

# Gulf Construction

Reg No. 1 GC 027 • VOL 45 • No. 08 • AUGUST 2024 • BD3.5 | KD3 | R03.5 | QR35 | SR35 | Dh35

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**ABU DHABI**



Saadiyat Cultural District is a hive of construction activity with work in progress on a number of museums as well as residential buildings.

# BUILDING SUSTAINABLY

Abu Dhabi's construction sector is helping propel cultural and sustainable development in the emirate. Ambitious projects, like the Saadiyat Cultural District, are rapidly transforming the emirate's skyline while showcasing its cultural aspirations. This growth is balanced by a strong focus on sustainability, with investments in nuclear, solar, and wind energy.

**A**BU Dhabi's construction sector is booming, fuelled by a combination of government investment, ambitious mega-projects, and a growing emphasis on sustainability. This translates to increasing opportunities for construction companies and a rapidly evolving cityscape.

The emirate's construction sector showed a remarkable growth of 13.1 per cent in 2023 compared to 2022, with the added

value of this sector reaching more than AED97 billion (\$26.41 billion), the highest in 10 years. The sector contributed 8.5 per cent to the emirate's gross domestic product during the same period, according to the Statistics Centre – Abu Dhabi (SCAD).

The real estate activities also grew 5.8 per cent during in 2023, compared to the previous year, the report added.

The projections are for the emirate's construction sector to continue to show ro-

bust growth, thanks to the government's continued focus on boosting infrastructure, social housing, developing power and water desalination capacity, especially through renewable sources.

In December last year, a budget of AED65 billion (\$17.7 billion) was approved by the Crown Prince of Abu Dhabi and Chairman of the Abu Dhabi Executive Council Sheikh Khaled bin Mohamed bin Zayed Al Nahyan to cover 142 new capital pro-



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jects in the emirate this year. This strategic investment prioritises infrastructure development and cultural heritage, ensuring a sustainable and cohesive living environment for the emirate's residents.

In line with its focus on culture, several iconic museum projects – including Shaikh Zayed National Museum, Natural History Museum Abu Dhabi, Guggenheim Museum and teamLab Phenomena Abu Dhabi – are taking shape on Saadiyat Island's Cultural District, which will host one of the greatest concentrations of cultural institutions on completion in 2025.

Following the opening of the Abrahamic Family House early last year, Abu Dhabi witnessed the inauguration of the BAPS Hindu Mandir – the first traditional stone Hindu temple in the entire Middle East – in February this year. This architectural marvel stands as a testament to Abu Dhabi's commitment to tolerance, religious di-



Al Dhafra Solar PV project ... the world's largest single-site solar power plant.

versity and cultural heritage.

This apart, Abu Dhabi has been making commendable progress on an international scale on the clean energy front. Its pioneering project, Barakah Nuclear Plant, has each of its four units linked to the transmission grid becoming the first nuclear power station in the Arabian Peninsula. The 5,600 MW plant can supply a quarter of the UAE's electricity requirements. The emirate has now voiced its interest in building a second nuclear plant.

Further solidifying its position as a leader in clean energy, Abu Dhabi inaugurated the Al Dhafra Solar Photovoltaic (PV) project late last year. This record-breaking project holds the title of the world's largest single-site solar power plant.

With massive solar energy projects like Al Dhafra Solar PV, and others such as Al Ajban Solar PV, and Khazna Solar PV on the horizon, the emirate is actively shaping a sustainable future.

In the water sector, the Taweelah desalination plant, the world's largest reverse osmosis desalination plant, became operational in March this year. This engineering marvel not only provides clean drinking water for millions but also integrates solar energy, showcasing Abu Dhabi's commitment to sustainable solutions. Another project, the Shuweihat 4 reverse osmosis (RO) desalination plant is prioritising low-carbon desalination methods.

### POWER & WATER

The UAE, and specifically Abu Dhabi, has made remarkable strides in the renewables energy sector and today stands at the forefront of energy transition.

As the final reactor of the Arab world's



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first nuclear plant at Barakah is set to start commercial operations this year, the UAE is considering building a second nuclear power plant to meet growing demand for electricity in the country, a government official told *Reuters*.

The government has yet to budget for a second power plant or decide on the size or the location, but Hamad Alkaabi, the UAE's Ambassador to Austria and the Permanent Representative to the UN's nuclear agency, said a tender could possibly be issued this year.

Any new power plant would likely consist of two or four reactors, said Alkaabi.

In the solar power sector, Abu Dhabi has recently seen the completion of the world's largest single-site solar power plant at Al Dhafra and the emirate now has ambitions to set up two other plants of similar scale

and production capacity at Al Khazna and Al Ajban.

The 2GW Al Dhafra Solar PV project was built in a single phase and generates enough electricity to power almost 200,000 homes, displacing 2.4 million tonnes of carbon emissions every year. It has been built over an area of more than 20 sq km of Abu Dhabi desert in Al Dhafra by a joint venture of Abu Dhabi-based Masdar with Abu Dhabi National Energy Company (Taqa), French group EDF Renewables and China's JinkoPower.

It uses almost four million solar panels which deploy innovative bi-facial technology, ensuring sunlight is captured on both sides of the panels to maximise yield.

The Emirates Water and Electricity Company (Ewec) has recently invited developers and developer consortiums to submit expressions of interest (EOI) for setting up the new solar PV Independent Power Project (IPP) in Al Khazna. The greenfield solar power project with a generation capacity of 1,500 MW (AC) will produce enough electricity to power approximately 160,000 homes across the



The AED22-billion Arabian Hills Estate ... infrastructure works have been awarded.

