

Duke Tower Main Entrance Lobby Overview

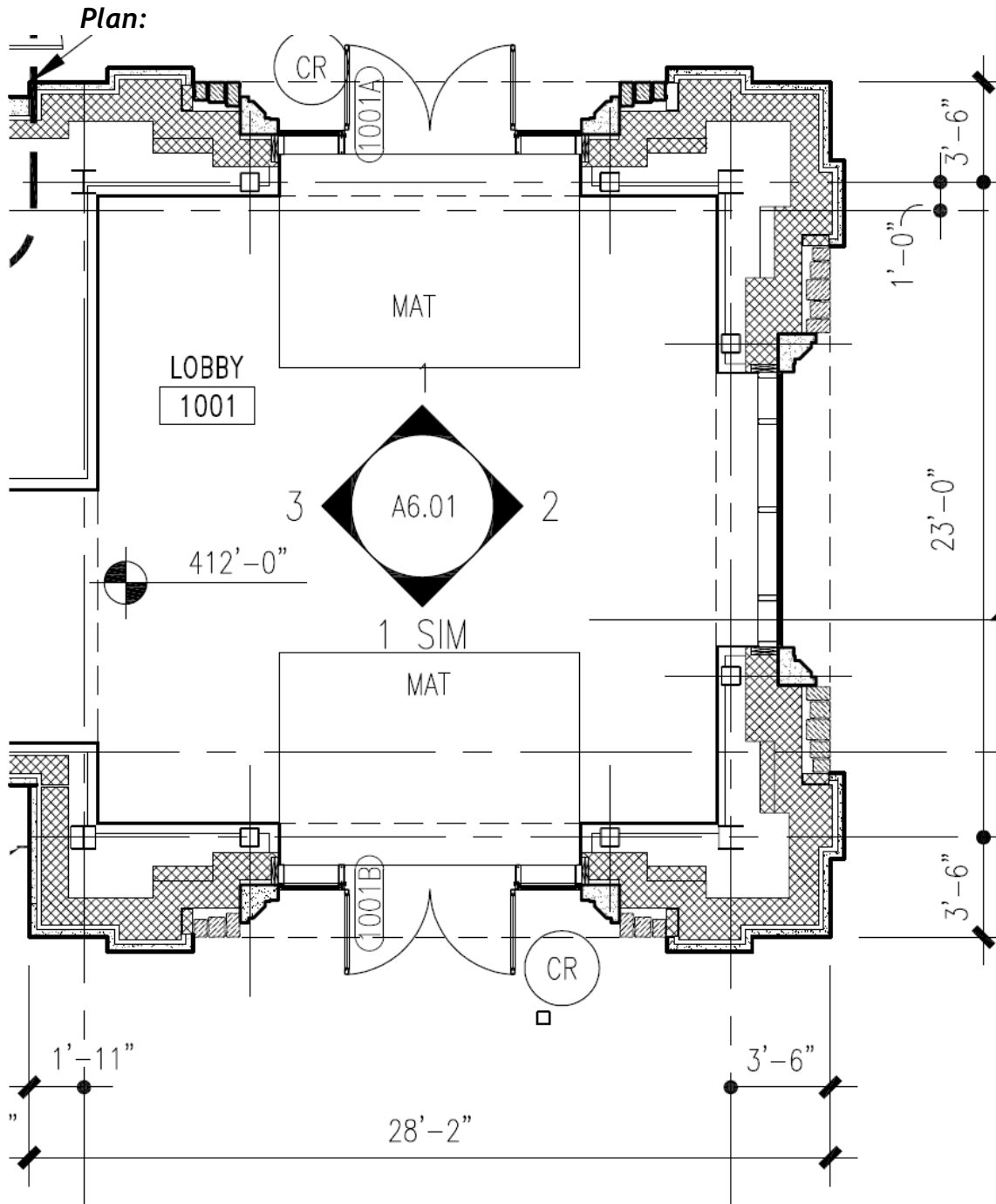
This is the main entrance to the building that is located in the prominent tower portion of the building. The floor of this lobby has the Duke University School of Nursing emblem worked into the terrazzo flooring. This could be considered a grand entrance, since it covers an area of approximately 530 SF and is about 26 feet high with three full height glass curtain walls.



