GREEN LIBRARIES: INDIA VS INTERNATIONAL SCENARIO

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Abstract

Concept of Green Libraries gradually attracting attention of library administrators worldwide and the efforts to develop green libraries are on rise. This is becoming a kind of movement now and has started gaining momentum in India as well though it initially started in USA,UK and Canada who are leading countries to adopt the concept. The present paper discusses about current scenario of green libraries development in India and other developing countries. LEED is the major performance standard in countries abroad and IGBC is an Indian standard to measure the performance. The attempt is made to understand the concept, role of various associations and training available on green libraries, existing standards to measure the performance and pros and cons of the green libraries in general.

Keywords: Green libraries, LEED, IGBC, USBGC, TERI, COSTFORD

Introduction

The creation of green libraries is gaining momentum now-a-days. It emerged in 1990's and took a momentum in 2003.Libraries are not far behind in green environment movement. The libraries have specific challenges to overall green building movement. Books need special care from extreme temperature, moisture, sunlight, termites, fungus, and rodent's and of course few dishonest readers too. Weight of books and stacks and movement of many readers on the floor make it more complicated .Expandability for future growth in terms of books and readers and technology further complicate building structure and design. It involves following steps for a good green library:

Site Selection:- Besides population, reach ability location, parking and local conditions like storms, erosion, moisture and dust, etc. are also to be considered before finalizing site. India has geographically varied conditions from vast deserts to high hill tops, planes and very vast coastal areas so one norm cannot fit throughout the country. A proper site selection is very necessary for a green library as compared to other types of buildings.

Water Conservations: - Use of roof water harvesting, green toilets, water recycling, etc. can save lot of water for proper landscaping and greenery in and outside the library building. Energy Conservation:- It is most important aspect in green revolution. Use of wind and sun

can manage temperature and light in place of electricity. It saves lot of natural resources like coal and emission of harmful gases like CO_2 which will be helpful in reducing global warming. It is economic to the institution in electricity bills.

Building Material:- Use or recycle of waste products will reduce damage to natural environment. Less use of wood will save many trees. Use of locally available material will save transport cost and fuel. It also includes use of biodegradable materials, non use of plastics and other such products. Many modern building technologies have emerged which are more eco friendly and should be used in new library buildings. Indoor

Air Quality:- Lack of ventilation at public places can cause many harmful effects such as bacterial infections, etc. The air should be recycled and should not be stagnant. Least use of air conditioners will reduce emission of harmful gases responsible for holes in ozone layer and intern global warming.

Brown (13) has identified following green design elements which can be incorporated into libraries:-

a. Community Collaboration;

b. Green materials;

c. Green roof;

d. Raised floor system;

e. Energy efficiency;

f. Natural ventilation;

g. Green power and renewable energy;

h. Indoor environmental quality; USA the USGBC (US Green Building Council) has developed LEED (Leadership in Energy and Environmental Design) rating system in 2000 on in 5 categories (14).These can be followed to get Gold rating for Library buildings. (14).

Definition

The *Online Dictionary of Library and Information Science* 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.)

International Scenario

Green libraries are quite popular all over the world and librarians are transforming their library buildings into green library buildings. The two most important things for making green sustainable libraries are economy and ecology. There are few green library initiatives already working in the world. This list is not exhaustive but exemplary.

1. **Fayetteville Public Library, Minneapolis (2004):** It has earned many certificates. It has green roofing and reduced air temperature by 20 degree celsius, saving Rs. 2,40,000/- per annum energy cost. Roof water is harvested for landscaping and irrigation further reducing energy cost by 75%. Natural lights have been used for public areas. Trees were re harvested.

2.Seattle Central Library (2004): It is located in dense public area to reduce cost of transportation 40,000 gallon (151600 lit.) tank from roof water harvesting irrigate the landscape. Use of triple gazed glasses reduces heat saving energy.

