UNIVERSITI TEKNOLOGI MARA

conference proceeding

SIMPOSIUM NUSANTARA 9

THE 9TH REGIONAL SYMPOSIUM OF THE MALAY ARCHIPELAGO

Revisit Islamic Civilization and Built Environment In The Malay World

11 & 12 December 2012
Al-Khawarizmi Lecture Hall
UiTM(Perak)

Organized by:
Centre for Knowledge & Understanding of Tropical Architecture & Interior (KUTAI)
Centre for Islamic Thought & Understanding (CITU)
Faculty of Architecture, Planning & Surveying (FSPU)
Universiti Teknologi MARA (Perak)
http://perak.uitm.edu.my/simpora9

KUTAI FSPU

PAPER CODE : ST525

GREEN BUILDING CONCEPT FOR CHILDREN ACTIVITY CENTRE; INCENTIVE FOR KEY PLAYERS

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Abstract

Barriers to certification included problems with the documentation process, a lack of education, and costs associated with government. To implement the Green Building Concept, government and private should combine together to give an incentive to the key players who use the GB Concept in their development. All the building should registered with the council to look the rating for their building. Pertubuhan Arkitek Malaysia(PAM) whose introduce the concept of the green building in the construction industry. They have many criteria to give the rating for any building such as in Leadership in Energy and Environmental Design (LEED) Rating System. For example, an integrated design process, environmental impacts, water conservation, energy efficiency and etc. Based on the criteria, how it can be apply in the Children Activity Centre. This concept can give more comfortable to children during the learning process. This concept also can give advantages to environment and community because it can save on the cost of maintenance and also it can provide a private space to the children. The tool used to achieve best practice in this research is benchmarking for efficiency.

Keywords*:* Sustainability, environmental effect, waste material, energy efficiency, energy saving

1. Introduction

According Mattson (2007) green building is a term used to describe a building that is more energy and resource efficient, release less pollution into the air, soil and water and is healthier for occupants than normal buildings.

Green building has four key benefits over the design and construction of standard buildings. Firstly, environmental benefits typically comprise the primary reason for the design and construction of green building (Mattson, 2007). Secondly, green building can reduce costs to the owner and occupier over operational life- cycle of the building because of energy efficiency savings, water efficiency savings, mechanical equipment downsizing, reduce insurance and liability cost, building value and demolition and site clearing costs (Yosh, 2002). Thirdly, Heerwagen (2000) pointed the better indoor air quality working environments in green buildings can increase profitability by increasing customers' satisfaction, increasing productivity by up to 16 percent and reducing employee absenteeism by as much as 45 percent. Fourthly, the construction of green buildings provides benefits by presenting a positive image and reputation. Green building has gone main stream because it makes good business sense. It involves consideration of factors such as indoor air quality, energy consumption, materials, water use, and location (Miles and David, 1996).

In order to achieve the green building concept a variety of assessment programs were developed. The first environmental certification system was introduced in 1990 in the UK: The Building Research Environmental Assessment Method (BREEM), and brought to Canada in 1996. The U.S. Green Building Council (USGBC) introduced its own rating in 1998: Leadership in Energy and Environmental Design (LEED) Green Building Rating System. In 2004, the Green Building Initiative (GBI) adapted the Canadian version of BREEAM to create Green Globe^{TM} and began distributing it in the U.S. market in 2005 (Heetwagen, 2002).

Malaysia have five of commercial buildings which is used the part of green building criteria, including Mesiniaga Tower, Low Energy Office (LEO) Building, Putrajaya , PTM Zero Energy Office Buiding, Bangi, and Securities Commission Headquarters, Kuala Lumpur.

2. Problem Statement

Malaysia is still lagging behind on the green building development compare to other country such as Australia, United Kingdom and New Zealand. According to the Construction Industry Development Board Malaysia (CIDB)

(2007), the issue is that the key players want to reduce cost of project so they do not want to develop green building because of the high cost. They should focusing for the future to be applied in the construction industry.

The other countries like United Kingdom, Australia and New Zealand, and come out with the motivation to encourage the key players such as developer, architecture, contractor and so on to involve in this development by giving the incentives such as tax incentives, grants and loans.

