**Green Library: A Blessing to the Modern Era**

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 **ABSTRACT**

Green libraries are a part of the larger green building movement. The “Green Library” is a newly emerging concept defines the library of the 21 century, playing an exclusive role in building green due to its mission for public and pedagogical nature highlighted the Green Libraries Initiatives at International level and prospects in India.

 Keywords: Green library, USGBC, Ecology, LEED etc.

 **Introduction**

The emerging concept “Green Libraries” is also known as sustainable

Libraries which are building all over the world. Green Libraries are really working most extraordinary in the current situation. India is fighting severe problems, as for e.g. pollution explosion, dwindling resources, illiteracy, poverty, unemployment, threats of terrorism, among others. In this perspective, little emphasis is given on emerging issues like hygienic and environmental awareness.

 Very recently, Indian libraries started to have provisions for natural lights as much as possible, energy saving bulbs in the reading rooms and other places within library premises, provision of natural air, emphasis on cleanliness, hygienic toilets, adequate provision of waste bins at appropriate places, proper disposal policies for weeded library materials/ equipments, etc.

**Definition**

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The Online Dictionary of Library and Information Science (ODLIS) defines green/sustainable libraries as:

A library designed to minimize negative impact on the natural environment and maximize indoor environmental quality by means of careful site selection, use of natural construction materials and biodegradable products, conservation of resources (water, energy, paper), and responsible waste disposal (recycling, etc.). In new construction and library renovation, sustainability is increasingly achieved through LEED (Leadership in Energy and Environmental Design) certification, a rating system developed and administered by the U.S. Green Building Council (USGBC).

**What makes a library green?**

There are many ways to define a green library, but there are a number of central themes that run through all of them, including, minimizing the negative impact the building will have on the local environment, and if possible having a positive impact. Reducing the use of water and energy by designing in a way that maximizes the use of natural and renewable resources. Integrating actual greenery and vegetation into the building and site design; Preferably, using drought resistant and/or native vegetation. And, maintaining high standards of indoor air quality to help ensure the health of the people who inhabit the building.

**LEED**

 In the United States, the [non-profit organization](http://en.wikipedia.org/wiki/Non-profit_organization) the [United States Green Building Council](http://en.wikipedia.org/wiki/United_States_Green_Building_Council) (USGBC) developed the [Leadership in Energy and Environmental Design](http://en.wikipedia.org/wiki/Leadership_in_Energy_and_Environmental_Design) (LEED) rating system in the year 2000. Their point based rating has a total of 100 base points possible, and buildings can be categorized as certified (40 points), silver (50), gold (60), or platinum (80+). LEED uses five different categories to judge a building's sustainability; 1) site location, 2) water conservation, 3)energy efficiency, 4) materials, 5) indoor air quality, and a bonus category for innovation and design . As of 2003 libraries accounted for 16% of all LEED projects.

**Special needs**

Sustainable library design is strongly tied to the overall green building movement, but libraries have specific needs that present some extra challenges for green builders.

The biggest challenge is balancing the sometimes conflicting needs of the patrons and the materials. One of the central themes of the library's mission is to preserve knowledge, so that it can be passed on to future generations. For over a thousand years [books](http://en.wikipedia.org/wiki/Books) have been the dominant way to do that. While the [internet](http://en.wikipedia.org/wiki/Internet) has become the information medium of choice for many, books still play a very important role in the preservation of knowledge. In order to be preserved, books must be kept away from extreme temperatures, moisture, and sunlight. In contrast, many individuals find sunlight to be the most enjoyable light for reading. Sunlight also plays a major role in green design, because it can be used to reduce the reliance on artificial lighting. For a long time, libraries needed to protect the collection from the damaging ultra-violet rays of the sun. New developments in glass technology over the past ten years have given designers more flexibility in their ability to place collection.

Another, often overlooked, challenge the library presents is the weight of the books. A common strategy in green design is to raise the floors to increase circulation, but the weight of the stacks can be an impediment to this strategy. To deal with this challenge, many designers have resorted to zoning the library into designated areas, so these strategies can be enacted in certain areas, and alternatives can be used in others.[[2]](http://en.wikipedia.org/wiki/Green_library#cite_note-Lamis2003-2) Libraries need to be built flexibly, in order to make room for expansions in size and in wiring capabilities. Library buildings are long term investments into the community, so when designing them architects need to be looking 50 or 100 years into the future. These obstacles by no means present insurmountable challenges to green libraries. The special needs of the library just need to be taken into consideration from the beginning of the project.