National Library, Singapore (2005):- It is known as greenest building on the planet. It uses light shelves allowing light to filter into the library. Sensors dim or brighten the lights for maximum comforts.

3.Minneapolis Public Library (2006): - It has 18560 sq fit green roofs in the downtown city reducing rainwater runoff .heating and cooling load.

University of California (2005): - It has 1, 80,000 sq fit. glass and concrete building. It saves 42% water and 50% energy due to its green library initiatives.

Indian Scenario

TERI has been in the forefront of the green building movement in India. The organization has assisted the first USGBC rated green building in India, namely the CII - Godrej Green Business Centre way back in 2001, to get the coveted platinum rating. TERI envisioned the need for development of an indigenous tool for rating of green buildings in India. TERI has constructed buildings in Gurgaon, Bangalore and Mukteshwar which are resource and energy efficient. In Kerala COSTFORD (Centre of Science and Technology for Rural Development) a non- profit organization established in 1985 focus on improvement of housing and made significant gains in providing alternative philosophy and technologies for providing cost- effective , energy efficient and more appropriate housing for all groups.Similarly, Habitat Technology Group (HTG) established in 1987, an NGO is fully committed to the concept of green and human architecture. It is working as a nodal agency to carry out green buildings in Kerala.Karnataka University Library, Dharward is a good example of green library. The Library has no books, book shelves, chairs or tables but

benches are installed under the trees so that students can sit and read the books taken from the university library.

Anna-Centenary India is built around solar control thermal insulation glass with green roof. Chennai Library block is built at an angle that allows maximum daylight and ecofriendly.

Even National Assessment and Accreditation Council (NAAC) have started assessing the Universities on environmental benchmarks. As per the draft manual of NAAC, universities are judged on social impact factors of its extension programmes on the community. The institutional initiatives towards energy consciousness like whether it conducts a green campus audit and activities like energy conservation, use of renewable energy,water harvesting, efforts for carbon neutrality and e-waste management have also been incorporated. Libraries are integral part of the University and therefore there has to be green practices implemented in the library in support of this NAAC activity.

International Standards to assess Green Libraries

We have international standards like LEED (Leadership in Energy and Environmental Design) certification system and BREEM at international level.

a. **LEED** is considered a performance standard, which means it allows a building owner or planner to choose how to meet certain benchmark numbers without prescribing specific measures. It is a point-based system in which projects earn LEED points for meeting green building criteria. The six credit categories for new building construction are sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation in design .

b.**BREEAM** is the leading and most widely used environmental assessment method for buildings. It sets the standard for best practice in sustainable design and enables a building's environmental performance to be measured. Environmentally friendly features include the use of low carbon technology for heating and cooling, low energy lighting and water conservation systems.Eden Prairie Library, Eden Prairie- First in US to create natural gas fuel cell to create power and heat on-site. It is made of recycled materials, low VOC materials and efficient lighting arrangements.Contertainer-Batu, East Jawa, Indonesia- is an amalgam of two words: container and entertainer, which reflects its goal of providing a better quality of living.Enfield Town Library, Britain- Floor-to-ceiling windows

bring in plenty of light while providing views to the library's new green. This is built around BREEAM rating.

Indian Standards to assess Green Libraries

In India we have GRIHA and IGBC. GRIHA has been adapted by the government of India as the National rating system. Indian Green building Council (IGBC) was established in the year 2001 to promote and rate Green buildings in India.

a. GRIHA has been adapted by the government of India as the National rating system.Keeping in view of the Indian agro-climatic conditions and in particular the preponderance of non-AC buildings, GRIHA has been developed as a rating system which is suitable for all kinds of buildings in different climatic zones of the country.

b. Indian Green building Council (IGBC): Indian Green Buildings Council (IGBC) establishedin the year 2001to promotes and rate Green buildings in India. There are about 2190 registered buildings, 398 rated buildings and also 1082 IGBC aggregated professionals.