UAE, and is expected to reduce CO<sub>2</sub> emissions by more than 2.4 million tonnes per year.

The UAE also launched its 103.5 MW Wind Program in October, marking a new milestone in the country's move towards clean energy. The project demonstrates

for the first time the latest technology and innovation to capture low wind speeds at utility scale, adopting advances in material science and aerodynamics to make wind power possible in the country.

The UAE Wind Program is expected to power over 23,000 UAE homes. It will dis-

In the presence of

**H.E. Dr. Mohamed bin Mubarak Bin Daina**  
Minister of Oil and Environment  
Special Envoy for Climate Affairs  
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place 120,000 tonnes of CO2 emissions.

The project spans four locations including the picturesque Sir Bani Yas Island, Abu Dhabi, which is home to free-roaming wildlife. A 45 MW capacity wind farm plus 14 MWp (megawatt peak) solar farm has been developed on the island. The other wind farm locations include the historical pearl-diving centre Delma Island (27 MW) in Abu Dhabi, Al Sila, Abu Dhabi (27 MW) and Al Halah, Fujairah (4.5 MW).

Meanwhile, Ewec is looking at setting up a new carbon-capture-ready combined-cycle gas turbine (CCGT) plant at Taweelah and last month issued a request for proposals (RFP) for its development (see *UAE Focus*, Page 57).

In the water sector, the Taweelah desalination plant began commercial operations early this year as the largest reverse osmosis desalination plant in the world. The plant has a production capacity of 909,218 cu m per day and guarantees water supply to the city of Abu Dhabi (approximately four-and-a-half million people) throughout the year. It is also the emirate's first large-scale plant to combine the production of drinking water with the generation of clean energy, thanks to the installation of a photovoltaic solar field with a capacity of more than 70 MWp.



## The Wind Program demonstrates for the first time the latest technology and innovation to capture low wind speeds at utility scale, adopting advances in material science and aerodynamics to make wind power possible in the country

Construction is now in progress on the AED1.6 billion Shuweihat 4 RO seawater desalination project, which is expected to commence production in Q2 2026. Taqa and Spanish utility major GS Inima – which own 60 per cent and 40 per cent of the project – have signed an agreement with Ewec for the financial closing of the project.

Located within the Shuweihat Power and Water Complex, the low-carbon in-

tensive Shuweihat 4 RO project will supply up to 70 million imperial gallons per day (MIGD) of potable water.

Another RO project on the anvil is the new Abu Dhabi Islands RO independent water project (IWP), which consists of two standalone greenfield low-carbon intensive RO seawater desalination plants to be located on Saadiyat Island and Hudayriat Island.

Together, the plants will provide a total of 100 MIGD, equivalent to 455,000 cu m potable water per day, said Ewec.

## HOUSING

The government is prioritising the development of integrated and sustainable residential communities that cater to the needs of Emirati families. This is exemplified by the recently launched Balghaiydam project, which offers more than 1,700 ready-built homes. Public-private partnerships are playing a crucial role in making these housing developments affordable and accessible.

The AED8 billion project, located north-east of Yas Island, will offer 1,743 ready-built homes and access to a broad range of facilities when it is completed in 2026.

In addition to housing, the Balghaiydam residential project will boast several key



**Ramhan Island by Eagle Hills ... spread over a 4 million sq m area off the coast of Abu Dhabi.**



**Abu Dhabi's first WtE facility, situated near the Al Dhafra landfill, will process 900,000 tonnes of waste annually.**

amenities including schools, mosques, retail and F&B outlets, sports centres, community gardens, and an equestrian centre, providing citizens with access to amenities in an integrated community.

## OIL & GAS

Abu Dhabi is taking a pioneering role in reducing the carbon footprint of its oil and gas operations. The Ruwais LNG project, slated to be the first LNG export facility in the Middle East powered by clean energy, exemplifies this commitment.

The Adnoc facility, one of the lowest-carbon intensity LNG plants in the world, is currently under development in Al Ruwais Industrial City, Abu Dhabi and is expected to begin commercial operations in 2028.

NMDC Energy (formerly NPCC), in partnership with French group Technip Energies and Japan's JGC Corporation, has secured a \$5.5-billion contract from Adnoc to provide engineering, procurement and construction (EPC) services for the Ruwais LNG project.

The project consists of two 4.8 million metric tonnes per annum (mtpa) natural gas liquefaction trains. This is set to more than double Adnoc's LNG production capacity, from 6 mtpa to around 15 mtpa. The plant will use electric-driven motors instead of conventional gas turbines and will be powered by clean energy.

This focus on sustainability extends to expanding the natural gas pipeline network, providing cleaner fuel options for industries across the UAE. Adnoc Gas, a top-class integrated gas processing company, awarded contracts worth a total of



## The Ruwais LNG project is slated to be the first LNG export facility in the Middle East powered by clean energy

\$1.34 billion last year to Petrofac Emirates and a consortium of NMDC Energy and CAT International for the expansion of its natural gas pipeline network.

The new pipeline will extend Adnoc Gas' existing pipeline network from 3,200 km to over 3,500 km, enabling the transportation of higher volumes of natural gas to customers in the Northern Emirates.

## INDUSTRY

Sustainability is a major theme in Abu Dhabi's industrial development. The construction of the first waste-to-energy (WtE) plant in the emirate reflects a commitment to responsible waste management and reducing greenhouse gas emissions.