**How are libraries becoming green?**

Green design is an integrated process. No one aspect of a building's [architecture](http://en.wikipedia.org/wiki/Architecture) makes it [green architecture](http://en.wikipedia.org/wiki/Green_architecture). Without proper integration from the earliest moments of the planning phase, redundancies can occur, eliminating many of the potential benefits of sustainable design. Good sustainable design capitalizes on the synergistic relationships that occur between the various design elements. LEED groups these elements into five categories. Buildings can be designed in a way in which, good design in one category helps another category fulfill its goal.

**Site selection**

Before building can start, a site must be chosen. The selection of the site has a large impact on how ecologically friendly the library will be. LEED has a number of guidelines to help the [site selection](http://en.wikipedia.org/wiki/Site_selection) process. There are a number of questions to consider that will help guide the site selection process, including, what kind of impact will construction have on the local environment, will there be erosion, what can be done with storm runoff, and is the site already green? Also, the library should be located in a densely populated area, near a number of other service related buildings. People should be able to reach the building via public transportation and the parking lots should give priority parking to those driving energy efficient automobiles. The heat island effect can be reduced by shading hard surfaces, putting them underground, or by implementing a vegetative roof .

**Water conservation**

There are many different ways for libraries to conserve water. A number of them rely on proper site selection. If a site is selected properly strategies can be used to capture rainwater runoff to be used in irrigation. Another strategy is to use low flow fixtures, and waterless urinals.

**Energy conservation**

[Energy efficiency](http://en.wikipedia.org/wiki/Efficient_energy_use) is considered by many to be the most important category in becoming sustainable. In the LEED rating system it is the heaviest weighted of all the categories. Energy efficient design is in many ways a return to passive design principles that evolved over thousands of years, until the advent of air conditioning and cheap energy made those strategies appear to be unnecessary. After air conditioning became widely available, buildings were designed to eliminate influences of the outside environment. Lamis illustrates this point in "Greening the Library" when he compares two libraries built near the turn of the 20th century, the [New York Public Library](http://en.wikipedia.org/wiki/New_York_Public_Library) and the [Boston Public Library](http://en.wikipedia.org/wiki/Boston_Public_Library); to two more recently built libraries, the [Chicago Public Library](http://en.wikipedia.org/wiki/Chicago_Public_Library) and the [Phoenix Public Library](http://en.wikipedia.org/wiki/Phoenix_Public_Library). The two older libraries have interior spaces that are narrow, so they can be reached by natural light and air. Whereas the two more modern libraries have large floor plans, with interior spaces far removed from the outside environment. Making them more dependent on artificial systems of temperature control.

**Building materials**

It is believed that up to 40% of landfill space is filled with construction waste material.  The primary responsibility in selecting materials for the library is to contribute as little waste as possible. Another responsibility is to choose materials that can be produced without causing too much damage to the natural environment. In order to fulfill the first responsibility, post-industrial and post-consumer recycled materials are being used. When purchasing materials claiming to be made from recycled goods it is important to investigate what their claims mean. It is a common marketing practice to exaggerate how green a product is by using misleading statements.Also, materials should be chosen that are going to be able to be reused or recycled 50–100 years down the road when the library building has reached the end of its useful life . As non-renewable resources decrease, reusing and [recycling](http://en.wikipedia.org/wiki/Recycling) are going to become increasingly necessary in the future.

**Indoor air quality**

Along with energy inefficiency, poor air quality has been another side-effect of the post air conditioning building design. Because most modern buildings are temperature controlled, they are designed to be airtight. The lack of ventilation can not only make buildings expensive to cool, it also traps harmful toxins that can do serious damage to people's respiratory systems.

