

2009

Green Building Practice in UAE-
An Architect's Perspective



building green

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OUTLINE OF REGULATORY AUTHORITIES IN DUBAI

Dubai area is divided into 3 sections, governed by different Authorities viz. Dubai Municipality, TECOM (Dubai Technology and Media Free Zone Authority) and JAFZA (Jebel Ali Free Zone Authority). Each Authority is enforcing the Green Code independently.

I have been managing projects in the JAFZA jurisdiction; therefore my experience has been with this Authority. The Projects in the JAFZA area have been governed by JAFZA regulations and EHS (Environment Health and Safety Division). The EHS Authority has made it mandatory to achieve a minimum of 32 credits in the LEED certification. Some Master Developers like NAKHEEL, who are developing the three Palm developments (namely the Palm Jumeriah, Palm Jebel Ali and Palm Deira), have a mandatory regulation to achieve GOLD rating LEED certifications.

The Green building regulations have come into effect in line with H.H. Sheikh Mohammed bin Rashid Al Maktoum Vice-President and Prime Minister of UAE and Ruler of Dubai directive of Green Dubai 2008. All new constructions after January 2008, to be compliant with 32 credits.

The Emirates Green Building Council was formed to this effect. But the EGBC has adopted the norms as laid down by the US Green Building Council. The norms are being modified and adapted to suit the climatology and local environment.

One of the first building to be rated the Platinum rating by the USGBC was the Pacific Control Building in Jebel Ali, Dubai.



We Created History.

1st Platinum Rated Green Building in the Middle East & 16th in the World.

Pacific Controls Headquarters

Main Features • 90 Tons of Solar Powered Air-conditioning • 50 KW of Solar Powered Lighting • 100% Waste Water Recycling • Recycled Construction Materials • Environmentally Friendly Materials • Indoor Environmental Quality - Low Emitting Materials • State of the Art Fully Transparent Web Enabled Building Controls • Wireless Mesh Networking Enabled Building Controls • M2M (Machine to Machine) Connectivity Enabled • Device to Enterprise Connectivity • Distributed Hardware and Software Architecture

PV Solar Panel for Lighting | Absorption Chiller for Solar Thermal A/C | VFD Panels for Energy Efficiency | Sewage Treatment Plant for Water Recycling | High Efficiency Screw Chillers for HVAC | 24x7 Monitoring Centre for BMS & Facilities

Pacific Controls is proud to be the winner of The BuilConn, Buildy 2007 Award

for the Best Intelligent Building in the World, awarded to us in Chicago, IL, USA, on 24th May 2007.

www.builconn.com

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Benefits of Green Building

Environmental benefits:

- Enhance and protect ecosystems and biodiversity
- Improve air and water quality
- Reduce solid waste
- Conserve natural resources

Economic benefits:

- Reduce operating costs
- Enhance asset value and profits
- Improve employee productivity and satisfaction
- Optimize life-cycle economic performance

Health and community benefits:

- Improve air, thermal, and acoustic environments
- Enhance occupant comfort and health
- Minimize strain on local infrastructure
- Contribute to overall quality of life

I have been handling a project of 2 Basements+Ground+Podium+21 Floors on the Palm Jebel Ali for a Private Developer. Since this project is on the Palm Jebel Ali, Nakheel, the Master Developer has insisted that the project achieves the “GOLD” rating.

We have thus incorporated a number of provisions to achieve this rating, on the advice of our Sustainability Consultants (LEED Consultants), which is required by law.

Some of the features used are:

1. Recycling of the waste water (grey water) from Wash hand basins and washing machines to be used to flush toilets.
2. Storage of storm water for irrigation purpose.
3. Use of vegetative roof (i.e. roof gardens) to minimize the radiation of heat to structure.
4. Use of reflective glass for the exterior glazing (of the approved specification by Green Building standards) to reduce heat intake.
5. Provision of cycle stands.
6. Energy saving Lighting.
7. Thermal Comfort Design.



EMIRATES GREEN BUILDING COUNCIL- ESGBC

Mission Goal Statement and Objectives-

Providing awareness on the importance of sustainable management of the environment

- Disseminate information and stand as relevant national source of expertise on green buildings
- Keep members and public informed on the latest developments and events, and uphold regular updates

Fostering collaboration between all sectors of property and construction industry, government, academic institutions and other stakeholders to transform the UAE built-environment to be Green Building model

- Encourage effective interface between stakeholders to ensure the fostering of sustainable policies, products and services
- Ensure Green Building initiatives are recognized, valued, maximized, maintained and enhanced
- Work with industry, government and all concerned (individuals and corporate) to remove barriers to sustainable development and create real incentives to change industry practices

Providing a venue for vibrant participation of all concerned to develop Green Building solutions adapted to suit the culture and architecture of the UAE

- Introduce membership programme to promote Green Building initiatives
- Undertake professional development programmes by hosting seminars, workshops, conferences and events to expand industry knowledge on Sustainable/Green practices and technologies

Establishing a Green Building Model, encompassing standards and best practices appropriate for the environment of the UAE, for the region to follow

Message from the Chairman- Ali bin Towaih

“I wish to reaffirm the council’s commitment to promote high-performance ‘green buildings’ and environment-friendly technologies. The council has introduced various initiatives in pursuit of its mission. One of the success stories so far has been the LEED workshops, which has contributed

tremendously in increasing the awareness level on green buildings and sustainable development. Moving forward, the council will continue with these workshops and introduce many new activities to strengthen our mission.