The UAE-based Alec Engineering and Contracting in joint venture with Lebanese builder Butec has secured the design-and-build contract for the WtE plant. The Alec-Butec JV has teamed up with the Swiss-based Hitachi Zosen Inova (HZI), a company renowned for its expertise in WtE technology, to collaborate on the construction of this project.

According to Alec, the ultra-large waste

incineration facility, situated near the Al Dhafra landfill, will process 900,000 tonnes of non-recyclable waste annually over the next 30 years. Furthermore, the plant will add 80MW of power generation capacity from a non-fossil fuel source, it stated.

In line with the energy transition, Schneider Electric, a global leader in the digital transformation of energy management and automation, has signed an agreement with Volts, a technology company within Masdar City, to set up a giga industrial facility for the production of battery energy storage systems (BESS) in Abu Dhabi.

This apart, Emirates Global Aluminium (EGA), the largest industrial company in the UAE outside oil and gas, has started work on its new aluminium recycling plant at Al Taweelah located in the Khalifa Industrial Zone Abu Dhabi (Kizad) – reinforcing the emirate's shift towards a more circular economy that prioritises resource conservation.

The 170,000-tonne-per-annum facility is coming up next to EGA's smelter and once completed in 2026, it will become the largest aluminium recycling plant in the UAE.

## REAL ESTATE

Abu Dhabi's real estate market is catering to a diverse range of needs and preferences, with a focus on luxury living, sustainable design, and integrated communities.

Among the latest mega launches in the emirate is the AED22-billion Arabian Hills Estate, which offers freehold ownership in a gated community with stunning lagoons, natural pools, parks, eques-



**The AED15-billion Jubail Island project marked the completion of its first village, Nad Al Dhabi.**

trian facilities, and high-end amenities. The first phase is expected to be completed in Q1 2025.

A master-planned gated community, Arabian Hills Estate will come up over a 244-million-sq-ft area along the road connecting Dubai and Al Ain. This project is a strategic partnership between Arabian Hills Real Estate Development Company and Ara Real Estate Development, the real estate division of Core International Holdings Group. The developers have recently appointed National Transport and Contracting Company to undertake the infrastructure works on the project.

Another major development launched in May is a new luxurious sanctuary – Ramhan Island by Eagle Hills – spread over a 4 million sq m area off the coast of Abu Dhabi. Being developed by Eagle Hills, the masterplan of the project offers waterfront luxury villas with high-end amenities, a world-class marina, and a wellness centre. Ramhan Island by Eagle Hills will boast over 1,800 standalone villas, 900 marina residences, luxury brand residences, a luxury marina hotel and a vibrant retail promenade boasting 1.7 km of shopping delights.

Another key Abu Dhabi developer Aldar Properties has embarked on expanding the residential offering on Yas Island, its striking leisure and tourism island, which



## **A master-planned gated community, Arabian Hills Estate will come up over a 244-million-sq-ft area along the road connecting Dubai and Al Ain**

is home to developments such as Yas Marina Circuit, Yas Waterworld and Ferrari World. It has launched Sama Yas, the first collection of exquisite low-rise homes that embrace a holistic approach to well-being and offer luxury park living on Yas Island. Set against the serene backdrop of Yas Park, this boutique residential community features 234 elegant homes with parkland surrounds. Aldar said the development will aim to achieve the Estidama 3 Pearl rating, LEED Gold certification, and Fitwel certification for the masterplan and will incorporate sustainability measures into its design to reduce energy, water, and waste consumption.

Meanwhile, the AED15-billion Jubail Island project has been making significant progress over the past year and marked

the completion of its first village Nad Al Dhabi, with the handover of 44 residential units. The large-scale development – spearheaded by Jubail Island Investment Company (JIIC) – has also seen the launch of a new AED4-billion community, Bada Al Jubail, which features luxurious mansions with a bespoke marina, yacht club, and waterfront living and is targeted for completion by 2027-end.

Also making impressive headway is Bloom Living, where leading UAE developer Bloom Holding has launched its latest community, Seville. The fifth phase of the fully integrated and all-inclusive community, Seville features premium residential units with lakefront views, ranging from mansions to townhouses. Inspired by Mediterranean architecture, the project prioritises indoor-outdoor living and is scheduled for completion in Q1 2027.

## **CONCLUSION**

Looking ahead, Abu Dhabi's construction sector shows no signs of slowing down. This focus on innovation and clean energy positions the emirate as a global leader in sustainable construction practices, attracting international investment and expertise. As Abu Dhabi continues to invest in infrastructure, cultural landmarks, and renewable energy, its construction industry is certain to play a pivotal role in its ongoing transformation. ■

