



Miory Kanashiro
Lighting/Electrical Option

Rosegarden Branch Library, San Jose, CA
Faculty Consultant: Professor Mistrick
Submission Date: November 11, 2003

Existing Conditions Report and Design Criteria

Executive Summary

The exterior needs more light than bollards to light the building. There should also be some kind of lighting design that highlights the structure and material the building entrance and side are composed of as well as ... The lighting controls comply with title 24 guidelines.

Northwest façade of building



Purpose of Space

This area is the main entrance to the library. Should communicate the function of the building to community members and people walking by. Provides entrance and exit to the building.

Lighting Concept

This area is going to have ballards, which will illuminate the path in front of the building with enough light so pedestrians and community member can access the building without problems.

There will also be wall-mounted fixtures, which will light the face of the building with LED lights 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 giving light at night for people who want to access the library.

Dimensions



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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



Finishes

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

Material code	Description	Color
K1	Full brick veneer	Vinyl colored chain link
K2	Full brick veneer	Color: Sierra Slate
CP1	Cement plaster (stucco)	Sand finish



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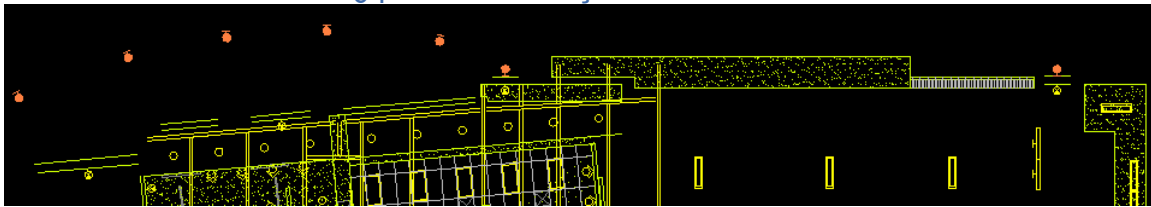
CP3	Cement plaster (stucco)	Sand finish
CP4	Cement Plaster	Sand finish
S1	Limestone	-
W5	Wood	Teak
-	Metal gates	-
-	Metal fascia and brackets	-

Lighting Controls

The 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. Which complies with Title 24 requirements.

Reflected Ceiling plan

Ground floor exterior ceiling plan of north façade

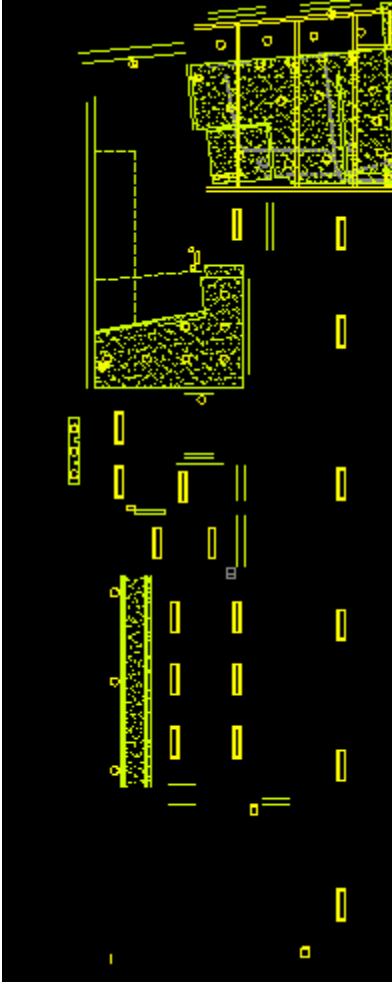


Ground floor exterior ceiling plan view of west façade



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Second floor exterior ceiling plan of north façade



Fixture schedule

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

Description	Strobe signal fixture. Stainless housing with amber colored acrylic outer lens and polycarbonate prismatic inner refractor. UL wet listed.
Fixture Code	AG
Mounting	Wall
Manufacturer	Hubbell GSS B A A1 or approved equal.



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Lamp Watts 1 lamp
Lamp Type XENON
Volts 120
Mounting height Mount bottom of fixture at 9'-0" above finished floor.

Description LED recessed wall mounted fixture. Die cast aluminum body with stainless steel front plate. Tempered clear glass lense. Integral LED board and transformer. UL wet listed.

Fixture Code AH
Mounting Recessed

Manufacturer Louis Poulsen Weebee wall LED white st. steel clear straight or approved equal.

Lamp Watts 1 lamp, 5 watts
Lamp Type LED
Volts 120

Description Metal halide bollard. 4.5" diameter, extruded aluminum pole. Die-cast aluminum top shade with supported 3 arms. High temperature acrylic diffuser. Vandal resistant high impact UV stabilized clear polycarbonate lens.

Fixture Code AJ
Mounting Bollard
Manufacturer Louis Poulsen KIB 1/70W/CDM chgry 51.8 or approved equal.

Lamp Watts 1 lamp, 70 watts
Lamp Type CDM70/TD/942
Ballast High power factor ballast.
Volts 120

Description Metal halide wall washer fixture. Extruded aluminum housing. Specular clear aluminum reflector. Tempered glass lens. Fully rotatable and adjustable housing.

Fixture Code AB
Mounting Recessed
Manufacturer Insight SR921 SA or approved equal

Lamp Watts 1 lamp, 150 watts
Lamp Type MHC150/C/U/MP/4K
Ballast Electronic, high power factor.
Volts 120

LLF

Label	LLD	LDD	Cleaning Interval	Maintenance Category	RSDD	BF	Total LLF
AB	0.75	0.88	12 months	-	-	0.9	0.6
AG	0.86	0.88	12 months	-	-	1	0.76



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AH	0.95	0.88	12 months	-	-	1	0.84
AJ	0.80	0.88	12 months	-	-	1	0.70

Power Density

Fixture Code	Imp Watt per Fixture	Amount of Fixtures	Total Watts
AB	185	7	1295
AH	5	6	30
AJ	70	6	420

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.

Modeling of Faces or Objects

Very important



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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 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

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



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Vertical Illuminance

Very important

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

AGI

Critique

The lighting of the library is not accurately incorporated into the renderings I have received of the building. Judging from the lighting plan, the bollards give out light around the foliage and sidewalk, while there are light fixtures located in the area between the entrance structure and the actual lobby/entrance/exit. This area is well lit from inside and creates contrast between the outside of the structure and the bright interior. I would personally have created a different lighting design, where the sign would have been more lit, as well as highlighting the material of the building.

Children's Computer Area

Purpose of Space

This area will hold several VDT screens where children can research on the computers, find books, play games or use it for projects. It is also a space where people can read, write or draw.

At the end of the computer area, there is also a corridor that leads to the family area, stacks and storytelling area.

Lighting Concept

This area will have mostly light fixtures with compact fluorescent lamps that provide an energy efficient design. Some of these are pendants while the rest are recessed. The ones closer to the wall will be pendants and will provide an attractive look to the section.

