



Miory Kanashiro
Lighting/Electrical

Rosegarden Branch Library, San Jose, CA
Spring 2004

Northwest façade of building



Lighting

The exterior space to be re-designed is composed of the north and west facades of the library.

For this area, the building, using the symbol of the sun, will try to emanate a glowing effect from within the library. At night, most of the lighting will be turned off. The ones in the lobby however, due to the glass wall that surrounds it, will keep the wallwashers on all night giving that glow from within as well as through the glass wall that faces the free standing entrance arcade. So even though the library's activities will have shut down, there will be nice illuminance coming from the building.

Below is a Lightscape rendering of how the façade would look at night.



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On the north side, the pedestrian sidewalk is illuminated with bollards, which give enough light to make pedestrians feel comfortable and safe with the surroundings. There are also floodlights grazing the vertical surfaces of the library. The inside of the lobby is lit with wallwashers, illuminating the building from within. The main entrance to the structure is lit with surface cylinder fixtures which create a bright space where patrons can feel safe and comfortable entering or exiting the building.

Purpose

This area is the main entrance to the library. It should communicate the function of the building to community members and people walking by. It also provides an entrance and exit to the building.

Lighting Concept

This area has new ballards, which illuminate the path in front of the building with enough light so pedestrians and community member can access the building without problems.



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There are also wall-mounted fixtures, which light the face of the building and accent the architecture as well as provide enough light for the entrance of the library. On the west side of the building, there are a couple metal halide bollards as well to illuminate the side of the entrance. This area faces the lobby, so light from the lobby will also come out through the wall made out of glass.

Overall, these lights should highlight this area as the entrance of the building. At the same time they give light at night for people who want to access the library for protection and aesthetic reasons.

Dimensions

This area is located on the north and west exterior surfaces of the building. It includes the entrance/exit of the library and the different wall /window elevations which is visible from both streets which the building is adjacent to.

The perimeter of the north face of the building is approximately 152 ft. and the perimeter of the west side of the building is approximately 137 ft.

Floor Plan



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Finishes

The exterior of the library is made out of several materials. These are:

	Description	
K1	Full brick veneer	Vinyl colored chain link
K2	Full brick veneer	Color: Sierra Slate
CP1	Cement plaster (stucco)	Sand finish
CP3	Cement plaster (stucco)	Sand finish
CP4	Cement Plaster	Sand finish
S1	Limestone	
W5	Wood	Teak
	Metal gates	



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Metal fascia and brackets

In order to provide a good lighting system for this building, these surfaces need to be highlighted.

Lighting Controls

The old control device used in the exterior of the building was the astro (dark) on/sched off. It turns on 60 min before sunset and turns off at 10:00pm. There is a new control device called the iPlayer 2.0. This apparatus is in charge of creating the different moods in the library. It produces the color changes coming from the stairs in the lobby of the library.

New images of facade





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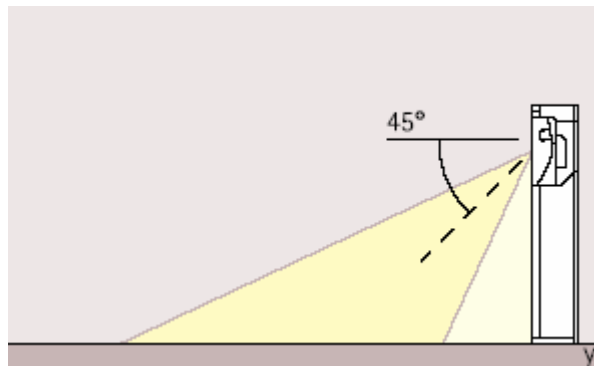
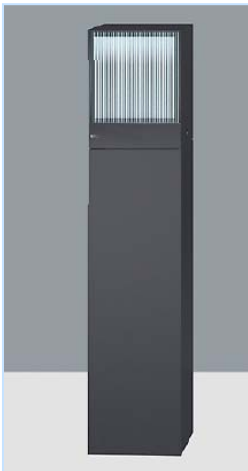


The first rendering is composed of cool metal halide exterior light fixtures. The second one has warmer colors ranging in the 3500-3700 K temperature range. The first one is an example of how the library is going to look like with lights emitting from inside the lobby.

The lobby has two color lighting schemes. The first one shows more explicitly the light which is projected from the stairs themselves, creating a glowing effect as if the stairs were suspended in the middle of the lobby. This adds to the mood of the library and the theme which is a fairy tale theme.

Fixture schedule

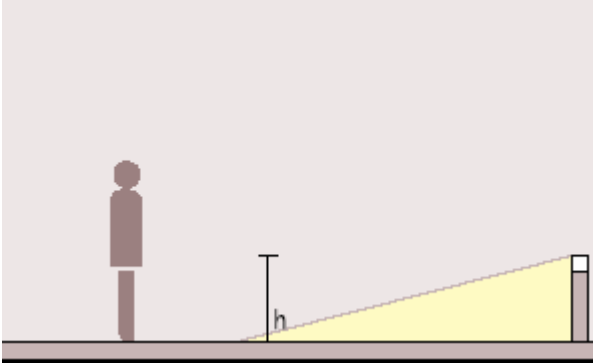
There are three types of light fixtures used in this area.





