



UNITED ARAB EMIRATES

INTRODUCTION

The effects of exponential human growth in resource consumption and waste production have been studied for decades. In 1987, the Brundtland Report defined sustainable development as meeting present needs without compromising future generations. Specifically, the building sector has major environmental impacts, consuming resources, and energy. Before the establishment of green building ratings tools, it was possible to claim any building to be environmentally friendly. However, green building rating tools emerged in response to the need for developers or owners to benchmark their building against these guidelines. Green Building Councils (GBCs), which aim to revolutionize the construction industry for a more sustainable future, started to promote and administer these rating tools and acted as a third-party quality auditor for external credibility [1].

The EmiratesGBC emerged in 2006 to promote and educate on sustainability in the built environment and is the official Green Building Council for the UAE endorsed by the World Green Building Council. Recently, every two years, the EmiratesGBC has been publishing the UAE Market Brief, a data oriented short paper that gives insight into the progress made in green building certifications, globally and locally. Between your hands, the EmiratesGBC presents the 3rd UAE Market Brief, representing data that is true as of December 2022.

EmiratesGBC Membership

EmiratesGBC Members

Corporate Members	107
Individual Members	38

Accredited Professionals

LEED Accredited Professionals [2]	1813
LEED AP (with & without specialty)	653
LEED Fellow	0
LEED Green Associate	826
LEED Homes Green Rater	9
Pearl Qualified Professionals (PQPs)	2487
Buildings PQPs	1888
Communities PQPs	599
WELL Accredited Professionals [3]	69
BREEAM [4]	
Accessors	12
APS	5
RSB Certified Energy Auditors (Companies)[5]	12
EmiratesGBC Building Retrofit Specialists	23

GREEN BUILDING REGULATIONS IN THE UAE

Since joining the Paris Agreement in 2017, the UAE has consistently shown dedication to sustainability. Through investments in renewable energy, energy efficiency, and promotion of green practices, it actively addresses climate change. Bolstered by initiatives like UAE Green Agenda, Energy Strategy 2050, Net Zero by 2050, and hosting COP28, the UAE solidifies its commitment to combat climate change.

#14

UAE rank for highest national concentration of sustainable buildings in the world

2006

Establishment of the EmiratesGBC

51%

Projected decrease in energy demand of UAE building sector by 2050

Energy related GHG emissions produced by the building and construction industries globally account for 39% [6]. Due to that, since 2006, international green building certifications were adopted in the UAE to advance sustainability for the built environment. Later, in 2010, the UAE Cabinet approved Green and Sustainable Building Standards to be applied across the UAE. The Application of these standards became mandatory in government buildings in 2011, expecting to save the country AED 10 billion by 2023, and reduce almost 30% of carbon emissions [7]. Also, during EXPO 2020, the UAE, launched a set of green building guidelines to help create high efficiency buildings and enhance the status of current buildings [8]. However, the standards adopted across UAE are different from one Emirate to the other. Leading the way, Abu Dhabi mandated the Estidama Pearl Rating System in 2010, following that, other Emirates followed suit. Forming these regulations raised awareness on the importance of green buildings and created a local market for them.