Dimensions

This area is located on the north east area of the second level of the library. It is rectangular-like area which has access to the internet café and the circulation area.

Perimeter 15.5'x28.5' approx

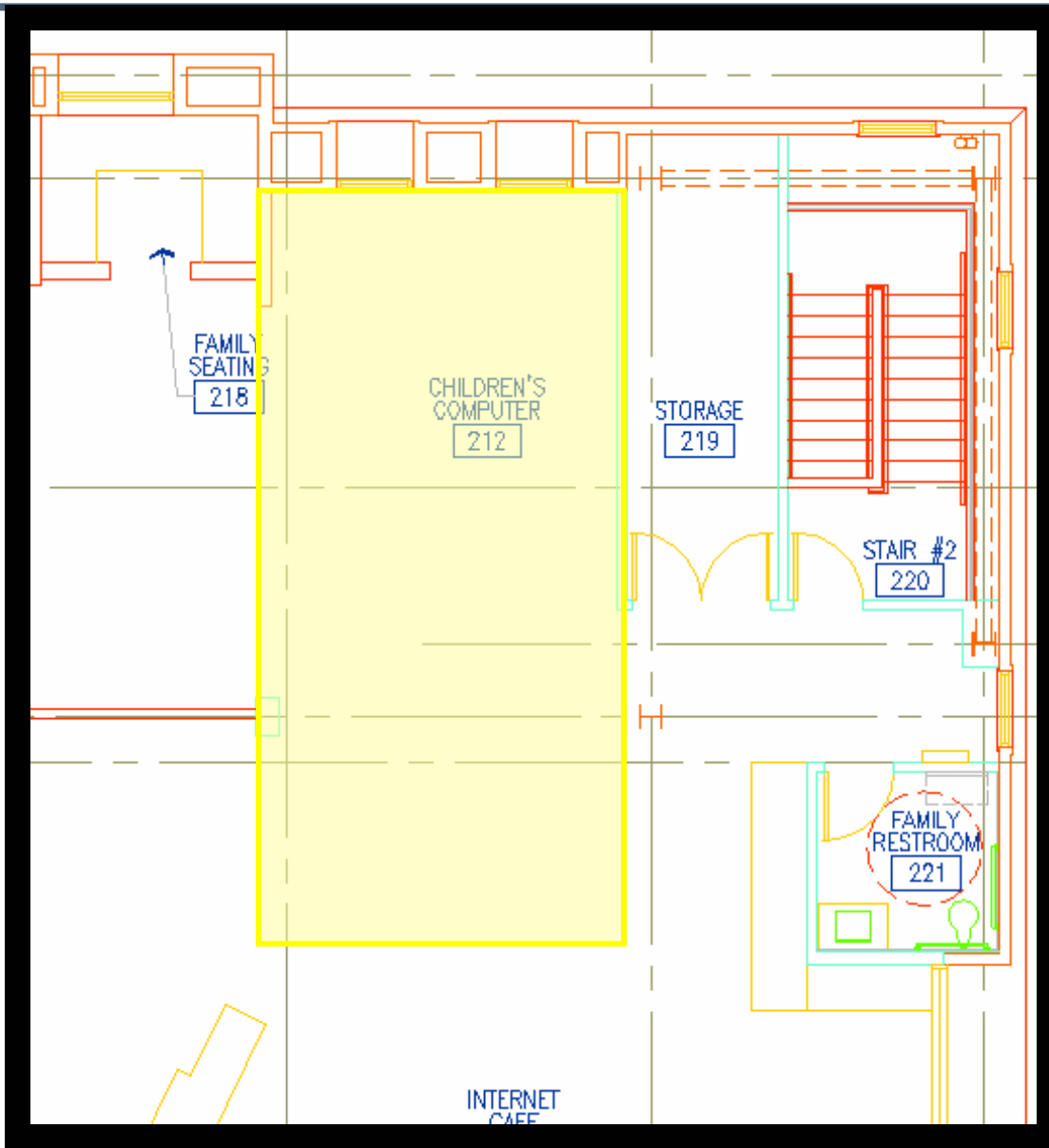
Area: 430 sqft

Floor Plan



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Finishes

The finishes in the interior of the building, specifically in the computer area of the library are these:

	Code	Material	Manufacturer	color
Floor	R7	Rubber floor	Atmosphese	
	B1	Base		
Walls	P1	Plastic laminate	Wilson art	9711-60 manitoba maple



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	P10	Paint	Benjamin Moore	2004-10 Deep rose eggshell finish
	SL2	Slatwall	Display warehouse	To match wall color
Ceiling	AC5	Gypsum board	-	-
	AC6	Suspended grid and lay-in tile	Armstrong	-

Furnishings

This area will have desks that can hold VDT screens on them and chairs to go with them. There might also be a couple of shelves along the walls, but other than that, it will probably have no more furniture since the main purpose of the space is to hold VDTs.

Daylighting

There are two windows on the north side of the building that provide light during the day in the computer room area. These windows are glazed.

Lighting Controls

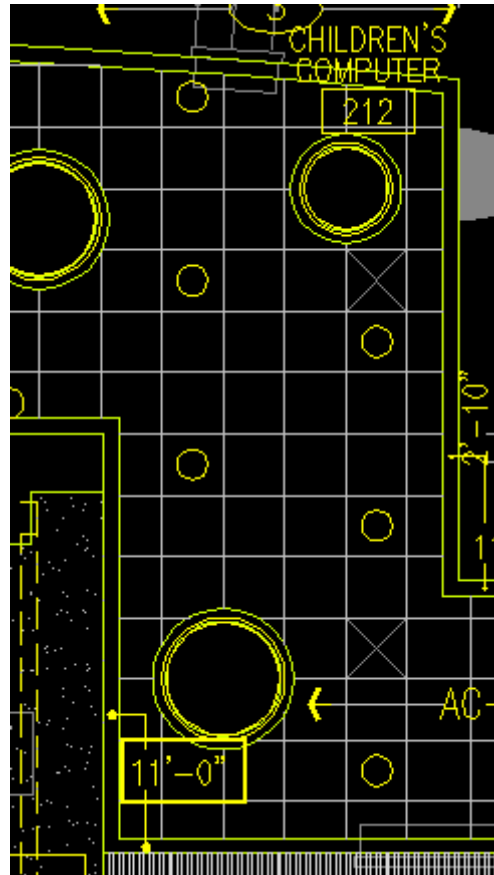
The control device used in the children's computer area of the library was the manual on/sched off (8am-10pm) type and it uses a time switch with manual switch override.