**Green Design Elements for Libraries**

Green libraries combine the needs of a library, sustainable design, and real cost savings in energy consumption. The main goal of green buildings is to develop and use sustainable energy-efficient resources in construction, maintenance, and overall life of the structure. Libraries considering green design will often look at the Leadership in Energy and Environmental Design (LEED) rating system. Brown (2003) identifies the following green design elements, which can be incorporated into libraries:

**•Community collaboration** – makes sure that community assets are efficiently used and helps to maintain public support

**•Daylight** – pair daylight with artificial lighting to reduce energy costs

**•Green materials** – use renewable materials like wood, linoleum, bamboo, and cork

**•Green roofs**

**•Raised floor systems**

**•Energy efficiency**

**•Indoor environmental quality**

**Why are libraries becoming green?**

First, libraries have been expanding the scope of their mission statements, to include working for the betterment of mankind. Second, technology is no longer a barrier. Third, it is great for the image of the library. Finally, sustainability offers the library a degree of independence, because cost of maintenance goes down, as does reliance on the volatile fossil fuels market.

**Technology**

 **G**reen buildings are constructed all over the world in every sector of the economy; residential, commercial, non-profit, government, etc. Another breakthrough is the diversity of green technology. There is an abundance of options, so any green builder has the ablity to capitalize on the local natural resources available, and customize the building to most efficiency operate in the local environment. Along with the advancement of technology the increasing awareness of environmental issues decrease the burden on the green builder .

**Image**

The library is undergoing an identity transformation. It is struggling to stay relevant, as a vocal minority predicts its demise. While its image as an outdated institution is not entirely deserved, it is trying to assert itself as an irreplaceable part of the community, that plans on being an assertive force for good in the 21st century. Green design helps it do that three different ways. 1) A sustainable building makes a statement that the library is investing in the future of the community. 2) Sustainable buildings are smartly designed, aesthetically pleasing, and are powered by state-of-the-art technology. When people see these emerald marvels they will no longer be able to maintain false stereotypes regarding libraries as anachronistic relics from an analog age. 3) More and more people take [environmentalism](http://en.wikipedia.org/wiki/Environmentalism) seriously, so a green image is a good image. The public awareness on this issue is only going to increase. Libraries want the public to believe that they are still relevant, and that their mission is to better humankind. Many have decided that a green library is a physical manifestation of their mission statement, and it provides an image of how libraries want to be seen in the 21st century.

**Independence**

As publicly funded institutions, libraries are constantly battling with budget issues. Swings in the economy can affect the tax dollars coming into the library, as well as new legislation. Sustainable design offers libraries a way to reduce maintenance and energy costs, providing them with a degree of independence.

**Conclusion:**

One of the most important features of green design is a shift from the reliance on depleting fossil fuels to renewable energy resources. The independence from fossil fuels will save the library large sums of money, and it will relish its independence if prices continue to rise.

Money will also be saved by having higher morale, health, and productivity from employees. The architectural firm Heschong Mahone conducted a study that indeated students perform 25% better on standardized tests when in classrooms lit naturally. High levels of CO2 can decreases performance as well.  Savings can also be increased, because there are governmental incentives to capitalize on, and some utility companies offer incentives too.

  .**References**

* Anisko, E. & Willoughby, M. (Producers) (2006). Deeper shades of green [Television mini-series episode]. [Directed by Tad Fettig, narrated by Brad Pitt, & with Ken Yeang]. Arlington, VA: Public Broadcasting Station.
* Boyden L. & Weiner J. (2000) Sustainable libraries: Teaching environmental responsibility to communities [Electronic version]. *The Bottom Line, 13*(2), 74-82.
* Boyden L. & Weiner J. (2001) For the public good: Sustainability demonstration in public library building projects [Electronic version].
* FSC (1996) Forest Stewarship Council. Retrieved November 23, 2007, from <http://www.fscus.org/DisplayPage.aspx>? CategoryID=19.
* LEED. (2005) Reference Guide Version 2.2 US Green Building /council. Retrieved from <http://www.usgbc.org/DisplayPage.aspx>? CategoryID=19.
* McCabe, G.B . (2003) . New Concepts for Technology in Library Design. In G.B. McCabe Kennedy (Ed.) Planning the Modern Public Building (pp. 31-45). Westport,CN: Unlimited.

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