

GREEN BUILDING CITY MARKET BRIEF

ABU DHABI UNITED ARAB EMIRATES



DRIVING STRATEGIES

Department of Urban Planning and Municipalities (DPM) - formerly known as Abu Dhabi Urban Planning Council (UPC) - has focused on sustainable urban development with a concerted emphasis on infrastructure capacity, community planning and quality of life.

Along with the Abu Dhabi Government Accelerators Programme, federal strategies such as the UAE Vision 2021 and the Green Economy for Sustainable Development Initiative serve as tools to drive progress of green buildings and sustainability in Abu Dhabi.

GREEN BUILDINGS

Green Building Rating Systems

Following the launch of the Estidama framework in 2008, the DPM developed the Estidama Pearl Rating System (PRS) in 2010, addressing four pillars of sustainability: environmental, economic, social and cultural. The PRS is mandatory for all new buildings in the Abu Dhabi Emirate. It is also the first mandated sustainability rating system in the Arab region.

PRS is mandatory in the Emirate for proposed new-construction villas, buildings and community projects that fall under the ownership of developers. The PRS has been integrated into the building permit process under various municipalities such that the construction of an applicable development is only possible if a project complies with the PRS requirements. The Executive Council Order of May 2010 states that all new applicable buildings must meet the 1-Pearl requirement starting in September 2010, whilst all government funded buildings must achieve minimum 2-Pearl rating.

In April 2017, Estidama launched a project registration process for developments that are part of the Development Review Stream (DRS) for Multiple Buildings or Multiple Plots master plan submissions. The project registration is the first step of the Pearl Rating Process (PRP) and aims to provide direct support and more specific guidance to stakeholders prior to their submission for the PRS Design Rating.

Existing Buildings' Retrofit

To support the growth of the retrofit market, Emirates Green Building Council (EmiratesGBC) commenced its **Building Retrofit Training (BRT)** Program in August 2017, based on the EmiratesGBC Technical Guidelines for Retrofitting Existing Buildings. In October 2018, the Advanced Level BRT Program was launched, aimed at industry professionals to provide them with information on retrofit methods to support ongoing retrofit projects and to streamline their technical capacity for more effective post-retrofit maintenance and preventive care.

As of February 2019, 67 individuals have completed the Introductory course and 24 individuals have completed the Advanced course.

SUSTAINABLE DEVELOPMENT

Energy Benchmarking

In January 2019, EmiratesGBC, in partnership with Dubai Supreme Council of Energy, published a report on energy and water performance for Dubai hotels, schools, and shopping malls. The aim

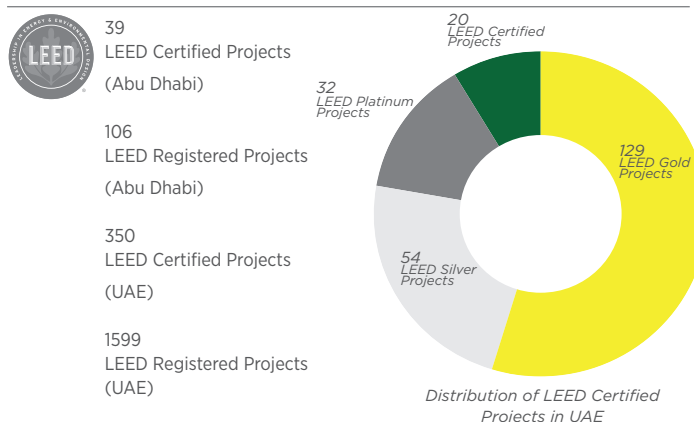
CITY DETAILS

Population (2016)	2.908 Million
Land Area (km ²)	972
Climate Action Plan	Yes

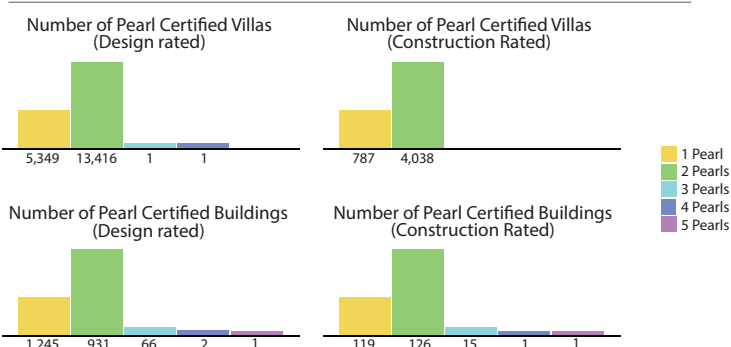
MEMBERSHIP AND PROFESSIONALS

EmiratesGBC Members - Individuals	31
EmiratesGBC Members - Companies	130
LEED Credentialed Professionals (UAE)	1935
Pearl Qualified Professionals (PQP)	2172

PROJECT BREAKDOWN



ESTIDAMA SPOTLIGHT - 2019



of this report is to establish benchmarks for the energy and water performance for those three building typologies and to advocate for carbon footprint reduction.

The median values of the 3 building typologies are listed in the following table.

Building Typology	Median Value
Hotels and Hotel Apartments Resorts	249 kWh/m ² /year 334 kWh/m ² /year
Shopping Malls	462 kWh/m ² /year
Schools	134 kWh/m ² /year

Energy Efficiency

In January 2017, Abu Dhabi Water and Electricity Authority (ADWEA) launched a Demand Side Management (DSM) program

under the name “Tarsheed” with the aim of reducing water and electricity consumption per capita by 20% by 2030. During Abu Dhabi Sustainability Week (ADSW) 2017, ADWEA unveiled Kafa’ati, a building retrofit initiative as part of the Tarsheed Program plan to introduce energy and water efficient technologies in commercial, government and institutional buildings.