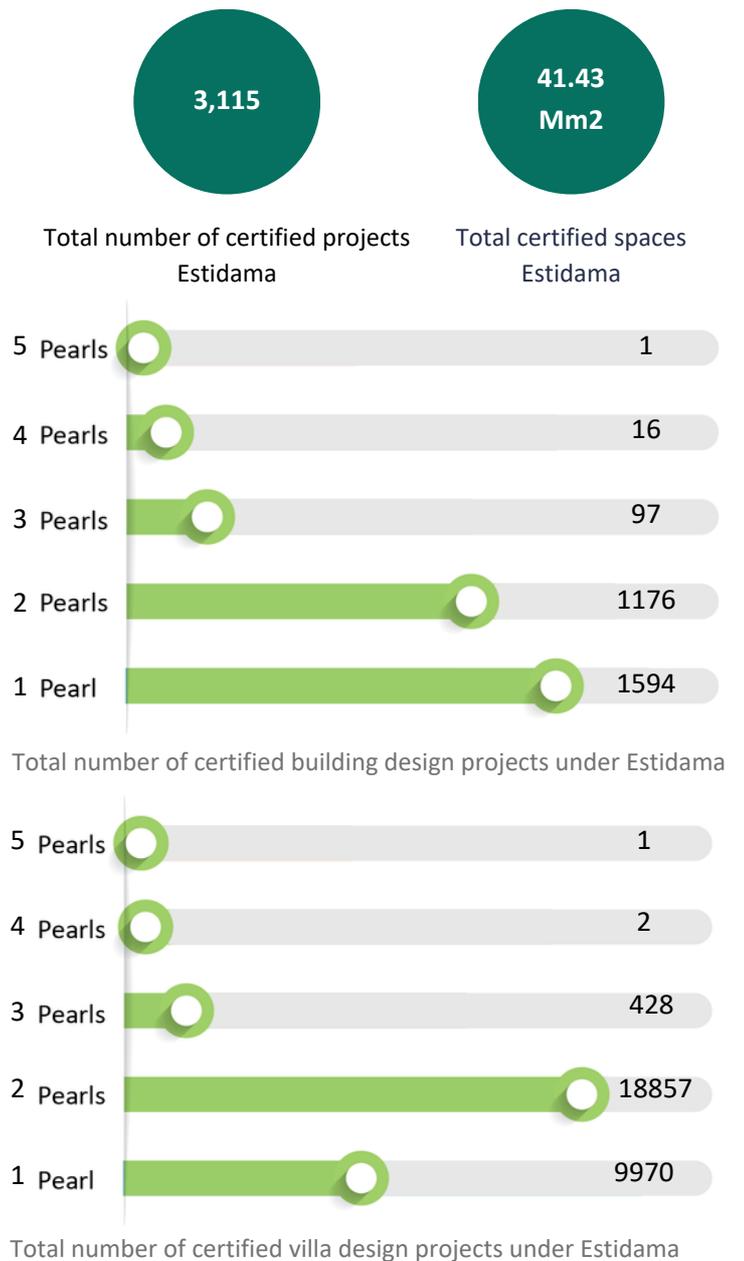
UAE National Green Building Regulation

The UAE's national green building regulation enforces essential energy and water standards for new constructions. It ensures that minimum sustainability criteria are met without inhibiting higher standards set by responsible entities. The regulation collaboratively involves the National Green Code Committee from each emirate, guaranteeing alignment with existing operational codes and regulations. It offers both flexibility and mandatory guidance for implementing efficiency measures [9].

The Pearl Rating System of Estidama

Tailored to the hot climate and arid environment of the Abu Dhabi Emirate, this rating system offers design guidelines and requirements for rating projects performance in accordance with the four pillars of Estidama: environmental, economic, social, and cultural. The Pearl Rating System comprises seven key categories with mandatory and optional credits, earning points for the latter. A 1 Pearl rating demands compliance with mandatory credits. Higher ratings require meeting these while achieving a set minimum of optional credit points [10].

78.8% of certified Building design projects by pearl rating are in Abu Dhabi, while 14.2% are in Al Ain. Rest are in other Emirates.



Saatfat, Dubai Green Building Regulations and Specifications (DGBRs)

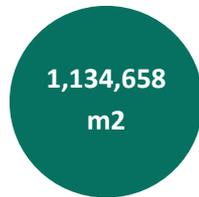
Dubai Municipality has launched the Dubai Green Building Regulations and Specifications (DGBRs) in 2010, firstly, being mandatory for new government buildings. However, at the second phase, the DGBRs became mandatory for all types of buildings. In 2016, Al Saafat was approved as a green building rating system in Dubai, therefore, Dubai Municipality upgraded the existing green building code classifying green buildings according to their compliance with sustainability performance. Since 19 October 2020, Al Sa'fat – Dubai Green Building System has replaced the Dubai Green Building Regulations and Specifications (DGBRs) [11].

Trakhees Green Building Regulations

Trakhees Green Building Regulations were launched in 2008 by the Environment, Health, and Safety (EHS) Department of Trakhees, which is the regulatory arm of Dubai World-Ports, Customs and Free Zone corporation (PCFC).



