

GREEN LIBRARY - SPACE AND DESIGN

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ABSTRACT:

Developing a Green building is the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building life cycle from the selection to design operation. The central goal of green buildings are to produce physical structures that from their initial conception and design, and it extend to include efficient use of energy water and other resources as well as the reduction of waste, pollution and environmental degradation. Green approach to buildings recognizes the critical importance of protecting the building occupants healthy and dressing factors, such as air and lighting quality. LEED (Leadership in Energy and Environmental Design) is a non- profit international organization give points based green building certification. Buildings are a series of systems including the structure not just the structure or the form and shape of the building. Green must be sustainable to be successful. It is not an instantaneous thing. Green Design must be measurable interims of performance.

KEYWORDS: Green Materials, Green Roof Energy efficiency, Green power and Renewable Energy, Indoor environment quality, recycle. Solar Energy.

I. INTRODUCTION:

“GREEN” -----The word is very much concerned over global warming and we want everything to be “Green” to save the planet. Green Design is an emerging trend for library building too. Explains term “Green” and special challenges met by Libraries to be Green. Points out steps are involved such as Site Selection, Water and Energy Conservation, building materials and indoor Air quality. This paper discusses on various aspects of Green Libraries space and design and some National, International initiatives also..Suggests for proper planning of building with solar energy system and roof Water harvesting etc. Libraries are so valuable that they attract voracious new competition with every technological advance. Green buildings are not only saving money interims of energy but also interims of health productivity; it gives less expensive because of reduced upfront costs energy and water conservation and increased efficiency also. Green approach to Library buildings recognizes the critical importance of

protecting building occupants healthy and dressing factors such as Air quality and light also.

The discussions around green Libraries has been largely limited to the buildings (i.e.) to subjects like the energy efficiency of new construction and basic renovation. However, we cannot rebuild all the libraries, but we can make them energy efficient, and we have to find the other ways. Libraries have to operate environmentally now and in existing buildings and without new resources. The successes of a building must be measured over a long period of time. Green design must be measurable in terms of performances. Green Library Buildings are not only valuable; it can also serve as excellent vehicles for launching broader community conservation about environmental issues.

II. OBJECTIVES:

- ✓ Economical: It is important to compromise the goals and performance of the building when managing the cost.
- ✓ Functional: A successfully designed building will function as an integrated system.
- ✓ Performance: Meeting performance objectives also means that owner’s functional requirements for the buildings are met, as well as the psychological needs of those who occupy the space.
- ✓ Sustainable building not only considers the environment, but also sensitive to the needs of the users.
- ✓ Safety: Designing a secure and safe building is critical to any project and requires a proactive approach that foresees risk and protects against it.

III. REVIEW OF LITERATURE:

Libraries are not far behind in Green Environment. The point has to be discussed with the need for variety of reader’s space. And are also worth mentioning on the subject.

1. SITE SELECTION: It is very necessary for a green building as compared to the other type of buildings.

2.WATERCONSERVATION:Use of roof water harvesting, green toilet, water recycling etc, can save lot of water for proper landscaping and greenery in and outside of the Library building..

3. ENERGY CONSERVATION: Use of wind and sun can manage temperature and light in place of electricity. It saves slots of natural resources like coal and emission of harmful gases like Co2 which will be helpful in reducing global warming. It is economic to the institution in electricity Bills.

4. BUILDING MATERIALS: Less use of wood will save many trees, use of locally available transport for save the cost and fuel.

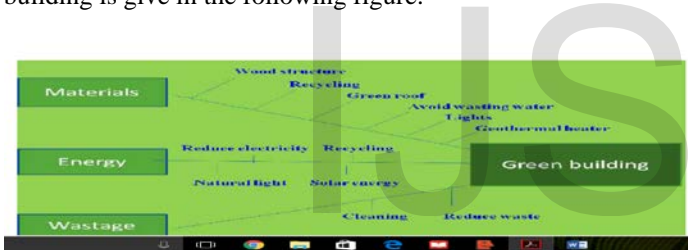
5. INDOOR AIR QUALITY:

Lack of ventilation at public place can cause many harmful effects such as bacterial infections etc., The following are the Green Design elements which can be incorporated into Libraries.

- a) Community collaboration.
- b) Green Roof., Green materials.,
- d) Raised floor systems,
- e)Energy efficiency.,
- f)Natural ventilation. ,
- f) Green power and renewable Energy
- g)Indoor Environment quality.