*The above are Pre-construction conceptual renderings by ASG

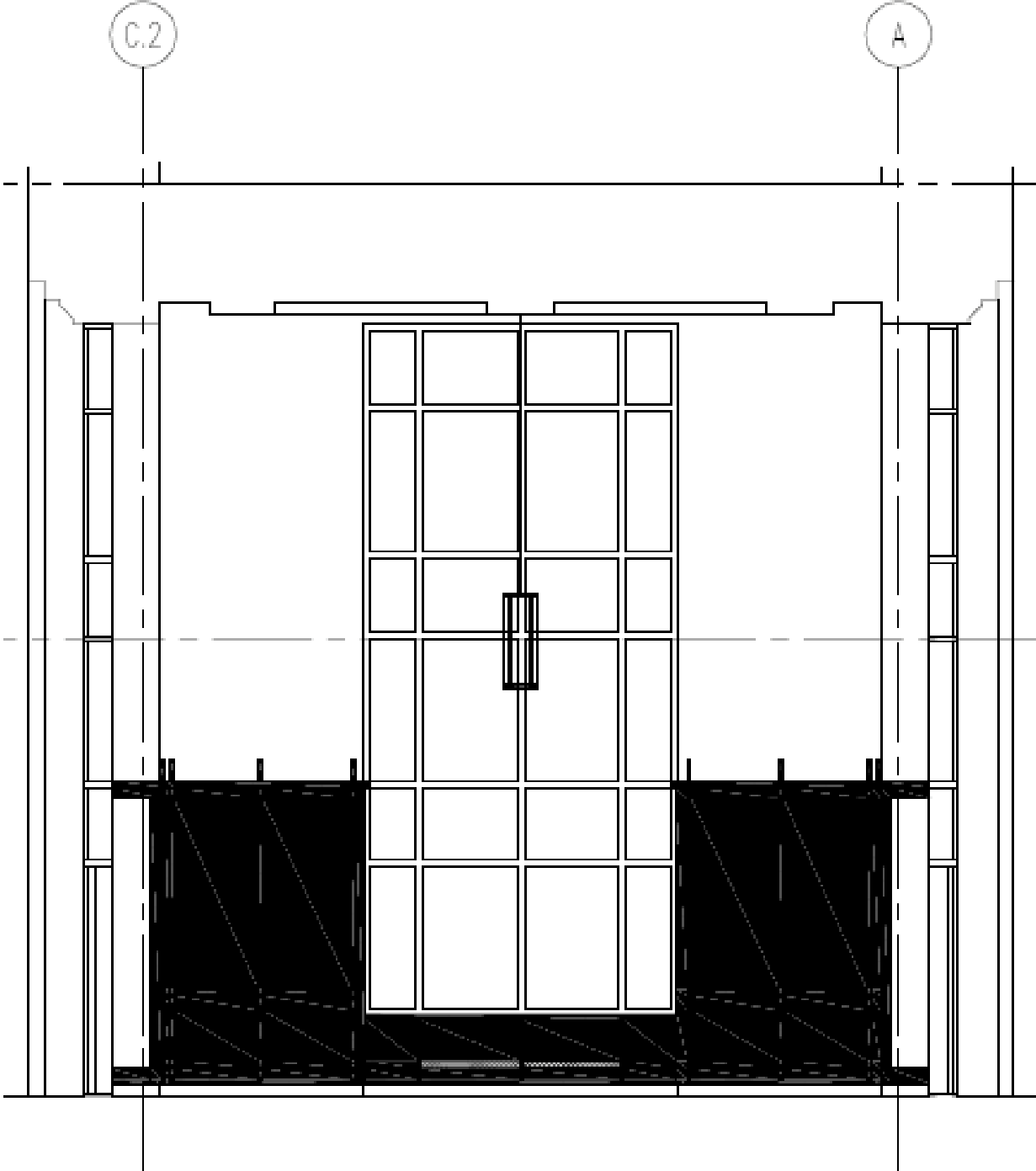


Architectural Plan



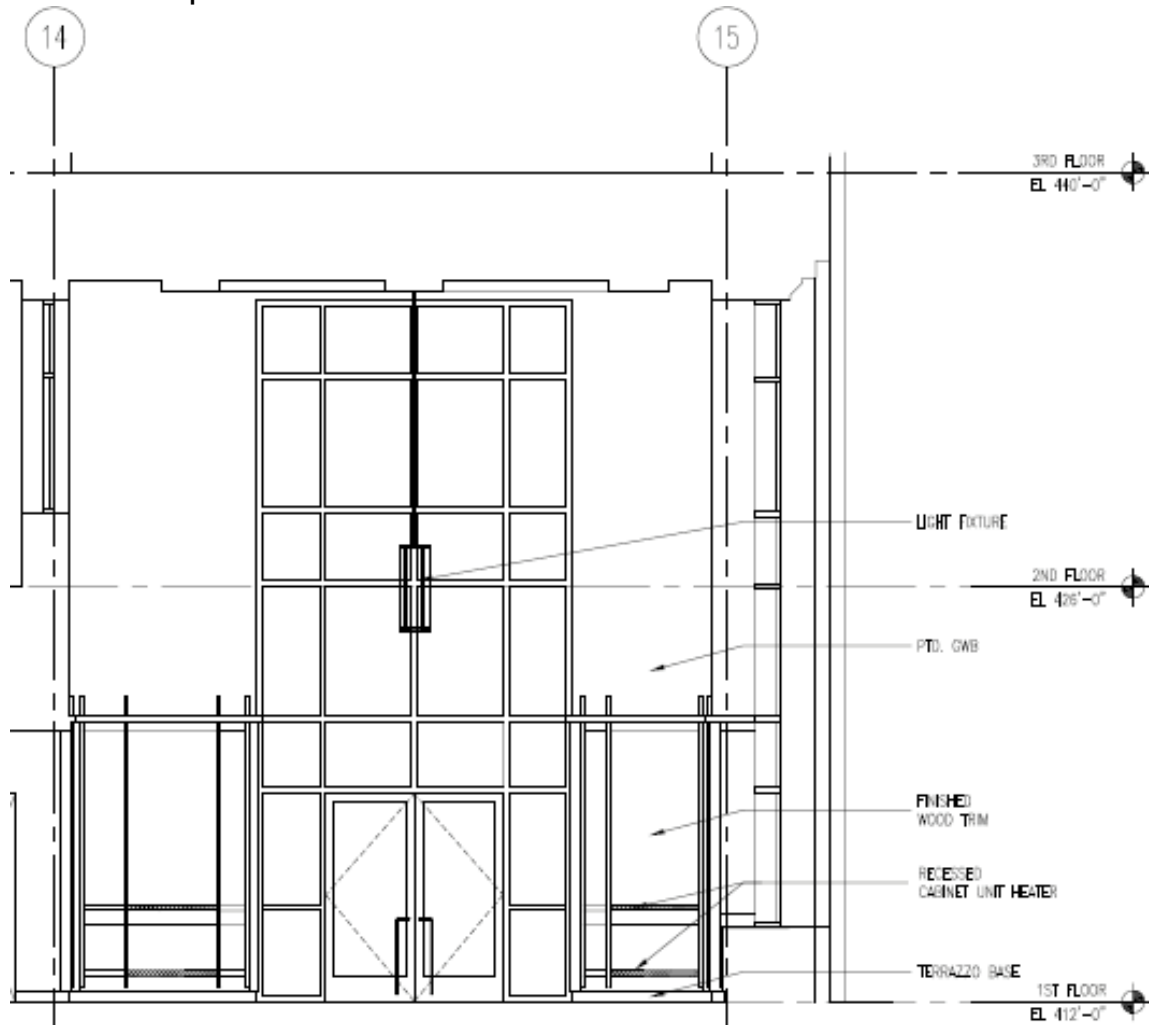
Architectural Interior Elevations

South Interior Elevation:



Architectural Interior Elevations

East | West Interior Elevation:



IESNA Design Criteria

Appearance of Space and Luminaires:

The space needs to appear inviting and carry a sense of grandeur, for this is the main entrance to the lobby. The luminaires should complement the Gothic style of the building, since most of the room is visible through the large glass windows of the tower.

Color Appearance:

The space should have warm color tones, in order for the space to have a warm and inviting feeling to it. Also, the color of the wood paneling will be enhanced by the warm color of light.

Daylight Integration and Controls:

The space is exposed to eastern, southern, and western sunlight by the three double high glass curtain walls. For this reason the use of photocell-controlled sensors or astronomical time clocks should be utilized for control of the fixtures.