We have seen the proactive role played by the Government in driving the development of green buildings industry in Dubai and in Abu Dhabi. In Dubai, it is His Highness Sheikh Mohammed bin Rashid Al Maktoum, UAE Vice President, and Prime Minister and Ruler of Dubai's Green Building resolution of November 2007, which is part of Dubai Strategic 2015 plan. And in Abu Dhabi, the Government launched the Pearl building rating system, Estidama, in May 2008.

Now that the Government support has been clearly demonstrated, the industry's role is vital to realize the goal.

The EGBC's main objective this year is to align our members from the industry with local and federal Government initiatives. The partnership will be the council's way of conducting business with its stakeholders in addition to its role in increasing public awareness.

The council will target the following industry players to help them in understanding 'green buildings' in depth:

- Building Product Suppliers & Manufacturers
- Building Developers, Occupants, and Real Estate Brokers
- Real Estate Financial Sector and Insurance Firms
- Professional Groups
- Design, Architectural, Engineering and Techno mechanical Firms
- Contractors
- Utility companies
- Universities and Technical Institutes
- Local Government Departments
- Federal Government Ministries
- Building Control Service Contractors and Manufacturers
- Facility Management Companies"

What is a Green Building?

A 'Green Building' means incorporating excellent practices that result in environmental protection, energy efficiency, water conservation, usage of renewable energy and clean / recycled products.

Green Building has six major added values notably:

- 1) increase performance by more than 30%;
- 2) reduce absenteeism by 15% compared to conventional buildings;
- 3) reduce building-related illness;
- 4) increase occupant productivity;
- 5) increase life cost cycle of the building and
- 6) Improve health condition.

The drive for the Green Building Initiative in the UAE

Recent statistics published by Ministry of Economy & Commerce showed that Dubai power consumption in 2004 alone was 16,363 Gigawatts-hour of which 70% was utilized in commercial and residential buildings (Source: Gulf News, June 10, 2005). With the skyrocketing construction boom this figure will be increased or may be doubled in the next 5 years thus; clean and renewable energy should be incorporated in buildings to reduce the dependence on the grid and consequently decrease CO2 emission. Hence, High-performance Green Building is the solution to energy efficient buildings, conservation of water, provide healthy indoor environment and improve productivity of occupants. In a more close aspect green Building concept is important at it provide Indoor Environmental Quality (EIQ) notably indoor Air Quality (IAQ). The U.S. Environmental Protection Agency (EPA) has estimated that the US spends in direct medical cost attributable to IAQ. Considering the intensive volume of cooling load the Gulf and particularly in the UAE due to Air-conditioning use to keep buildings cool IAQ become a vital issue to ensure that healthy environments are kept are highest levels.

One of the recent major developments in Europe to protect the environment through dependence

on clean and alternative energy as a source of generating power is the building of a 200-foot blade built in Denmark for a turbine 600 feet tall. This 5 megawatt titan, prototype for turbines to be erected off the coast of Germany, will average enough power for 5,000 homes. Another excellent example is seen in Leipzig - Germany where 33,500 solar array photovoltaic panels were built, one of the world largest arrays ever. This will generate 5 megawatt of power enough for 1,800 homes without the dependence on the grid (Source: National Geographic Magazine, August 2005).

**ENVIRONMENT, HEALTH AND SAFETY DEPARTMENT- JEBEL ALI FREE ZONE
AUTHORITY, DUBAI, UAE**

Green Building

In line with H.H. Sheikh Mohammed bin Rashid Al Maktoum Vice-President and Prime Minister of UAE and Ruler of Dubai directive of Green Dubai 2008, Trakhees-EHS developed Green Regulations in accordance with LEED guidelines. All new constructions effective January 1, 2008 must comply with Trakhees-EHS 32 mandatory points to obtain EHS NOC within Dubai World jurisdiction.

Minimum Requirements

The minimum requirements have been drawn from parameters of the US Green Building Council's Leadership in Energy & Environmental Design (LEED) Rating System. Independent accredited Certifying Agencies must approve these requirements before the project is finalized.

The range of the EHS Green Building Regulations covers the selection of the site for building, soil condition, air-water-sound pollution to prudent use of energy sources, building materials, recycling of wastes and transportation.

Points of credit — Silver, Gold and Platinum LEED Certification — will be awarded to buildings and projects based on the degree of adherence to Green Building parameters.

REFERENCES:

- 1. Emirates Green Building Council- EGBC- Website*
- 2. USGBC- US Green Building Council- Website*
- 3. EHSS- Environment, Health and Safety- Website*

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