Reflected Ceiling plan



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Fixture schedule

Description	6" diameter, vertical compact fluorescent downlight. Semi-specular reflector with white baffle.
Fixture Code	A2
Mounting	Recessed
Manufacturer	Prescolite CFT632EB-WFT606 SS 26W or approved equal
Weight	10.5 lbs
Lamp Watts	1 lamp, 26 watts
Lamp Type	PL-T 26W/835/4P/ALTO
Ballast	(1) 1 lamp electronic ballast, high power factor.
Volts	120
Description	3' diameter recessed fluorescent troffer fixture. High reflectance, polyester powder coated steel housing. Concave white acrylic lens.
Fixture Code	D1
Mounting	Recessed
Manufacturer	Focal Point FSD 33 D 3T8 S U CR L835 SC HW or approved equal



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Weight	55 lbs
Lamp Watts	3 lamp, 25 watts
Lamp Type	F25T8/TL835PLUS/ALTO
Ballast	(1) 2 lamp and (1) 1 lamp electronic ballasts, high power factor.
Volts	120
Description	Same as fixture "D" except with emergency ballast(s) with minimum 3000 initial lumen output, 90 minute emergency operation, UL listed.
Fixture Code	D2
Mounting	Recessed
Manufacturer	Focal Point FSD 44D 4T8 S U CR EM L835 SC HW or approved equal
Weight	81.5 lbs
Lamp Watts	4 lamp, 32 watts
Lamp Type	F32T8/TL835PLUS/ALTO
Volts	120
Description	13.8" diameter hand blown white opal glass pendent fixture with self-ballasted compact fluorescent.
Fixture Code	P
Mounting	Pendant
Manufacturer	Louis Poulsen WOP 13.8 1/200W/A-23/ IF medium glass or approved equal
Weight	5.2 lbs
Lamp Watts	1 lamp, 34 watts
Lamp Type	Table lamp EL/T 34
Ballast	Self ballasted
Volts	120
Mounting height	Mount bottom of fixture at 10'-0" above finished floor
Description	11.8" diameter hand blown white opal glass pendent fixture with self-ballasted compact fluorescent.
Fixture Code	P1
Mounting	Pendant
Manufacturer	Louis Poulsen WOP 11.8 1/200W/A-23/ IF medium glass or approved equal
Weight	4.2 lbs
Lamp Watts	1 lamp, 34 watts
Lamp Type	Table lamp EL/T 34
Ballast	Self ballasted
Volts	120
Mounting height	Mount bottom of fixture at 11'-0" above finished floor
Description	9.8" diameter hand blown white opal glass pendent fixture with self-ballasted compact fluorescent.



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Fixture Code	P2
Mounting	Pendant
Manufacturer	Louis Poulsen WOP 9.8 1/200W/A-23/ IF medium glass or approved equal
Weight	3.8 lbs
Lamp Watts	1 lamp, 34 watts
Lamp Type	Table lamp EL/T 34
Ballast	Self ballasted
Volts	120
Mounting height	Mount bottom of fixture at 9'-6" above finished floor

Light Loss Factor

Label	LLD	LDD	Cleaning Interval	Maintenance Category	RSDD	BF	Total LLF
A2	0.85	0.88	12 months	IV	0.91	1.1	0.75
D1	0.95	0.88	12 months	IV	0.95	0.95	0.76
P	0.88	0.88	12 months	IV	0.89	-	0.69
P1	0.88	0.88	12 months	IV	0.89	-	0.69
P2	0.88	0.88	12 months	IV	0.89	-	0.69

Power Density

The allowable power density for a computer room is 1.3 W/sqft according to ASHRAE 90.1,

Fixture Code	Watts per Fixture	Amount of Fixtures	Total Watts per fixture	
A2	26	5	130	Area: 388 sqft
D1	25	1	25	
D2	32	2	64	Total Power density (Watts/sqft): 0.83W/sqft
P	34	1	34	
P1	34	1	34	
P2	34	1	34	
Total W:			321 W	

IES Criteria

Reading - Data Processing Tasks - VDT screens:

Appearance of Space and Luminaires

Important

Space should have a uniform appearance, which will look orderly. Should have a relaxing feel to it. Children need to feel comfortable in this space. It needs to have an original look, in order for kids to be able to come in and not feel uncomfortable or uptight in it. Since most computer rooms are always bland, boring and cold, this particular one



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should be different, it should have a pleasant feel to it, where kids won't mind going to and learning new things, or looking for information at.

Daylighting Integration and Control

Important

Blinds or shades on windows should be used in order to control the glare and thermal discomfort from the sun and sky. High reflectance walls would be an option in order to reduce the contrast between the brightness coming in from the windows and the brightness from the walls.

Direct Glare

Very important

Direct glare in this space should be reduced to provide visual comfort and improved visibility of books, VDT screens and related tasks. If these tasks should be performed over extended periods of time direct glare may cause distraction and discomfort to the patrons.

Light Distribution on Surfaces

Important

Light distribution on surfaces such as VDT screens should be kept uniform in order to achieve visual comfort. Distribution on walls, ceilings and floor should be constant as well, but at the same time creating visual interest, possibly using more than one kind of fixture, which is achieved in this area. Too many different kinds of luminaires on the other hand would create shadows and irregular intensities on surfaces. So a balance of uniformity and pleasant appearance should be accomplished.

Light distribution on Task Plane (Uniformity)

Very important

There should be a uniform distribution of light on the task plane in order to achieve comfort while in the children's computer room. This can be achieved by spacing the luminaires so that the illuminance pattern on the workplane is within the recommended uniformity range. Indirect or indirect/direct light fixtures would also help with a uniform light distribution. Should avoid luminaires that form light patterns on the walls. Luminance between the workplane and the other surfaces in the area should not have too much contrast as well. Luminance ratios on task and near background in order to avoid reflections that may cause some harm are 3:1 or 1:3 between task and near background and 10:1 or 1:10 between task and far background.

Luminance of Room Surfaces

Important

The reflectance on the surfaces such as walls, ceiling and floor should be pretty high in order to increase interreflections and reduce the contrast of luminaires against their background. This would also help with amount of energy used since less luminaires and less wattage are used. Should try to avoid excessive brightness or visible shadows on task



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surfaces as well as on walls and ceiling in order to produce a visually appealing area. Walls should have about 50% to 70% reflectance and ceilings from 75% to 90%.

Reflected Glare

Very important

The computer lab should have lighting that will minimize the reflected glare from the VDT screens in order to provide a more comfortable environment for the patrons. In order to achieve the usage of computer screens with diffused finishes, anti-reflection coatings and high background luminance would be ideal to lessen eye discomfort while performing tasks such as reading, writing, typing and drawing. These VDT screens should also face away from the windows to avoid the glare.

Shadows

Important

Shadows on work surface or patron's faces created by the luminaires would be a distraction and an annoyance for the patrons, so luminaires should be chosen carefully in order to avoid this.

System Control and Flexibility

Important

Since different types of tasks require different illuminance levels, make sure the area with VDT screens has appropriate lighting and the hallways part of the computer area has lighting appropriate for walking and accessing other areas of the library. Different light levels could also be achieved by using two separate circuits. Dimming is also another possibility in order to provide a different effect.