Glare:

Direct and reflected glare from the luminaires should be considered to reduce seeing most of the fixtures in the glass and the waxed terrazzo floor.

Light Distribution on Surfaces:

The space should maintain a moderate level of uniform light on the walls of the tower, in order to help provide a sense of spaciousness and grandeur. However, due to the space being 26-ft high, some scalloping may occur if recessed fixtures are used.

Light Distribution on Task Plane:

The space is a major thoroughfare for the building and as a matter of public safety the task plane, the floor, should have some degree of uniformity. However, in order to highlight the School's emblem the center of the floor must be maintained at a higher light level to create the light difference in highlighting. This highlighting will cause the uniformity of the floor to decrease. The decrease in uniformity will not cause a safety hazard.

Luminance of Surfaces:

Being that the space is an entry lobby; the main goal is to lead the occupants to the corridor. By having variable surface luminances this can be achieved.

Points of Interest:

The main point of interest in the space is the Duke University School of Nursing emblem worked into the terrazzo flooring. This emblem should be highlighted with light.

Shadows:

Some shadowing is inherent with the sun tracking from east to the west throughout the day.

Surfaces Characteristics:

The space has wood wall paneling that, with the proper lighting, will enhance its beautiful characteristics. This wood paneling is contrasted by stark white walls above the wall paneling, and need to be considered so that they are not over lit. Finally, the gray terrazzo flooring needs to be properly lit to limit glare.

IESNA Illuminance Recommendations

Horizontal

Public Spaces	50 lx (5 fc)
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Vertical

Public Spaces	IESNA does not recommend a vertical illuminance value for a lobby.
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Existing Material Conditions

Surface Materials within the Space:

- Gray Terrazzo flooring
 - Reflectance = 37%
- Painted White GWB Ceiling
 - Reflectance = 80%
- Painted White GWB Walls
 - Reflectance = 80%
- Wood Panel Walls
 - Reflectance = 10%
- Wood Beams Ceiling
 - Reflectance = 10%

Glazing:

- **G-5:** 1" Insulated Glass - Float
 - U-Value = 0.57
 - Transmittance = 0.55
 - Shading Coefficient = 0.45

- **G-4:** 1" Insulated Glass - Laminated (door glass)
 - U-Value = 0.57
 - Transmittance = 0.55
 - Shading Coefficient = 0.45

Luminaire Schedule

Duke Tower Entrance Lobby- Luminaire Schedule								
Type	Mounting	Manufacturer	Catalog Number	Lamp	Input Watts	Volts	Ballast Catalog Number	Fixture Description
A	Ceiling Recessed	Lightolier	8021-CCLW	(1) 26W Triple Tube CFL GE F26TBX/SPX30A/4P	31	277	Advance VEZ-1T42-M2-BS	6" Direct Downlight Vetical Lamp Electronic Ballast
G	Pendant Chandelier	Custom	Custom	(2) 26W Triple Tube CFL GE F26TBX/SPX30A/4P	58	277	Advance VEZ-2Q26-M2-LD	Custom designed pendant that reflects Gothic Architecture/Style

Lamp Schedule

Duke Tower Entrance Lobby- Lamp Schedule							
Type	Manufacturer	Cat. #	Rated Wattage	CRI / CCT	Rated Life	Initial Lumens	Assoc. Fixture
L1	General Electric	F26TBX/S PX30A/4P	26	82 / 3000K	12000	1710	A / G

Notes: (1) please refer to Appendix A for all product cut sheets and complete schedules.