Reasons to Build Green Libraries

There are several reasons why libraries would want to build green or incorporate green features into their buildings.

☐ First, the cost of constructing green buildings has become affordable. It is nowpossible for libraries to build green buildings on conventional budgets.

☐ Second, most readily available energy resources are finite resources.

☐ Third, it is important that we reduce the carbon footprint of our buildings.

Points to Remember

1. Site must be chosen carefully keeping in mind ecological factor;

2. Water conservation is very important so consider alternative on-site water sources (eg. Rainwater, storm water and air conditioner condensate) for toilet flushing etc.;

3. Energy conservation is significant category in becoming sustainable so the focus should be on renewable energy systems, including solar, wind, and geothermal energy.

4. Building materials should be chosen which is produced without causing too much damage to the natural environment. Reusing and recycling must be kept in mind so that it is environment friendly;

5. Indoor air quality must be good and free of toxic effects.

Role of Library Associations in supporting Green Libraries

ALA hosted the first pre-conference titled Libraries Build Sustainable Communities in 2000 with the objective "to envision how local libraries can tailor services to meet community

priorities in the twenty-first century". In the preconference librarians discussed the ways how communities could be taught to view libraries as places for public discussion,and an information resource in community decision making.The American Association of School Librarians (AASL), Association of College and Research Libraries (ACRL) and Special Libraries Association (SLA) provided material for their conference electronically and communication was done through chat. In 2008 conference SLA purchased 3,000 reusable water bottles that were handed out to attendees. In addition, the conference tote bags were made from 65% recycled materials.

Benefits of Green Libraries

Green buildings produce less gas emission and electricity consumption is less than the conventional buildings.A Library with green roofs is covered with

the vegetation so it will absorb rainwater and will also provide insulation which will result in less heat. Green roofs add to the aesthetic appeal of the building which makes it attractive and beautiful.Installation of motion sensors in break and meeting rooms to automatically turn off lights when the rooms are unoccupied reduces energy consumption. The Design of the Library space as per green Library standards will reduce energy consumption.

Green Library Challenges

While green libraries are related to the overall green building movement, libraries have specific needs that raise some extra challenges.

For their preservation, books must be kept away from sunlight as well as moisture and temperature changes. However, 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 collections (Mcabe, 2003).

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 .

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 made to benefit 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

The Role of Green Librarian

Librarian should always make efforts to promote green library movements by using different online tools like social media.

1. The Librarian constantly willing to work under the Eco-library system and identify those people who are willing to work in this environment

2. He can promote green library tools, techniques to encourage others

3. A Librarian can encourage other librarians towards green library by discussion, seminar, and conferences.

4. The green librarian"s role is most dynamic he is also called as eco librarian because he has to handle the budgets to support the organizations.

5. Use wooden furniture and material because these are bio degradable materials

6. Library can use wool brick instead of burnt brick. Solar tiles or panel can be used for roof.

7. Paper Insulation is also an ultimate trick to make environment friendly building.It is made from newspaper and cardboard which are recyclable. Also it protects wall from fire and insects.

8. More and more use of bamboo by replacing steel.

9. Rooftop planting can be a good idea.

STRATEGIES & METHODS IN "GOING GREEN"

Maintenance and Green Building

1. Turn down the heat one or two degrees by taking advantage of windows.

2. Supplement the use of eco-friendly light bulbs and Energy Star products.

3. Switch to safe cleaning products o Re-insulate your library by using recycled paper.

4. DIY your own green remodeling project o Reducing Energy Consumption by stressing the use of Solar Energy (Photovoltaic or Solar Panels), Wind Turbine Systems

5. Augmenting the use of Materials like Carpet Tiles and Sustainable Carpets, Low embodied energy materials, E-Crete .

6. Set up a large bike rack in front of your library to encourage patrons to ride their bikes instead of drive to the library.

