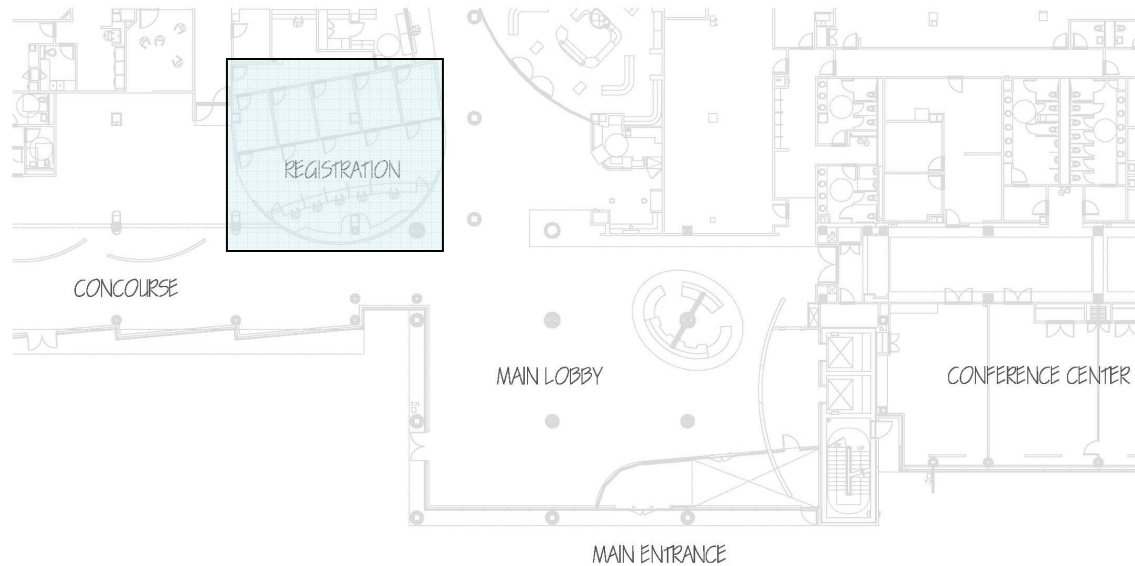


## Registration ~ Lighting Space



**Figure 3: Registration space and relationship with surrounding spaces**

### Introduction

The registration space is located adjacent to the main entrance lobby and concourse for the North Addition to the hospital. Its purpose is to process and assist patients waiting for out-patient surgery. The space also functions as an intermediate corridor for some faculty and staff. The north wall consists of floor to ceiling glass with a frosted-striped finish separating several administration offices from the registration desks. The east façade is open to the patient waiting area and the west façade is open to the main lobby. On the south façade, a curved light wood-paneled partition wall is located behind the registration desks ending approximately 8' a.f.f. with the top portion of the wall open to the main concourse. Metal partitions separate each work station. The floor is carpeted with a tan random patterned tile carpet.

## Design Concepts

The design concept for the registration space was to accentuate the unique architectural features of the space with minimal fixture obtrusion while still provide adequate quality light to maintain productivity and accuracy of the crucial tasks. Because the space is so centrally located with respects to the main lobby and major thoroughfares of the building, I wanted to keep the same overall feeling to the space as the adjacent lobby. However, I wanted to provide enough variation to present the registration space as its own unique area with respective tasks due to the lack of clear boundaries between the space and the main lobby/concourse.

To prevent potential problems with light spilling into the private offices, I chose a direct/indirect 2x2 fixture that will provide even, soft light to the pseudo-corridor separating the private offices and public registration desks and not disturb the private office patrons with a lot of direct light. Since the ceiling is rather low in this space (8'6"), I did not feel a pendant indirect would be best suited for the situation. To accentuate some of the architectural features, I ran strips of color changing LED's vertically on the front face of each desk partition. This should add some "pop" to the space and call attention to its main function. I highlighted the curved back wall with recessed fluorescent downlights to bring out the three-dimensionality of the wall as well as open up the rather cramped area behind the desks visually. For the ambient illumination of the desks, each station has a recessed downlight directly above the desk and receives some further light from the 2x2 basket fixtures in the pseudo-corridor. Additionally, each station has an adjustable-armed task light that is controlled locally at the desk for further illumination of the workplane.



