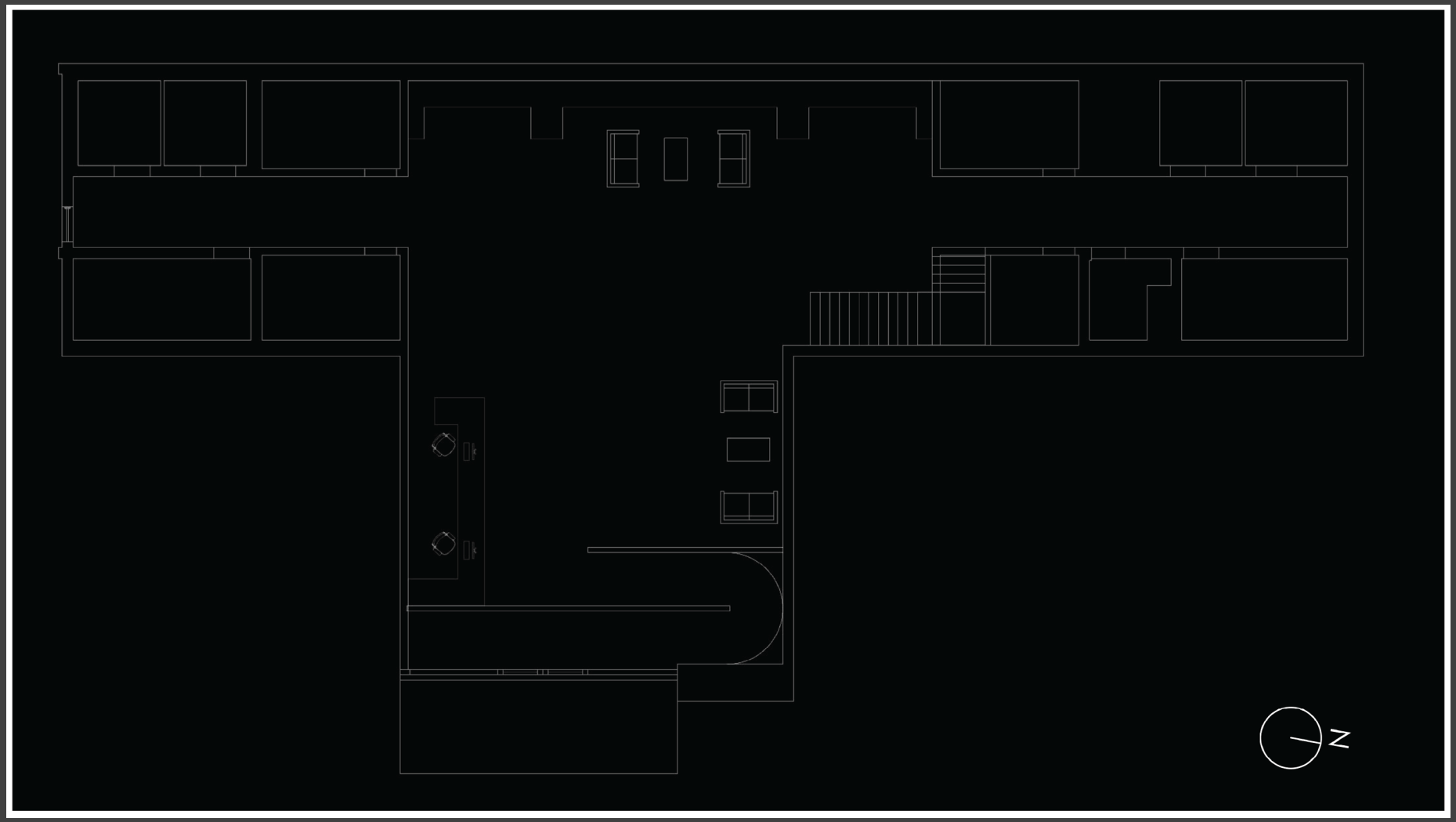
This is an empty floorplan of my focus area. As we can see, the lobby is quite open and features east facing fenestration. Because our critical user group was coming back home as the sun was rising, it was critically important to understand the daylight penetration and solar exposure coming in at these times. I wanted to make sure that these conditions wouldn't affect what we were trying to do in the rest of the space.



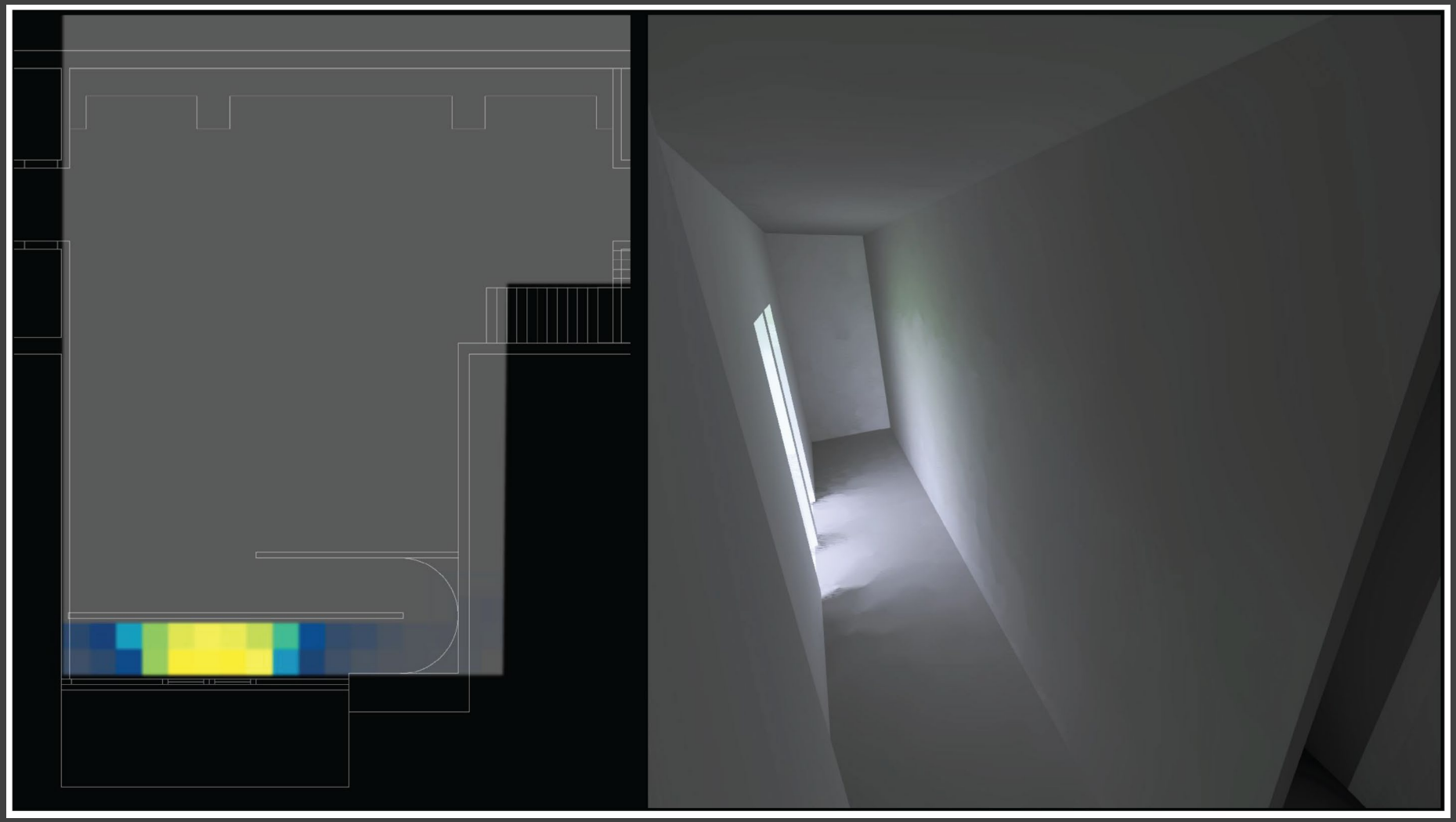
As we can see in the daylight factor calculation and the diffused sky rendering, daylight does project into the space by quite a bit. This might be an issue, as we're trying to limit blue light exposure as much as possible to facilitate circadian lighting when the users arrive at their residential unit.



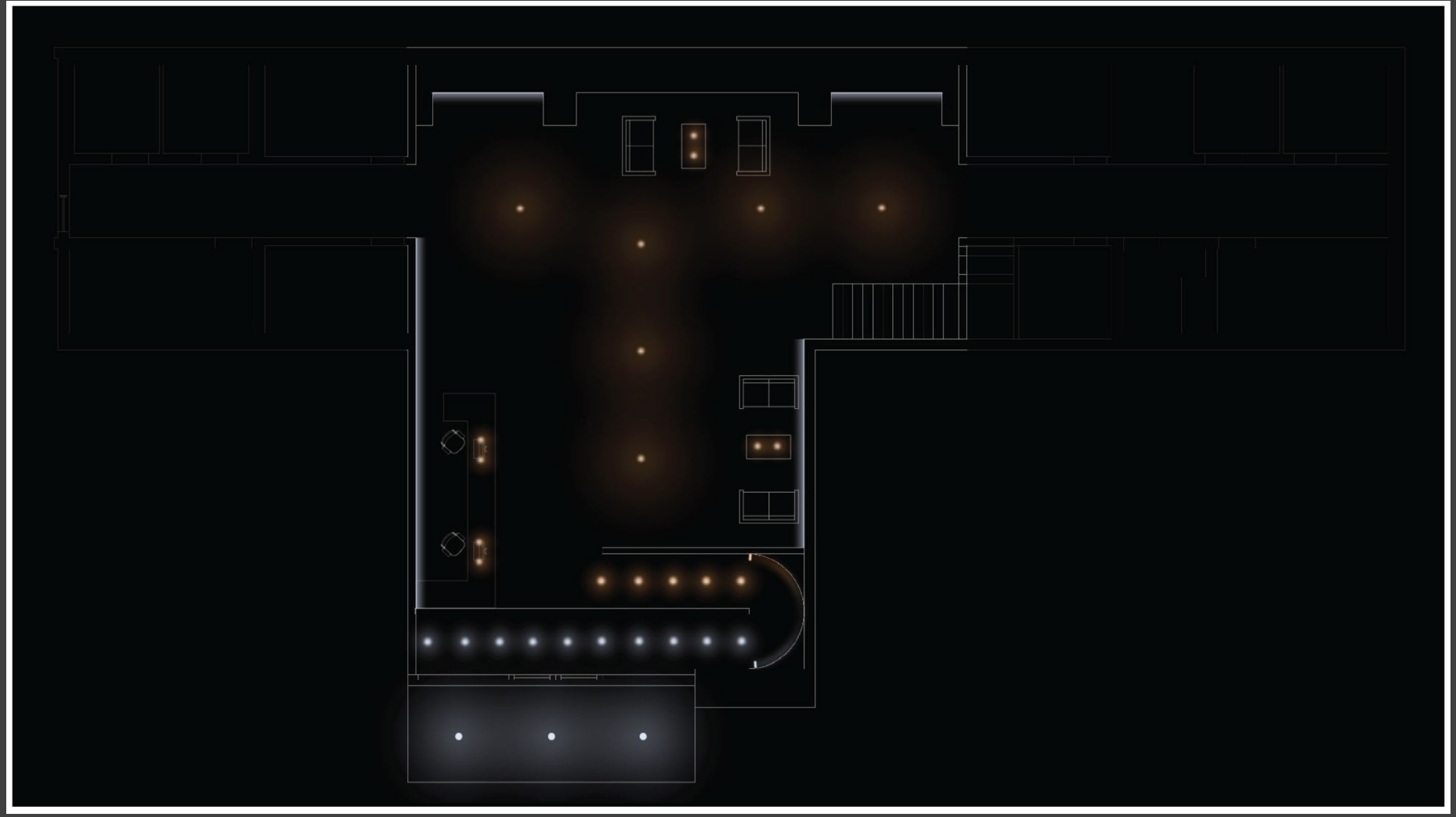
Again, we can see that the solar penetration at the times that they would be returning home are quite deep for most of the year. We had to limit this in some way, again, to advance our design intent.