IV. RESEARCH METHODOLOGY:

Some of the techniques on materials energy and waste management that can be adopted for greening the library building is give in the following figure:



Leadership in Energy and environmental Design (LEED) certification: The LEED green building rating system was developed and is administered by the U.S. Green Building Council (www.usgbc.org), a Washington D.C based, non-profit coalition of building industry leaders. It promotes design and construction practices that reduce the negative environmental impacts of buildings and improves the health of the people who occupy the buildings. LEED focuses on how the entire building impacts the environment by focusing on the following six areas, points are earned in each area toward a certification level.

Sustainable site development.....14 possible points, Water efficiency....5 possible points. Energy efficiency.....17 possible points, Materials selection....13possible points. Indoor environmental quality....3possiblepoints.,LEED innovation credits....5possible points. Certifications are ranked using the following scale:

Certified 26-32 points of or>37% of max.,

Silver 33-38 points or.47% of max

Gold 39-51 points or 56% of max

Platinum 52-69 points or >75%of max.

The majority of items that count toward LEED certification are related in design and mechanical and electrical support infrastructure, rather than specifically in the computing portion of a data center.

Methods	Subjects (number of respondents)	Years
space observations	numbers of individuals and groups, activities, and furniture and technology use in Bissett Collaborative Center and the library as a whole using Excel and SUMA space observation tool	2008, 2012, 2014
surveys	furniture (n=29, 34, 399), furniture color, whiteboards (n=29), software and hardware (see usability tests and surveys), signage (n=32), and pre and post-redesign satisfaction (n=105, 54)	2008, 2012, 2014
interviews	collaborative (n=6) and individual study preferences (n=43), space reservation systems (n=28), furniture (n=43), signage (n=28)	2012, 2014
usability tests and surveys	Teamspot (usability tests: n=15; survey: n=29), Clickshare (tests: n=8), Media:scape (tests: n=8), and Crestron Airmedia (tests: n=7) collaborative screensharing systems; LibCal and DIBs reservation systems (n=11); laptop docking stations (survey: n=25)	2008, 2012, 2014
environmental scan and visits to other facilities	visits to Duke, North Carolina State University, Georgia Tech, Emory, University of North Carolina-Chapel Hill, University of Massachusetts Amherst	2014
photo diaries	favorite and least favorite spaces for individual and group study, socializing, talking with professors, etc.; use of technology for individual and group study (n=7)	2012
ideal space design exercises	drawings of and interviews on ideal collaborative space (n=45)	2012
work with students in our Design and Environmental Analysis department	pre-and-post occupancy evaluations, space observations, surveys, ergonomic evaluations of furniture, and literature reviews	2006-2008, 2009, 2012, 2014
focus groups	service points and signage (n=18)	2014

Note: Methods from Council on Library and Information Resources participatory design workshops, the University of Rochester and the Ethnographic Research in Academic Libraries projects, the EDUCAUSE Learning Initiative Discovery Tool: Student Input on Learning Spaces Tool, and the Learning Space Toolkit.*

V. RESULTS:

Though the collection is a great deal of information, the data did have some initiation. Since the study of Library Learning space and design are different and specific for Green Libraries.

Innovation in design to evaluate the Library’s cleaning and maintenance, routine identify and reduce the use of hazardous chemicals. Book displays are also as an excellent educational tool of practical books and DVDs on living simply, building green homes, or residential use of renewable energy increases dramatically when they are displayed in the Library. The two most important things are making healthy and prosperous sustainable. Libraries are economy and ecology. The Green Libraries can manage the use of resources and save money and time. They can keep the relationships between living things and their environment and can make eco- friendly environment Objects.

VI. FINDING AND SUGGESTION:

Some of the technologies on materials for greening the Library waste management that can be adopted for the Green libraries are given below:

Materials & Equipment:

Use Eco friendly light bulbs which will save money and electricity.

Use Laptops which use less Electricity than laptop versions.

Promote of roof vegetation Use of natural pesticides for preservation of books strategically placed windows will provide natural light and may help heating and cooling costs Energy find efficient CPUs, compare producing far more energy efficient CPUs.

Motion and Light sensors timers and Energy saving dimmers can be easily and in expensively retrofit to existing buildings. Waste management: Recycle computers can be used. Get rid of waste by composting and stop using plastic bags. Start paper drive. Ask the members to bring old newspapers for recycle; it may turn into a new book.