# ABU DHABI AT A GLANCE

Package name	Owner	Status*	\$ Million **
Abu Dhabi International Airport Expansion – Overview	Abu Dhabi Airports Company (ADAC)	Commissioning	7,080
Al Ajban 1.5 GW Photovoltaic Solar Plant (PV3)	Electricite de France (EDF), Korea Western Power Company (Kowepo)	E&P	3,200
Al Falah Housing Complex – Phase 3 – Expansion	Abu Dhabi Housing Authority (ADHA), Aldar Properties	Construction	523
Al Mizn Neighbourhood	Modon Properties	Construction	2,450
Al Reeman – Overview	Aldar Properties	Construction	544
Al Riyadh City – Overview	Modon Properties	Construction	1,800
Al Riyadh City – Phases 2 & 5 – Infrastructure	Modon Properties	Construction	626
Al Riyadh City South – Phases 3 & 4 – Infrastructure	Modon Properties	Construction	530
Balghaiylam Residential Development Project	ADHA, Aldar Properties	Project Announced	2,200
Barakah Nuclear Power Plant	Emirates Nuclear Energy Corporation (Enec)	Commissioning	24,400
Block 7 Innovation Hub	Block 7 Investments	Design	1,900
Bloom Living	Bloom Holding	Construction	2,500
Blue Hydrogen and Methylcyclohexane Plant – Phase 2 – Blue Hydrogen Production Facility	Adnoc Group, Eneos Corporation, Mitsui	Feasibility Study	1,500
Dalma Gas Development (DGD) – Offshore Package – Ethylene Dichloride & Caustic Soda Plant	Adnoc Group Shaheen Chem Investments	Construction Feasibility Study	750 1,000
Ghasha Concession Deep Gas Project – Overview	Adnoc Group	PMC	1,200
Guggenheim Museum	Department of Culture and Tourism – Abu Dhabi (DCT – Abu Dhabi), Solomon R Guggenheim Foundation	Construction	1,200
Hail and Ghasha Megaproject – Overview	Adnoc Group	Construction	21,125
HVDC Subsea Transmission System (Lightning Project)	Adnoc Group, Industrialization & Energy Services Company (Taqa – Saudi Arabia)	Construction	4,000
Integrated Steel Complex – Expansion	Emirates Steel	EPC ITB	1,000
Jubail Island Development – Mafraa Al Jubail and Souk Al Jubail	Jubail Island Investment Company (JIIC)	Commissioning	1,360
Jubail Island Development – Overview	JIIC	Commissioning	4,000
Khalifa Port and Industrial Zone Expansion – Overview	AD Ports Group	Construction	7,200
Khazna 1.5 GW Solar Independent Power Project (PV4)	Emirates Water and Electricity Company (Ewec)	EPC ITB	3,000
Masdar City – Overview	Abu Dhabi Future Energy Company (Masdar)	Construction	22,000
Mirfa 2 – 120 Million Gallon RO IWP	Abu Dhabi National Energy Company (Taqa), Engie	Construction	620
Project Wave	Adnoc Group	Construction	2,200
Ruwais 300 Million Imperial Gallon IWP	Ewec	Feasibility Study	950
Ruwais Cogeneration Plant (Project Volta)	Taqa	EPC ITB	500
Ruwais Derivatives Park – Chemicals Handling Terminal	Abu Dhabi Chemicals Derivatives Company (Ta'Ziz), Proman	EPC ITB	5,000
Ruwais Derivatives Park – Port and Logistics Facility	AD Ports Group, Adnoc Logistics & Services	EPC ITB	600
Saadiyat Lagoons Development	Aldar Properties	E&P	4,000
Satah Al Razboot (SARB) Deep Gas Development	Adnoc Offshore	FEED	600
Shuweihat S4 – 70 Million Imperial Gallon IWP	Ewec	E&P	444
The Sustainable City Yas Island	Aldar Properties, Diamond Developers	Construction	490
Umm Shaif Gas Cap Condensate Development – Phase 1	Adnoc Offshore	Construction	1,500
Umm Shaif Gas Cap Development – Phase 2	Adnoc Offshore	FEED	2,000
Umm Shaif Long Term Development – Phase 1 – Wellhead Towers & Subsea Pipelines	Adnoc Group	Construction	1,000
Umm Shaif Long Term Development – Phase 2 – Drilling & Processing Facilities	Adnoc Group	EPC ITB	3,000
Upper Zakum Facilities Expansion (UZ1000) – Overview	Adnoc Offshore	Construction	8,000
Waste-to-Energy Plant – 900,000 Tonnes	Ewec, Tadweer	E&P	600
Zayed National Museum	DCT – Abu Dhabi, Miral	Construction	1,000

\* E&P = Engineering and procurement; EPC ITB = Engineering, procurement and construction invitation to bid; FEED = Front-end engineering and design; PMC = Project management consultancy