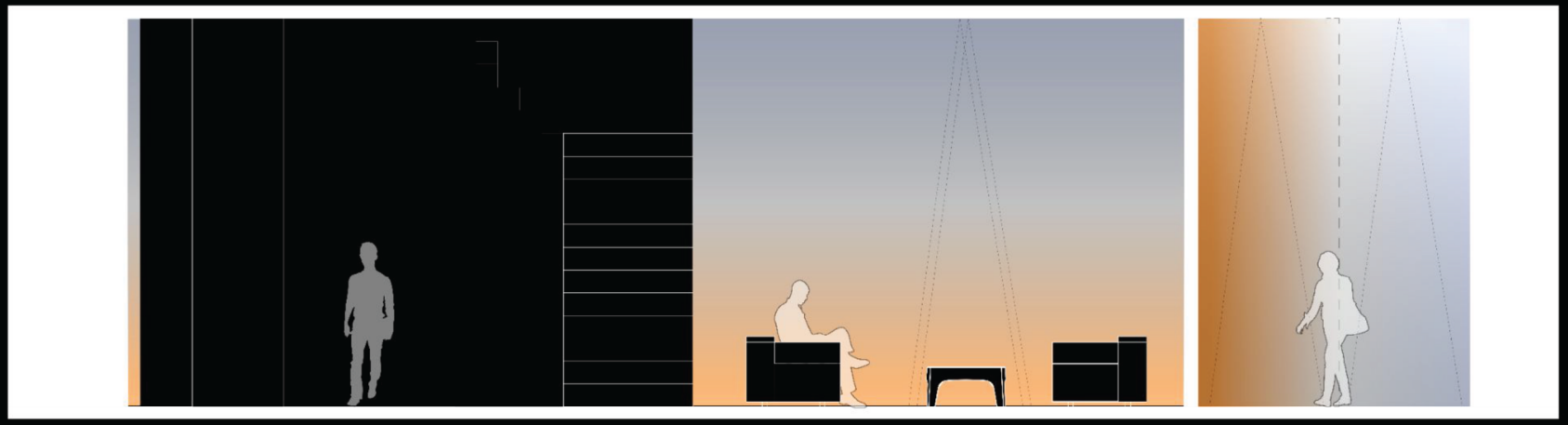
The solution I came up with was a light lock of sorts. This not only blocks daylight and sunlight, but acts as a buffer to physically elongnate the path our users need to take to enter the building. This acts as a point of compression to force them into a calmer rhythm and prime them to be entrained into a restful rhythm as they progress through the building.



We can see how effective this solution is in the image above. I also added a curved condition at the end of the corridor to create a sort of mixing chamber that could dynamically changed as the day progressed.



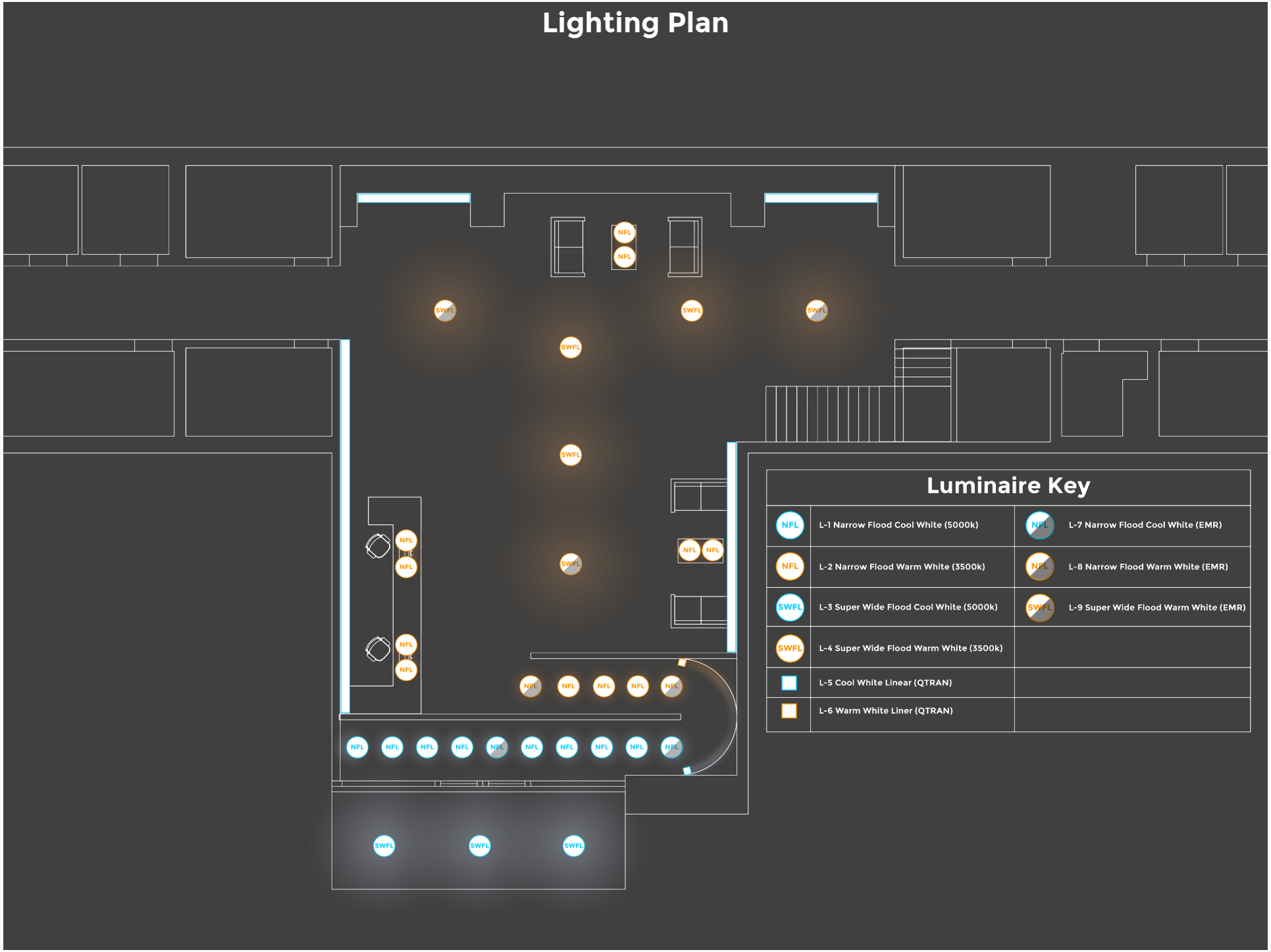
This is the proposed rendered lighting plan. I chose to wash the vertical surfaces and treat them as mixing chambers, based on the first mixing chamber created at the entrance of the building. I'm using a warmer color on one side and a cooler on the other, to mimic daylight and electrical light mixing.



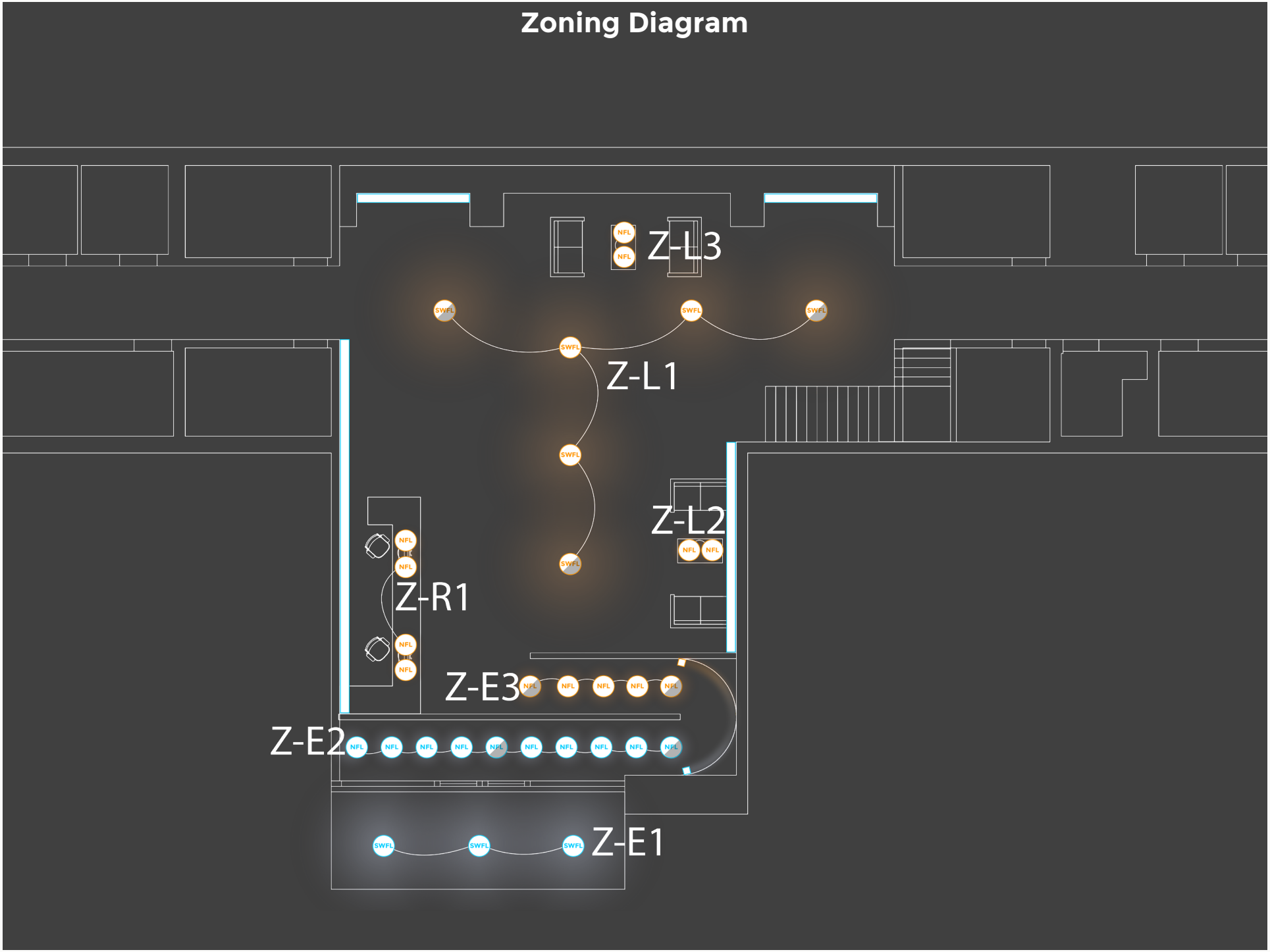
In this sectional study, we can begin to appreciate how this might feel and look like. This creates a dynamic space that attempts to mimic natural rhythms in vertical surfaces as well as slow the users down as they traverse the space.

Here is a rendered section of what the space might look like.