**Figure 4: Existing condition of Registration space**

## Design Criteria

- **Appearance of Space and Luminaires** – Being in a direct line of sight to several busy public spaces, the appearance of the space is critical. Continuity between the aesthetics of all the public spaces as the public enters the hospital helps form their opinion on the quality of care their loved ones will receive if treated there. Since the architecture of the entire addition sends a strong statement, the lighting fixtures should take more of a diminished roll and let the combination of light and architecture make the statement.
- **Color Appearance** – Color appearance is crucial to proper facial recognition as well as the proper highlighting of various surfaces in the space (wood-paneled wall, countertops).
- **Direct Glare** – Prevention of direct glare is essential to the operation of this space. Both registration personnel and patients need to use the same desk space from opposite sides of the desk to fill out paper work. Glare would hinder their ability to read things properly and may result in registration inaccuracies, which are important concerning healthcare procedures.
- **Light Distribution** – Light distribution on surfaces needs consideration since the majority of the tasks taking place in this area will be done on a desk or counter. Registration has young and old, healthy and sick people that need to use this space efficiently before they can be cared for. Therefore, the registration desks should be lit evenly and adequately.
- **Facial Modeling** - Modeling of faces/objects is important since human interaction is very prevalent in this space. People are constantly being registered and sit across from registration personnel while doing so. To ensure conversation is not distracted, proper facial modeling needs to be achieved.
- **Horizontal Illuminance** – 30 fc (reading), 10 fc (corridor)
- **Vertical Illuminance** – 3 fc
- **Maximum Power Density** – 1.3 W/ft<sup>2</sup>  
(ASHRAE Standard 90.1)

### Fixture Schedule:

#### Lighting Fixture Schedule

Type	Description	Manufacturer/Catalog No.	Lamps	CCT	Voltage	Notes
A	2' X 2' DIRECT/INDIRECT RECESSED, MICRO-PERFORATED MESH DIFFUSER, CENTER BASKET, WHITE FINISH, GRID CEILING	DAYBRITE #2TOCG240-PMW-277-1/2-EB	(2) 40WTT5	3500K	277	
B1	4" OPEN DOWNLIGHT, VERTICAL LAMP, ALUMINUM REFLECTOR AND SELF-FLANGED TRIM	GOTHAM #AFV-13DTT-6AR-277	(1) CFL13Q	3500K	277	
B2	4" OPEN DOWNLIGHT, VERTICAL LAMP, ALUMINUM REFLECTOR AND SELF-FLANGED TRIM	GOTHAM #AFV-18TRT-6AR-277	(1) CFL18TRT	3500K	277	
D1	ADJUSTABLE TABLE LAMP, SILVER FINISH, BLUE GLASS REFLECTOR	BERENICE - MEDA & RIZZATTO 1985	(1) 35W GY6.35	3000K	12	
F3	6" COLOR CHANGING LED COVE STRIP, COLOR ADJUSTING CAPABILITIES, VENTED PLASTIC HOUSING	COLOR KINETICS i-COLOR COVE NXT 6"	INCLUDED	1000-10000K	120	3,4

- NOTES:
3. INTEGRAL STEP-DOWN TRANSFORMER INCLUDED WITH FIXTURES
  4. SEE INCLUDED DETAIL OF FIXTURE FOR MOUNTING SPECIFICS

