

1.1 Façade and Building Entrance

1.1.1 Introduction

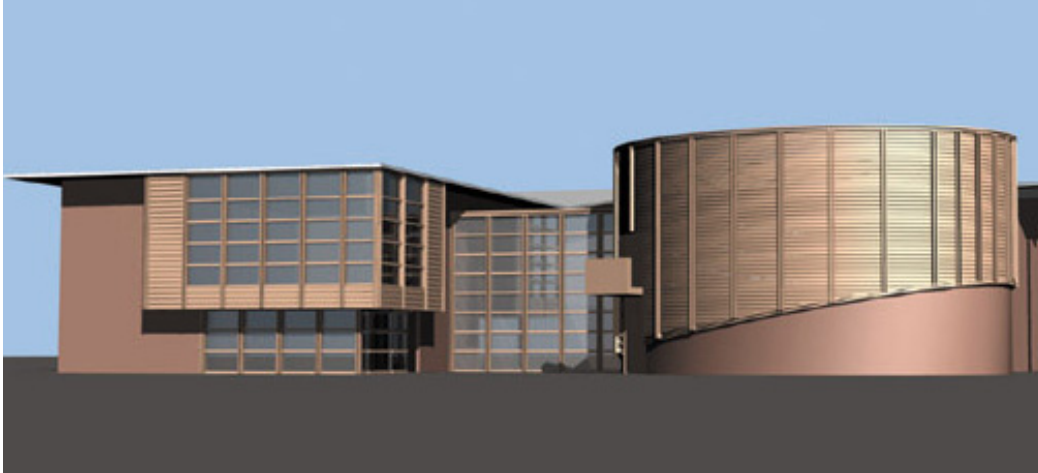


Figure 1.1 Exterior Entrance View

The main entrance to the building is located between the two wings of the building. The juxtaposition of the cylindrical element of the education wing and the rectangular art wing cause this space to be very dynamic. Functions for the façade and building entrance include: providing an identity and a face for the building, allowing the entrance to be easily recognizable, and minimizing light trespass. The façade is a combination of cedar, stained CMU block, and glass. The main entrance is poured concrete with cedar doors.

1.1.2 Design Concepts

The design concept for the façade and exterior was to catch your attention and draw you into the space. To accomplish this I washed the cylindrical element with a gradient of brightness to both accentuate its form and to lead you to the entrance. I evenly washed the rectangular wing near the entrance to focus your attention on the entrance (Figure 1.2). I also wanted to highlight both the entrance and the bump out on the second floor of the rectangular art wing. To do this I lit the underside of the bump out and grazed the entrance with up lights. This made the entrance the focal point and allowed the bump out to be lit but not emphasized. I then continued the wall washing of both exterior elements into the lobby space to help dray you into the building.

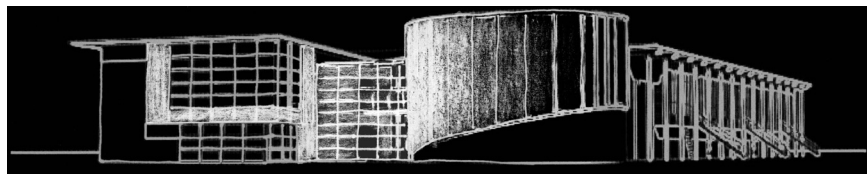


Figure 1.2 Façade and Entrance

1.1.3 Design Criteria

Appearance of Space and Luminaires:

The appearance of the façade and entrance is very important because it sets the tone for the rest of the building.

Light Distribution on Surfaces:

This is very important for the façade and entrance as well because it is the light distribution on the vertical surfaces that will provide orientation and lead one into the building.

Light Pollution/Trespass:

Light pollution and trespass is important for the building because of its context. It is located in a zoo and some surrounding animals could be affected by large amounts of light pollution or trespass.

Points of Interest:

In this space it is important that the main entrance to the building is the predominant point of interest. This helps to with orientation and leading one into the building.

Horizontal Illuminance:

5 fc

Vertical Illuminance:

3 fc

IESNA/ASHRAE/IESNA Standard 90.1-2001

Lighting Control: Anatomical Time Clock

Power Density:

Main Entry: 30 Watts/linear foot of door width

Building Façade: 0.2W/sq.ft.