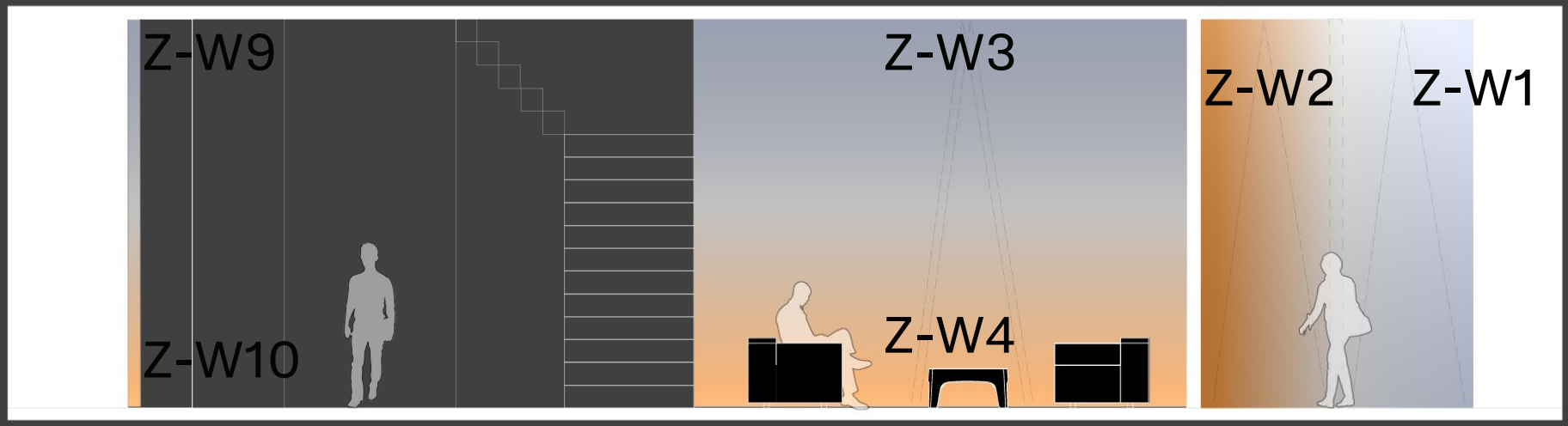
Lighting Plan



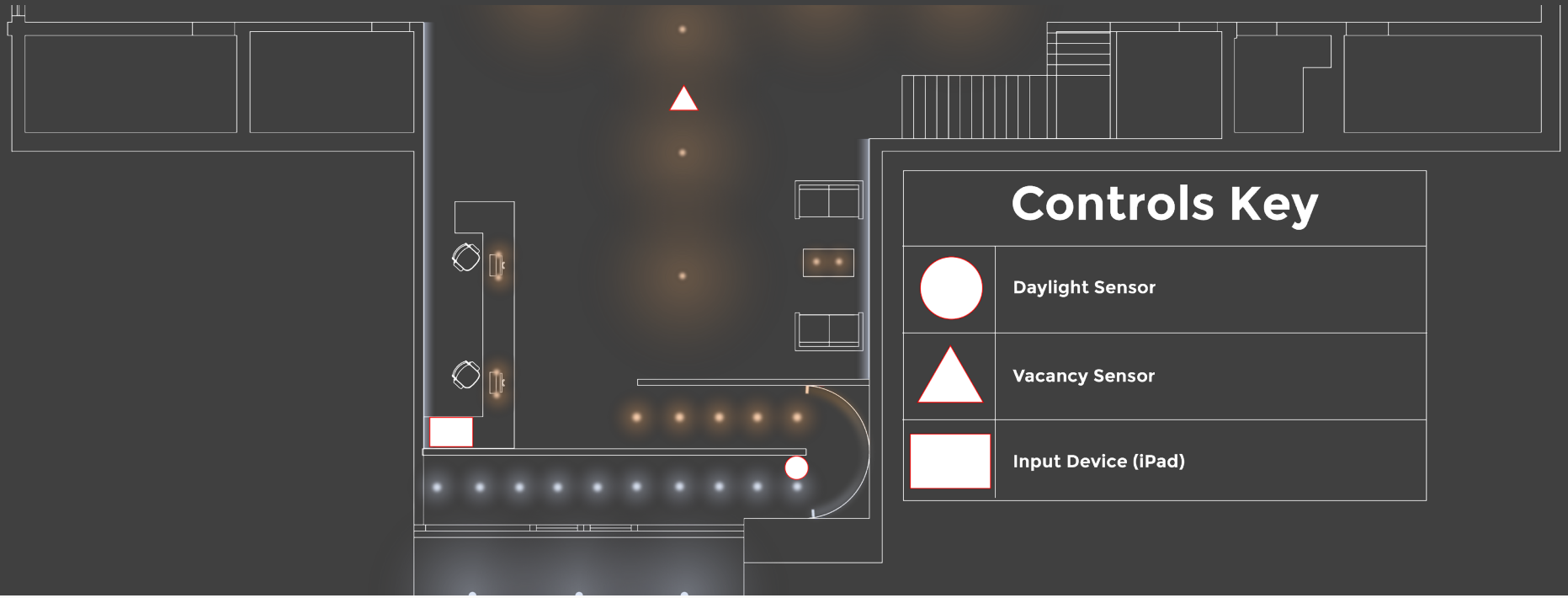
Zoning Diagram



Sectional Zoning Diagram



Lighting Controls Diagram



Luminaire Fixture Schedule

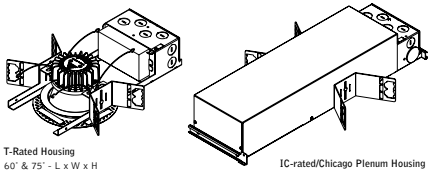
Fixture Tag	Manufacturer	Fixture Description	Product Code	Source Information	Driver Type	Dimming Protocol	Wattage	Voltage
L-1	Focal Point	Focal Point ID+ 3.5"	FLC3D-RO-SW-1100L-UNV-LH1-IC-RC-SW-1100L_27K-DNT-NFL-BK-BP	2700K, 97+ CRI, 1100 Lumens, Narrow Flood	External	Lutron Hi-Lume EcoSystem	12	UNV (120/277)
L-2	Focal Point	Focal Point ID+ 3.5"	FLC3D-RO-SW-1100L-UNV-LH1-IC-RC-SW-1100L_40K-DNT-NFL-BK-BP	4000K, 97+ CRI, 1100 Lumens, Narrow Flood	External	Lutron Hi-Lume EcoSystem	12	UNV (120/277)
L-3	Focal Point	Focal Point ID+ 3.5"	FLC3D-RO-SW-1100L-UNV-LH1-IC-RC-SW-1100L_27K-DSS-SWFL-BK-BP	2700K, 97+ CRI, 1100 Lumens, Super Wide Flood	External	Lutron Hi-Lume EcoSystem	12	UNV (120/277)
L-4	Focal Point	Focal Point ID+ 3.5"	FLC3D-RO-SW-1100L-UNV-LH1-IC-RC-SW-1100L_40K-DSS-NFL-BK-BP	2700K, 97+ CRI, 1100 Lumens, Super Wide Flood	External	Lutron Hi-Lume EcoSystem	12	UNV (120/277)
L-5	Q-Tran	MICRO 5 ALTA-OPTICS (02) STATIC WHITE	ALTA-02-SW-2.0-40-DRY-30D-S2-BW-BW-BK-CL2P-SST	4000K Linear Fixture Grazing Lens	External	Lutron Athena (QT-CAB-eLED+0-10V-AWN)	2w/f	Low Voltage (Driver UNV 120/277)
L-6	Q-Tran	MICRO 5 ALTA-OPTICS (02) STATIC WHITE	ALTA-02-SW-2.0-24-DRY-30D-S2-BW-BW-BK-CL2P-SST	2400K Linear Fixture Grazing Lens	External	Lutron Athena (QT-CAB-eLED+0-10V-AWN)	2w/f	Low Voltage (Driver UNV 120/277)
L-7	Focal Point	Focal Point ID+ 3.5"	FLC3D-RO-SW-1100L-UNV-LH1-T-**EMR**-RC-SW-1100L_27K-DNT-NFL-BK-BP	2700K, 97+ CRI, 1100 Lumens, Narrow Flood, Emergency	External	Lutron Hi-Lume EcoSystem	12	UNV (120/277)
L-8	Focal Point	Focal Point ID+ 3.5"	FLC3D-RO-SW-1100L-UNV-LH1-T-**EMR**-RC-SW-1100L_40K-DNT-NFL-BK-BP	4000K, 97+ CRI, 1100 Lumens, Narrow Flood, Emergency	External	Lutron Hi-Lume EcoSystem	12	UNV (120/277)
L-9	Focal Point	Focal Point ID+ 3.5"	FLC3D-RO-SW-1100L-UNV-LH1-T-**EMR**-RC-SW-1100L_27K-DSS-SWFL-BK-BP	2700K, 97+ CRI, 1100 Lumens, Super Wide Flood, Emergency	External	Lutron Hi-Lume EcoSystem	12	UNV (120/277)

Luminaire Cut Sheets

fixture:

project: Roberto Esquenazi Alkabes
L-1
12/13/2024

STANDARD WHITE HOUSING DETAILS



T-Rated Housing
60˚ & 75˚ - L x W x H
12.88" x 10.90" x 2.64"
DALI, Lutron & LZ1 height = 3.0"

50˚ - L x W x H
12.88" x 10.90" x 3.09"

IC-rated/Chicago Plenum Housing
60˚, 50˚ & 75˚ - L x W x H
20.19" x 10.9" x 3.53"

3.5" ROUND DOWNLIGHT OPTICS

Optic	Cut-Off Degree	Trim Type	Distribution Beam Spread | Spacing Criteria					
			NFL	FL1	FL2	WFL	VWFL	SWFL
DNT	50˚	Overlap	25° | 0.42	37° | 0.62	44° | 0.72	59° | 0.89	67° | 1.02	
		Trimless	26° | 0.54	37° | 0.62	44° | 0.76	58° | 0.87	-	-
DNS	60˚	Overlap	24° | 0.42	34° | 0.67	47° | 0.81	54° | 0.87	65° | 0.99	
		Trimless	25° | 0.42	37° | 0.63	45° | 0.75	56° | 0.92	-	-
DSS	75˚	Overlap	-	-	-	-	73° | 1.07	91° | 1.26
		Trimless	-	-	-	-	74° | 1.07	91° | 1.24

3.5" ROUND DOWNLIGHT PERFORMANCE TABLES

Based on Overlap, Tall Cone, Wide Flood, Clear Diffuse. Delivered lumen output may vary +/- 5%. Actual wattage may vary +/- 5%.

STANDARD WHITE				
CCT	**Lumen Output**	**Delivered Lumens**	**System Watts**	**LPW**
3500K, 80CRI	700L	721	8	90
	900L	919	10	94
	1100L	1112	12	96
	1300L	1298	16	83
	1500L	1484	17	85
	1700L	1682	19	86
	1900L	1909	22	87
	2100L	2144	25	86

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L-1
12/13/2024

QS 5/10 DAY* Options in orange qualify for the Quickship program. All options 5-day up to 200 pieces except Emergency Battery 10-day only.

STANDARD WHITE

HOUSING ORDERING

		FLC3D
Housing Series		
ID+ 3.5" Round	FLC3D	
Trim Type		RO
Round Overlap	RO	
Round Trimless	RT	
Color Options		SW
Standard White, 80 & 90 CRI	SW	
High 97 CRI	HC	
Lumen Output		1100L
700 Lumen (Not available with Lutron or LFP)	700L	
900 Lumen (Not available with LFP)	900L	
1100 Lumen	1100L	
1300 Lumen	1300L	
1500 Lumen	1500L	
1700 Lumen	1700L	
1900 Lumen	1900L	
2100 Lumen	2100L	
Voltage		UNV
120/277 Volt (IC-rated housing: SW - 1700lm max., HC - 1500lm max. T-rated & TW housings: SW - 1100lm max., HC - 900lm max.)	UNV	
120V	120	
277V	277	
Low Voltage (IC-rated housing: SW - 1700lm max., HC - 1500lm max. T-rated & TW housings: SW - 1100lm max., HC - 900lm max.)	LV	
Control System & Dimming Level		LH1
0-10V <1% Dimming	LZ1	
0-10V - 1% Dimming	L11	
0-10V - 10% Dimming	LD1	
Low Voltage, PoE Compatible (No driver. Not available with EMR. LV voltage only.)	LVN	
Forward Phase (120V only)	LFP	
Lutron Hi-Lume EcoSystem (LDE1) - 1% Dimming	LH1	
DALI <1% Dimming	DZ1	
DALI - 1% Dimming	D11	
Housing Type		IC
IC-Rated / Airtight	IC	
Thermally Protected, Non-IC / Airtight	T	
Thermally Protected, Non-IC Wood (Trimless only. Wood kit required)	TW	
Factory Options		
Bar Hangers	BH	_____
Chicago Plenum	CP	_____
Emergency Battery - Remote test switch* (Overlap trim only. Not available with CP or IC-rated housing. Above ceiling access required.)	EMR	_____
Outdoor Rated (LD1 driver and T-rated housing only. Not available with CP or EMR. See dimming performance table on page 5.)	OD	_____

TRIM & LED MODULE

		LC3
Aperture		
3.5" Round Reflector	LC3	
Trim Type		RO
Round Overlap	RO	
Round Die-Cast Overlap (DSS only)	RDO	
Round Trimless	RT	
Round Die-Cast Trimless (DSS only)	RDT	
Color Options		SW
Standard White, 80 & 90 CRI	SW	
High 97 CRI	HC	
Lumen Output		1100L
700 Lumen (Not available with Lutron or LFP)	700L	
900 Lumen (Not available with LFP)	900L	
1100 Lumen	1100L	
1300 Lumen	1300L	
1500 Lumen	1500L	
1700 Lumen	1700L	
1900 Lumen	1900L	
2100 Lumen	2100L	
Color Temperature (Add 9 for 90 CRI or H for 97 CRI. Leave blank for 80 CRI. Examples: 2700K, 97 CRI = H27K. 2700K, 80 CRI = 27K.)		_27K
2700K, 80/90/97+ CRI	_27K	
3000K, 80/90/97+ CRI	_30K	
3500K, 80/90/97+ CRI	_35K	
4000K, 80/90/97+ CRI	_40K	
Optic		DNT
Tall Cone with 50˚ cut-off	DNT	
Short Cone with 60˚ cut-off	DNS	
Super Short Cone with Solite Lens 75˚ cut-off (Die-cast trims only. VWFL or SWFL only.)	DSS	
Distribution		NFL
Narrow Flood	NFL	
Flood 1	FL1	
Flood 2	FL2	
Wide Flood	WFL	
Very Wide Flood (Overlap all optics. Trimless DSS only.)	VWFL	
Super Wide Flood (DSS only)	SWFL	
Finish		BK
Clear Diffuse	CD	
Warm Diffuse	WD	
Black	BK	
White	WH	
Optional Flange Finish (Overlap CD & WD finish only) (For matching finishes leave blank)		BP
Black Painted	BP	
White Painted	WP	

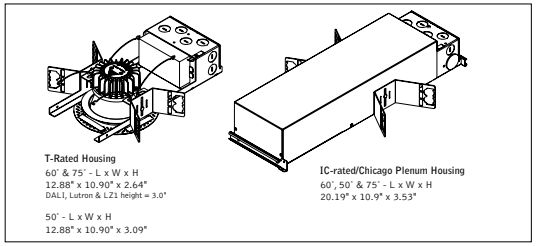
ACCESSORIES

Trimless Wood Ceiling Installation Kit (One kit recommended per 10 downlights)	LC3-WOOD-KIT	_____

Luminaire Cut Sheets

fixture: project:

STANDARD WHITE HOUSING DETAILS



T-Rated Housing
60˚ & 75˚ - L x W x H
12.88" x 10.90" x 2.64"
DALI, Lutron & LZ1 height = 3.0"

50˚ - L x W x H
12.88" x 10.90" x 3.09"

IC-rated/Chicago Plenum Housing
60˚, 50˚ & 75˚ - L x W x H
20.19" x 10.9" x 3.53"

3.5" ROUND DOWNLIGHT OPTICS

Optic	Cut-Off Degree	Trim Type	Distribution Beam Spread | Spacing Criteria					
			NFL	FL1	FL2	WFL	VWFL	SWFL
DNT	50˚	Overlap	25° | 0.42	37° | 0.62	44° | 0.72	59° | 0.89	67° | 1.02	
		Trimless	26° | 0.54	37° | 0.62	44° | 0.76	58° | 0.87	-	-
DNS	60˚	Overlap	24° | 0.42	34° | 0.67	47° | 0.81	54° | 0.87	65° | 0.99	
		Trimless	25° | 0.42	37° | 0.63	45° | 0.75	56° | 0.92	-	-
DSS	75˚	Overlap	-	-	-	-	73° | 1.07	91° | 1.26
		Trimless	-	-	-	-	74° | 1.07	91° | 1.24

3.5" ROUND DOWNLIGHT PERFORMANCE TABLES

Based on Overlap, Tall Cone, Wide Flood, Clear Diffuse. Delivered lumen output may vary +/- 5%. Actual wattage may vary +/- 5%.

