Las Vegas Day School Library
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Project Name:

Las Vegas Day School Library

Owner:

Neil Daseler, Daseler Holdings L.L.C.

Architect:

Welles-Pugsley Architects

Electrical:

T.J. Krob Consulting Engineers

Structural:

Mendenhall-Smith Engineers

Mechanical & Plumbing:

Petty & Associates
Project Description

The Las Vegas Day School is one of the oldest private K-8 educational institutions in the Las Vegas Valley. It is the first non-sectarian, non-denominational private school and is licensed by the state of Nevada and accredited by the Northwest Association of Schools and Colleges, as well as the National Independent Private School Association.

The basic design concept for the Las Vegas Day School was to create schools within a school. It was vital that each school (Pre-School/Kindergarten, Elementary, and Middle) had its own design integrity based on its educational and programming needs, but still remained a part of the overall campus design.

Each school level was to be identified by a tower that either signaled a point of entry or served as a visual marker to the beginning and end of campus. Three separate canopies announce the different school levels and serve as a celebrated gateway into the reception area for visitors and students to enter.
Project Description

In accord with the Master plan, the Kinderschool, Elementary, and Middle schools are oriented east-west for optimum north and south daylighting control into spaces. The use of natural light and 13 foot ceilings are a common theme throughout the classrooms, thus reducing energy costs to light the rooms during the day.

The most prominent elements found inside are the playful reading steps and columns with seating that have become a miniature amphitheatre for students to enjoy individual or organized reading sessions.
Another design element found in each of the three schools is a courtyard centered within each building. These private courtyards allow for potential outdoor teaching space as well as play or study areas for students and teachers to individualize. When planning for the program needs of the Las Vegas Day School, it was important to exceed the square foot per student ratio even when the school is at full capacity. This not only permits for more flexibility in the classrooms, but it allows for individual learning and private student space.

The Las Vegas Day School library has become the heart of the campus. It can be accessed from the north and south end of the Elementary and Middle school. It was customized to meet the needs of students from all three school levels. The interior is mostly lit by three clerestories that filter in natural light and reflect it into different areas of the library. The most prominent element found inside are the playful reading steps that have become a miniature amphitheatre for students to enjoy individual or organized reading sessions. There is also a computer area furnished with individual laptops where students can research items online while keeping up with the latest technology.
The Library at the Las Vegas Day School is exceptional because it integrates daylighting and electric lighting into the overall and individual spaces of the building.

• It uses both side and top lighting from strategically placed fenestrations and the use of clerestories.

• The interior is lit by three clerestories that filter in natural light and reflect it into the main circulation desk, the check-out desk, and book stacks.

• These light wells are at a higher elevation than the thirteen foot suspended acoustical tile ceilings.

• Clerestory windows line both sides of these wells bringing in both the natural north light and the controlled southern light.

Welles-Pugsley Architects L.L.C.
Daylighting Strategies

Vertical windows on the west side of the building are recessed and placed in a saw-tooth pattern to block glare and allow natural light to filter in. The daylight brought in by these windows in combination with the can lights act as task lighting for the book shelves and marker boards that line the west ends of the wall.
The interior is lit by three clerestories that filter in natural light and reflect it into different areas of the library. These light wells are oriented in the north-south axis for maximum daylight control.
Artificial Lighting

Light Fixtures:

• Peerlite Prima Suspended Fluorescent Direct-Indirect
Artificial Lighting

Light Fixtures:

• Peerlite Prima Suspended Fluorescent Direct-Indirect

The Linear suspended direct-indirect light fixtures run in eight foot continuous tracks along the library stacks. According to the guidelines in *Lighting Design Basics*, “This type of lighting must be suspended at least 12” below the ceiling, necessitating a ceiling height of 9’ or more. These systems are applicable as general lighting for offices, classrooms, libraries…” and “are considered good lighting for computer workspace.”
Artificial Lighting

Light Fixtures:
- Paramax Parabolic Troffers, 3” Louvers

**2PM3N 2’x2’ Straight Lamps, 3” Louver Family**

**MOUNTING DATA**
- Continuous rear mounting of flanged units requires CPE and/or SIS trim option (two options)
- Exposed grid too
- Concealed grid too
- G, ST
- CHROME MICRO-VEIN
- Metal (aluminum backings) M, MT
- Screen (aluminum backings) ST
- Asbestos, fiber, plastic, or plasticboard not required for parallel lamps

**DIMENSIONS**

**ORDERING INFORMATION**

For shortest lead time, configure product using standard options (shown in bold).

Example: 2PM3N G B 3 1’x2’ M M-07 0/10000 S

**FEATURES & SPECIFICATIONS**

**APPLICATIONS**
- High performance parabolic luminaires for use in office and retail applications and electronic offices where optical control, uniform control and light cutoff are important.

**ATMOSPHERIC**
- Designed for use with T6 lamps and incandescent electronic ballasts.
- Choice of diffuse or specular beam angles utilizing latest developments in louver finning for intentional beam distribution.