CIDB also points out Malaysia still have the national plans to use the green building development such as the Implementation of Malaysian Building Integrated Photovoltaic Programme (BIPV) in 2005, The National Solar, Hydrogen and Fuel Cells Roadmap 2004-2050, Malaysia Energy Centre, 2004 and Suria 1000 programme for incentives measures for using solar energy in housing. Apart from that, Malaysia also has their initiative for energy efficiency which is renewal energy and sustainable energy.

Most of the commercial buildings in Malaysia are not so green because they are not using all the criteria of the green building concept. For this situation, government should give a motivation for the key players to implement a green building concept such as an incentives likes other country have done.

3. Literature Review

3.1 Definitions of Green Building

Green building is an outcome of a design which focuses on increasing the efficiency of resources use energy, water and materials while reducing building impacts on human health and the environment during the building's lifecycle, through better sitting, design, construction, operation, maintenance and removal (Francis et.al, 2009).

Green buildings are ones that use resources more efficiently, generally have a smaller carbon footprint and offer a level of cost effectiveness that is superior to conventional buildings. Green buildings confer both financial and social benefits directly to their stakeholders and indirectly to the general public (Wilson et.al, 1998).

Green building is a concept that can lead to reduced operating cost by increasing productivity and using less energy and water, improved public and occupant health due to improved indoor air quality and can reduced environmental impacts (USGBC, 2004). Green building are designed to reduce the overall impact of the built environment on human health and the natural environment by efficiently using energy, water and other resources, protecting occupant health and improving employee productivity and reducing waste, pollution and environmental degradation (Mattson, 2007).

Green building use key resources like energy, water, materials and land more efficiently than buildings that just built to code. With more light and better air quality, green buildings typically contribute to improved employee and student health, comfort and productivity (Yudelson, 2008).

3.2 Key players

The key players are the important bodies in construction industry for building development. The key players are included developers, local authority and also the investor. All the development will be develop by them to make sure the buildings have a safety aspect for occupants, produce a high quality of building, aesthetic value and follow all the building development standard and specification (Francis, et. al, 2009).

3.2.1 Local authority strategic housing role

The Local Government White Paper, Strong and Prosperous Communities identified the need for local authorities to take a more strategic approach to building as part of their place shaping role. By ensuring that housing is of the highest quality, located in the right place with the necessary infrastructure and support, local authorities can create vibrant and mixed communities (S.Ahsan, et. al, 2009).

The Housing Green Paper, Homes for the future: more affordable, more sustainable called on all Local Authorities to play a stronger role in addressing the building needs of all occupants. It encouraged authorities to develop their strategic building role by using the full range of building and land use planning powers. They should be working with partners to meet needs of occupants by ensuring the delivery of new and affordable housing whilst making the best use of existing stock. The strategic building role requires vision, leadership, planning and delivery to:

- Assess and plan for current and future housing needs of the local population
- Make the best use of existing building stock

- Plan and facilitate new supply
- Plan and commission building support services which link homes to support and other services that people need to live in them
- Have working partnerships that secure effective building and neighborhood management.

By contributing to place shaping, strategic building activity can help to deliver improved services (including health, education, social services); a safe environment; accessible transport; a strong sense of community; and a decent home for all at a price people can afford.

3.2.2 Developer

Within the development environment, one or more developers use development tools such as Microsoft Visual Studio 2005 or Microsoft Visual Studio 2008 and the Microsoft .NET Framework version 3.0 on individual workstations to create developed site elements such as Web Parts or workflows (S.Ahsan, et. al, 2009).

Developers perform the following tasks:

- Create new designed site elements.
- Modify existing designed site elements.
- Complete unit testing of designed site elements.
- Submit designed site elements to the software configuration management environment for maintenance and deployment to other environments.

In deployments without any need for developed site elements, this role is not necessary.