Consultant	Contractor	Start date	End date
Parsons	Al Habtoor Engineering Enterprises, BIC Contracting, Al Jaber & Partners, Fibrex Company, L&T Construction, Murray & Roberts, Oderbrecht, Taylor Woodrow, Trojan Holding	2005-Q1	2024-Q3
-	PowerChina Huadong Engineering Corporation	2022-Q2	2026-Q3
-	Trojan Holding	2019-Q3	2024-Q4
-	CSCEC, National Projects and Construction, Trojan	2020-Q3	2025-Q4
Hill International	Tristar Engineering & Construction	2019-Q1	2025-Q4
-	Al Geemi & Partners Contracting, Nael & Harmal Hydroexport (NBHH), National Projects & Construction (NPC), Nurol Group, Saif Bin Darwish, Tristar Engineering & Construction	2017-Q4	2024-Q3
-	NBHH, Saif Bin Darwish	2020-Q1	2024-Q3
-	Nurol Group, Tristar Engineering & Construction	2020-Q1	2024-Q3
-	-	2023-Q3	2026-Q3
Lightbridge, Lloyds Register Energy Thorium Power, Worley	Doosan Enerbility, Hyundai Engineering & Construction, Korea Electric Power Corporation (Kepco), Samsung C&T	2008-Q1	2024-Q4
-	Serba Dinamik International	2020-Q1	2024-Q4
-	Edrafor, Emirates Link Maltauro	2022-Q1	2030-Q1
-	-	2022-Q2	2027-Q1
KBR, Kent, TechnipFMC	NMDC Energy	2015-Q4	2025-Q1
-	-	2017-Q4	2027-Q4
KBR, Kent, TechnipFMC	-	2019-Q1	2025-Q1
Aecom	Alpha Dhabi Holding, Besix	2006-Q3	2025-Q4
KBR, Kent, Technip Energies	Maire Tecnimont, NMDC Energy, Saipem	2015-Q1	2028-Q4
Kent	EDF Energy, Jan De Nul, Kepco, Kyuden International, Kyushu Electric Power Company, Rejlers, Samsung C&T	2013-Q1	2025-Q4
-	-	2009-Q2	2024-Q3
-	CSCEC, Construction General Contracting House	2019-Q2	2024-Q3
Lead Development	Arabian Construction Company, CSCEC	2019-Q2	2027-Q4
Bechtel Corporation	Al Jaber Transport & General Contracting, China Harbour Engineering Company (CHEC), Habtoor Leighton, National Marine Dredging Company, Saif Al Khaili Group, System Construct	2006-Q1	2030-Q4
-	-	2023-Q3	2027-Q1
Faithful + Gould, Worley	Al Faraa General Contracting, ASGC Construction, Brookfield Multiplex, Dutco, Six Construct	2007-Q4	2026-Q4
-	Al Nasr Contracting Company, Sidem	2020-Q4	2025-Q4
-	Archirodon Group, Metito, Orascom, Petrojet	2021-Q1	2026-Q2
-	-	2020-Q3	2026-Q1
-	-	2022-Q1	2028-Q4
-	-	2021-Q1	2027-Q4
-	-	2020-Q4	2026-Q1
-	Arabian Construction Company (ACC), Innovo Build, Trojan General Contracting	2022-Q2	2026-Q4
KBR, Kent, TechnipFMC	-	2019-Q1	2025-Q1
-	GS Inima Environment	2021-Q4	2026-Q2
Twenty50 PM	JEET Construction	2022-Q1	2026-Q1
-	NMDC Energy	2018-Q1	2025-Q4
-	-	2019-Q2	2028-Q1
-	NMDC Energy	2019-Q1	2025-Q1
-	-	2019-Q2	2028-Q1
Wood	Target Engineering Construction Company	2018-Q1	2025-Q4
Alec Engineering & Contracting, Butec	Hitachi Zosen, Japan Overseas Infrastructure Investment Corporation for Transport & Urban Development, Marubeni	2020-Q2	2026-Q4
Aecom	Besix, Trojan Holding	2013-Q1	2025-Q4

\*\* List includes projects worth over \$444 million only.

Source: DMS Projects



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# CULTURAL POWERHOUSE

**A** SERIES of architectural and artistic marvels is nearing completion on Saadiyat Island, Abu Dhabi's visionary tourism-cultural development, which is rapidly transforming into a global hub for art, heritage, and innovation. With construction on these museums now well beyond the 76 per cent mark (achieved in May), the Saadiyat Cultural District is well poised to unveil their full splendour to the world next year. When they open their doors to the public, this extraordinary destination promises to redefine cultural experiences, offering a captivating blend of iconic museums, immersive art installations, and world-class performances.

Saadiyat Cultural District has one of the greatest concentrations of cultural institutions in the world, showcasing museums,

collections, and narratives that support the region's heritage while promoting a diverse global cultural landscape. It already boasts the Louvre Abu Dhabi, the first universal museum in the Arab world which opened in 2017; Berklee Abu Dhabi, which offers a vibrant space for music, performing arts, and educational programmes; Manarat Al Saadiyat, which serves as a hub for creative expression, hosting key events like Abu Dhabi Art and Culture Summit Abu Dhabi; and Abrahamic Family House, an interfaith complex for learning, dialogue, and worship, which opened last year.

The upcoming museums – each of which will be hosted in awe-inspiring and architecturally-striking edifices – include the Zayed National Museum, the UAE's national museum, which will pay tribute to the nation's rich history and the legacy of

its founding father, Sheikh Zayed bin Sultan Al Nahyan; the Natural History Museum Abu Dhabi, which will take visitors on a captivating journey through the history of our planet and universe; Guggenheim Abu Dhabi, which will focus on art from the 1960s to the present, showcasing significant contemporary artistic achievements; and teamLab Phenomena Abu Dhabi, which promises an immersive and ever-evolving artistic experience.

"Each cultural institution has its own architectural concept/design narrative, which is relative to its content, context and functionality," a spokesperson for the Department of Culture and Tourism – Abu Dhabi (DCT – Abu Dhabi), which is spearheading these projects, tells *Gulf Construction's* Bina Goveas. "The master-plan provides a beautifully organised set-



**Construction work on the various museums at Saadiyat is nearing completion.**

**Saadiyat Cultural District has one of the greatest concentrations of cultural institutions in the world.**

ting for these cultural institutions by arranging them in key coastal locations on the periphery of Saadiyat Island. Each museum engages with the water's edge in a unique manner and collectively are poetically viewed as a 'string of architectural pearls' nestled between the water and the landmass.

"Zayed National Museum is the centrepiece of this architectural ensemble whilst also acting as a linear spinal connection between the water's edge and the hinterland plots of the district, which contain residential, retail and commercial developments," the spokesman says.

Elaborating on the materials used in the construction of the buildings' façade and for the interior finishes, he says: "Each of the museums has its own rich architectural narrative in relation to its content and each building has a different and unique palette of materials, which complements the context and concept.