**CONSTRUCTION**
- Black metal terminates flanged louvers appearance, conceals optional air-supply units.
- Square or circular painless stamped forming increases durability.
- Integral T6 safety clips hold fixture to T-grid securely. No fasteners required.
- Heavy gauge steel fins for maximum strength; spring action latches concealed in black metal.
- Housing formed from cold rolled steel. Louvers formed from anodized aluminum.
- No adhesives used in this product.
- Overlapping flange and modular ceiling trim available factory installed with swing gate hangers or field installed with optional trim and fasteners.

**FINISH**
- Painted parts finished with high-gloss, baked white enamel.

**ELECTRICAL SYSTEM**
- Thermally protected, rewiring, Class P, N, P, or PC, UL listed.

**LISTING**
- UL Listed (Standard), CSA Certified or NOM Certified (see Options).

**WARRANTY**
- Guaranteed for one year against mechanical defects in normal use.

Specifications subject to change without notice.
Artificial Lighting

Light Fixtures:

- Paramax Parabolic Troffers, 3” Louvers

Alternating between the suspended light fixtures are two rows of 2x2 parabolic troffers at four and eight feet on center. The two main sources of ambient lighting are the suspended fluorescent direct-indirect light fixtures and the parabolic troffers. Natural daylight also adds to the overall ambient lighting in the library.
Artificial Lighting

Light Fixtures:

- Triple Tube Vertical Lamp Coaxial Reflector/Baffle Downlight

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**TRIPLE TUBE VERTICAL LAMP CYLINDER DOWNLIGHT**

Type: 
Notes: 

**FIxture Details**

- **LAMP TECHNOLOGY**
  - 120V ELECTRICITY
  - B10 or B10S BASE
  - TWIN FLUORESCENT LAMPS

**Catalog Ordering Information**

- **Finish Options**
  - Standard, Satin, and Painted
  - Available in various sizes and finishes

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**Performance Data**

- **Luminaires Installed**
  - Average Initial Foot-Lamberts
  - 122S-42E-SA

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**PLT 32W/4P 622S-32E-SA**

- **Report Number (5-30-1994)**
  - **300W Surface Mount**
  - **Total Luminance Efficiency**: 72.5X

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**PLT 42W/4P 622S-42E-SA**

  - **300W Surface Mount**
  - **Total Luminance Efficiency**: 40.7X

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**Indy Lighting**

12001 S 6th Place, Florence, N 48020
(317) 891-1233 • fax (317) 578-8006
www.purelightinggroup.com
Artificial Lighting

- The ceiling in the library is primarily made up of a 2x4 suspended acoustical tile system and varies in height, with the lowest elevation of 13'-6” above finish floor.

- Suspended direct-indirect fluorescent light fixtures are used over the book stacks, computer area, reading area, and in the clerestory alcoves.

- These light fixtures use three T-8 lamps and electronic ballasts in eight foot long continuous tracks.

- Alternating between the suspended light fixtures are two rows of 2x2 parabolic troffers at 4'-8’ on center with three T-8 lamps and electronic ballasts.

- There are three 42-watt triple tube compact fluorescent downlights in each alcove on the west end of the library.
Light Layers

• The two main sources of ambient lighting are the suspended fluorescent direct-indirect light fixtures and the parabolic troffers.
• Natural daylight also adds to the overall ambient lighting in the library.
• Two large windows on the north and south side of the library bring in much of the natural light into the circulation and check out desks.
Light Layers

• The can lights on the west alcoves of the library are used for task lighting.
• The daylight coming in from the large vertical windows also add to the task lighting for the marker board and book shelves.
AGI 32 Lighting Software

AGI 32 is a lighting analysis software program that provides lighting calculations and renderings for electric and daylighting system analysis.

I used my basic knowledge of this program to calculate the estimated average of illuminance values for the Las Vegas Day School Library. The following analysis is an attempt to replicate the space, light fixtures, fenestrations, and materials. I treated the main library floor in the program as a room and assigned it carpet flooring, acoustical tile ceiling, and wall covering as the wall material.
After placing the three light fixtures (linear direct-indirect, parabolic troffers, and can lights) in the model, I used AGI 32's automatic placement of points to calculate the illuminance levels produced.

The average value for the library space given was 87.07 footcandles (fc). The maximum and minimum values were 111 fc and 42.2 fc respectively.

**IESNA**

The minimum foot-candles for a library per the Illuminating Engineering Society is 30 foot candles

However, schools such as those within the Clark County School District (CCSD) required a minimum of 50 foot-candles at 30 inches above finish floor due to health regulations.

Although the average illuminance value of 87.07 fc is very high and most likely an error on my part, it was still interesting to see what fixtures created the highest illuminance areas. It was also helpful to be able to see the foot-candle value changes as I added and removed fixtures from the spaces.
References


• Welles-Pugsley Architects

• Illuminating Engineering Society of North America <http://iesna.org>