1.1.4 Equipment

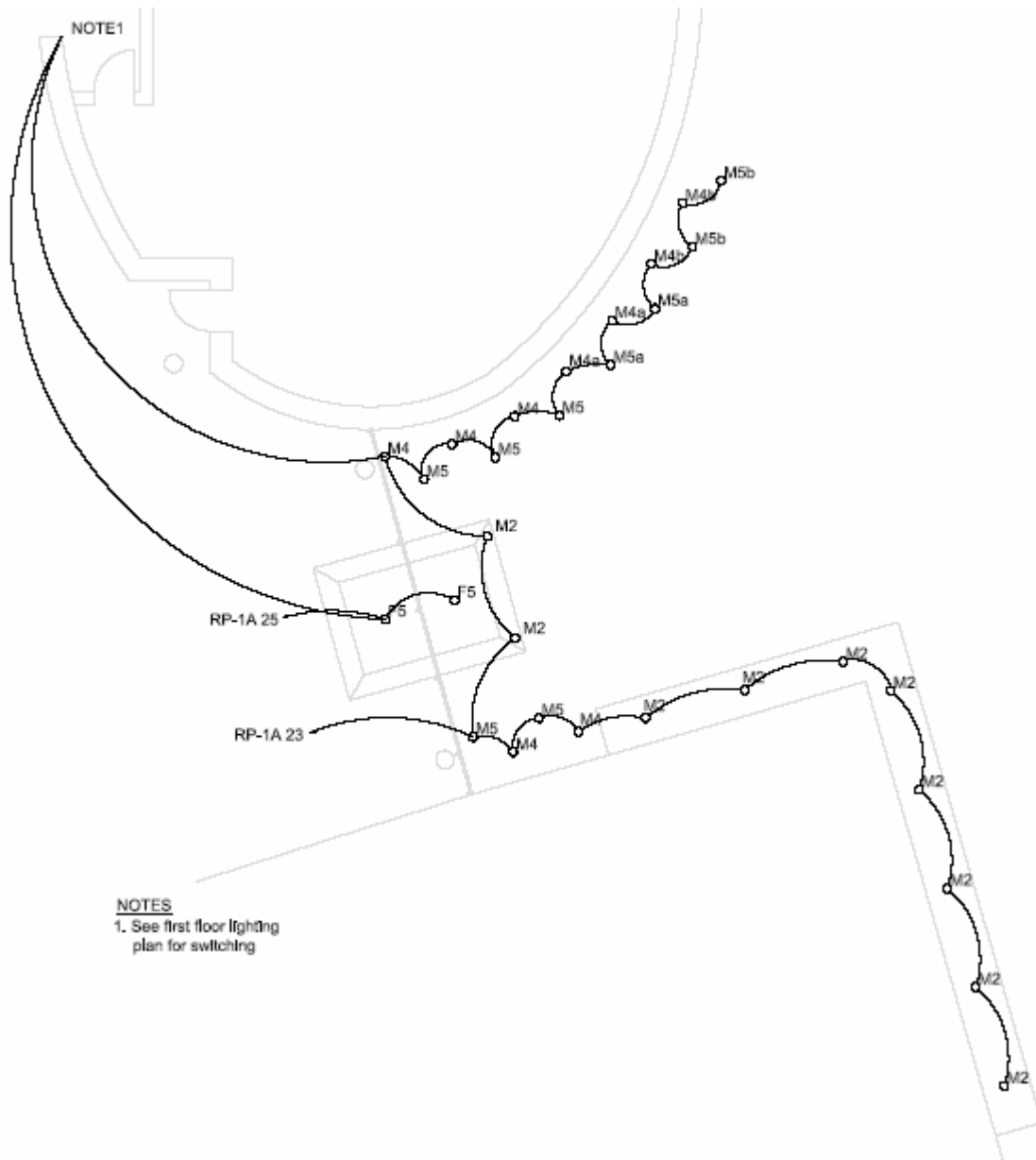
Fixture Schedule

Fixture	Type	Manufacturer	Lamp	Ballast	Watts/Fixture	CCT	Controls
M2	Metal Halide In Grade Directional	ERCO	1-39W T4 Metal Halide	N/A	39	3000	Switch / Timer
M5	Metal Halide In Grade Directional	ERCO	1-70W T4 Metal Halide	N/A	70	3000	Switch / Timer
M5a	Metal Halide In Grade Directional	ERCO	1-70W T4 Metal Halide	N/A	70	3000	Switch / Timer / N.D. Filter Roscolux #97
M5b	Metal Halide In Grade Directional	ERCO	1-70W T4 Metal Halide	N/A	70	3000	Switch / Timer / N. D. Filter Roscolux #98
M6	Metal Halide In Grade Wall Wash	ERCO	1-70W T4 Metal Halide	N/A	70	3000	Switch / Timer
M6a	Metal Halide In Grade Wall Wash	ERCO	1-70W T4 Metal Halide	N/A	70	3000	Switch / Timer / N.D. Filter Roscolux #97
M6b	Metal Halide In Grade Wall Wash	ERCO	1-70W T4 Metal Halide	N/A	70	3000	Switch / Timer / N.D. Filter Roscolux #98
F5	Compact Fluorescent Recessed Downlight	Kurt Versen	1-32W TRT	Advance Transformer Electronic	36	3000	Switch