"The selection of these materials has

always had to consider the harsh marine context in which these buildings are located. This has affected the selection of the grade of the metalwork, timber density, durability and the thermal performance of the enclosures etc. There has also been a conscious effort to resource local materials for sustainability and contextuality."

There's no doubt that given the scale and the complexities of the projects, design and construction of these landmark structures have presented a number of challenges, which all the key players have put their heads together and tackled with the use of innovative technology.

The spokesman explains: "Each building presents its own unique challenges. Contemporary design software greatly assists in realising these complex forms and simplifying their load paths and compositions into structures that can be realised yet remain as inspiring as the intent. Numerous mock-ups are made during the design and

delivery phases to test the visual impact, proof of concept and performance of each assembly. This enables the design team and all key stakeholders to test, comment and enhance the building design whilst also retaining the design integrity, delivery date and project budget intact."

The Zayed National Museum and Guggenheim Abu Dhabi boast a unique architectural narrative that pays homage to the region's heritage while pushing the boundaries of design. Construction work on both these iconic landmarks is being undertaken by a joint venture of Six Construct and Trojan General Contracting under the supervision of Abu Dhabi's Department of Culture and Tourism.

### ZAYED NATIONAL MUSEUM

The 72,441-sq-m Zayed National Museum is set to become the centrepiece of the Saadiyat Cultural District. The museum's location and architectural form are conceived to tell the story of the nation, integrating cultural narratives with natural elements, which is central to Emirati identity.

Designed by Pritzker Prize-winning architect Foster + Partners, the museum honours the legacy of Sheikh Zayed bin Sultan Al Nahyan (1918-2004), the UAE's founder and first President.

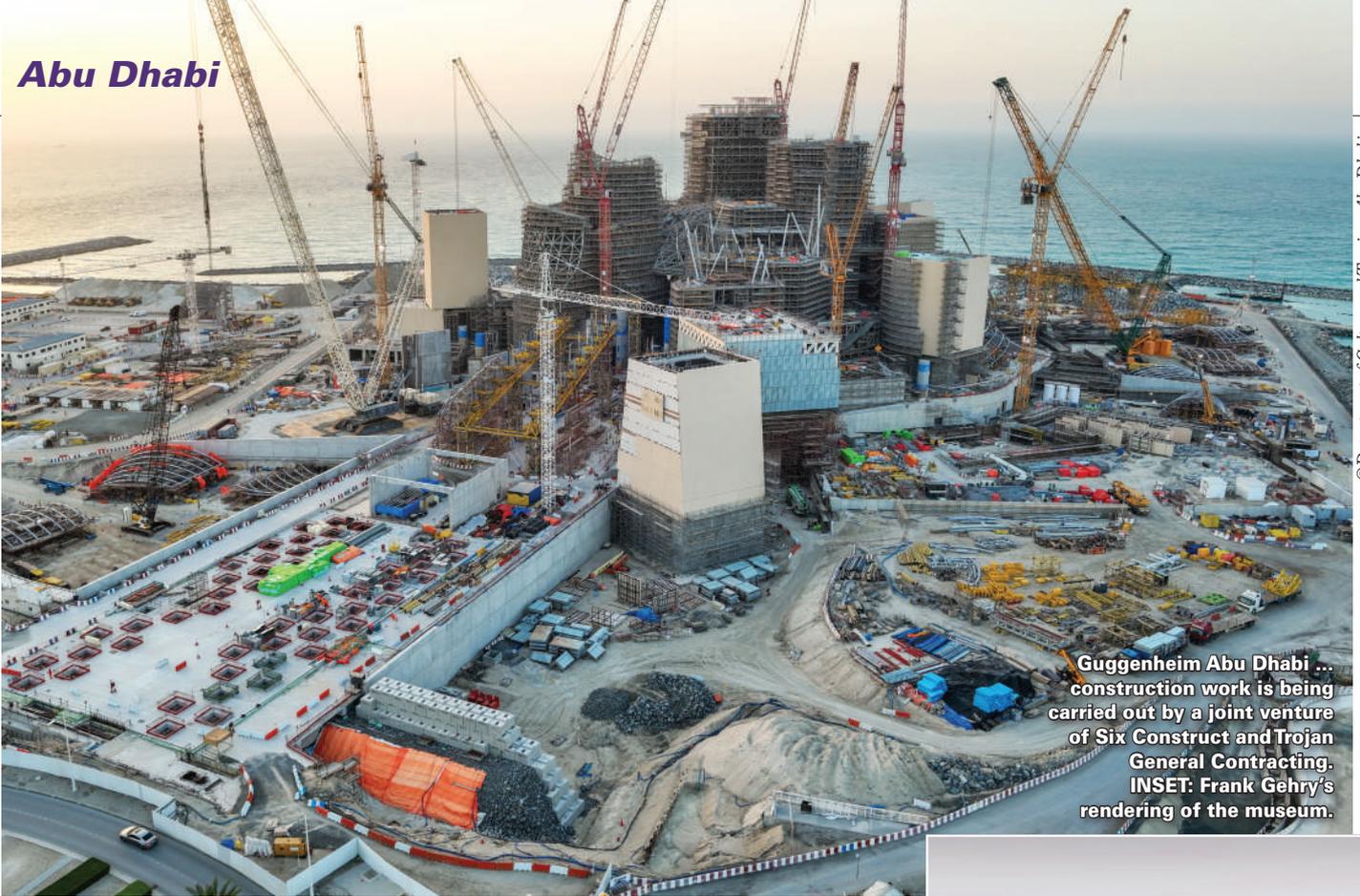
Rising above the main building is a series of five steel structures that soar over the horizon, resembling the wings of a falcon – a national symbol of the UAE. These "falcon wings" are not just symbolic, representing the nation's strength and heritage – they serve a crucial function. They