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Description	Exterior Bollard
Fixture Code	B
Mounting	Sidewalk
Lamp Watts	1 lamp, 35 watt
Lamp Type	Metal Halide
Volts	120
Mounting height	Mount bottom of fixture at 9'-0" above finished floor.



Description	Exterior flood light
Fixture Code	A
Mounting	surface
Lamp Watts	1 lamp, 26 watts
Lamp Type	Compact Fluorescent
Volts	120



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Description Surface mounted exterior façade luminaire.
Fixture Code F
Mounting Surface on wall
Lamp Watts 1 lamp, 35 watts
Lamp Type CDM35/TD/942
Ballast High power factor ballast.
Volts 120

Power Density

Luminaire LLF Table									
Label	BF	LLD	LDD	Cln. Interval	Maint. Cat.	Lum Cat.	RSDD	Other	Total LLF
Bollard	0.95	0.86	0.93	12 months	V	Simi-direct	0.89	1	0.68
Ceiling Washlight	0.98	0.86	0.88	12 months	IV	Semi-Direct	0.92	1	0.68
Cylindrical surface	1	0.85	0.93	12 months	II	Semi-Direct	0.97	1	0.77
Floodlight	1	0.91	0.88	12 monthes	V	Direct	0.965	1	0.77
Total									2.9

Room Cavity Ratio:	5



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Height	120
Length	288
Width	204
Expected Dirt Depreciation	10%

	Initial Lumen	LLF	Design Lumen
Bollard	3300	0.68	2244
Wallwasher	1800	0.68	1224
Cylindrical surface	1800	0.77	1386
Floodlight	1750	0.77	1347.5

Luminaire Schedule

Label	Description	Lamp	Ballast	Input Watts	Total No Used	Watts
Bollard	exterior bollard for sidewalk in front of library	Four 24W DULUX-L COMPACT FLUORESCENT LAMPS, 3500K color temperature, 82 CRI, 1800 lumen	Hi-lume 1% dimming ballast for 26W CFL- 1 lamp- [pf=0.95; BF=.95]	35	5	175
Wallwasher	6" OPEN DOWNLIGHT WITH SPECULAR REFLECTOR, WALLWASH KICKER.	ONE 26-WATT TRIPLE TUBE COMPACT FLUORESCENT, HORIZONTAL POSITION-cat no. CF26DT/E/IN/830, 3000 K color temperature, 82 CRI, 1800 lumen	High frequency normal light output electronic ballast for PL-T26W/4P lamp, - Advance [ICF-2S26-XX-XX]	29	8	232
Floodlights	focal floodlight	One 26-Watt triple tube CFL [Philips], vertical base-up position, 3000K color temperature, 82 CRI, 1750 lumen	High frequency normal light output electronic ballast for PL-T26W/4P lamp, - Advance [ICF-2S26-XX-XX]	26	16	416



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Cylindrical wall washer	cylindrical wall-washer			35	5	175	
Total Watts						998	
Power Density						(lm/sq. ft.)	0.0334

	Dim (in inch)		
Height	396		
Length	1899	Area (sq. ft)=	29896.06
Width	2267		

IES Criteria

Building Exterior Entrance- Active (pedestrian/conveyance):

Appearance of Space and Luminaires

Very important

This façade is the “face” of the building, so it should look appealing to the people passing by in order for them to want to go there. The pathways as well as the entrance itself should be illuminated.

They should not

Color appearance (and color contrast)

Very important

The appearance of the entrance ranks high in importance since this area will be seen not only by people walking by, but also by cars driving by the library.

Direct Glare

Very important

The glare coming from the building should be kept to a minimum because it might impact the cars driving by the library.

Light Distribution on Surfaces

Important

The north and west sides of the building need to have an even distribution of light on the surfaces in order to provide an even look. This will ensure that all the surfaces are highlighted with a constant stream of light.

Light pollution/trespass

Very important

There will be no light pollution at night or during the winter, since the surrounding foliage is not lighted. Light should not light other properties around the area either.



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Modeling of Faces or Objects

Very important

This area will be used not only to enter and exit the building, but also for people to meet, socialize or wait for a friend/family member. Because of this, people should be able to have a good quality vision of each other's faces. This area could also be used as a dropping off or picking up point if traveling by car, so it is important that the person driving can identify the people around that area. Safety in this area is also an issue, especially at night, so in order to recognize the people passing by adequate lighting should be necessary.

Peripheral Detection

Very important

This is important in order for people to be able to appropriately illuminate the perimeter of the area so that people walking on the sidewalks and roads, or drivers can see potential hazards in their peripheral vision, especially since the library is located at the intersection of two streets.

Point(s) of Interest

Very important

It is important to illuminate the points of interest properly such as the name of the library so pedestrians and motorists can easily recognize it. The attractive entrance to the library should also be illuminated in order to attract attention to it. Newcomers to the library should also be able to locate the entrance easily, so the illuminance level should be high enough.