3.2.3 Investor

Investors are increasingly seeing socially responsible investment as a priority and developed countries are increasingly recognizing carbon emissions as a real cost. The importance and awareness of such non traditional cost is growing, with many companies and individuals concerned about green building environmental aspect. If, in the future, a tax is imposed on energy consumption, a more energy efficient building will incur a lesser impact (Francis, et. al, 2009).

3.3 Green incentives

Incentive is a factor that motivates a person to achieve a particular goal. People need positive incentive to encourage them to exercise regularly and to eat healthily (Ziche, 1990).

Green incentive is an analysis of the current state of green building incentives at the state and local level. The key players included developers, investors, and owners and so on. The purpose of green building incentives that have wide appeal in the private and public sector and further encourage the construction of green building by establishing them as the smartest choice in new development (Purnell et. al, 2008).

3.3.1 Tax Incentives

Tax incentives are one of the most robust and widely used forms of incentives to promote beneficial practices. They are particularly suited to green building projects because they can be offered for specific levels of green building certification and for both short and long term goals. These incentives can be offered in any of the following areas:

- Corporate tax- tax levied on the profits made by companies or associations
- Gross receipts tax- tax levied on the total gross revenues of a company which is charged to the seller of goods
- Income tax- tax levied on the financial income of persons, corporations or other legal entities
- Property tax- tax levied on the value of property
- Sales tax- tax levied on goods and services which is charged at the point of purchase

- Local tax- tax levied from cities and counties

Tax is the most flexible incentive because municipalities have the opportunity to approve a number of green performance standards and allocate the abatement to any tax jurisdiction. It is important to remember that many developers or owners have different priorities depending on whether they are small developers, large developers, and short- term investors, developers who want to maintain several properties, building owners, corporate building tenants or residential building tenants. These parties have divergent interests and needs and tax incentives should be available to entice each group (Mirko and Elliot , 2008).

3.3.2 Grants (Including fee subsidization)

Jurisdictions may also consider grant programs, which can offset some of the increased development costs that arise to subsidize the cost of certification or as lump sum amounts applied to the total cost of the building. These incentives are typically awarded in a single, monetary contribution. However, grant programs raise many of the same concerns as tax abatements and therefore should be designed with enough flexibility for all parties to benefit.

3.3.3 Loans

States and municipalities can establish a loan fund to be used specifically for green improvements. This type of program requires an initial investment and start- up cost, but generally these incentives have proven profitable in the long run.

Jurisdictions can use performance contracting to provide loans at reduced interest rates to developers that agree to build to specified green standards. This method appeals to developers who can repay the loans through increased appraisal value of the green building as well as owners who are able to repay the loan through future energy savings (Mattson, 2007).

4. Objective

In accordance with the research aim, the objectives of this study are:

a) To identify the benefits of waste material used as a main material for children activity centre building.
b) To investigate the motivations of the key players in developing of green building.

5. Research Design

Primary data and secondary data were collected for analyzing the present study. A total of 25 samples were distributed with a questionnaire. The questionnaire will be distributed using three methods which are by hand, by post, and by email. The collected data were analyzed with suitable statistical tools.

Secondary data for the information will be collected from various available resources such as:

1. Literature review from books, journals and so on.
2. Published material from news paper, magazines and journals.
3. Internet sources also can be use by exploring the related website.

6. Data Collection Techniques and Procedures

a) Questionnaire Sample of Study

Qualitative researcher usually works with small samples of people which is more depth, unlike quantitative researchers, who aim for larger numbers of context and seek statistical significance also have logic and coherence that random sampling can reduce to un-interpretative sawdust *(Miles and Huberman, 1994).*

At the end, a sample of four organizations of different roles was selected. These organizations were from a wide range in construction industries. The initial selection of respondents randomly choose dividing by three key players which are developers, investors and local authorities, it's about 25 people.

b) Unit analysis

This study more focusing on the actors in construction industry including the developers, investors and local authority. The focus group was selected based on their previous experiences on the green building project.

The scope of area is around Ipoh and its more widely to all the construction players in Malaysia. Besides that, it will be selected among the construction players in Malaysia which has been involve with the green building projects, local authority and investors.

c) Size

Within the time constraint the population size in this industry is too big, so the study is limited to the convenience sampling of randomly choose from the developers, investors and local authorities in area of Ipoh. These three's organizations are the main people in building development.