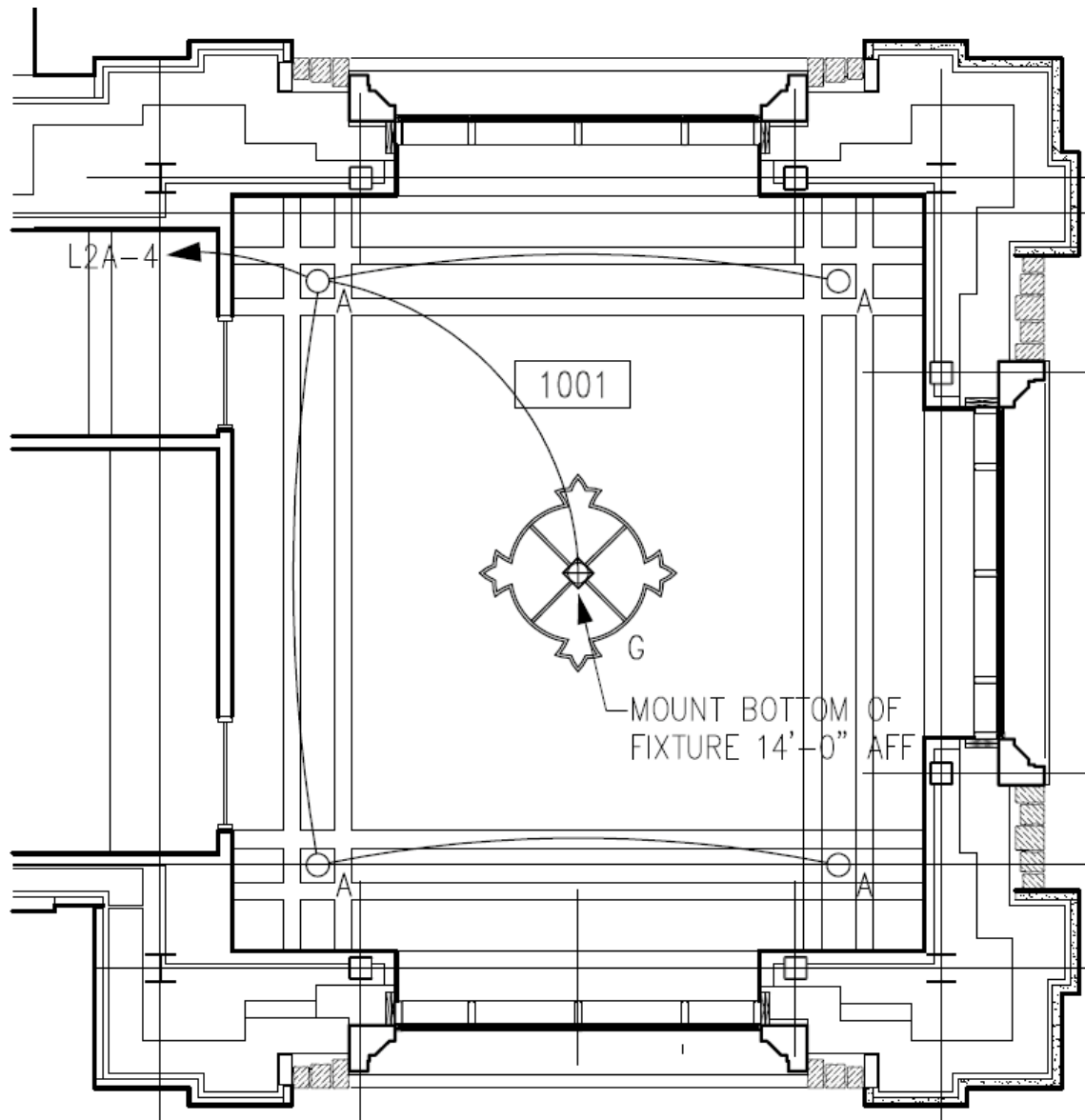
(2) Lighting is controlled by an astronomical time clock, which is located in the second floor electrical closet where PNL L2A is located.

Light Loss Factors

Duke Tower Entrance Lobby- Light Loss Factors													
Type	Fixture Description	Lamp	Mean Lumens [Initial Lumens]	LLD	Room Properties (Ft.)		RCR	Assumptions	Expected Dirt Depreciation	RSDD	LDD	BF	Total LLF
A	26W CFL 6" Open Maintenance Category III Direct Downlight	(1) 26W Triple Tube CFL GE F26TBX/SPX30A/4P	1440	0.842	Height	24	10.11	Clean 12 Months Cleaning Cycle	12	0.955	0.9	1.05	0.760
			1710		Length	23.5							
					Width	24							
					Perimeter	95							
					Area (ft ²)	564							
G	Custom Pendant Chandelier	(2) 26W Triple Tube CFL GE GE26TBX/SPX30A/4P	1440	0.842	Height	24	10.11	Clean 12 Month Cleaning Cycle	12	0.955	0.9	1.00	0.724
			1710		Length	23.5							
					Width	24							
					Perimeter	95							
					Area (ft ²)	564							