Horizontal Illuminance

Important: Horizontal 30 lux (3fc)

People need to be able to see what they are reading or writing on the task planes.

Vertical Illuminance

Very important: Vertical 30 lux (3fc)

Patrons in the library need to be able to read a book held vertically or placed on a horizontal surface. Correct illumination on computer surfaces is also critical, that is why vertical illuminance in this area is important.

AGI

Critique

The best way to reduce reflected glare and direct glare would be to use light fixtures that use uplight instead of direct lighting. An example of this would be pendant fixtures that send some uplight and at the same time some downlight to light the areas between the shelves of books. Instead, the design used was downlights, with circular



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troffers and spherical pendants hanging from the ceiling. Although it provides a unique atmosphere, the downlighting might provide too much glare for the VDT screens.

Children's Circulation

Function of Space

This area is used to look and chose books out of shelves. Flipping through the pages and reading parts of books as well as looking at the pictures will probably be other activities performed in this area. It will have shelves for books throughout the space. It contains stacks as well as a corridor leading to the storytelling area of the library.

Lighting Concept

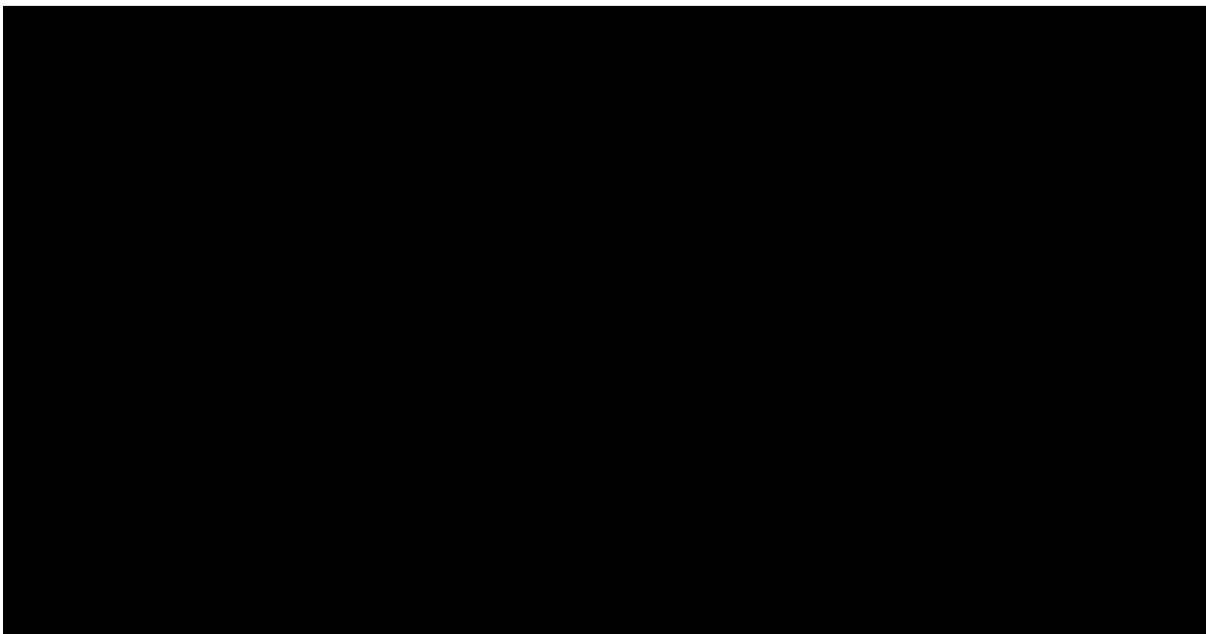
The children's circulation area is the space where kids and parents will be looking through books, browsing through the titles in the shelves. This area needs to have a sufficient amount of vertical illuminance so reading between shelves will be comfortable. Uniform lighting will be important as well in order to avoid shadows that will cause discomfort and irritability. The light fixtures in this space are all recessed, providing a less cluttered look.

Dimensions

This area has a rectangular shape with the northwest face slightly curved. Although open on both left and right to the storytelling area and computer area respectively, it is a long and spacious space where people can browse for books and access the stacks on the south side.

Area: 1450.35 sq ft aprox

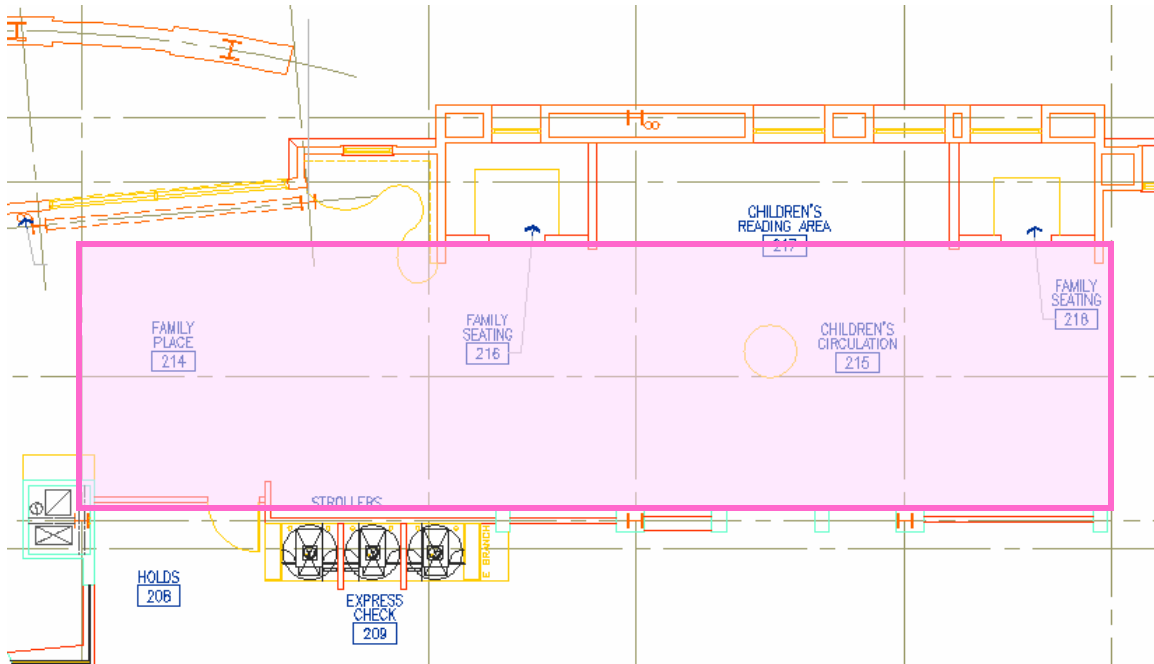
Floor Plan





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Finishes

This area has a colorful carpet with a turquoise background and circles in red, orange, and green all throughout it.