*Cut Sheets for Fixtures, Ballasts, and Controls can be found in Appendix A-1

*All Lamps provided by Philips

Lighting Plan



1.1.5 Analysis

Light Loss Factors

Luminaire	LLD	Maintenance Category	Degree of Dirtiness	Cleaning Cycle	LDD	Luminaire Distribution	Room Cavity Ratio	RSDD	Ballast Factor	Light Loss Factor
M2	0.9	VI	Moderate	5 years	0.82	Direct	N/A	1	1	0.74
M5	0.9	VI	Moderate	5 years	0.82	Direct	N/A	1	1	0.74
M6	0.9	VI	Moderate	5 years	0.82	Direct	N/A	1	1	0.74
F5	0.9	IV	Clean	12 months	0.89	Direct	11.11	0.952	0.98	0.75

Power Density

Building Facade

Room	Fixture	Watts/Fixture	#	Total
Exterior	M2	35	8	312
	M5	70	9	630
	M6	70	9	630
Total Watts				1572
Watts/sq. ft.				0.24

Building Entrance

Room	Fixture	Watts/Fixture	#	Total
Exterior	M2	35	2	78
	F5	36	2	72
Total Watts				150
Watts/Linear ft Door Width				25.00

Renderings

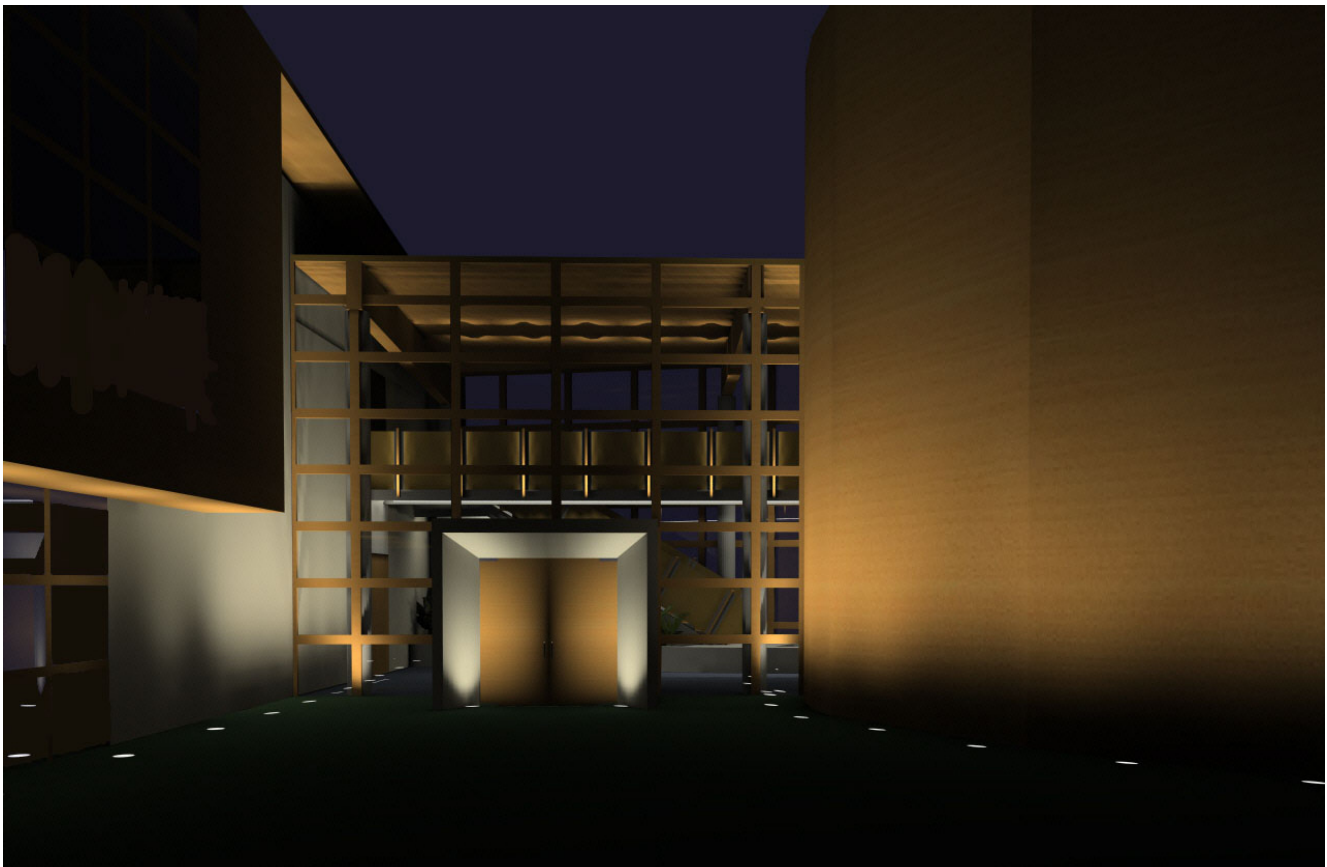


Figure 1.3 Exterior Rendering

Calculation Grids

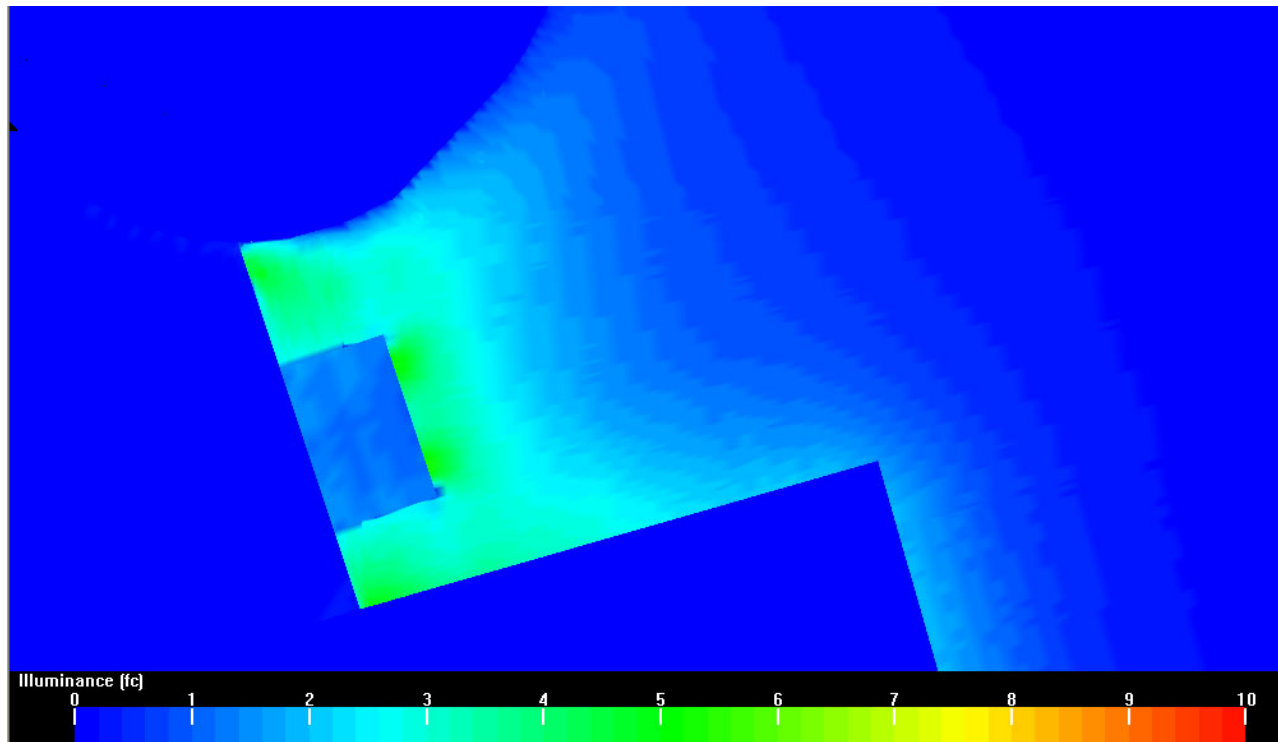


Figure 1.4 Pseudo-color of Entrance Horizontal Illuminance Levels

1.1.6 Conclusion

The façade lighting system that I employed did a good job achieving my design goals. Washing both the cylindrical and rectangular faces of the façade did a nice job framing and attracting your eye to the entrance. The gradient of light on the cylindrical element helped to convey its geometry and draw you into the space. Up lighting the main entrance helped to establish it as the focal point while the continuation of the exterior wall washes into the lobby helped to draw you into the space. Up lighting the bump out on the second floor of the rectangular art wing proved to be a nice subtle highlight that accented the interesting geometry of the building. Although my façade lighting slightly exceeded the recommended power density I feel that this is acceptable since the exterior lighting for the building will most likely only be used for special scheduled evening activities and will not be used daily. The up lighting I used for the exterior and entrance does a very nice job of limiting light trespass but causes some light pollution where the roof does not overhang. However, since the exterior lighting will not be used daily this is not as big of a problem.