Total certified space
GBCI path, Trakhees



Total certified space
in-house certification path,
Trakhees

List of Completed Projects Following Green Building Regulations (GBR) [Trakhees]

Type	Number	BUA (m2)
Industrial w/o office and factory	702	4,515,632
Residential Building	372	5,972,050.61
Hotel/ Hotel Apartments	46	1,382,604
Mixed	15	442,346
Commercial Office	30	170,171
Mosque	9	10,382
Mall/Community Center/Retail	37	1,276,896
Schools	6	124,643
Villas and Townhouses	4666	1,360,451
Misc.	45	150,526
Total built-up area		15,405,702

EHS led regional green regulations; compliance with Trakhees Green Building Rules is a must for new constructions in Trakhees/PCFC and Dubai World jurisdiction, and crucial for NOC and permits. Stemming from USGBC's LEED NC2.2, these rules mark a vital stride in advancing sustainable construction locally [12].

Barjeel Green Building Regulation

Barjeel is the Ras Al Khaimah Green Building Code, developed in 2019 focusing on five categories: energy efficiency, water efficiency, renewable energy, materials and resources, and comfort and wellbeing. The two levels of requirements for Barjeel are the fundamental regulations, which comprise of simple requirements, for small buildings, and the comprehensive regulations, with additional requirements for larger complex buildings [13].



Total certified space
by Barjeel

Barjeel in Arabic, is a wind tower, a traditional non-electrical air-conditioner used in old times during hot summers and is an ancient architectural element of UAE houses.

Green Building Regulations in the UAE

Name	Launch Year	Jurisdiction	Total Number of Projects (Design and Certified until Dec. 2022)
Trakhees (Data since 2014)	2008	Trakhees/Ports, Custom and Free Zone Corporation (PCFC)	GBCI Path: 76 In-house Certification Path: 75
Estidama	2010	Abu Dhabi	Total Buildings Design Projects: 2884 Total Villa Design Projects: 29258
DGBRS (Safaat)	2011	Dubai	Completed Buildings: 19,046* Completed Villas: 15,532*
Barjeel	2019	Ras Al Khaimah	1875
National Green Building Guidelines	2022	National	6

*Figures are true as of April 2020

GLOBAL GREEN BUILDING REGULATIONS AND CERTIFICATIONS

6,549,328
m²

Total built-up area of certified spaces under LEED

When discussing international green building certifications, the **Leadership in Energy and Environmental Design (LEED)** certification stands out as the most known certification system. LEED is used globally and was developed by the U.S.

Green Building Council. Since 2006, with the first LEED-certified project in the UAE marking an important milestone, the implementation of international green building standards have become increasingly common [14]. Notably, Expo 2020 City, which hosted the World Expo in 2021, received 121 LEED certifications. The city, centered around sustainability concepts, has successfully recycled, and reused 80 percent of the World Expo site, now open to visitors as Expo City Dubai [15]. The same site will also serve as the venue for the UN Climate Change Conference (COP 28) scheduled for November 2023. LEED has also been utilized within the jurisdiction of Trakhees Ports, Customs & Free Zone Corporation (PCFC), in addition to Trakhees' own green building certification path.



Distribution of LEED certified projects per certification level in the UAE

UAE has also adopted the **Building Research Establishment Environmental Assessment Method (BREEAM)**, another sustainability accreditation program. As of December 2022, there have been 24 listed BREEAM assessments in the country [16].

The first BREEAM-certified project in the UAE was in Sharjah

UAE Prime Minister Office
The first government ministry office in the world to achieve WELL Certification

38,892 m²

Total built-up area of certified spaces, WELL

319 m²

Total built-up area of certified spaces, Zero Energy (ILFI)

The **WELL Building Standard (WELL)** is a system that evaluates, certifies, and tracks aspects of buildings that influence the physical and mental health as well as the overall well-being of individuals residing, working, and studying within them [17]. For the UAE, in 2019, Alpin Limited's Masdar City office was the first building of any type in the region to achieve WELL Certification, and it was the Middle East's first company to achieve the WELL Health-Safety Rating [18]. In 2021, the Dubai office of the UAE Prime Minister accomplished the WELL Health-Safety Rating. Prior to this, the office had already obtained the prestigious WELL Certification at the Platinum level. It was the first office in the region to be certified through IWBI's WELL v2 pilot. Currently, as of December 2022, there are 7 certified WELL projects in the UAE [19]. Finally, as for Zero Energy Certification under the **International Living Future Institute (ILFI)**, there has been one certified project, the Tilal Al Ghaf Pavillion, where the building achieved a Net Positive status through its substantial onsite renewable energy generation, leading the project to its Zero Energy Certification with ILFI [20].