	Material	Manufacturer	color
Floor	CT1	Carpet tile	Interface 100464 Right-on (red)
	CT3	Carpet tile-superflor	Interface 609164 Pacific sunset (orange)
	CT4	Carpet tile	Interface 609162 Primavera (green)
	CT5	Carpet tile	Interface 609158 Kingfisher (blue)
Walls	B1	MDF	-
	W2	MDF	-
	W3	MDF	-
Ceiling	AC5	Gypsum board	-
	AC6	Suspended grid and lay-in tile	Armstrong -

Furnishings

This area has shelves/stacks for books. There are two sizes, the ones closer to the storytelling area are about 4 ft high and the ones closer to the computer area are about six ft high as seen in this rendering.



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Daylighting

There are six windows providing light on the north side of the circulation area, providing light during the day. These windows are slightly glazed as well in order to prevent book deterioration.

Lighting Controls

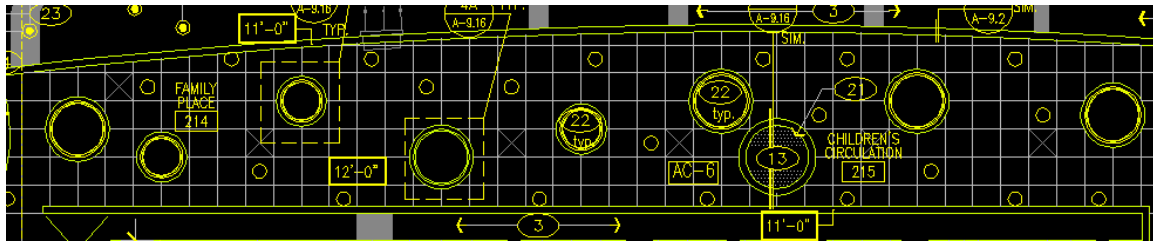
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Reflected Ceiling Plan



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Fixture schedule

Description	6" diameter, vertical compact fluorescent downlight. Semi-specular reflector with white baffle.
Fixture Code	A2
Mounting	Recessed
Manufacturer	Prescolite CFT632EB-WFT606 SS 26W or approved equal
Weight	10.5 lbs
Lamp Watts	1 lamp, 26 watts
Lamp Type	PL-T 26W/835/4P/ALTO
Ballast	(1) 1 lamp electronic ballast, high power factor.
Volts	120
Description	4' diameter recessed fluorescent troffer fixture. High reflectance, polyester powder coated steel housing. Concave white acrylic lens.
Fixture Code	D
Mounting	Recessed
Manufacturer	Focal Point FSD 44 D 4T8 S U CR L835 SC HW or approved equal
Weight	80 lbs
Lamp Watts	4 lamp, 32watts
Lamp Type	F32T8/TL835PLUS/ALTO
Ballast	(2) 2 lamp electronic ballasts, high power factor.
Volts	120
Description	3' diameter recessed fluorescent troffer fixture. High reflectance, polyester powder coated steel housing. Concave white acrylic lens.
Fixture Code	D1
Mounting	Recessed
Manufacturer	Focal Point FSD 33 D 3T8 S U CR L835 SC HW or approved equal
Weight	55 lbs
Lamp Watts	3 lamp, 25 watts
Lamp Type	F25T8/TL835PLUS/ALTO
Ballast	(1) 2 lamp and (1) 1 lamp electronic ballasts, high power factor.
Volts	120
Description	Same as fixture "D" except with emergency ballast(s) with minimum



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Fixture Code 3000 initial lumen output, 90 minute emergency operation, UL listed.
Mounting D2
Manufacturer Recessed
Weight Focal Point FSD 44D 4T8 S U CR EM L835 SC HW or approved equal
Lamp Watts 81.5 lbs
Lamp Type 4 lamp, 32 watts
Volts F32T8/TL835PLUS/ALTO
 120

Description 13.8" diameter hand blown white opal glass pendant fixture with self-ballasted compact fluorescent.
Fixture Code P
Mounting Pendant
Manufacturer Louis Poulsen WOP 13.8 1/200W/A-23/ IF medium glass or approved equal
Weight 5.2 lbs
Lamp Watts 1 lamp, 34 watts
Lamp Type Table lamp EL/T 34
Ballast Self ballasted
Volts 120
Mounting height Mount bottom of fixture at 10'-0" above finished floor

Description 11.8" diameter hand blown white opal glass pendant fixture with self-ballasted compact fluorescent.
Fixture Code P1
Mounting Pendant
Manufacturer Louis Poulsen WOP 11.8 1/200W/A-23/ IF medium glass or approved equal
Weight 4.2 lbs
Lamp Watts 1 lamp, 34 watts
Lamp Type Table lamp EL/T 34
Ballast Self ballasted
Volts 120
Mounting height Mount bottom of fixture at 11'-0" above finished floor

Description 9.8" diameter hand blown white opal glass pendant fixture with self-ballasted compact fluorescent.
Fixture Code P2
Mounting Pendant
Manufacturer Louis Poulsen WOP 9.8 1/200W/A-23/ IF medium glass or approved equal
Weight 3.8 lbs
Lamp Watts 1 lamp, 34 watts
Lamp Type Table lamp EL/T 34



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Ballast Self ballasted
Volts 120
Mounting height Mount bottom of fixture at 9'-6" above finished floor

Light Loss Factor

Label	LLD	LDD	Cleaning Interval	Maintenance Category	RSDD	BF	Total LLF
A2	0.85	0.88	12 months	IV	0.87	1.1	0.72
D	0.95	0.88	12 months	IV	0.95	0.88	0.70
D1	0.95	0.88	12 months	IV	0.95	0.95	0.76
D2	0.95	0.88	12 months	IV	0.95	0.88	0.70
P	0.88	0.88	12 months	IV	0.91	-	0.70
P1	0.88	0.88	12 months	IV	0.91	-	0.70
P2	0.88	0.88	12 months	IV	0.91	-	0.70

Power Density

the allowable power density for an is 1.5 W/ sqft according to Title 24,

Fixture Code	Imp Watts per Fixture	Amount of Fixtures	Total Watts per fixture	
A2	26	20	520	Area: 1429.8 sqft
D	32	1	32	
D1	25	3	75	
D2	32	2	64	
P	34	2	68	Total Power Density (W/sqft) : 0.60 W/sqft
P1	34	2	68	
P2	34	1	34	
Total W:			861	

IES Criteria

Libraries: Book Stacks- Active

Appearance of Space and Luminaires

Somewhat important

Space should look visibly appealing since it is an area for mostly children to find their interest in reading and for them to feel comfortable and at east at the library.

Color appearance (and color contrast)

Important

The color appearance and color contrast of an area influences the aesthetics and appearance of a space. A lamp with CRI of 70 is acceptable for a library.

