



FEATURED SUSTAINABLE PROJECT



GREEN EDUCATION TOPIC



WHAT YOU CAN DO

1 Featured Sustainable Project: John C. Lincoln North Mountain Emergency Department



The new Emergency Department at John C. Lincoln's North Mountain Campus was designed to very high standards of patient comfort and building operations. The design team used several sustainable strategies including low VOC paints, low-water use landscaping, shaded insulated glazing, energy efficient lighting, R30 cool roof, and healing gardens for patients and staff.

In the approach to lighting design for the new ED, the patient experience was everyone's greatest concern. All areas were viewed from the perspective of the patient – what do patients see when they are being transported on a gurney and what light levels are appropriate for patient comfort? Based on in-depth research, the lighting design included several lighting options for ultimate control and flexibility for patients, nurses, doctors and procedures. Task lighting was provided at nurse workstations in patient rooms. Daylight was utilized in the lobbies and exam rooms where possible. Indirect lighting was implemented in areas where patients would be lying down, including corridors and the CT and X-Ray rooms to prevent discomfort. This same strategy was used on the building exterior at the ambulance entrance and main entrance to ensure patient comfort from the moment they arrive. Motion sensors were installed in non-patient areas to keep the lights off when they are not needed.

The implementation of sustainable strategies for the Emergency Department resulted in an overall reduction in the energy use per square foot for the entire JCL North Mountain Campus.

2 Daylighting in Our Buildings

What is daylighting?

Daylighting is using the light from the sun without creating excessive heat, contrast or glare to reduce dependence on artificial light sources.

Why is daylighting important?

Daylighting is important for all facilities, but we especially see direct benefits in the medical and educational facilities we design. On the educational side, studies have shown that students' test scores are higher in classrooms with daylight as compared to classrooms without daylight. For students with autism, fluorescent bulbs can be harmful and irritating, so daylighting is preferred by most Special Education teachers. A study of patients at the John C. Lincoln Hospital done by a former OIW employee concluded that daylighting makes the patients feel less claustrophobic, helps them see easier, and is better for patients suffering from headaches and seizures than artificial lighting.

What are strategies for daylighting?

Ideal Exposure

- north side of building can introduce a maximum of diffused daylight
- south side can be shaded most of the year without blocking exterior views to nature

Exposure to Avoid

- east and west sides tend to introduce too much light and heat and require complex shading

Glazing Type

- select a glass that has the right balance between visible light transmitted and heat gain for the climate that you are designing for

Other Daylighting Principles

- Allow no direct sun to fall on viewers' eyes
- Diffused light is the best light
- Use lightly colored surfaces
- Provide blinds or louvers where there is potential for glare

Important Design Considerations for Daylighting

- building orientation
- window / skylight area and glazing material
- shading (i.e. window shades, roof overhangs, and canopies)
- interior finishes/furnishings (lighter colored surfaces provide better daylight distribution)
- interior lighting controls (daylight sensors and motion sensors)
- surface reflectivity

Glazing Terminology

- Solar Heat Gain Coefficient (SHGC): if the SHGC is equal to 0.68, the glazing will allow 68% of solar heat gain to be transmitted; for a hot and dry climate like Phoenix it is beneficial to select a glass that has lower SHGC
- Visible Transmittance (VT): if the VT is equal to 0.76, 76% of visible light will be transmitted



3 What You Can Do

Personal Environment

Replacing the five most used incandescent light bulbs in your home with compact fluorescent light bulbs can save you up to \$50 a year on energy bills.

When buying bulbs look deeper than the wattage, which just tells how much energy is used. For the best lighting energy value, look for the highest lumens per watt.

Corporate Environment

Explore the possibility of using personal controls for office lighting. Using lighting that has a dimming feature uses less power, but still provides enough light for working or studying.

Occupancy sensors control lighting through motion sensors, only allowing the lights to come on when a person is using the space. This choice will keep energy costs to a minimum.