STANDARD WHITE				
CCT	**Lumen Output**	**Delivered Lumens**	**System Watts**	**LPW**
3500K, 80CRI	700L	721	8	90
	900L	919	10	94
	1100L	1112	12	96
	1300L	1298	16	83
	1500L	1484	17	85
	1700L	1682	19	86
	1900L	1909	22	87
	2100L	2144	25	86

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L-2
12/13/2024

QS 5/10 DAY* Options in orange qualify for the Quickship program. All options 5-day up to 200 pieces except Emergency Battery 10-day only.

STANDARD WHITE

HOUSING ORDERING

Housing Series — FLC3D
- ID+ 3.5" Round: FLC3D

Trim Type — RO
- Round Overlap: RO
- Round Trimless: RT

Color Options — SW
- Standard White, 80 & 90 CRI: SW
- High 97 CRI: HC

Lumen Output — 1100L
- 700 Lumen (Not available with Lutron or LFP): 700L
- 900 Lumen (Not available with LFP): 900L
- 1100 Lumen: 1100L
- 1300 Lumen: 1300L
- 1500 Lumen: 1500L
- 1700 Lumen: 1700L
- 1900 Lumen: 1900L
- 2100 Lumen: 2100L

Voltage — UNV
- 120/277 Volt: UNV

(IC-rated housing: SW - 1700lm max., HC - 1500lm max. T-rated & TW housings: SW - 1100lm max., HC - 900lm max.)
- 120V: 120
- 277V: 277
- Low Voltage: LV

(IC-rated housing: SW - 1700lm max., HC - 1500lm max. T-rated & TW housings: SW - 1100lm max., HC - 900lm max.)

Control System & Dimming Level — LH1
- 0-10V <1% Dimming: LZ1
- 0-10V - 1% Dimming: L11
- 0-10V - 10% Dimming: LD1
- Low Voltage, PoE Compatible: LVN

(No driver. Not available with EMR. LV voltage only.)
- Forward Phase (120V only): LFP
- Lutron Hi-Lume EcoSystem (LDE1) - 1% Dimming: LH1
- DALI <1% Dimming: DZ1
- DALI - 1% Dimming: D11

Housing Type — IC
- IC-Rated / Airtight: IC
- Thermally Protected, Non-IC / Airtight: T
- Thermally Protected, Non-IC Wood: TW

(Trimless only. Wood kit required)

Factory Options
- Bar Hangers: BH _____
- Chicago Plenum: CP _____
- Emergency Battery - Remote test switch*: EMR _____

(Overlap trim only. Not available with CP or IC-rated housing. Above ceiling access required.)
- Outdoor Rated: OD _____

(LD1 driver and T-rated housing only. Not available with CP or EMR. See dimming performance table on page 5.)

TRIM & LED MODULE

Aperture — LC3
- 3.5" Round Reflector: LC3

Trim Type — RO
- Round Overlap: RO
- Round Die-Cast Overlap (DSS only): RDO
- Round Trimless: RT
- Round Die-Cast Trimless (DSS only): RDT

Color Options — SW
- Standard White, 80 & 90 CRI: SW
- High 97 CRI: HC

Lumen Output — 1100L
- 700 Lumen (Not available with Lutron or LFP): 700L
- 900 Lumen (Not available with LFP): 900L
- 1100 Lumen: 1100L
- 1300 Lumen: 1300L
- 1500 Lumen: 1500L
- 1700 Lumen: 1700L
- 1900 Lumen: 1900L
- 2100 Lumen: 2100L

Color Temperature — 40K

(Add 9 for 90 CRI or H for 97 CRI. Leave blank for 80 CRI. Examples: 2700K, 97 CRI = H27K. 2700K, 80 CRI = 27K.)
- 2700K, 80/90/97+ CRI: _27K
- 3000K, 80/90/97+ CRI: _30K
- 3500K, 80/90/97+ CRI: _35K
- 4000K, 80/90/97+ CRI: _40K

Optic — DNT
- Tall Cone with 50˚ cut-off: DNT
- Short Cone with 60˚ cut-off: DNS
- Super Short Cone with Solite Lens 75˚ cut-off: DSS

(Die-cast trims only. VWFL or SWFL only.)

Distribution — NFL
- Narrow Flood: NFL
- Flood 1: FL1
- Flood 2: FL2
- Wide Flood: WFL
- Very Wide Flood (Overlap all optics. Trimless DSS only.): VWFL
- Super Wide Flood (DSS only): SWFL

Finish — BK
- Clear Diffuse: CD
- Warm Diffuse: WD
- Black: BK
- White: WH

Optional Flange Finish — BP

(Overlap CD & WD finish only) (For matching finishes leave blank)
- Black Painted: BP
- White Painted: WP

ACCESSORIES

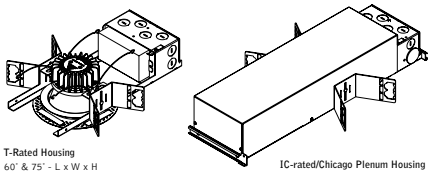
- Trimless Wood Ceiling Installation Kit: LC3-WOOD-KIT _____

(One kit recommended per 10 downlights)

Luminaire Cut Sheets

fixture: project:

STANDARD WHITE HOUSING DETAILS



T-Rated Housing
60˚ & 75˚ - L x W x H
12.88" x 10.90" x 2.64"
DALI, Lutron & LZ1 height = 3.0"

50˚ - L x W x H
12.88" x 10.90" x 3.09"

IC-rated/Chicago Plenum Housing
60˚, 50˚ & 75˚ - L x W x H
20.19" x 10.9" x 3.53"

3.5" ROUND DOWNLIGHT OPTICS

Optic	Cut-Off Degree	Trim Type	Distribution Beam Spread | Spacing Criteria					
			NFL	FL1	FL2	WFL	VWFL	SWFL
DNT	50˚	Overlap	25° | 0.42	37° | 0.62	44° | 0.72	59° | 0.89	67° | 1.02	
		Trimless	26° | 0.54	37° | 0.62	44° | 0.76	58° | 0.87	-	-
DNS	60˚	Overlap	24° | 0.42	34° | 0.67	47° | 0.81	54° | 0.87	65° | 0.99	
		Trimless	25° | 0.42	37° | 0.63	45° | 0.75	56° | 0.92	-	-
DSS	75˚	Overlap	-	-	-	-	73° | 1.07	91° | 1.26
		Trimless	-	-	-	-	74° | 1.07	91° | 1.24

3.5" ROUND DOWNLIGHT PERFORMANCE TABLES

Based on Overlap, Tall Cone, Wide Flood, Clear Diffuse. Delivered lumen output may vary +/- 5%. Actual wattage may vary +/- 5%.

STANDARD WHITE				
CCT	**Lumen Output**	**Delivered Lumens**	**System Watts**	**LPW**
3500K, 80CRI	700L	721	8	90
	900L	919	10	94
	1100L	1112	12	96
	1300L	1298	16	83
	1500L	1484	17	85
	1700L	1682	19	86
	1900L	1909	22	87
	2100L	2144	25	86

Roberto Esquenazi Alkabes
L-3
12/13/2024

QS 5/10 DAY* Options in orange qualify for the Quickship program. All options 5-day up to 200 pieces except Emergency Battery 10-day only.

STANDARD WHITE

HOUSING ORDERING

Housing Series		FLC3D
ID+ 3.5" Round	FLC3D	
Trim Type		RO
Round Overlap	RO	
Round Trimless	RT	
Color Options		SW
Standard White, 80 & 90 CRI	SW	
High 97 CRI	HC	
Lumen Output		1100L
700 Lumen (Not available with Lutron or LFP)	700L	
900 Lumen (Not available with LFP)	900L	
1100 Lumen	1100L	
1300 Lumen	1300L	
1500 Lumen	1500L	
1700 Lumen	1700L	
1900 Lumen	1900L	
2100 Lumen	2100L	
Voltage (IC-rated housing: SW - 1700lm max., HC - 1500lm max. T-rated & TW housings: SW - 1100lm max., HC - 900lm max.)		UNV
120/277 Volt	UNV	
120V	120	
277V	277	
Low Voltage (IC-rated housing: SW - 1700lm max., HC - 1500lm max. T-rated & TW housings: SW - 1100lm max., HC - 900lm max.)	LV	
Control System & Dimming Level		LH1
0-10V <1% Dimming	LZ1	
0-10V - 1% Dimming	L11	
0-10V - 10% Dimming	LD1	
Low Voltage, PoE Compatible (No driver. Not available with EMR. LV voltage only.)	LVN	
Forward Phase (120V only)	LFP	
Lutron Hi-Lume EcoSystem (LDE1) - 1% Dimming	LH1	
DALI <1% Dimming	DZ1	
DALI - 1% Dimming	D11	
Housing Type		IC
IC-Rated / Airtight	IC	
Thermally Protected, Non-IC / Airtight	T	
Thermally Protected, Non-IC Wood (Trimless only. Wood kit required)	TW	
Factory Options		
Bar Hangers	BH	_____
Chicago Plenum	CP	_____
Emergency Battery - Remote test switch* (Overlap trim only. Not available with CP or IC-rated housing. Above ceiling access required.)	EMR	_____
Outdoor Rated (LD1 driver and T-rated housing only. Not available with CP or EMR. See dimming performance table on page 5.)	OD	_____

TRIM & LED MODULE

Aperture		LC3
3.5" Round Reflector	LC3	
Trim Type		RO
Round Overlap	RO	
Round Die-Cast Overlap (DSS only)	RDO	
Round Trimless	RT	
Round Die-Cast Trimless (DSS only)	RDT	
Color Options		SW
Standard White, 80 & 90 CRI	SW	
High 97 CRI	HC	
Lumen Output		1100L
700 Lumen (Not available with Lutron or LFP)	700L	
900 Lumen (Not available with LFP)	900L	
1100 Lumen	1100L	
1300 Lumen	1300L	
1500 Lumen	1500L	
1700 Lumen	1700L	
1900 Lumen	1900L	
2100 Lumen	2100L	
Color Temperature (Add 9 for 90 CRI or H for 97 CRI. Leave blank for 80 CRI. Examples: 2700K, 97 CRI = H27K. 2700K, 80 CRI = 27K.)		_40K
2700K, 80/90/97+ CRI	_27K	
3000K, 80/90/97+ CRI	_30K	
3500K, 80/90/97+ CRI	_35K	
4000K, 80/90/97+ CRI	_40K	
Optic		DSS
Tall Cone with 50˚ cut-off	DNT	
Short Cone with 60˚ cut-off	DNS	
Super Short Cone with Solite Lens 75˚ cut-off (Die-cast trims only. VWFL or SWFL only.)	DSS	
Distribution		SWFL
Narrow Flood	NFL	
Flood 1	FL1	
Flood 2	FL2	
Wide Flood	WFL	
Very Wide Flood (Overlap all optics. Trimless DSS only.)	VWFL	
Super Wide Flood (DSS only)	SWFL	
Finish		BK
Clear Diffuse	CD	
Warm Diffuse	WD	
Black	BK	
White	WH	
Optional Flange Finish (Overlap CD & WD finish only) (For matching finishes leave blank)		BP
Black Painted	BP	
White Painted	WP	

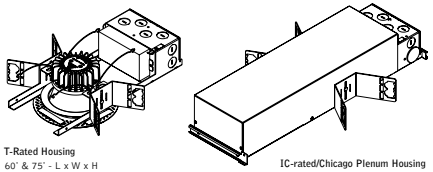
ACCESSORIES

Trimless Wood Ceiling Installation Kit (One kit recommended per 10 downlights)	LC3-WOOD-KIT	_____

Luminaire Cut Sheets

fixture: project:

STANDARD WHITE HOUSING DETAILS



T-Rated Housing
60˚ & 75˚ - L x W x H
12.88" x 10.90" x 2.64"
DALI, Lutron & LZ1 height = 3.0"

50˚ - L x W x H
12.88" x 10.90" x 3.09"

IC-rated/Chicago Plenum Housing
60˚, 50˚ & 75˚ - L x W x H
20.19" x 10.9" x 3.53"

3.5" ROUND DOWNLIGHT OPTICS

Optic	Cut-Off Degree	Trim Type	Distribution Beam Spread | Spacing Criteria					
			NFL	FL1	FL2	WFL	VWFL	SWFL
DNT	50˚	Overlap	25° | 0.42	37° | 0.62	44° | 0.72	59° | 0.89	67° | 1.02	
		Trimless	26° | 0.54	37° | 0.62	44° | 0.76	58° | 0.87	-	-
DNS	60˚	Overlap	24° | 0.42	34° | 0.67	47° | 0.81	54° | 0.87	65° | 0.99	
		Trimless	25° | 0.42	37° | 0.63	45° | 0.75	56° | 0.92	-	-
DSS	75˚	Overlap	-	-	-	-	73° | 1.07	91° | 1.26
		Trimless	-	-	-	-	74° | 1.07	91° | 1.24

3.5" ROUND DOWNLIGHT PERFORMANCE TABLES

Based on Overlap, Tall Cone, Wide Flood, Clear Diffuse. Delivered lumen output may vary +/- 5%. Actual wattage may vary +/- 5%.