Direct Glare

Very important



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Direct glare should be avoided so reading a book is comfortable. Specular louvers on luminaires should be avoided. Luminaires that produce uplight or uplight/downlight are recommended as well as a high ceiling reflectance since it minimizes the contrast between luminaires and the ceiling.

Light Distribution on Surfaces

Somewhat important

Illumination on surfaces should be maintained constant to allow patrons to be able to browse through the books comfortable without having to move in order to get more light. People should be able to read the titles of the books with ease as well.

Light distribution on Task Plane (uniformity)

Important

The light distribution in the children's circulation area is important in order for people to be able to read, write and browse for books in a comfortable atmosphere free of distracting light patterns.

Reflected Glare

Important

Reflected glare could be present from other surfaces or from the luminaires itself. The library needs to have surfaces that are not as glossy or reflect the glare from light fixtures. This could also be achieved by correct placement of light fixtures.

Special Considerations:

Degradation factors are important to consider.

Vertical Illuminance

Very important:

Children and adults need to be able to see in between the shelves of books. Since titles of books are read on the vertical plane, this circulation area's vertical illuminance criteria is very important. Correct illumination in these areas is even harder to achieve if the shelves are tall.

Vertical illuminance in this space should be: 300 lux (30fc)

At 30" above floor

Title 24 Allowed Lighting Power

Library:

Stacks: 1.5 W/sqft

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The Children's storytelling area

Purpose of Space

This area has a circular pattern, in different levels going down. Its intended use is for librarians, parents, or young adults to read to children. While it's not being used for storytelling in groups, it may also be used as a sitting area where children can sit and read a book.

Lighting Concept

This space has a more fun look. Its different layout and design provide a school oriented approach but at the same time make it creative and enjoyable for children. The ceiling also is composed of a circular design dropping down from the top.

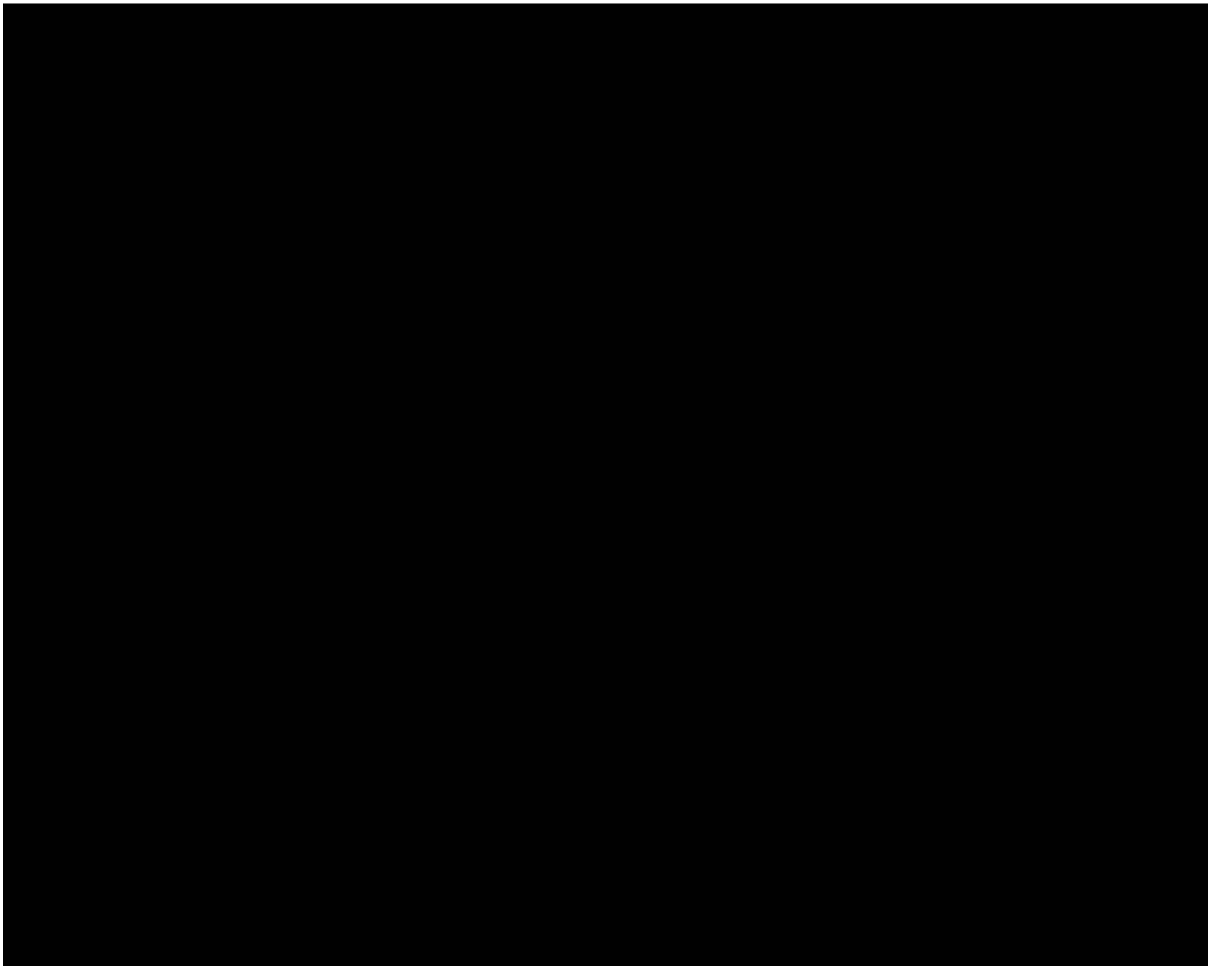
Dimensions

This area has a square-like geometry, located in the north west area of the second level and has access to the family place, children's circulation and has a arched pattern in different levels in the middle where children can sit.