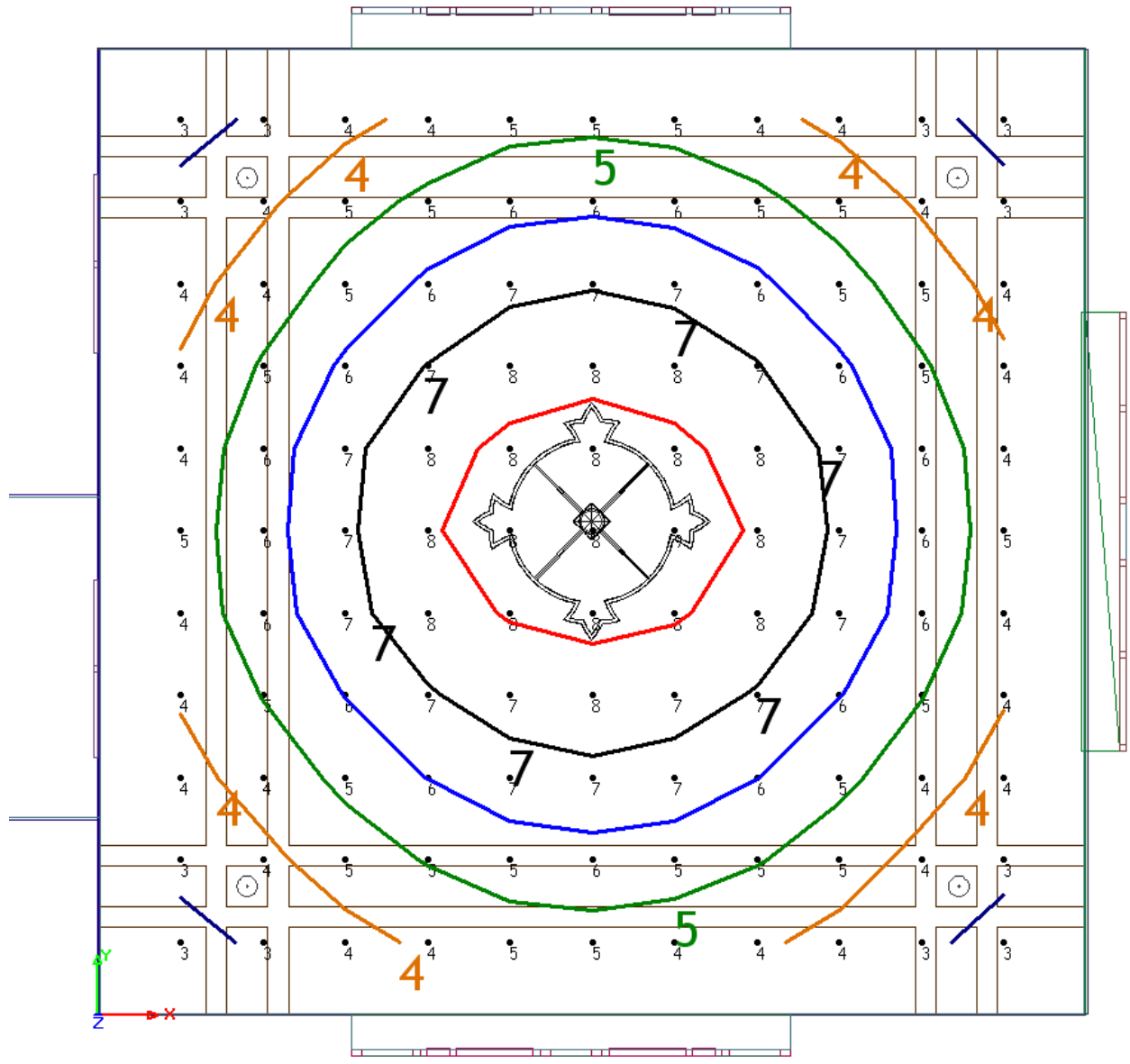
Lighting Plan

Second Floor Lighting Plan (Double High Space):