7. Analysis And Finding

All the findings come from the questionnaire that was distributed to the specific respondents. The respondents were including investors, local authorities and developers and consultants who involve in construction industry. The survey was designed to answer the questions as well as collect some general information concerning the contact person.

Table 5.1 Giving an incentives

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not sure	2	11.8	11.8	11.8
	Agree	14	82.4	82.4	94.1
	Strongly Agree	1	5.9	5.9	100.0
	Total	17	100.0	100.0	

The table above shows the result which is the most of the respondents agrees with the incentive if given. The result is at 82.4% which is agree to subsidize the cost of certification and 11.8% of respondents are not sure on that incentive.

Table 5.2: Key players role to increase green building concept cross tabulation

			Key players role to increase green bldg concept				
			More campaign	Involvement of all players	strong enforcement by authority	Increase green knowledge	Total
Company	Developer	Count	0	1	2	1	4
		Expected Count	.5	1.4	1.6	.5	4.0
		% within Company	.0%	25.0%	50.0%	25.0%	100.0%
		% within Key players role to increase green bldg concept	.0%	16.7%	28.6%	50.0%	23.5%
		% of Total	.0%	5.9%	11.8%	5.9%	23.5%
	Investor	Count	0	2	1	0	3
		Expected Count	.4	1.1	1.2	.4	3.0
		% within Company	.0%	66.7%	33.3%	.0%	100.0%
		% within Key players role to increase green bldg concept	.0%	33.3%	14.3%	.0%	17.6%
		% of Total	.0%	11.8%	5.9%	.0%	17.6%
	Local Authority	Count	1	2	4	0	7
		Expected Count	.8	2.5	2.9	.8	7.0
		% within Company	14.3%	28.6%	57.1%	.0%	100.0%
		% within Key players role to increase green bldg concept	50.0%	33.3%	57.1%	.0%	41.2%
		% of Total	5.9%	11.8%	23.5%	.0%	41.2%
	Consultant	Count	1	1	0	1	3
		Expected Count	.4	1.1	1.2	.4	3.0
		% within Company	33.3%	33.3%	.0%	33.3%	100.0%
		% within Key players role to increase green bldg concept	50.0%	16.7%	.0%	50.0%	17.6%
		% of Total	5.9%	5.9%	.0%	5.9%	17.6%
Total		Count	2	6	7	2	17
		Expected Count	2.0	6.0	7.0	2.0	17.0
		% within Company	11.8%	35.3%	41.2%	11.8%	100.0%
		% within Key players role to increase green bldg concept	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	11.8%	35.3%	41.2%	11.8%	100.0%

This table shows that 41.2% of the respondents give a suggestion should have "strong enforcement by the authority". This is very important because, every single project will be approved by the local authority. From the result 35.3.1% of respondents gave their suggestion of all players in construction industry to give their full involvement, 11.8% of respondents suggested increase the green knowledge and having more campaign to promote the green building concept. It is necessary to give the overall view of the advantages of green building concept.

CONCLUSION AND RECOMMENDATION

From the analysis that had been carried out, its give a positive result to achieve the objectives of this research. Malaysia need to make a positive improvement to implement the green building concept in Malaysia because Malaysia still lagging behind.

The motivations for the key players are very important to encourage them to use this green building concept. From the research it shows that, majority of the respondents (key players) agree with the incentives that can be given to them.

Public education has always been the purview of the public sector and is critical to accelerating the market transformation to green building. Be sure that local ordinances are followed explicitly in the process of adoption. Local workshops may be useful in less formal discussion of proposals in anticipation of the formal review process. Before attempting to pass an ordinance or resolution, it is important to make sure there is solid support from the affected range of local staff, including the attorney, and elected officials for green building (Leveland, et. al, 2005).

Green building is a quickly moving trend with a need for continued research. Future research on green building is needed to focus on the development of strategic plans and policies, building standard and costs benefits. Finally, all the key players have to play their obligation to increase the green building development in Malaysia.

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