STANDARD WHITE				
CCT	**Lumen Output**	**Delivered Lumens**	**System Watts**	**LPW**
3500K, 80CRI	700L	721	8	90
	900L	919	10	94
	1100L	1112	12	96
	1300L	1298	16	83
	1500L	1484	17	85
	1700L	1682	19	86
	1900L	1909	22	87
	2100L	2144	25	86

Roberto Esquenazi
Alkabes
L-4
12/13/2024

QS 5/10 DAY* Options in orange qualify for the Quickship program. All options 5-day up to 200 pieces except Emergency Battery 10-day only.

STANDARD WHITE

HOUSING ORDERING

Housing Series — FLC3D
- ID+ 3.5" Round: FLC3D

Trim Type — RO
- Round Overlap: RO
- Round Trimless: RT

Color Options — SW
- Standard White, 80 & 90 CRI: SW
- High 97 CRI: HC

Lumen Output — 1100L
- 700 Lumen (Not available with Lutron or LFP): 700L
- 900 Lumen (Not available with LFP): 900L
- 1100 Lumen: 1100L
- 1300 Lumen: 1300L
- 1500 Lumen: 1500L
- 1700 Lumen: 1700L
- 1900 Lumen: 1900L
- 2100 Lumen: 2100L

Voltage — UNV
- 120/277 Volt: UNV
  (IC-rated housing: SW - 1700lm max., HC - 1500lm max. T-rated & TW housings: SW - 1100lm max., HC - 900lm max.)
- 120V: 120
- 277V: 277
- Low Voltage
  (IC-rated housing: SW - 1700lm max., HC - 1500lm max. T-rated & TW housings: SW - 1100lm max., HC - 900lm max.): LV

Control System & Dimming Level — LH1
- 0-10V <1% Dimming: LZ1
- 0-10V - 1% Dimming: L11
- 0-10V - 10% Dimming: LD1
- Low Voltage, PoE Compatible (No driver. Not available with EMR. LV voltage only.): LVN
- Forward Phase (120V only): LFP
- Lutron Hi-Lume EcoSystem (LDE1) - 1% Dimming: LH1
- DALI <1% Dimming: DZ1
- DALI - 1% Dimming: D11

Housing Type — IC
- IC-Rated / Airtight: IC
- Thermally Protected, Non-IC / Airtight: T
- Thermally Protected, Non-IC Wood (Trimless only. Wood kit required): TW

Factory Options
- Bar Hangers: BH
- Chicago Plenum: CP
- Emergency Battery - Remote test switch* (Overlap trim only. Not available with CP or IC-rated housing. Above ceiling access required.): EMR
- Outdoor Rated (LD1 driver and T-rated housing only. Not available with CP or EMR. See dimming performance table on page 5.): OD

TRIM & LED MODULE

Aperture — LC3
- 3.5" Round Reflector: LC3

Trim Type — RO
- Round Overlap: RO
- Round Die-Cast Overlap (DSS only): RDO
- Round Trimless: RT
- Round Die-Cast Trimless (DSS only): RDT

Color Options — SW
- Standard White, 80 & 90 CRI: SW
- High 97 CRI: HC

Lumen Output — 1100L
- 700 Lumen (Not available with Lutron or LFP): 700L
- 900 Lumen (Not available with LFP): 900L
- 1100 Lumen: 1100L
- 1300 Lumen: 1300L
- 1500 Lumen: 1500L
- 1700 Lumen: 1700L
- 1900 Lumen: 1900L
- 2100 Lumen: 2100L

Color Temperature — _27K
(Add 9 for 90 CRI or H for 97 CRI. Leave blank for 80 CRI. Examples: 2700K, 97 CRI = H27K. 2700K, 80 CRI = 27K.)
- 2700K, 80/90/97+ CRI: _27K
- 3000K, 80/90/97+ CRI: _30K
- 3500K, 80/90/97+ CRI: _35K
- 4000K, 80/90/97+ CRI: _40K

Optic — DSS
- Tall Cone with 50˚ cut-off: DNT
- Short Cone with 60˚ cut-off: DNS
- Super Short Cone with Solite Lens 75˚ cut-off (Die-cast trims only. VWFL or SWFL only.): DSS

Distribution — SWFL
- Narrow Flood: NFL
- Flood 1: FL1
- Flood 2: FL2
- Wide Flood: WFL
- Very Wide Flood (Overlap all optics. Trimless DSS only.): VWFL
- Super Wide Flood (DSS only): SWFL

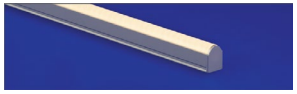
Finish — BK
- Clear Diffuse: CD
- Warm Diffuse: WD
- Black: BK
- White: WH

Optional Flange Finish — BP
(Overlap CD & WD finish only) (For matching finishes leave blank)
- Black Painted: BP
- White Painted: WP

ACCESSORIES

- Trimless Wood Ceiling Installation Kit (One kit recommended per 10 downlights): LC3-WOOD-KIT _____

MICRO 5 ALTA-OPTICS (02)
STATIC WHITE
Linear Fixtures



- MICRO 5 Series linear LED fixture with an optically enhanced lens engineered for exceptional light quality and even distribution, seamlessly blending with millwork details
- 55% smaller than ESSENTIALS-TALO
- Delivers equivalent efficacy as standard size fixtures
- Ideal for surface mounted or recessed installations that call for focused low-profile light
- Mounting options include stainless steel, magnet or T-bar clips, making installation and repositioning effortless
- Suitable for installation in the storage area of a clothes closet when specified with LEDs at 2.0 watts or less per foot per NEC regulations
- Consult factory for field assembly options

1 PRODUCT	2 WATTS/FT	3 CCT	4 RATED	5 LENS	6 WIRE INPUT/ OUTPUT	7 CONNECTOR/ WIRE IN	8 CONNECTOR/ WIRE OUT	9 WIRE COLOR	10 WIRE TYPE	11 MOUNTING	12 FINISH	13 LENGTH (IN)	14 EXACT/ OPTIMAL
ALTA-02-SW	2.0	40	DRY	30D	S2	BW	BW	BK	CL2P	SST	BK	---	O

Sample Part Number: **ALTA-02-SW-1.0-30-DRY-30D-S1-BW-CLS-WH-CL2-SST-ST-48"-E**

1 PRODUCT
ALTA-02-SW

See following pages for compatible power supplies.

2 WATTS/FT
1.0 1.0W/ft
2.0 2.0W/ft
4.0 4.0W/ft

1.0 1.0W/ft
2.0 2.0W/ft
4.0 4.0W/ft

3 CCT
20 2000K
22 2200K
24 2400K
27 2700K
30 3000K
35 3500K
40 4000K

24 2400K
27 2700K
30 3000K
35 3500K
40 4000K

4 RATED
DRY IP20

DMP IP54

5 LENS
30D Optical 30°

For representation of LED visibility, see Diode Visibility section on following pages.
For beam angles, see Photometric Performance section on following pages

6 WIRE INPUT/OUTPUT
S1 Single 1 (Input only) - End Feed
S2 Single 2 (Input only) - Bottom Feed

For continuous mounting, consider bottom feed.
When using TBC Mounting, a bare wire S2 wire feed is recommended.
See install instructions for details.

P1 Pass Through 1 (Input/output) - End Feed
P2 Pass Through 2 (Input/output) - Bottom Feed

For continuous mounting, consider bottom feed.
When using TBC Mounting, a bare wire S2 wire feed is recommended.
See install instructions for details.

7 CONNECTOR/WIRE IN
BW Bare Wire (Standard 24")

Connector/Wire In not needed to specify product. Typical selection is BW.
BW: Standard length is 24", Max length is 120". Request custom length by writing in part number next to BW (example: BW48)

BW Bare Wire (Standard 24")

Connector/Wire In not needed to specify product. Typical selection is BW.
BW: Standard length is 24", Max length is 120". Request custom length by writing in part number next to BW (example: BW48)

8 CONNECTOR/WIRE OUT
CLS Closed End (No feed)

BW Bare Wire (Standard 24")

9 WIRE COLOR
WH White
BK Black
N/A For Barrel

10 WIRE TYPE
CL2 Class 2
CL2P Plenum Rated

CL2P only available with bare wire leads (BW)

11 MOUNTING
SST Stainless Steel
MG Magnet
TBC-09 9/16" Flat or Tegular TB-Grid
TBC-10 15/16" Flat or Tegular TB-Grid

12 FINISH
ST Satin
BK Black
CU Custom

13 LENGTH (IN)
Fixture length min 12", max 98.43" not including end caps. Tolerance +0 – 1/8". Consult factory for lengths under 12".

14 EXACT/OPTIMAL
E Exact specified length
O Optimal illumination

Exact fixtures are the exact length specified +0 – 1/8".
Optimal fixtures' length is rounded down with illumination end to end.
See Exact/Optimal Fixture Length charts.

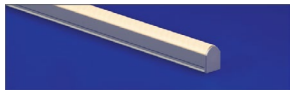
Roberto Esquenazi
Alkabes
L-5
12/13/2024

5 year warranty | Warranty only valid with QTL power supplies | Field modifications void warranty | Data subject to change, all data has +/- 5% tolerance

Specification subject to change. Rev-10-04-24

Luminaire Cut Sheets

MICRO 5 ALTA-OPTICS (02)
STATIC WHITE
Linear Fixtures



- MICRO 5 Series linear LED fixture with an optically enhanced lens engineered for exceptional light quality and even distribution, seamlessly blending with millwork details
- 55% smaller than ESSENTIALS-TALO
- Delivers equivalent efficacy as standard size fixtures
- Ideal for surface mounted or recessed installations that call for focused low-profile light
- Mounting options include stainless steel, magnet or T-bar clips, making installation and repositioning effortless
- Suitable for installation in the storage area of a clothes closet when specified with LEDs at 2.0 watts or less per foot per NEC regulations
- Consult factory for field assembly options

1 PRODUCT	2 WATTS/FT	3 CCT	4 RATED	5 LENS	6 WIRE INPUT/ OUTPUT	7 CONNECTOR/ WIRE IN	8 CONNECTOR/ WIRE OUT	9 WIRE COLOR	10 WIRE TYPE	11 MOUNTING	12 FINISH	13 LENGTH (IN)	14 EXACT/ OPTIMAL
ALTA-02-SW	2.0	24	DRY	30D	S2	BW	BW	BK	CL2P	SST	BK	------	O

Sample Part Number: **ALTA-02-SW-1.0-30-DRY-30D-S1-BW-CLS-WH-CL2-SST-ST-48"-E**

1 PRODUCT
ALTA-02-SW

See following pages for compatible power supplies.

2 WATTS/FT
1.0	1.0W/ft
2.0	2.0W/ft
4.0	4.0W/ft

1.0	1.0W/ft
2.0	2.0W/ft
4.0	4.0W/ft

3 CCT
20	2000K
22	2200K
24	2400K
27	2700K
30	3000K
35	3500K
40	4000K

24	2400K
27	2700K
30	3000K
35	3500K
40	4000K

4 RATED
DRY	IP20

DMP	IP54

5 LENS
30D	Optical 30°

For representation of LED visibility, see Diode Visibility section on following pages.
For beam angles, see Photometric Performance section on following pages

6 WIRE INPUT/OUTPUT
S1	Single 1 (Input only) - End Feed
S2	Single 2 (Input only) - Bottom Feed

For continuous mounting, consider bottom feed.
When using TBC Mounting, a bare wire S2 wire feed is recommended.
See install instructions for details.

P1	Pass Through 1 (Input/output) - End Feed
P2	Pass Through 2 (Input/output) - Bottom Feed

For continuous mounting, consider bottom feed.
When using TBC Mounting, a bare wire S2 wire feed is recommended.
See install instructions for details.

7 CONNECTOR/WIRE IN
BW	Bare Wire (Standard 24")

Connector/Wire In not needed to specify product. Typical selection is BW.
BW: Standard length is 24", Max length is 120". Request custom length by writing in part number next to BW (example: BW48)

BW	Bare Wire (Standard 24")

Connector/Wire In not needed to specify product. Typical selection is BW.
BW: Standard length is 24", Max length is 120". Request custom length by writing in part number next to BW (example: BW48)

8 CONNECTOR/WIRE OUT
CLS	Closed End (No feed)

BW	Bare Wire (Standard 24")

9 WIRE COLOR
WH	White
BK	Black
N/A	For Barrel

10 WIRE TYPE
CL2	Class 2
CL2P	Plenum Rated

CL2P only available with bare wire leads (BW)

11 MOUNTING
SST	Stainless Steel
MG	Magnet
TBC-09	9/16" Flat or Tegular TB-Grid
TBC-10	15/16" Flat or Tegular TB-Grid

12 FINISH
ST	Satin
BK	Black
CU	Custom

13 LENGTH (IN)
Fixture length min 12", max 98.43" not including end caps. Tolerance +0 – 1/8". Consult factory for lengths under 12".

14 EXACT/OPTIMAL
E	Exact specified length
O	Optimal illumination

Exact fixtures are the exact length specified +0 – 1/8".
Optimal fixtures' length is rounded down with illumination end to end.
See Exact/Optimal Fixture Length charts.