7. Use up every inch of scratch paper before throwing it away by using both sides of the paper.

8. Subscribe to newsletters, magazines and special catalogs online and help in eliminating junk mail.

9. Buy pillows and furniture made of eco-friendly items

Hardware

1. Purchase eco-friendly versions of computers.

2. Use of laptops consume comparatively less electricity than desktop versions.

3. Eco-friendly, safe computer cleaning tips include using biodegradable dust cloths and old t-shirts.

4. Safely recycle computers instead of harming the environment when you throw them away.

5. Buy recycled ink cartridges and other supplies.

6. Consider the Kindle 2: It"s expensive and may upset some reading purists, but it is an eco-friendly reading tool. Purchase one for the library to spread awareness to readers.

7. Hook up several computers to the same printer to save electricity, paper and money.

8. Use eFax: This online version of a fax service cuts down on wasted paper.

9. Special Events and Projects

10. Apply for grants: environmental agencies are actively involved or the government will help your library with funding for green projects and renovations.

11. Start a paper drive: Ask the public and your students to bring in old newspapers and other papers to recycle.

12. Hold recycling contests: Hold recycling contests between grades, individuals, or against other libraries. o Apply for green awards: Find out if your state or community offers an award for libraries who go green o Put up a display about reducing your carbon footprint: Put together a presentation or display to discuss each person"s carbon footprint.

13. Invite special guest speakers: Educate your patrons by inviting professionals who work for environmental causes to give a presentation.

14. Start an arts and crafts event: Show patrons the cool items you can make out of recycled items, including recycled books. o Sponsor an essay contest: Sponsor a kids" essay contest, and ask them to write on any environmental issue they care about.

Energy:

1. Use Energy Star products for saving energy

2. Use fans: If you can, install ceiling fans to cool down the library without overusing the A/C.

3. Use of alternative energy sources such solar energy will save money .

4. Automate power down. When procuring new PCs, buy those with intelVPro. They'll let you remotely set power cycles for all your PCs .

5. Find efficient CPUs. Computer companies are producing far more energy efficient CPUs.

6. Have a server strategy that guarantees power reduction. If you can't implement it all at once, do it piecemeal. Servers not only use a lot of energy they put out a lot of heat, which increases cooling costs.

7. Encourage employees to car pool: Help your employees set up a car pool or van pool so that they can cut down on pollutants.

8. Motion and light sensors, timers and energy saving dimmers can be easily and inexpensively retrofit to existing buildings

Waste Management:

1. Recycle computers: Safely recycle computers instead of harming the environment when you throw them away. Buy recycled ink cartridges and other supplies.

2. Discard weeded books by selling it to used book dealers, exchange library materials with other participating libraries or donate to other libraries.

3. Get rid of waste by composting and stop using plastic bags.

4. Start a paper drive: Ask the members of the library to bring in old newspapers and other papers to recycle: they may even be turned into books one day

5. Books from the shelves and the books deliberately hidden by library users were recovered from the top of shelves were dusted carefully. Shelves and floor were washed and mopped. This result in clean, bright, refreshed collection with no dirt.

SUGGESTIONS

Following suggestions are made for green Libraries in India:-

1. Library buildings should be properly planned using Green Building Standards;

2. Old Library building should be reconstruct as for as possible on the times of Green Libraries standards;

3. Library building should have a good land scape;

4. Use of solar energy should be promoted at roof tops;

5. Roof water harvesting and roof top gardens, etc. should be encouraged;

6. Proper reader spaces should be made available with the use of natural resources;

7. Libraries should take initiatives to publicize green library impacts to its readers;

8. Librarians should be part of planning of buildings for institutions;

9. Librarians should be aware of new in green library initiatives and.

10.UGC should take steps to improve library buildings in academic institutions and convert them green libraries by providing grants.

Conclusion

The daily operations of a library, like any business, can be made more efficient. Creating more sustainable library operations reduces a library's carbon footprint, minimizes waste generated, and reduces inputs. In the long-term however, it also generally saves the library money, saves employees time and attracts patronage .

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