Global Green Buildings Regulations and Certifications

Name	Year of First Certified Project	Total # of Projects until December 2022
LEED [13]	2006	461
BREEM [15]	2012	24
WELL [18]	2019	7
ZE (ILFI) [20]	-	1

UAE BUILDING RETROFIT PROGRAMS

Retrofitting enhances energy efficiency in older structures by addressing design flaws and inefficient systems, promoting sustainability, and mitigating the building sector's climate impact. Due to that, the Abu Dhabi Department of Energy (DoE) partnered with five government entities to enhance electricity and water efficiency through the 'Building Retrofit Program' during Abu Dhabi Sustainability Week 2022. The MoU supports the DoE's energy management goal, targeting a reduction of electricity consumption by 22% and water consumption by 32% by 2030 through retrofitting 39 government buildings [22]. Previously, in 2020, Abu Dhabi Power Corporation introduced Abu Dhabi Energy Services Company (ADES) as the Super ESCO, focusing on retrofitting government and commercial buildings to achieve effective water and electricity consumption reduction[23].

As for the Emirate of Dubai, RSB (Regulatory & Supervisory Bureau for Electricity and Water) started recording data on retrofitting since 2014. The RSB operates with the backing of the Dubai Supreme Council of Energy [24]. Its role involves crafting regulatory structures that bolster Dubai's economic expansion by ensuring a reliable energy provision, promoting effective energy utilization, and simultaneously achieving environmental and sustainability goals. Dubai Supreme Council of Energy has set a goal to reduce energy and water demand by 30% before the end of 2030 [25].

Retrofitting Dubai
 Retrofitting is to save Dubai one million tons of Carbon Dioxide by 2030 [26]

Furthermore, established in 2013, Etihad ESCO (Energy Saving Company) aims to make Dubai a leading example of energy efficiency. It plays a vital role in fostering Dubai's energy performance contracting market, focusing on building retrofits [27]. As a result, to support the retrofitting agenda, for the year 2022, there were 25 accredited ESCO companies in the UAE.

Furthermore, in late 2017, SEWA initiated the "Retrofit program" and commenced the registration process for ESCOs [28]. With the aim of making Sharjah the City of Conservation, the emirate is moving towards raising the efficiency of power and water consumption and reducing at least 30% of power consumption [29].

In Ras Al Khaimah, the emirate has established a goal of retrofitting 3,000 buildings by 2040 through its Building Retrofits Program, which is spearheaded by RAK Municipality. As reported at the RAK Energy Summit in 2022, the program has already achieved energy efficiency retrofits for over 200 buildings by 2021 [30]. As of 2022, the total energy saving of retrofitting 312 buildings and 10 villas in RAK is 38%, and the total water saving is 30%.

UAE Building Retrofit Programs

Retrofit Program	Year of Establishment	Number of Retrofitted Buildings until Dec. 2022
Dubai Retrofit Program (RSB)	2013	5413
SEWA	2018	18
RAK Building Retrofits Program	2019	322 312 Buildings 10 Villas

GREEN KEY

Green Key is a globally recognized eco-label for tourism establishments. It started in Denmark back in 1994, emerging as a prominent benchmark for environmental stewardship and sustainable practices in the tourism sector. The program is overseen by the Foundation for Environmental Education and is managed by the Emirates Green Building Council in the United Arab Emirates. As of December 2022, there has been 32 hotels that have obtained the Green Key certification, with great appetite for more in 2023, especially that 2023 has been declared as the Year of Sustainability in the UAE.

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Written by:

Lana AbuQulbain, Technical Engineer, EmiratesGBC

Reviewed by:

Mohammad Juma, Senior Project Coordinator, EmiratesGBC

Abdellatif Albitawi, Director, EmiratesGBC

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