**Work is well advanced on Zayed National Museum.**



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**Guggenheim Abu Dhabi ... construction work is being carried out by a joint venture of Six Construct and Trojan General Contracting. INSET: Frank Gehry's rendering of the museum.**

act as solar thermal towers, drawing hot air upwards through the museum galleries via the “stack effect”. This natural ventilation system reduces reliance on energy-intensive air-conditioning, aligning with the UAE’s sustainability goals. Inspired by traditional barjeel wind towers, the design utilises natural thermal updrafts to cool the museum interiors, enhancing visitor comfort by providing a cooler and more pleasant indoor environment through passive cooling techniques.

The museum’s landscape has been designed to engage with the topaz water of the Arabian Gulf through a ‘Timeline Garden’, which serves to narrate the natural and manmade landscapes of the UAE from a coastal desert context to an oasis and concluding with a reflection of modern urbanity at the threshold of the museum entrance, according to DCT - Abu Dhabi.

The project utilises advanced design software to ensure the complex forms translate into structurally sound and visually impactful elements. Mock-ups have been instrumental in testing the effectiveness of the falcon wing design for both ventilation and aesthetics.

Zayed National Museum will be the primary institution in the UAE to display

material related to the life and achievements of Sheikh Zayed and will include a garden and gallery dedicated to exploring his achievements, his role in unifying the UAE, and the origins and lasting influence of his values on the country.

The museum will explore over 300,000 years of human history, landscapes, languages, and culture of the UAE from pre-history to the present. It will hold in trust a collection of more than 2,500 art and artefacts from the ancient and living cultures of the UAE and the wider region – Southern Mediterranean, North Africa, Europe, India and China – contextualising the interactions, exchanges and influences that each has exerted on the other throughout history.

## **GUGGENHEIM ABU DHABI**

Across the water, the Guggenheim Abu Dhabi, designed by Pritzker Prize-winning architect Frank Gehry, presents a starkly different architectural language. Gehry, the architect behind iconic structures like the Guggenheim Bilbao, has brought his signature sculptural style to Saadiyat Island.

The Guggenheim Abu Dhabi takes inspiration from the region’s maritime heritage, featuring a curvilinear design reminiscent of the sails of traditional dhows.



Image courtesy of Gehry Partners, LLP

Unlike Gehry’s signature metallic finishes often used elsewhere, the Guggenheim Abu Dhabi’s facade is crafted with materials and textures that resonate with the local environment, ensuring a harmonious visual connection to its surroundings.

The design of the museum emphasises connectivity and openness, with spaces that encourage social interaction and cultural exchange, reflecting the communal values of the UAE. Architectural elements such as the museum’s layout, gallery spaces, and public areas are designed to foster dialogue between different cultures and art forms, aligning with Abu Dhabi’s mission to be a meeting point for global creativity and cultural fusion.

The use of cutting-edge architectural techniques ensures that the building is a testament to modern design while still respecting and reflecting the rich cultural heritage of the region.

Guggenheim Abu Dhabi utilises in abstract, the conical forms of traditional watchtowers as elements which create external shading structures to the entranceways, inspired by the region's use of passive environmental design technologies such as wind towers. The building also encapsulates its coastal desert context by reflecting the unique colour of the Saadiyat Island sand in its glassfibre-reinforced concrete cladding panels which are configured in Gehry Partners' signature patterned bond.

With a gross floor area of 80,000 sq m, the Guggenheim Abu Dhabi will be the largest among the Guggenheim museums. The contemporary art museum, which aspires to connect cultures and inspire people by celebrating art from the 1960s to the present, is a collaboration between the DCT – Abu Dhabi and the Solomon R Guggenheim Foundation. Presenting an international collection with a specific focus on West Asia and the wider region, Guggenheim Abu Dhabi fosters a deeper understanding of how different art perspectives have shaped the interconnected cultures and histories of our time.

The museum comprises 28 galleries spanning a total of 12,080 sq m, alongside an additional 23,000 sq m of exhibition spaces in the atrium, external cone plazas, terraces, and landmass encircling the building.

**NATURAL HISTORY MUSEUM ABU DHABI**

Designed by Dutch architecture firm Mecanoo, the Natural History Museum Abu Dhabi takes inspiration from the UAE's geological history. The museum's exterior features a cluster of buildings resembling natural rock formations, creating an immersive environment that visually and contextually aligns with the exhibits of Earth's natural history. It reflects the natural sabkha salt flat terraforms of the UAE with a three-dimensional Voronoi-shaped cluster of buildings that are mediated by a green open area that reflects the wadis. The "rock-like" structures minimise the visual impact on the landscape and enhance the building's thermal performance, reducing reliance on artificial cooling.

The Natural History Museum Abu Dhabi has recently been topped out. Work is in progress on the installation of mechanical, electrical, and plumbing (MEP), building fit-outs, and exhibition works for the

35,000-sq-m museum, which is set to be the largest of its kind in the region.

The project is being developed by DCT – Abu Dhabi in conjunction with Miral, Abu Dhabi's leading creator of immersive destinations and experiences.

Local materials and construction methods are being used to reduce the museum's carbon footprint. Additionally, the design incorporates water conservation systems and energy-efficient solutions, that minimise its ecological impact and operational costs.