Roberto Esquenazi
Alkabes
L-6
12/13/2024

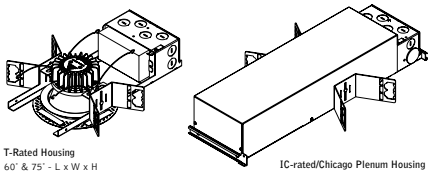
5 year warranty | Warranty only valid with QTL power supplies | Field modifications void warranty | Data subject to change, all data has +/- 5% tolerance

Specification subject to change. Rev-10-04-24

Luminaire Cut Sheets

fixture: project:

STANDARD WHITE HOUSING DETAILS



T-Rated Housing
60˚ & 75˚ - L x W x H
12.88" x 10.90" x 2.64"
DALI, Lutron & LZ1 height = 3.0"

50˚ - L x W x H
12.88" x 10.90" x 3.09"

IC-rated/Chicago Plenum Housing
60˚, 50˚ & 75˚ - L x W x H
20.19" x 10.9" x 3.53"

3.5" ROUND DOWNLIGHT OPTICS

Optic	Cut-Off Degree	Trim Type	Distribution Beam Spread | Spacing Criteria					
			NFL	FL1	FL2	WFL	VWFL	SWFL
DNT	50˚	Overlap	25° | 0.42	37° | 0.62	44° | 0.72	59° | 0.89	67° | 1.02	
		Trimless	26° | 0.54	37° | 0.62	44° | 0.76	58° | 0.87	-	-
DNS	60˚	Overlap	24° | 0.42	34° | 0.67	47° | 0.81	54° | 0.87	65° | 0.99	
		Trimless	25° | 0.42	37° | 0.63	45° | 0.75	56° | 0.92	-	-
DSS	75˚	Overlap	-	-	-	-	73° | 1.07	91° | 1.26
		Trimless	-	-	-	-	74° | 1.07	91° | 1.24

3.5" ROUND DOWNLIGHT PERFORMANCE TABLES

Based on Overlap, Tall Cone, Wide Flood, Clear Diffuse. Delivered lumen output may vary +/- 5%. Actual wattage may vary +/- 5%.

STANDARD WHITE				
CCT	**Lumen Output**	**Delivered Lumens**	**System Watts**	**LPW**
3500K, 80CRI	700L	721	8	90
	900L	919	10	94
	1100L	1112	12	96
	1300L	1298	16	83
	1500L	1484	17	85
	1700L	1682	19	86
	1900L	1909	22	87
	2100L	2144	25	86

Roberto Esquenazi
Alkabes
L-7
12/13/2024

QS 5/10 DAY* Options in orange qualify for the Quickship program. All options 5-day up to 200 pieces except Emergency Battery 10-day only.

STANDARD WHITE

HOUSING ORDERING

Housing Series		FLC3D
ID+ 3.5" Round	FLC3D	
Trim Type		RO
Round Overlap	RO	
Round Trimless	RT	
Color Options		SW
Standard White, 80 & 90 CRI	SW	
High 97 CRI	HC	
Lumen Output		1100L
700 Lumen (Not available with Lutron or LFP)	700L	
900 Lumen (Not available with LFP)	900L	
1100 Lumen	1100L	
1300 Lumen	1300L	
1500 Lumen	1500L	
1700 Lumen	1700L	
1900 Lumen	1900L	
2100 Lumen	2100L	
Voltage		UNV
120/277 Volt (IC-rated housing: SW - 1700lm max., HC - 1500lm max. T-rated & TW housings: SW - 1100lm max., HC - 900lm max.)	UNV	
120V	120	
277V	277	
Low Voltage (IC-rated housing: SW - 1700lm max., HC - 1500lm max. T-rated & TW housings: SW - 1100lm max., HC - 900lm max.)	LV	
Control System & Dimming Level		LH1
0-10V <1% Dimming	LZ1	
0-10V - 1% Dimming	L11	
0-10V - 10% Dimming	LD1	
Low Voltage, PoE Compatible (No driver. Not available with EMR. LV voltage only.)	LVN	
Forward Phase (120V only)	LFP	
Lutron Hi-Lume EcoSystem (LDE1) - 1% Dimming	LH1	
DALI <1% Dimming	DZ1	
DALI - 1% Dimming	D11	
Housing Type		T
IC-Rated / Airtight	IC	
Thermally Protected, Non-IC / Airtight	T	
Thermally Protected, Non-IC Wood (Trimless only. Wood kit required)	TW	
Factory Options		
Bar Hangers	BH	____
Chicago Plenum	CP	____
Emergency Battery - Remote test switch* (Overlap trim only. Not available with CP or IC-rated housing. Above ceiling access required.)	EMR	EMR
Outdoor Rated (LD1 driver and T-rated housing only. Not available with CP or EMR. See dimming performance table on page 5.)	OD	____

TRIM & LED MODULE

Aperture		LC3
3.5" Round Reflector	LC3	
Trim Type		RO
Round Overlap	RO	
Round Die-Cast Overlap (DSS only)	RDO	
Round Trimless	RT	
Round Die-Cast Trimless (DSS only)	RDT	
Color Options		SW
Standard White, 80 & 90 CRI	SW	
High 97 CRI	HC	
Lumen Output		1100L
700 Lumen (Not available with Lutron or LFP)	700L	
900 Lumen (Not available with LFP)	900L	
1100 Lumen	1100L	
1300 Lumen	1300L	
1500 Lumen	1500L	
1700 Lumen	1700L	
1900 Lumen	1900L	
2100 Lumen	2100L	
Color Temperature (Add 9 for 90 CRI or H for 97 CRI. Leave blank for 80 CRI. Examples: 2700K, 97 CRI = H27K. 2700K, 80 CRI = 27K.)		_40K
2700K, 80/90/97+ CRI	_27K	
3000K, 80/90/97+ CRI	_30K	
3500K, 80/90/97+ CRI	_35K	
4000K, 80/90/97+ CRI	_40K	
Optic		DNT
Tall Cone with 50˚ cut-off	DNT	
Short Cone with 60˚ cut-off	DNS	
Super Short Cone with Solite Lens 75˚ cut-off (Die-cast trims only. VWFL or SWFL only.)	DSS	
Distribution		NFL
Narrow Flood	NFL	
Flood 1	FL1	
Flood 2	FL2	
Wide Flood	WFL	
Very Wide Flood (Overlap all optics. Trimless DSS only.)	VWFL	
Super Wide Flood (DSS only)	SWFL	
Finish		BK
Clear Diffuse	CD	
Warm Diffuse	WD	
Black	BK	
White	WH	
Optional Flange Finish (Overlap CD & WD finish only) (For matching finishes leave blank)		BP
Black Painted	BP	
White Painted	WP	

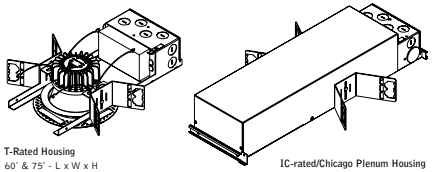
ACCESSORIES

Trimless Wood Ceiling Installation Kit (One kit recommended per 10 downlights)	LC3-WOOD-KIT	____

Luminaire Cut Sheets

fixture: project:

STANDARD WHITE HOUSING DETAILS



T-Rated Housing
60˚ & 75˚ - L x W x H
12.88" x 10.90" x 2.64"
DALI, Lutron & LZ1 height = 3.0"

50˚ - L x W x H
12.88" x 10.90" x 3.09"

IC-rated/Chicago Plenum Housing
60˚, 50˚ & 75˚ - L x W x H
20.19" x 10.9" x 3.53"

3.5" ROUND DOWNLIGHT OPTICS

Optic	Cut-Off Degree	Trim Type	Distribution Beam Spread | Spacing Criteria					
			NFL	FL1	FL2	WFL	VWFL	SWFL
DNT	50˚	Overlap	25° | 0.42	37° | 0.62	44° | 0.72	59° | 0.89	67° | 1.02	
		Trimless	26° | 0.54	37° | 0.62	44° | 0.76	58° | 0.87	-	-
DNS	60˚	Overlap	24° | 0.42	34° | 0.67	47° | 0.81	54° | 0.87	65° | 0.99	
		Trimless	25° | 0.42	37° | 0.63	45° | 0.75	56° | 0.92	-	-
DSS	75˚	Overlap	-	-	-	-	73° | 1.07	91° | 1.26
		Trimless	-	-	-	-	74° | 1.07	91° | 1.24

3.5" ROUND DOWNLIGHT PERFORMANCE TABLES

Based on Overlap, Tall Cone, Wide Flood, Clear Diffuse. Delivered lumen output may vary +/- 5%. Actual wattage may vary +/- 5%.

STANDARD WHITE				
CCT	**Lumen Output**	**Delivered Lumens**	**System Watts**	**LPW**
3500K, 80CRI	700L	721	8	90
	900L	919	10	94
	1100L	1112	12	96
	1300L	1298	16	83
	1500L	1484	17	85
	1700L	1682	19	86
	1900L	1909	22	87
	2100L	2144	25	86

Roberto Esquenazi
Alkabes
L-8
12/13/2024

QS 5/10 DAY* Options in orange qualify for the Quickship program. All options 5-day up to 200 pieces except Emergency Battery 10-day only.

STANDARD WHITE

HOUSING ORDERING

		FLC3D
Housing Series		
ID+ 3.5" Round	FLC3D	
Trim Type		RO
Round Overlap	RO	
Round Trimless	RT	
Color Options		SW
Standard White, 80 & 90 CRI	SW	
High 97 CRI	HC	
Lumen Output		1100L
700 Lumen (Not available with Lutron or LFP)	700L	
900 Lumen (Not available with LFP)	900L	
1100 Lumen	1100L	
1300 Lumen	1300L	
1500 Lumen	1500L	
1700 Lumen	1700L	
1900 Lumen	1900L	
2100 Lumen	2100L	
Voltage		UNV
120/277 Volt (IC-rated housing: SW - 1700lm max., HC - 1500lm max. T-rated & TW housings: SW - 1100lm max., HC - 900lm max.)	UNV	
120V	120	
277V	277	
Low Voltage (IC-rated housing: SW - 1700lm max., HC - 1500lm max. T-rated & TW housings: SW - 1100lm max., HC - 900lm max.)	LV	
Control System & Dimming Level		LH1
0-10V <1% Dimming	LZ1	
0-10V - 1% Dimming	L11	
0-10V - 10% Dimming	LD1	
Low Voltage, PoE Compatible (No driver. Not available with EMR. LV voltage only.)	LVN	
Forward Phase (120V only)	LFP	
Lutron Hi-Lume EcoSystem (LDE1) - 1% Dimming	LH1	
DALI <1% Dimming	DZ1	
DALI - 1% Dimming	D11	
Housing Type		T
IC-Rated / Airtight	IC	
Thermally Protected, Non-IC / Airtight	T	
Thermally Protected, Non-IC Wood (Trimless only. Wood kit required)	TW	
Factory Options		
Bar Hangers	BH	
Chicago Plenum	CP	
Emergency Battery - Remote test switch* (Overlap trim only. Not available with CP or IC-rated housing. Above ceiling access required.)	EMR	EMR
Outdoor Rated (LD1 driver and T-rated housing only. Not available with CP or EMR. See dimming performance table on page 5.)	OD	

TRIM & LED MODULE

		LC3
Aperture		
3.5" Round Reflector	LC3	
Trim Type		RO
Round Overlap	RO	
Round Die-Cast Overlap (DSS only)	RDO	
Round Trimless	RT	
Round Die-Cast Trimless (DSS only)	RDT	
Color Options		SW
Standard White, 80 & 90 CRI	SW	
High 97 CRI	HC	
Lumen Output		1100L
700 Lumen (Not available with Lutron or LFP)	700L	
900 Lumen (Not available with LFP)	900L	
1100 Lumen	1100L	
1300 Lumen	1300L	
1500 Lumen	1500L	
1700 Lumen	1700L	
1900 Lumen	1900L	
2100 Lumen	2100L	
Color Temperature (Add 9 for 90 CRI or H for 97 CRI. Leave blank for 80 CRI. Examples: 2700K, 97 CRI = H27K. 2700K, 80 CRI = 27K.)		_27K
2700K, 80/90/97+ CRI	_27K	
3000K, 80/90/97+ CRI	_30K	
3500K, 80/90/97+ CRI	_35K	
4000K, 80/90/97+ CRI	_40K	
Optic		DNT
Tall Cone with 50˚ cut-off	DNT	
Short Cone with 60˚ cut-off	DNS	
Super Short Cone with Solite Lens 75˚ cut-off (Die-cast trims only. VWFL or SWFL only.)	DSS	
Distribution		NFL
Narrow Flood	NFL	
Flood 1	FL1	
Flood 2	FL2	
Wide Flood	WFL	
Very Wide Flood (Overlap all optics. Trimless DSS only.)	VWFL	
Super Wide Flood (DSS only)	SWFL	
Finish		BK
Clear Diffuse	CD	
Warm Diffuse	WD	
Black	BK	
White	WH	
Optional Flange Finish (Overlap CD & WD finish only) (For matching finishes leave blank)		BP
Black Painted	BP	
White Painted	WP	

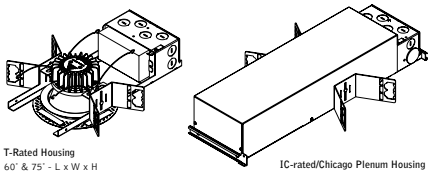
ACCESSORIES

Trimless Wood Ceiling Installation Kit (One kit recommended per 10 downlights)	LC3-WOOD-KIT	

Luminaire Cut Sheets

fixture: project:

STANDARD WHITE HOUSING DETAILS



T-Rated Housing
60˚ & 75˚ - L x W x H
12.88" x 10.90" x 2.64"
DALI, Lutron & LZ1 height = 3.0"

50˚ - L x W x H
12.88" x 10.90" x 3.09"

IC-rated/Chicago Plenum Housing
60˚, 50˚ & 75˚ - L x W x H
20.19" x 10.9" x 3.53"

3.5" ROUND DOWNLIGHT OPTICS

Optic	Cut-Off Degree	Trim Type	Distribution Beam Spread | Spacing Criteria					
			NFL	FL1	FL2	WFL	VWFL	SWFL
DNT	50˚	Overlap	25° | 0.42	37° | 0.62	44° | 0.72	59° | 0.89	67° | 1.02	
		Trimless	26° | 0.54	37° | 0.62	44° | 0.76	58° | 0.87	-	-
DNS	60˚	Overlap	24° | 0.42	34° | 0.67	47° | 0.81	54° | 0.87	65° | 0.99	
		Trimless	25° | 0.42	37° | 0.63	45° | 0.75	56° | 0.92	-	-
DSS	75˚	Overlap	-	-	-	-	73° | 1.07	91° | 1.26
		Trimless	-	-	-	-	74° | 1.07	91° | 1.24

3.5" ROUND DOWNLIGHT PERFORMANCE TABLES

Based on Overlap, Tall Cone, Wide Flood, Clear Diffuse. Delivered lumen output may vary +/- 5%. Actual wattage may vary +/- 5%.