Reflected Glare

Very important

Outdoor light fixtures should have a cut-off or semi-cutoff system in order to minimize the glare. These might affect drivers and might also affect the patrons reading or doing work in the library.

Shadows

Very important

Shadows produced should be kept to a minimum since these create uneven light distributions and affect the amount of objects, people or landscape the people walking in and out of the building or just walking by, can see. It affects the whole community, since it would also create a more dangerous environment.

Surface Characteristics

Very important

Reflectance on surfaces such as glass, exterior material of building and surrounding walkways and streets should be low in order to diminish reflected glare.

Horizontal Illuminance

Very important



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Entry areas should be have around 50 lux (5fc)

Vertical Illuminance

Very important

Library exterior facade should have around 30 lux (3 fc)

Lightscape

North-west view



north view



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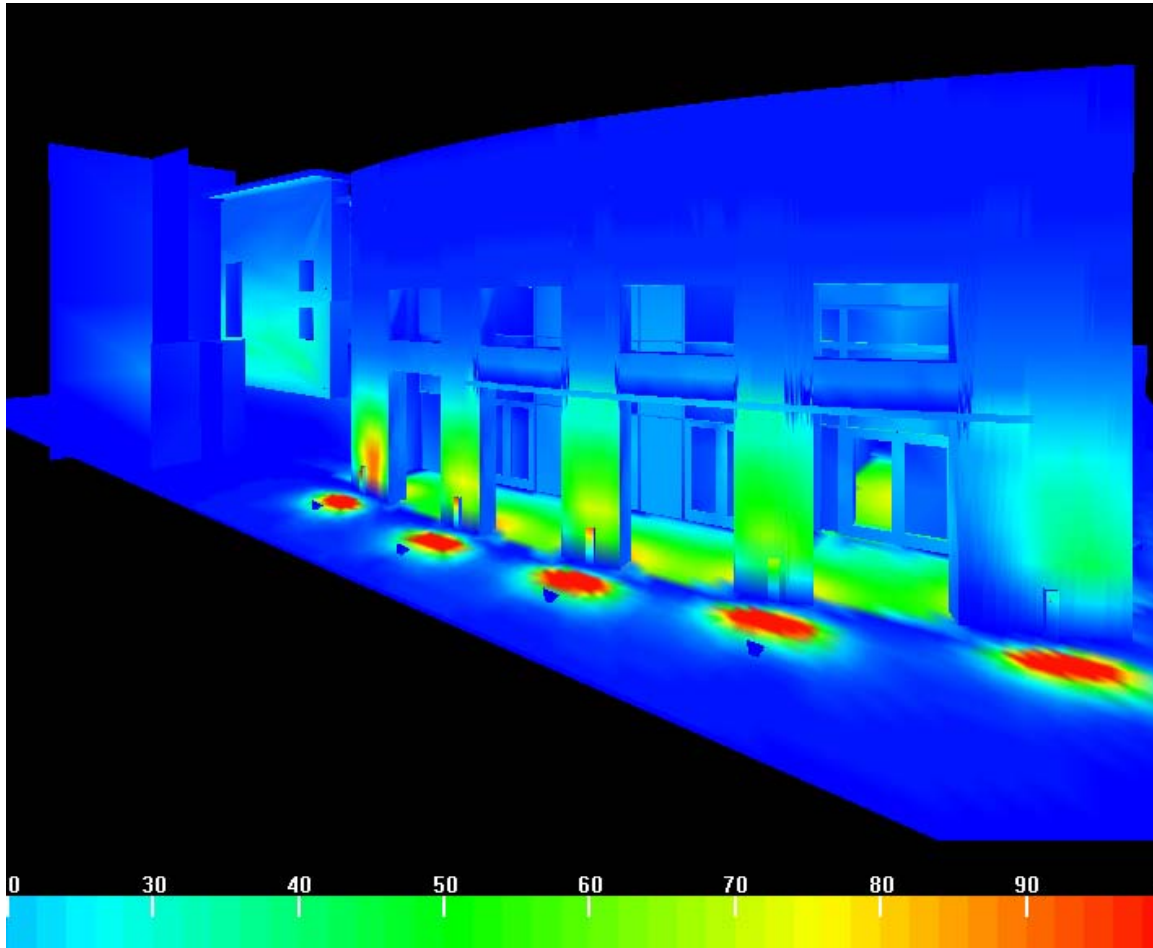
western
view





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Conclusion

The bollards add a nice touch to the building aesthetics. The light coming out from the lobby also adds an interesting impact to the view by pedestrians and automobiles. The main point of lighting the exterior was to highlight the surfaces of the building as well as the different vertical levels in it. The goal was achieved using different types fixtures such as bollards, surface luminaires, wallwashers from the lobby and floodlights. These all work together to enhance the texture and architecture of the building. The power density was kept under a minimum as well, creating good illuminance values as well. The entrance



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is well lit, creating a safe area for the patrons to enter and exit the library with ease and adequate visibility.