The museum will take visitors on a 13.8-billion-year journey through time and space that will include a thought-provoking perspective on what a sustainable future might look like. Highlights of the museum's collection include 'Stan', a 67-million-year-old, 11.7-m-long, fossilised Tyrannosaurus Rex skeleton and a specimen from the seven-billion-year-old Murchison Meteorite, which contains organic 'stardust' compounds older than our solar system.



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Visitors will see seven-million-year-old fossils, discovered in Abu Dhabi's Al Dhafra region, which date from a time when the emirate and much of Arabia was a rich landscape of rivers, savanna grasslands and forests.

A gallery focusing on space exploration features Voyager Interstellar recordings created by Carl Sagan and Ann Druyan and commissioned by Nasa, the Sputnik Activation Key and Logbook, created by the Soviet Union Space Agency and an ISS Space suit, created by Nasa.

**TEAMLAB PHENOMENA ABU DHABI**

An organic space where art and architecture combine with cutting-edge technology and science, the 17,000-sq-m teamLab Phenomena Abu Dhabi will take visitors on an immersive, multi-sensory journey through 17 digital art experiences in which they encounter artworks that change in response to their environment.

The architecture of teamLab Phenomena Abu Dhabi, which was conceptualised and designed by teamLab Architects and



**Natural History Museum Abu Dhabi ... highlights of its collection include a 67-million-year-old fossilised Tyrannosaurus Rex skeleton.**

realised by Abu Dhabi-based MZ Architects, will play an important role in providing the artworks with an environment to evolve freely and organically. The museum has been designed to inspire 'infinite curiosity', trigger the senses, spark imagination and awaken a thirst for knowledge.

The design of teamLab Phenomena Abu Dhabi, intended to be an organic integration of art and architecture, offers visitors an immersive experience where the physical space and the digital artworks interact seamlessly. This integration allows the artwork to extend beyond traditional boundaries, with installations that respond to and are altered by the visitors' movements.

This dynamic interaction fosters a unique and personal experience for each visitor, reflecting teamLab's philosophy that art evolves and changes continuously.

Integrating advanced technology with architecture presents technical and maintenance complexities, requiring specialised skills for installation and long-term care. The design also takes into account rapid technological advancements, ensuring that the infrastructure can adapt to future innovations without extensive overhauls.

Unlike a traditional museum with a container-like structure housing exhibits, teamLab Phenomena itself becomes the canvas for the art. The architecture wraps around the experience, providing a dynamic environment for the ever-evolving digital artworks.

Established in 2001, teamLab is a Tokyo-based, international art collective that is committed to exploring the confluence of art, science, technology, and the natural world. ■

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**Construction work in progress at teamLab Phenomena Abu Dhabi. RIGHT: A rendering of the museum.**



# Sustainable City-Yas Island gets top design ratings



The green spine will consist of open areas, playgrounds and community facilities.

**T**HE Sustainable City-Yas Island, which is being developed in Abu Dhabi by a partnership of Aldar Properties and SEE Holding, has received the prestigious Estidama 5 Pearl classification for the design of its homes.

The green building rating by Abu Dhabi's Urban Planning Council is the highest available rating under the Pearl Villa Rating System (PVRS) and signifies excellence in sustainable development. It is characterised by advanced energy-efficient building designs, water conservation measures, integration of green spaces and pedestrian-friendly pathways, use of eco-friendly materials and dedication to enhancing both environmental quality and community wellbeing.

The Sustainable City – Yas Island homes will be powered by solar energy from panels installed on residential and parking structures, enabling residents to save up to 50 percent on energy bills.

The community will cover 397,000 sq m of land in North Yas, and will be home to 10 residential clusters made up of around 864 units comprising one-, two- or three-bedroom condos as well as three- and four-bedroom townhouses.

It is designed to promote energy and water efficiency along with featuring a central green spine running the length of

the community and biodomes to encourage community farming, while a network of communal battery-charged buggies and bicycles will encourage walkability and accessibility for all. The green spine will consist of quiet and active open areas, playgrounds and community facilities such as swimming pools and outdoor gym stations.

The construction of the project is under way, with the first handovers expected at the end of 2025.

Faisal Falaknaz, Aldar's Group Chief Financial and Sustainability Officer, says: "Sustainable City-Yas Island is a bench-

mark for building resilient and sustainable communities in the UAE and is a testament to both partners' commitment to sustainable development.

"Supporting Aldar's ambitious 2050 Net Zero target, the development provides a framework for the future of sustainable cities and supports the growing demand and expectation set by our customers for environmentally friendly and socially conscious living destinations."

The community, he states, will fit seamlessly into the wider Yas Island ecosystem which offers residents close proximity to serene natural spaces, leading educational institutions, and premier shopping, leisure, and entertainment destinations.

Marwa Nahlawi, General Manager of Diamond Developers, the masterplanning and designing company under SEE Holding, says: "Our model for future cities is designed to achieve the highest social, environmental, and economic sustainability standards. By developing a live-work-thrive community that reduces emissions and enhances the quality of life, we are setting a new standard for sustainable urban development."

"This recognition underscores our commitment to innovative design and sustainable practices, aligning perfectly with SEE Holding's mission to spearhead a net zero emissions future. We are proud to uphold Estidama's standards in harmony with the UAE's ambitious net zero targets and are dedicated to expanding The Sustainable City's footprint globally, providing a replicable model for future cities that prioritise sustainability, resilience, and community well-being," she adds. ■



The Sustainable City – Yas Island homes will be powered by solar energy from panels installed on residential and parking structures.