STANDARD WHITE				
CCT	**Lumen Output**	**Delivered Lumens**	**System Watts**	**LPW**
3500K, 80CRI	700L	721	8	90
	900L	919	10	94
	1100L	1112	12	96
	1300L	1298	16	83
	1500L	1484	17	85
	1700L	1682	19	86
	1900L	1909	22	87
	2100L	2144	25	86

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12/13/2024

QS 5/10 DAY* Options in orange qualify for the Quickship program. All options 5-day up to 200 pieces except Emergency Battery 10-day only.

Focal Point LLC reserves the right to change specifications for product improvement without notification.

STANDARD WHITE

HOUSING ORDERING

Housing Series		FLC3D
ID+ 3.5" Round	FLC3D	
Trim Type		RO
Round Overlap	RO	
Round Trimless	RT	
Color Options		SW
Standard White, 80 & 90 CRI	SW	
High 97 CRI	HC	
Lumen Output		1100L
700 Lumen (Not available with Lutron or LFP)	700L	
900 Lumen (Not available with LFP)	900L	
1100 Lumen	1100L	
1300 Lumen	1300L	
1500 Lumen	1500L	
1700 Lumen	1700L	
1900 Lumen	1900L	
2100 Lumen	2100L	
Voltage (IC-rated housing: SW - 1700lm max., HC - 1500lm max. T-rated & TW housings: SW - 1100lm max., HC - 900lm max.)		UNV
120/277 Volt	UNV	
120V	120	
277V	277	
Low Voltage (IC-rated housing: SW - 1700lm max., HC - 1500lm max. T-rated & TW housings: SW - 1100lm max., HC - 900lm max.)	LV	
Control System & Dimming Level		LH1
0-10V <1% Dimming	LZ1	
0-10V - 1% Dimming	L11	
0-10V - 10% Dimming	LD1	
Low Voltage, PoE Compatible (No driver. Not available with EMR. LV voltage only.)	LVN	
Forward Phase (120V only)	LFP	
Lutron Hi-Lume EcoSystem (LDE1) - 1% Dimming	LH1	
DALI <1% Dimming	DZ1	
DALI - 1% Dimming	D11	
Housing Type		T
IC-Rated / Airtight	IC	
Thermally Protected, Non-IC / Airtight	T	
Thermally Protected, Non-IC Wood (Trimless only. Wood kit required)	TW	
Factory Options		
Bar Hangers	BH	_____
Chicago Plenum	CP	_____
Emergency Battery - Remote test switch* (Overlap trim only. Not available with CP or IC-rated housing. Above ceiling access required.)	EMR	EMR
Outdoor Rated (LD1 driver and T-rated housing only. Not available with CP or EMR. See dimming performance table on page 5.)	OD	_____

TRIM & LED MODULE

Aperture		LC3
3.5" Round Reflector	LC3	
Trim Type		RO
Round Overlap	RO	
Round Die-Cast Overlap (DSS only)	RDO	
Round Trimless	RT	
Round Die-Cast Trimless (DSS only)	RDT	
Color Options		SW
Standard White, 80 & 90 CRI	SW	
High 97 CRI	HC	
Lumen Output		1100L
700 Lumen (Not available with Lutron or LFP)	700L	
900 Lumen (Not available with LFP)	900L	
1100 Lumen	1100L	
1300 Lumen	1300L	
1500 Lumen	1500L	
1700 Lumen	1700L	
1900 Lumen	1900L	
2100 Lumen	2100L	
Color Temperature (Add 9 for 90 CRI or H for 97 CRI. Leave blank for 80 CRI. Examples: 2700K, 97 CRI = H27K. 2700K, 80 CRI = 27K.)		_27K
2700K, 80/90/97+ CRI	_27K	
3000K, 80/90/97+ CRI	_30K	
3500K, 80/90/97+ CRI	_35K	
4000K, 80/90/97+ CRI	_40K	
Optic		DSS
Tall Cone with 50˚ cut-off	DNT	
Short Cone with 60˚ cut-off	DNS	
Super Short Cone with Solite Lens 75˚ cut-off (Die-cast trims only. VWFL or SWFL only.)	DSS	
Distribution		SWFL
Narrow Flood	NFL	
Flood 1	FL1	
Flood 2	FL2	
Wide Flood	WFL	
Very Wide Flood (Overlap all optics. Trimless DSS only.)	VWFL	
Super Wide Flood (DSS only)	SWFL	
Finish		BK
Clear Diffuse	CD	
Warm Diffuse	WD	
Black	BK	
White	WH	
Optional Flange Finish (Overlap CD & WD finish only) (For matching finishes leave blank)		BP
Black Painted	BP	
White Painted	WP	

ACCESSORIES

Trimless Wood Ceiling Installation Kit (One kit recommended per 10 downlights)	LC3-WOOD-KIT	_____

Control Narrative

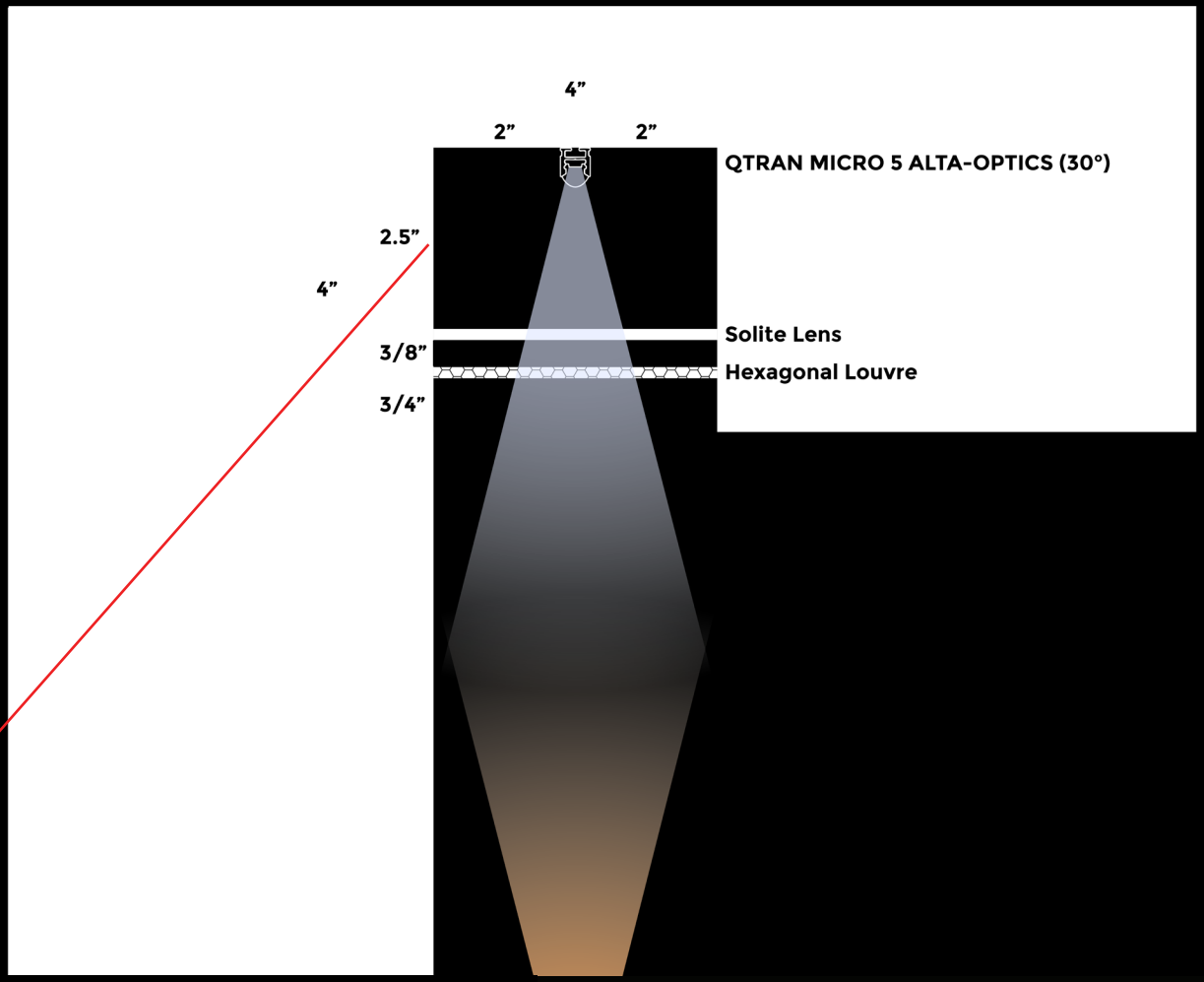
Control Scope & Intent

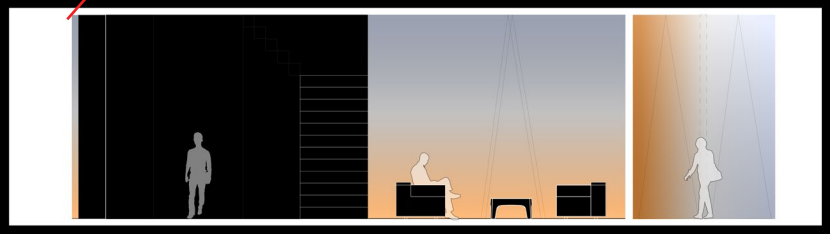
The control system for the lobby is designed to prioritize the internal rhythms of night shift healthcare workers, ensuring their well-being is supported during their transition from work to rest. This system utilizes a unified Lutron Athena platform, which dynamically adjusts lighting conditions throughout the day. In areas where daylight is present, the system automatically dims artificial lighting to maintain visual comfort while conserving energy. Vertical surfaces are calibrated to the optimal correlated color temperature (CCT) and intensity, creating a supportive environment for healthcare workers returning home after a long night shift. To accommodate a variety of users, the system includes a specialized “Night Shift Healthcare Worker” lighting scene. This scene is programmed to activate only during specific time windows that align with night shift schedules. At other times, the system seamlessly transitions to settings that address the needs of other user groups, ensuring that the lobby remains a welcoming and functional space for everyone.

