Paul B. Sogg
School of Architecture

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ABS 643
Building Info

- Swisher Hall Architects 1994 (Original)
- Dekker Perich Holmes Sabatini 2004 (Addition)
- 86,500 SF
- Library, Studios, Offices, Classrooms, Lecture Hall, Exhibit Spaces
The current lighting design of the school of architecture has positive and negative characteristics.

There were 4 areas where the lighting was analyzed and alternative solutions were proposed:

- Pin-up space on second floor
- Library
- Studios
- Addition
Current Conditions & Alternative Solutions
Pin-up Spaces

**Current Fixtures Used:**
- Fluorescent lights with grid diffuser
- Incandescent track lighting
- Light wells with fritted surfaces

**Current Lighting Techniques:**
- Focal Lighting
- Ambient Lighting

**Current Problems:**
- Despite of light wells the space appears to be lit solely through fixtures (Light wells not used in the best manner)
- Lack of lighting controls (Only track lighting control is present)
- Fixtures are not very energy efficient
- Not much emphasis is placed on the display areas
Current Conditions & Alternative Solutions
Pin-up Spaces

Alternative Lighting Design
- Relocate light wells and use them for wall washing
- Use wall washing technique for accent lighting
- Use a more transparent frit or less opaque material for light wells
- Allow for various light configurations by implementing light controls
- Replace current fixtures with energy efficient fixtures

Redesigned Space During Presentation
Spot lights:
- Currently use Sylvania 45 W / 130V flood light with dimmer switch
- Replace with LEDtronics PAR 38 Style LED Flood Light (Only consumes 4.5 watts, 50,000+ hours of light, 90 LED Fixture $86)
- Install LEDtronics DC dimmer (Because LED fixtures require less energy to operate, dimmer drops power supplied to fixture and thus increases the light life, $60)

Fluorescent Lights:
- Replace with LEDtronics 24” pure white LED tube lighting ($64)
- Replace current lighting controls with an accessible Lutron Four Scene Preset dimmer to have preset setting for everyday use of presentations.
- LEDtronics.com & Lutron.com
Current Conditions & Alternative Solutions
Pin-up Spaces: Alternative Fixtures

Skylights:
- Replace skylights with Velux curb mounted fixed skylight.
- Fit skylight with Velux electrochromatic glass which allows the opacity level of glass to be controls. As current increases the glass darkens and as it decreases it lightens. This glass allows complete control of amount of light and heat that enters a room (Solar Gain).
- Energy cost for operating the glass is equivalent to a single 40W bulb in a residential setting.
- VeluxUSA.com
Current Conditions & Alternative Solutions
Library

Current Fixtures Used:
- Fluorescent lights with grid diffuser
- Recessed can fixtures
- Pendant lighting fixtures

Current Lighting Techniques:
- Focal Lighting (Scallops)
- Task Lighting/Decorative Lighting (Lamps)
- Ambient Lighting (fluorescent and daylight)

Current Problems:
- Gallery area has no specified lighting
- Overall lack of lighting controls
- Heavy dependency on lighting fixtures due to the opacity of glazing
Current Conditions & Alternative Solutions
Library

Alternative Lighting Design:

- Implement a wall washing technique on the west side that could implement warm color through painted surfaces (St. Ignatius)
- Provide wall mounted spot lighting fixtures for gallery space

St. Ignatius – Holl Architects

Modified Library Space
Current Conditions & Alternative Solutions
Library

Alternative Lighting Design:
-Due to orientation of the school, reduce the opacity of the glazing on the north side windows to allow more natural daylight in and get rid of dark areas under stair and by magazine racks.
-Use recessed floor fixtures for uplighting columns to further emphasize the verticality of the space
-Use wall washer fixtures around magazine racks to show texture and get rid of scallops
Current Conditions & Alternative Solutions
Library

Fixtures:
-Spot lights on the west gallery: Discovery Lighting’s gooseneck LED mounted task light. $220 (DiscoveryLighting.com)
-Column Uplighting: Erco in ground directional luminaire (LED model also available)
-Erco wall washer fixtures (Erco.com)
Current Conditions & Alternative Solutions

Studios

Current Fixtures Used:
- Fluorescent lights with grid diffuser
- Windows for daylight

Current Lighting Techniques:
- Ambient Lighting (fluorescent and daylight)

Current Problems:
- High and opaque ceiling makes the space seem darker
- Windows are tall and narrow and provide very little light
- Layout of lighting fixtures creates uneven lighting
Current Conditions & Alternative Solutions
Studios

Alternative Lighting Design:
- Replace linear lighting with staggered grid pattern lighting
- Apply an off-white hanging ceiling and use uplighting instead of downlighting (Reduce glare and evenly distribute light)
- Use a light shelf and place ribbon windows near the ceiling to obtain diffused daylight
- Use full spectrum lighting fixtures
Current Conditions & Alternative Solutions

Studios

Fixtures:
- OSM hanging fluorescent fixture (osm.sk)
- Light shelves from Green Building Blocks
Current Conditions & Alternative Solutions
Graduate Studios

Current Fixtures Used:
- Fluorescent lights with grid diffuser
- Windows for daylight
- Clerestory Toplight

Current Lighting Techniques:
- Ambient Lighting (fluorescent and daylight)

Current Problems:
- High dependency on lighting fixtures
- Direct glare from afternoon sun
- Tall and slender windows
Current Conditions & Alternative Solutions
Graduate Studios

Alternative Lighting Design:
- Rotate clerestory top lighting so that only glass faces north
- Extend the side lighting so that the first floor can obtain more light
- Apply wall washer fixtures to the hallway so that it doubles as presentation space
- Apply mounted task lighting to wall at the bottom of the stair to better light presentations
Current Conditions & Alternative Solutions
Graduate Studios

Fixtures:
- Wall washers - Erco wall washing fixtures (Erco.com)
- Task lighting - Discovery Lighting’s gooseneck LED mounted task light. $220 (DiscoveryLighting.com)
- Other fixtures such as clerestory toplighting would be adjusted prior to installation
Sources:

http://www.library.unlv.edu/arch/buildings/paulbsoggarchitecturebuilding.html
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