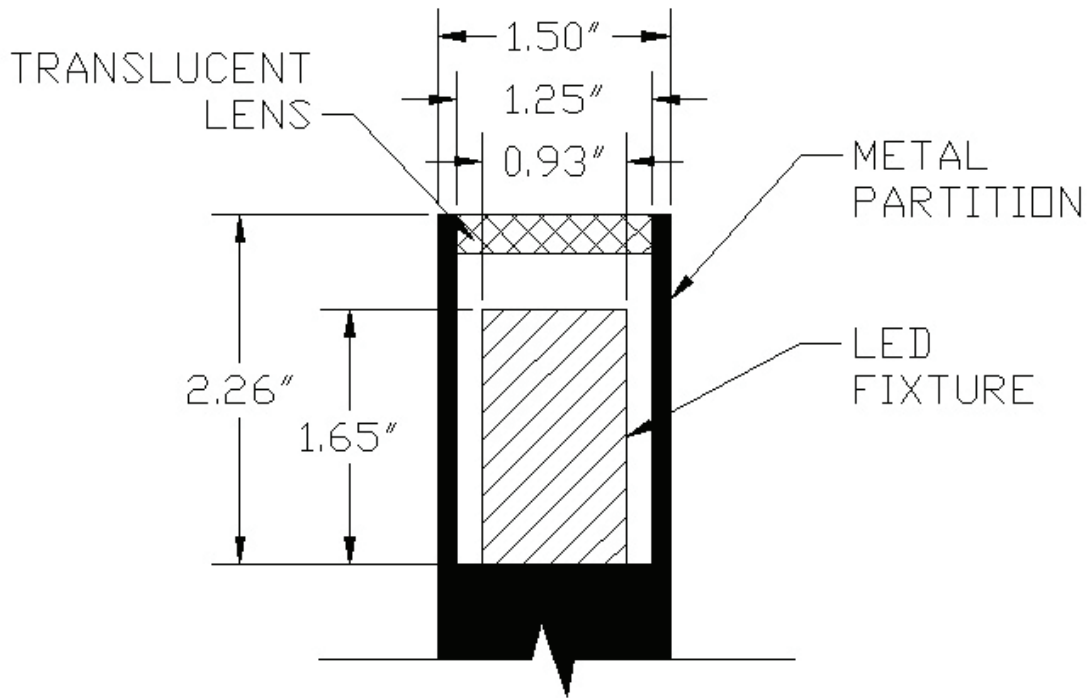
\* All fixtures in this space (excluding D1) are switched by a single keyed switch located in an adjacent janitor's closet due to the extensive public access to the space.

### Light Loss Factors:

#### Light Loss Factors

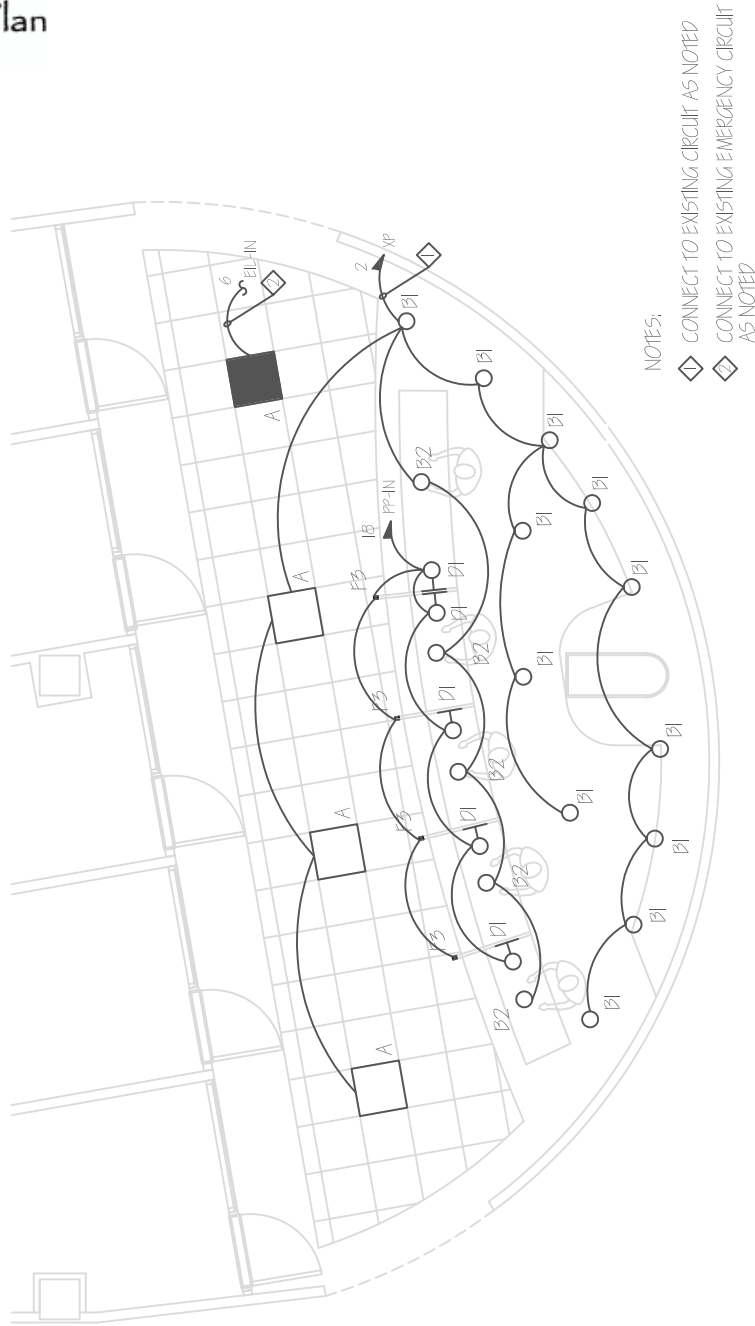
Type	Fixture	Lamp	Lamp Data		Ballast Data			LLF's			
			Initial Lumens	Mean Lumens	Input Watts	Ballast Factor	Dimming	LLD	LDD	RSDD	Total LLF
<b>A</b>	2'x2' recessed direct/indirect	(2) F40BX	3150	2840	81	1.03	-	0.90	0.88	0.97	0.793
<b>B1</b>	4" gotham downlight	(1) CF13Q	900	755	16	1	-	0.84	0.88	0.97	0.716
<b>B2</b>	4" gotham downlight	(1) CF18TRT	1200	1010	20	1.05	-	0.84	0.88	0.97	0.754
<b>D1</b>	Task Light	(1) 35W 12V GY6.35	600	-	35	1	-	0.97	0.88	0.97	0.828
<b>F1,F2,F3</b>	LED Cove	-	45	-	6.9/l.f.	1	-	1.00	0.86	0.97	0.834