Perimeter: 30x25.6x30.1x26.8 ft aprox

Area: 840.76 sq ft

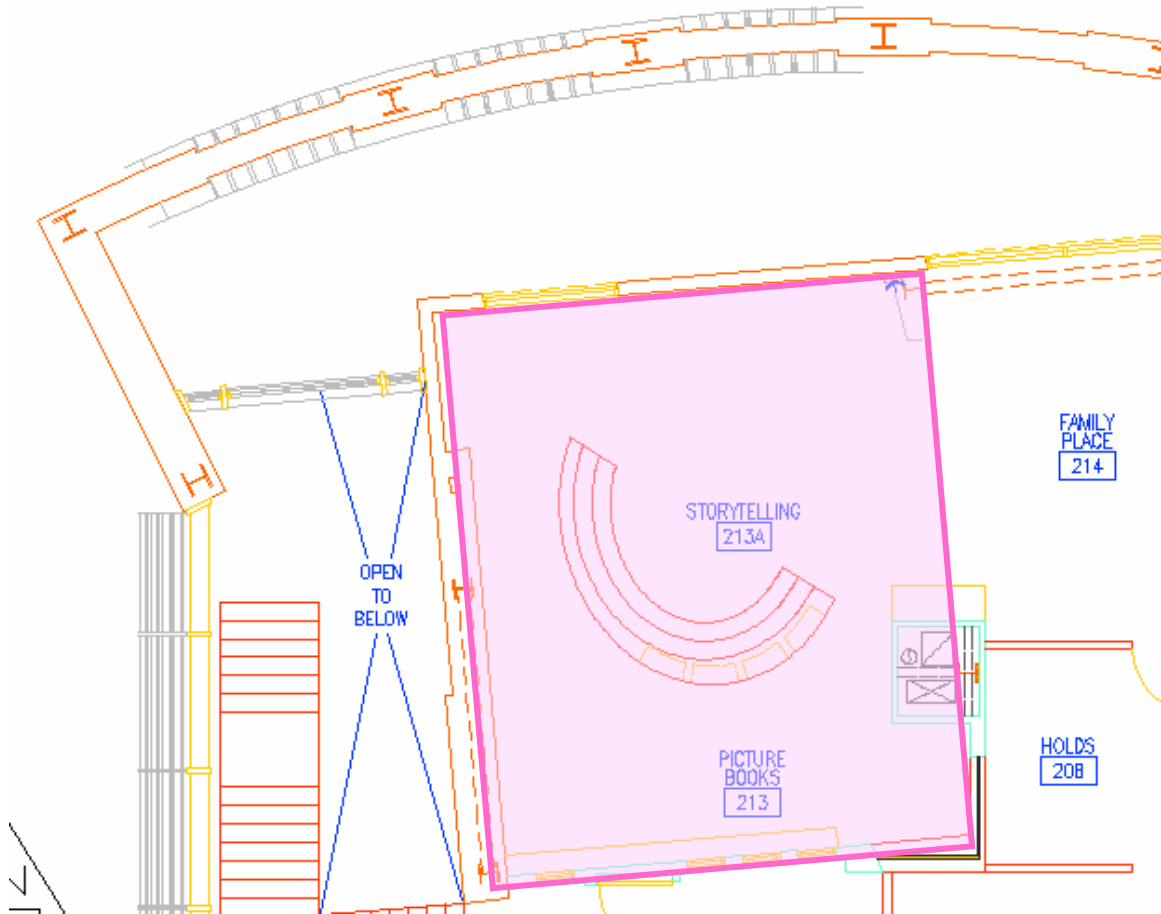
Floor Plan





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Finishes

	Material	Manufacturer	color
Floor	CT1	Carpet tile-pop circles	Interface 100464 Right-on (red)
	CT3	Carpet tile-superflor	Interface 6099164 Pacific sunset (orange)
	CT4	Carpet tile- superflor	Interface 609162 Primavera (green)
	CT5	Carpet tile -superflor	Interface 609158 Kingfisher (blue)
	R7	Rubber floor	Atmosphese Starlight TM 987
	B2	Wood	- Color take 2 maple
Walls	CP1	Cement plaster (stucco)	- Integral colored, color to match P4 (sand finish)



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	CP2	Cement plaster (stucco)	-	Integral colored, color to match P1 (sand finish)
	SL1	Slatwall	Display warehouse	Color: Maple Groves: clear anodized
	SL2	Slatwall	Display warehouse	To match wall color
	R4		-	
	W4	Wood	-	Baltic birch (plywood)
Ceiling	AC4	Open	-	Open to structure with acoustical spray on paint P1
	AC5	Gypsum board	-	Painted gypsum board
	AC6	Suspended grid and lay-in tile	Armstrong	-

Furnishings

There will be some shelves along the perimeter of the west wall as seen in the back of the picture. There are also shelves on the south side of the area (to the left in the rendering provided) which contain picture books. There are some large cubes which decorate this area as well.



Daylighting

In this area, there are windows on the north side providing daylight and at night some light from the exterior luminaires. There are no skylights.

Lighting Controls

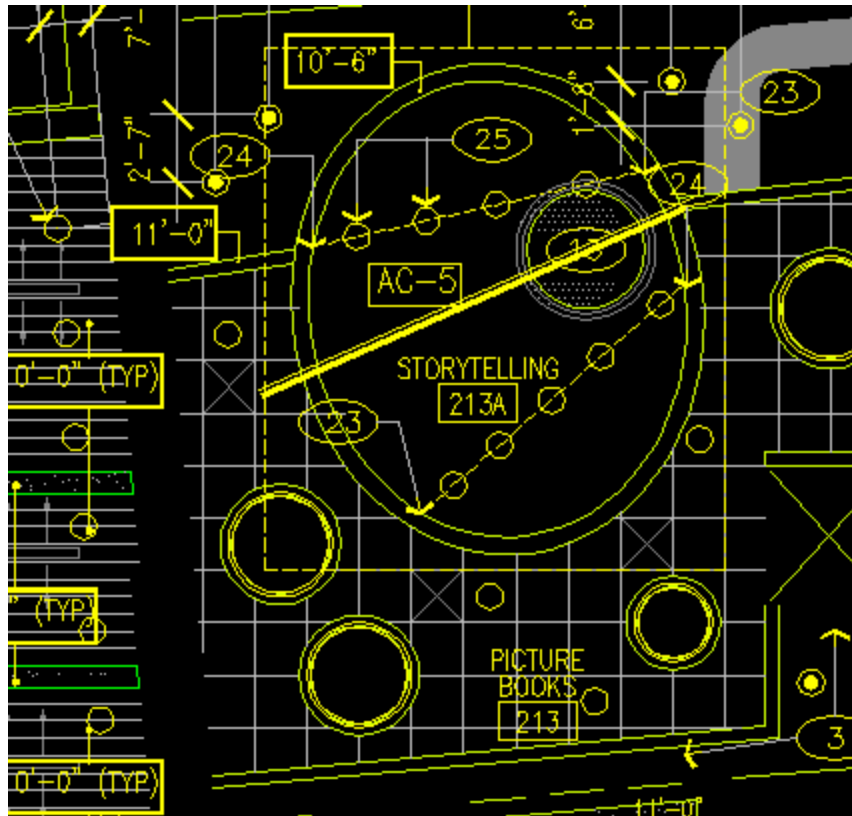
The control device used in the children's computer area of the library was the manual on/sched off (8am-10pm) type and it uses a time switch with manual switch override.