Note: Please refer to Appendix B for 1/8" = 1'0" Lighting and Circuited Plan

Illuminance Data

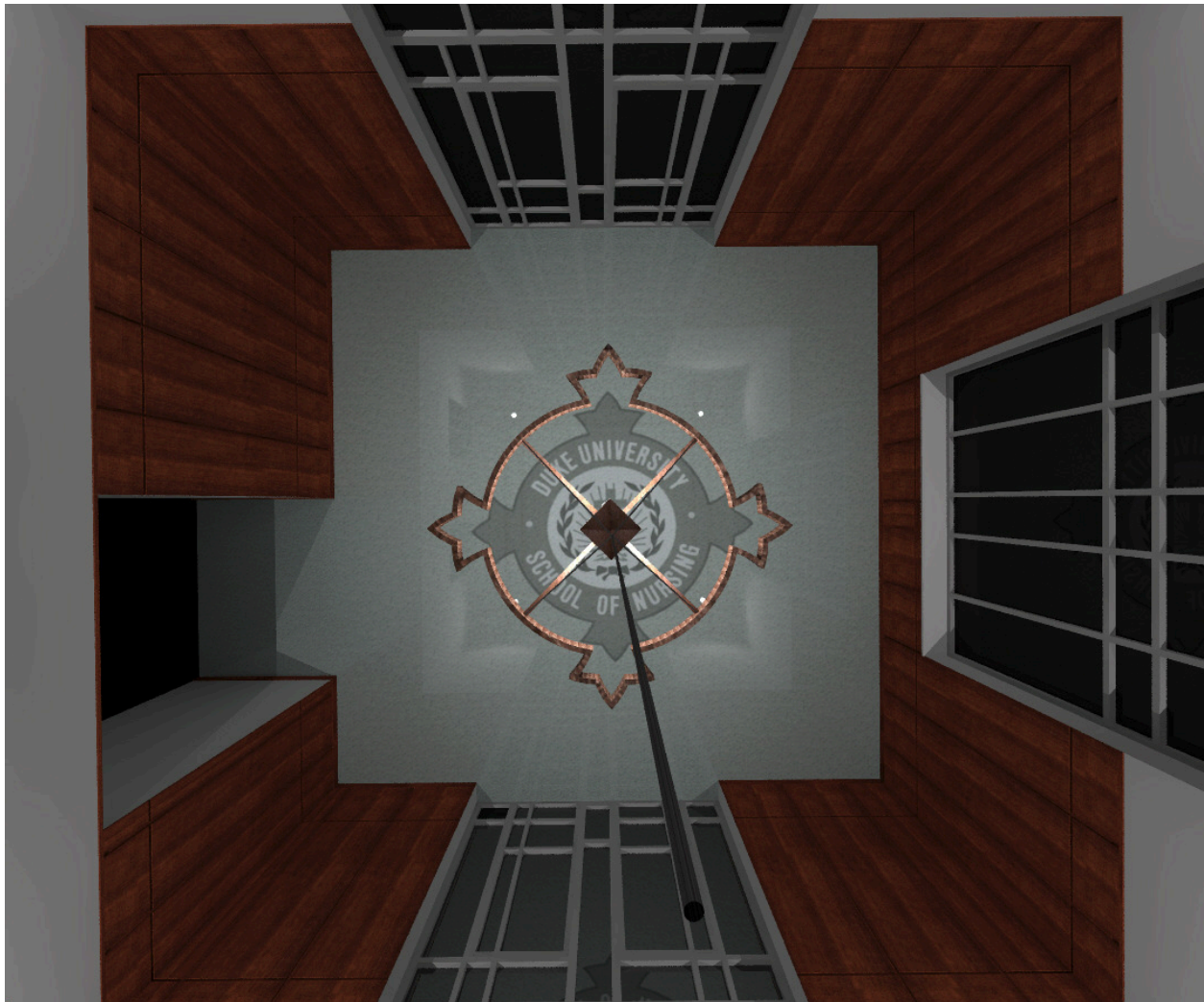


AGI32-v2.0 Statistical Summary

Duke Tower Entrance Lobby- Illuminance Results					
Average Illuminance	Maximum Illuminance	Minimum Illuminance	Avg/Min	Max/Min	Uniform Gradient
5.5	9.0	3.0	1.8	3.0	1.5

Raytraced Renderings

Plan View:



View from Second Floor Windows:



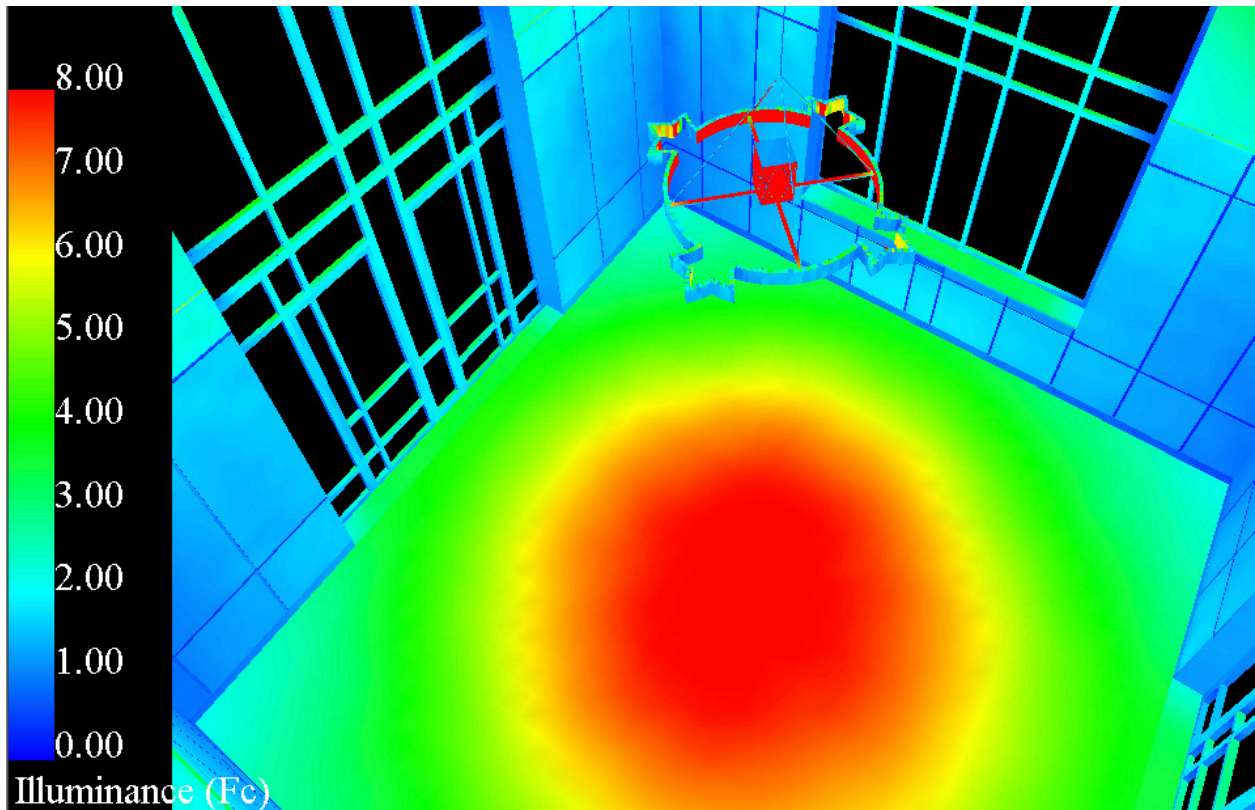
View from First Floor Corridor:



View of the Second Floor Windows and First Floor Corridor:



Pseudo Color Rendering:



Power Density

Duke Tower Entrance Lobby Power Density						
Fixture Type	Fixture Quantity	Fixture Wattage	Total Wattage (W)	Total Area (sf)	Actual Power Density (W/sf)	ASHRAE 90.1 Allowed Power Density
A	4	31	124			
			124	564	0.22	1.2
Fixture Type	Fixture Quantity	Fixture Wattage	Total Wattage (W)	Total Area (sf)	Actual Power Density (W/sf)	ASHRAE 90.1 Allowed Power Density
G*	1	58	58			
			58	564	0.10	1.0
*Decorative Fixture, Additional 1.0 W/sf						

Evaluation

A custom chandelier was created for this space. After studying traditional Gothic architecture and lighting, the design of the central “lantern” surrounded by an outer ring was chosen. The outer ring of the custom chandelier was inspired by the Duke University School of Nursing emblem that it is in fact accenting. The architecture of the ceiling and placement of lights is a design element that was successfully carried out throughout all the redesigned interior spaces. The implemented lighting system satisfies the basic illumination requirements spelled out in the IESNA handbook.