Experience

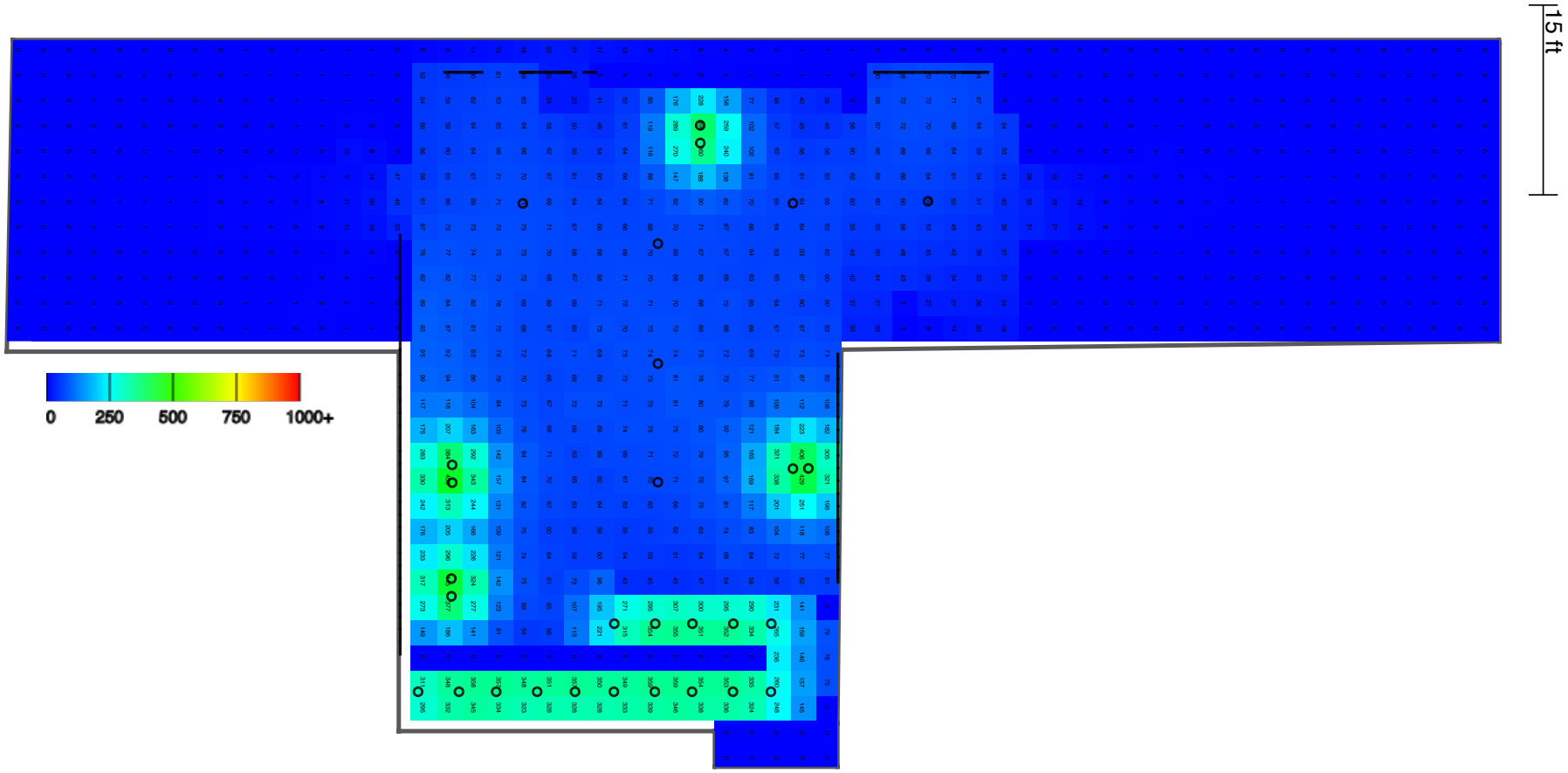
The lighting in the lobby enhances the user experience by creating an environment that naturally aligns with the body’s rhythms. For healthcare workers, the system fosters a calming atmosphere that encourages restfulness, helping them wind down after their shift even as the world outside begins its day. Soft, warm tones and carefully adjusted illuminance levels guide their transition from high-alert work states to a more relaxed and restorative mindset. The system’s ability to simulate natural light cycles ensures that healthcare workers receive the necessary visual cues to prepare for rest, even when their schedules are misaligned with traditional daylight patterns. At the same time, the flexibility of the control system ensures that the needs of other users are not compromised. By adapting the lighting environment to different scenarios and times of day, the entire building supports a diverse range of users while placing the night shift healthcare worker at the center of its design intent. This adaptable approach creates a holistic, intuitive experience where lighting not only responds to the immediate needs of its users but also contributes to their overall well-being. The Lutron Athena system ensures that these goals are achieved with precision, flexibility, and care.

Lighting Detail





Lighting Calculations - Point by Point Analysis - Electric



Name	Number	Area (sq ft)	Grid Points	Avg (Lux)	Max (Lux)	Min(Lux)	LPD (W/sq ft)
Lounge	1	193.86	45	101.45	415.99	18.03	0.12
Lounge	2	144.94	27	161.67	496.66	56.92	0.11
Reception		211.16	55	185.55	499	60.22	0.15
Entrance		291.02	69	273.42	400.01	0.01	0.41
General Circulation		1221.88	281	57.98	114.73	0	0.06

Lighting Calculations Analysis

Illuminance Targets	Horizontal Illuminantion (Lux)	Vertical Illumination (Lux)
Lobby—General Circulation	**50**	**Unspecified**
Lobby—Entry	**150**	**75**
Lobby—Lounge—Social, Waiting	**100**	**50**
Lobby—Reception	**150**	**20**

Name	Number	Area (sq ft)	Grid Points	Avg (Lux)	Max (Lux)	Min(Lux)	LPD (W/sq ft)
Lounge	1	193.86	45	101.45	415.99	18.03	0.12
Lounge	2	144.94	27	161.67	496.66	56.92	0.11
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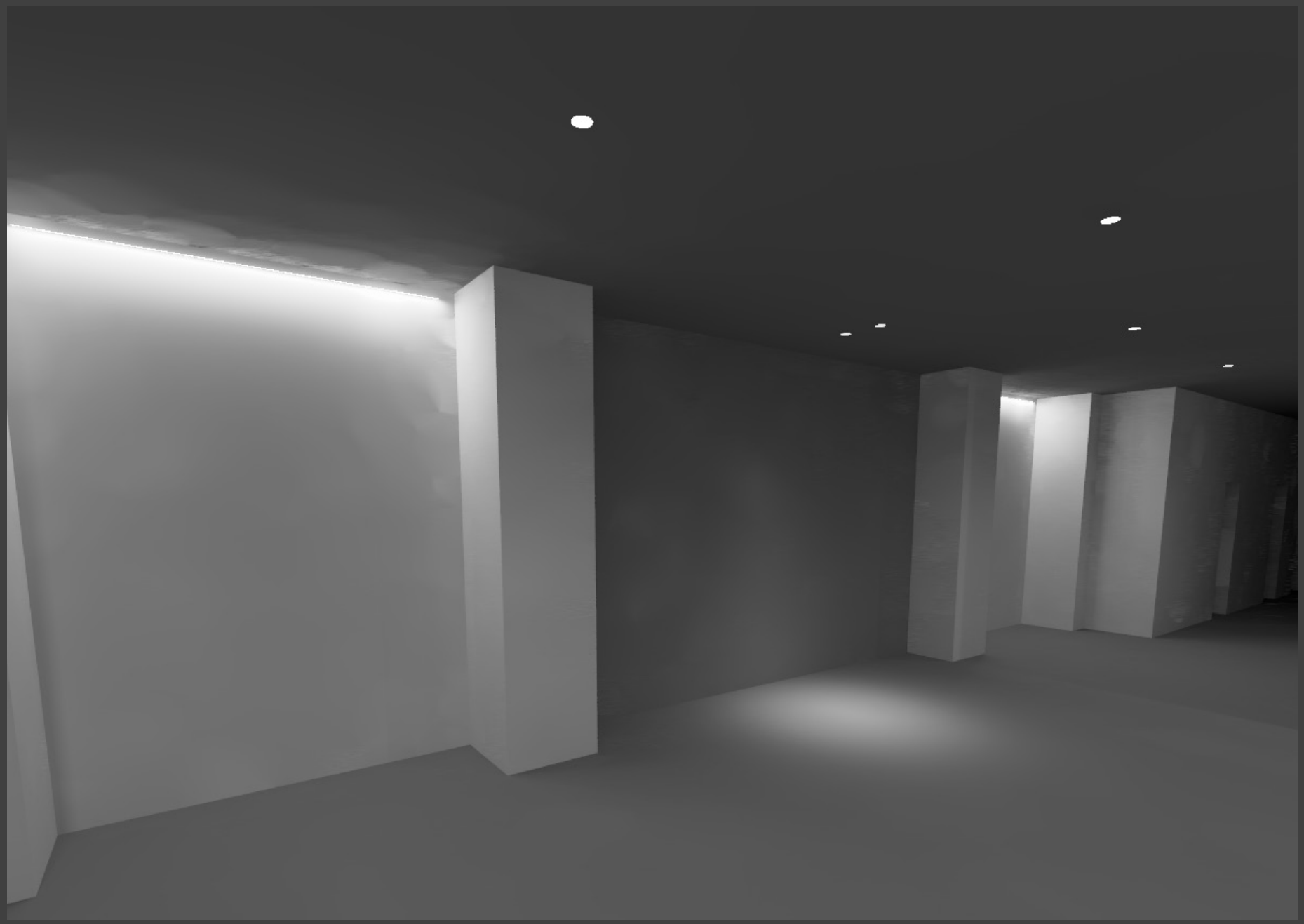
Entrance		291.02	69	273.42	400.01	0.01	0.41
General Circulation		1221.88	281	57.98	114.73	0	0.06

By comparing these two graphs side by side, we can see that the space I've designed leans towards being slightly brighter. However, I believe this design aligns well with the stated design intent. The goal is to gently dim the lights as needed, providing users with a flexible and adaptive lighting experience.

This approach ensures that while the space starts on the brighter side, it can transition seamlessly to softer, more comfortable lighting levels based on user needs. By prioritizing adaptability, the design enhances functionality and supports a range of activities and moods, creating an environment that feels both intentional and user-focused.

Lighting Calculations - Renderings

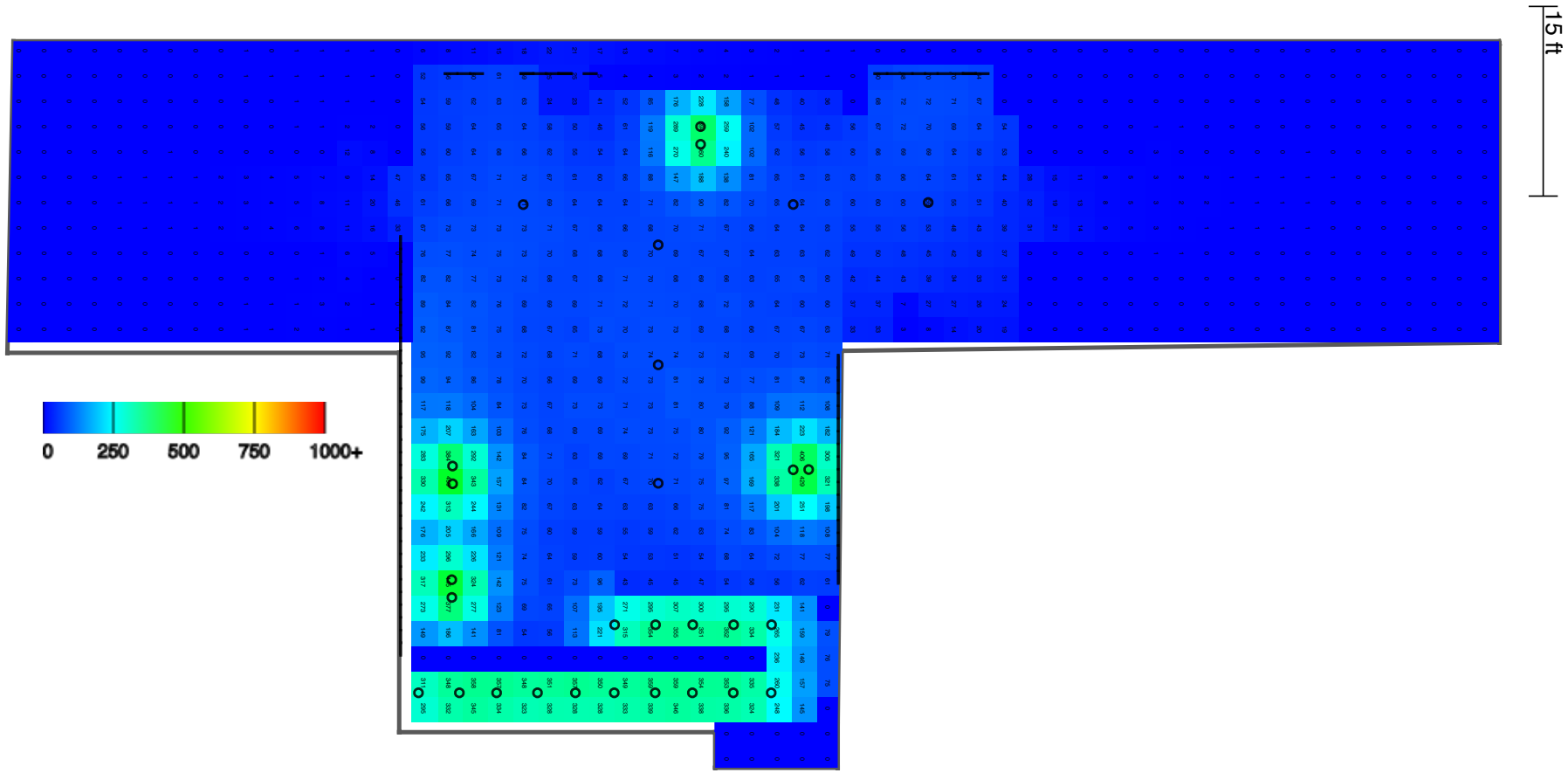


Lighting Calculations - Renderings

Lighting Calculations - Renderings

Lighting Calculations - Renderings

Emergency Egress Calcuation



Name	Number	Area (sq ft)	Grid Points	Avg (Lux)	Max (Lux)	Min(Lux)
Lounge	1	193.86	45	3.45	8.65	0.49
Lounge	2	144.94	27	1.95	3.25	56.92
Reception		211.16	55	0.76	1.71	0.27
Entrance		291.02	69	20.43	71.99	0
General Circulation		1221.88	281	4.87	25.56	0