Reflected Ceiling plan



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Fixture schedule

Description	6" diameter, vertical compact fluorescent downlight. Semi-specular reflector with white baffle.
Fixture Code	A2
Mounting	Recessed
Manufacturer	Prescolite CFT632EB-WFT606 SS 26W or approved equal
Weight	10.5 lbs
Lamp Watts	1 lamp, 26 watts
Lamp Type	PL-T 26W/835/4P/ALTO
Ballast	(1) 1 lamp electronic ballast, high power factor.
Volts	120

Description	4' diameter recessed fluorescent troffer fixture. High reflectance, polyester powder coated steel housing. Concave white acrylic lens.
Fixture Code	D
Mounting	Recessed
Manufacturer	Focal Point FSD 44 D 4T8 S U CR L835 SC HW or approved equal
Weight	80 lbs
Lamp Watts	4 lamp, 32watts



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Lamp Type	F32T8/TL835PLUS/ALTO
Ballast	(2) 2 lamp electronic ballasts, high power factor.
Volts	120
Description	3' diameter recessed fluorescent troffer fixture. High reflectance, polyester powder coated steel housing. Concave white acrylic lens.
Fixture Code	D1
Mounting	Recessed
Manufacturer	Focal Point FSD 33 D 3T8 S U CR L835 SC HW or approved equal
Weight	55 lbs
Lamp Watts	3 lamp, 25 watts
Lamp Type	F25T8/TL835PLUS/ALTO
Ballast	(1) 2 lamp and (1) 1 lamp electronic ballasts, high power factor.
Volts	120
Description	Same as fixture "D" except with emergency ballast(s) with minimum 3000 initial lumen output, 90 minute emergency operation, UL listed.
Fixture Code	D2
Mounting	Recessed
Manufacturer	Focal Point FSD 44D 4T8 S U CR EM L835 SC HW or approved equal
Weight	81.5 lbs
Lamp Watts	4 lamp, 32 watts
Lamp Type	F32T8/TL835PLUS/ALTO
Ballast	(2) 2 lamp electronic ballasts, high power factor.
Volts	120
Description	13.8" diameter hand blown white opal glass pendent fixture with self-ballasted compact fluorescent.
Fixture Code	P
Mounting	Pendant
Manufacturer	Louis Poulsen WOP 13.8 1/200W/A-23/ IF medium glass or approved equal
Weight	5.2 lbs
Lamp Watts	1 lamp, 34 watts
Lamp Type	Table lamp EL/T 34
Ballast	Self ballasted
Volts	120
Mounting height	Mount bottom of fixture at 10'-0" above finished floor
Description	11.8" diameter hand blown white opal glass pendent fixture with self-ballasted compact fluorescent.
Fixture Code	P1
Mounting	Pendant
Manufacturer	Louis Poulsen WOP 11.8 1/200W/A-23/ IF medium glass or



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Weight	approved equal 4.2 lbs
Lamp Watts	1 lamp, 34 watts
Lamp Type	Table lamp EL/T 34
Ballast	Self ballasted
Volts	120
Mounting height	Mount bottom of fixture at 11'-0" above finished floor
Description	9.8" diameter hand blown white opal glass pendent fixture with self-ballasted compact fluorescent.
Fixture Code	P2
Mounting	Pendant
Manufacturer	Louis Poulsen WOP 9.8 1/200W/A-23/ IF medium glass or approved equal
Weight	3.8 lbs
Lamp Watts	1 lamp, 34 watts
Lamp Type	Table lamp EL/T 34
Ballast	Self ballasted
Volts	120
Mounting height	Mount bottom of fixture at 9'-6" above finished floor
Description	11.8" diameter hand blown white opal glass pendent fixture with self-ballasted compact fluorescent.
Fixture Code	P1
Mounting	Pendant
Manufacturer	Louis Poulsen WOP 11.81/200W/A-23/ IF medium glass or approved equal
Weight	4.2 lbs
Lamp Watts	1 lamp, 34 watts
Lamp Type	Table lamp EL/T 34
Ballast	Self ballasted
Volts	120
Mounting height	Mount bottom of fixture at 11'-0" above finished floor
Description	Low voltage, decorative track light fixture. Spherical spotlight with rods. Electronic transformer.
Fixture Code	V
Mounting	Track
Manufacturer	Prima 9032 chrome rail 10-40XX-SV, connector 30-422, power feed 30-42XX-SV, rail support 30-411X-SV, transformer 37-303VT-12 or approved equal.
Weight	1 lb
Lamp Watts	1 lamp, 35 watts
Lamp Type	USHIO FMW/FG/Ultra



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Volts 12

Light Loss Factor

Label	LLD	LDD	Cleaning Interval	Maintenance Category	RSDD	BF	Total LLF
A2	0.85	0.88	12 months	IV	0.91	1.1	0.75
D	0.95	0.88	12 months	IV	0.96	0.88	0.71
D1	0.95	0.88	12 months	IV	0.96	0.95	0.76
D2	0.95	0.88	12 months	IV	0.96	0.88	0.71
P	0.88	0.88	12 months	IV	0.90	-	0.70
P1	0.88	0.88	12 months	IV	0.90	-	0.70
P2	0.88	0.88	12 months	IV	0.90	-	0.70
V	0.85	0.88	12 months	IV	0.91	-	0.67

Power Density

the allowable power density for the reading area in a library is W/sqft according to Title 24,

Fixture Code	Power per Fixture	Amount of Fixtures	Total Watts per fixture	
A2	26	4	104	Area: 820 sqft
D	32	1	32	
D1	25	1	25	
D2	32	2	64	
P	34	1	34	Total Power Density (W/sqft) : 0.87
P1	34	2	68	
P2	34	2	68	
V	35	9	315	
Total W:			710	

IES Criteria

Reading: printed tasks

Appearance of Space and Luminaires

Very important

This space should look aesthetically pleasing, since this is where children will have books read to them and will be reading themselves when they're older. In order to keep the children's interest on the area and provide a comfortable and pleasing atmosphere, the storytelling space should have an inviting and original look to it.

Light Distribution on Surfaces

Important



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Light distribution on this space should be even in order for people to be able to read at ease. The storytelling area has different levels in a circular pattern, so this area needs even lighting throughout the space.

Reflected Glare

Very important

At the storytelling area, reflected glare might be an issue since it is close to some windows and these might reflect the light coming from the light fixtures. Bare lamps should be avoided and placement of luminaires should be considered.

Shadow

Somewhat important

There should not be shadows on this area, or kept to a minimum since children or parents shouldn't be required to move in order to have a better vision of the book they're reading. Shadow patterns would also be distracting and would provide an unpleasant view.

Source/Task/eye Geometry

Somewhat important

The source of the luminaires in relation to the eye of the person is somewhat important, but due to the composition of the area and the ceiling architecture, the possibilities for luminaire placing is a bit limiting.

Horizontal Illuminance

Important: 300-500 lux (30-50 fc)

There should be enough light on the area in order for adults to read to their children as well as for children to read storybooks. There should be enough illuminance as well in case people want to read books with fine print.

Title 24 Allowed Lighting Power

Library:

Reading areas: 1.2 W/sqft

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Critique

This area is very complex in its architectural details, the ceiling components as well as the different levels of the storytelling area provide a unique environment which was lighted with track lighting as well as downlights. This was a difficult area to light, but was kept under the title 24 compliance and therefore was energy efficient.