### LED Mounting Detail:



**Figure 5: LED Partition Installation Detail**

# Lighting Plan



REGISTRATION  
SCALE: 1/8" = 1'-0"

Power Density:

Power Density Calcs			
Fixture	Ballast Watts/Fixture	Quantity	Total
A	81	4	324
B1	16	12	192
B2	20	5	100
D1	35	5	175
F3	6.9	24	166
Total Watts:			957
Power Density (W/ft <sup>2</sup> ):			1.15

Calculation Grids:

Calc Grids					
Registration					
Description	Plane Height (ft)	Average (fc)	Maximum (fc)	Minimum (fc)	Max/Min (fc)
Pseudo-corridor	0	18	30	5	6.0
Desktops	2.5	36	*72	15	4.8

\* Max value correlates to point under task lamp

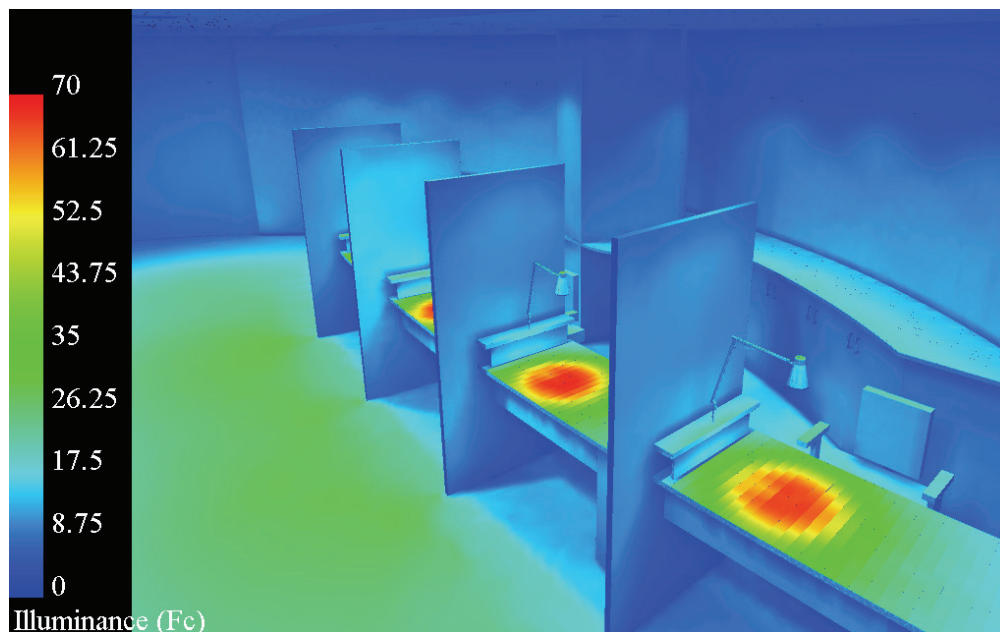
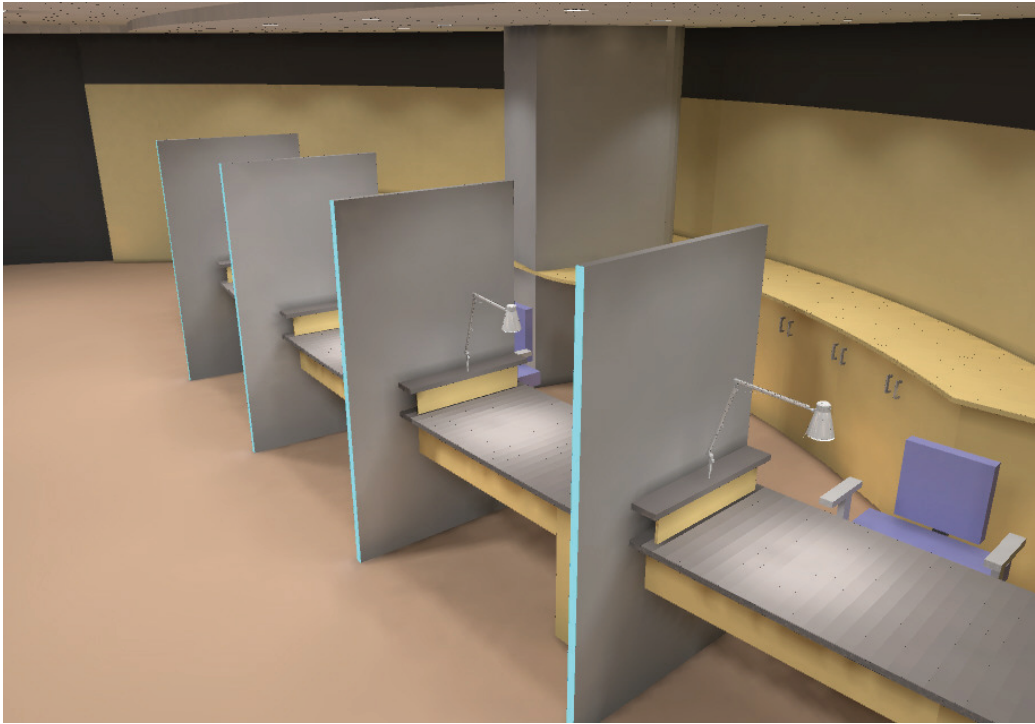


Figure 6: Registration Illuminance Pseudo-Rendering

Renderings:



**Figure 7: Registration Rendering**



**Figure 8: Registration Rendering**





**Figure 9: Registration Rendering**



**Figure 10: Registration Rendering**

## Conclusion

Overall, the proposed lighting design for this space successfully achieved my design goals. The direct/indirect basket fixtures both provided even, soft lighting for the corridor, as well as spread enough light laterally to provide some ambient light for the entire space without affecting the private offices on the north wall. The average illuminance for that corridor was also above the design value of 10 fc. The downlights grazing the curved back wall both accentuated the curvature and texture of the wall while providing workplane illuminance on the back countertops with an average of 22 fc. The combination of the 2x2 basket fixtures and the downlights centered over each workstation provided an ambient illuminance value of roughly 20 fc. With the addition of the adjustable task lamp, individuals had an average of 36 fc on the workplane with a cone average of approximately 65 fc underneath the desk lamp. Power density was below the ASHRAE 90.1 Standards and should contribute to energy conservation for the entire building.