The Emirates Authority for Standardization & Metrology (ESMA) is the federal body enforcing mandatory energy efficiency requirements and labeling systems on water fixtures, lighting, electrical appliances and air conditioners. In January 2018, ESMA announced plans to increase the minimum standard for pump efficiency to achieve 20% energy savings for water pumps.

Net Zero Center of Excellence

EmiratesGBC’s commitment to advancing net zero buildings in the UAE was done through a first-of-its-kind report Defining Nearly Zero Energy Buildings in the UAE – 2017, which provides a definition for nearly zero energy buildings in the UAE and highlights the challenges and opportunities for the development of net zero buildings in the UAE.

In 2018, EmiratesGBC formally established the Net Zero Centre of Excellence, a think tank and accelerator which provides a platform for public sector, academia, civil society and the private sector to learn and share knowledge on net zero buildings.

To support the uptake of Net Zero Buildings in the UAE, EmiratesGBC signed a partnership agreement with the International Living Future Institute to offer Zero Energy and Zero Carbon buildings certifications in the UAE.

Majid Al Futtaim – a pioneering developer in the Middle East and North Africa (MENA) region – became one of the first globally and the first in the region to sign up to the World Green Building Council’s Net Zero Carbon Buildings commitment, aiming to eliminate operational carbon emissions from all buildings in its portfolio by 2030.

Sustainable Transportation

The Department of Transport (DoT) - Abu Dhabi aims to deliver a world class, sustainable transport system using the Surface Transport and Master Plan. Among the list of planned projects is the Abu Dhabi Metro, currently in planning, which is intended to serve a substantial proportion of passenger trips and relieve traffic congestions on the highway network, as well as provide optimal connectivity.

The DoT also developed the Walking & Cycling Master Plan (WCMP) to promote alternative forms of transportation to enhance mobility and promote a healthy lifestyle. In 2019, DoT and the Abu Dhabi Future Energy Company, Masdar officially launched the first fully electric passenger bus in the region. The release followed the signature of a Memorandum of Understanding (MoU) between Masdar and DoT in January 2018 to cooperate in a study for testing and evaluation of sustainable, electrical and autonomous transport technologies in the emirate.

Renewable Energy

Established in 2005, the Masdar Initiative has led to the development and implementation of most of the renewable energy projects in Abu Dhabi. Shams 1 project, a 100 MW concentrated solar power (CSP) plant, is the most prominent one. In 2019, Abu Dhabi’s Department of Energy began operations at the world’s largest independent solar power plant, Noor Abu Dhabi. The plant is expected to generate 1,177 MW of energy.

To help in achieving the UAE’s clean energy target of 44% by 2050, the Regulation & Supervision Bureau issued a Small-scale Solar PV Energy Netting Regulation to allow customers in Abu Dhabi to benefit from producing their own solar power under a net-metering scheme.

Abu Dhabi also has a few major projects being built to address the 75% municipal waste recovery target under the UAE Vision 2021.

Some of those projects are a 100 MW waste to energy plant near the Mussafeh Sea Port, a 5 MW landfill gas to energy project, and a used cooking oil to bio-diesel production facility at the Al Dhafra Landfill.

Waste Management

Tadweer, the Center of Waste Management in Abu Dhabi, unveiled the Abu Dhabi Waste Master Plan 2040 in 2015 to curtail levels of waste over the next 25 years. The plan includes stepping up recycling, especially for motor oil, construction waste, used tires, plastics and food.

Tadweer also implements the Waste Management Strategy in the Emirate to establish a full cycle integrated waste management system to support Abu Dhabi’s aim of diverting 80% of its waste from dumping grounds by 2030.

In 2017, 30.6% of the total solid waste in Abu Dhabi was recycled and composted of its total 11 million tonnes of waste generated every year.

Since 2002, the annual Clean-Up UAE campaigns, launched by the Emirates Environmental Group (EEG), has brought together individuals, families, and organizations from both public and private sectors to participate in cleaning, waste segregation and recycling campaigns.

In 2018, Clean Up UAE collected a net 32.5 tonnes of waste from 5 emirates.

PROJECT SPOTLIGHT

Masdar Eco-Villa

Masdar City has developed a prototype villa that demonstrates leadership in sustainable design. The 405m2 Masdar Eco-Villa is the first villa to achieve a 4-Pearl rating according to the Abu Dhabi DPM’s Estidama Pearl Building Rating System. This is the result of a design that is 72% more energy efficient and 35% more water efficient than the traditional concrete structures that still form the majority of the Emirate’s housing stock. Masdar’s tests have also shown that the villas energy consumption outperforms more modern, code-compliant housing by 45% with an EUI of 97 kWh/m²/year. Photovoltaic panels were installed at the roof of the villa, making it a net zero energy villa.



Image Courtesy of Masdar and BuroHappold Engineering

REFERENCES

1. Emirates Green Building Council Membership Figures were retrieved on 01 February 2019.
2. LEED Professionals and Project Figures were retrieved on 01 February 2019.
3. Data provided by the A.D Department of Urban Planning and Municipalities – retrieved on 01 February 2019.