Suggestion: Awareness about the Librarians green activities through social media or other methods regularly. Sustainability in Library buildings should be taught Library Information Science students so that new generation will adopt this idea some sign boards should be reflected to make awareness on Green Building on Library maintenance. In India Green Concepts were implemented in parnasala, where they wrote in leaves than using other materials.

Locally available environmentally friendly materials should be promoted for constructing Library Buildings. Saving Energy: Building designed to be 25% more energy efficient than required by Government norms strict energy efficiency standards. Raised floor provides under floor circulation, maximizing heating and cooling efficiency. Saving water outdoors, Bay friendly Landscaping with smart irrigation and drought tolerant plants save about 50% over conventional landscaping. Indoors: water efficiency plumbing fixtures save more than 40%. Reducing waste: More than 75% construction debris was recycled. Sustainable transport is also very important to bring the building materials. Local transport and preferred to parking fuel-efficient vehicles.

Buying Green: to provide healthy indoor air for children and Adult. Purchase of paints, carpets and furniture designs to minimize the release of harmful chemicals into the air. Recycled -content building materials included street framing ceiling tiles and concrete.

Green Cleaning:

To maintain a healthy indoor environment for Library users and employees, janitors use green cleaners and micro fiber cloths, which trap dust. Entryway mats reduce tracked in dirt and pollutions.

VII. GREEN INNOVATION:

By doing the survey with the users of Library, mainly with the students to make the Library with green the following are the main ideas.

Regarding furniture students want more lounging, reclining and relaxed furniture with a bit harder and have arms and back support. In our ideal space design exercises mentioned mobile or retractable walls/partitions that could convert larger group

spaces into smaller ones in a flexible movement and low portions between individual study tables for greater privacy. Ambience was cited for students, students like modern new open clean productivity, Natural light (including skylight) and central atrium. They want water features in our ideal spaces design exercises include elements such as fountain, ponds fall, in floor aquarium and so on, they like pleasant colors. Digital calendar like the use of apps, of the students has fairly elaborate personally specific systems for keeping track of their commitments. Overall students welcome Google Documents, and word. They like word. Since word is the professional option for turning work with Professors. They like Green computers and modern laptops which are the energy efficient.

VIII. CONCLUSION:

Green Library buildings are not only saving money in terms of energy but also interims of health productivity and moral employees. A green design is less expensive because reduced upfront costs energy and water conservation and increased efficiency. Libraries are the area where most of the students of an academic institution visit for most of the days in a year, so they are responsible for and calculates all that. All questions need for a change in mind set to improve intend to support to campus. We request the system to be more conscious about Library buildings to support Green Library initiatives but with caution and proper case because excess greening and moistures can damage books. Solar software package programme which build 3D model of the Library and calculate in mind set in improve the health of heart of an institution, the world Best Green Libraries are CROSS VALLEY Library. In U.S.A and ANNA CENTENARY library. Both are having the space and design which have the full Green concepts. The field of intelligent buildings, intelligent homes and Building Management Systems (BMSs) encompasses an enormous variety of technologies, across commercial, Industrial, institutional and domestic building, including energy efficiency management systems and building control. In association with environmental legislation and standards, Health and Safety Regulations and Global trends towards improving indoor air quality standards are also significant drivers of the need for BMSs and intelligent buildings to create GREEN LIBRARY space and Design in an extraordinary manner to keep the environment ECO FRIENDLY manner.

IX. GREEN LIBARAY IN INDIA:

India's LEED Gold Anna Centenary Library is the Largest and Greatest Green Library in Asia. The cavernous space can accommodate well over thousand readers at a time and 1.5 million books. The library was built from the ground up with conservation in mind. Special care was taken to select sustainable materials; more than 60% are locally sourced and recyclable. Natural lighting is a key player in the design. Waste water is reused on the ground and naturally educational material is placed throughout the space to raise awareness of how the building works. Anna Centenary Library is the finest example for Green Library.

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Achievements;

I Have done post-graduation in Vaishnavism from Madras University. In my pursuit to achieve the best educational bench mark I am perusing my Research In Green Library Digitization.

I am a very successful mother and wife, both my children are best qualified and are at United States Of America

Various articles have appeared in leading Magazines on my capabilities and achievements.

The organization “ **SPRING ACADEMY**” is my brain child. The mission of Spring academy is to take to the society subjects of social interest and empowerment of women with activities that make them financially independent

Spring Academy has conducted various programs for spastic children, differently abled people , National seminars on Digital Library and have actively involved various women group in various marketing activities.

I manage events that are focus on social subjects, I am in realty business and and spend all my time effectively.