Buildings

MASDAR INSTITUTE NEIGHBOURHOOD HOUSING: AN EXAMPLE OF SUSTAINABILITY

SIX CONSTRUCT HAS COMPLETED THE MASDAR INSTITUTE NEIGHBOURHOOD HOUSING PROJECT IN MASDAR CITY, ABU DHABI'S SUSTAINABLE CITY. THE DESIGN AND BUILD, ENGINEERING, PROCUREMENT AND CONSTRUCTION CONTRACT WAS AWARDED TO SIX CONSTRUCT BY ABU DHABI FUTURE ENERGY COMPANY PJSC (MASDAR) IN DECEMBER 2016. MASDAR INSTITUTE NEIGHBOURHOOD AIMS TO CREATE A SUSTAINABLE, COMPACT AND WALKABLE MIXED-USE DISTRICT.

With buildings covering a total surface of 56,200 m², the project was handed over in the last quarter of 2019. Masdar Institute Neighbourhood encompasses nine buildings and provides residential accommodation for Masdar Institute students, as well as corporate residences for a major airline, and an office building. Large landscape and shading areas were also part of the scope of work.

The project was challenging in that the Design and Build nature of the contract involved higher risks and responsibilities for the contractor compared to traditional Build contracts. Six Construct had to implement a robust and highly professional design management setup to guarantee on-time delivery and a fully compliant design package within budget.

The narrow delivery time for the full scope of design and construction required devising and implementing innovative solutions and techniques. The off-site fabricat ion of several MEP (Mechanical Electrical Plumbing) and architecture elements demanded advanced coordination of engineering and sophisticated sequences for the construction, testing and commissioning.

1. L.O.D. : Level of Development: set of specifications that gives professionals the power to effectively and clearly document, articulate and specify the content of BIM.
2. Pearl Rating System: green building rating system developed by the Abu Dhabi Urban Planning Council. Estidama is a building design methodology for constructing and operating buildings and communities more sustainably.
3. Leadership in Energy and Environmental Design (LEED) is a green building certification program developed by the U.S. Green Building Council and used worldwide.

BIM

For Six Construct, this was the first Design and Build Project in the UAE carried out entirely in-house with BIM L.O.D. 500[1] (Building Information Modelling), which allowed the team to create detailed renders and installation particulars, in addition to operational information of assets. To sustain the required level of productivity, Six Construct's design and engineering efforts have been key in the process. Around 14,800 shop drawings, including all disciplines, were processed by the end of 2018.

AT THE FOREFRONT OF SUSTAINABILITY AND EFFICIENCY

The project included high-performance specifications in terms of sustainability related to building envelope, facades, HVAC systems, as well as the implementation of building integrated renewable energy, etc., in addition to special requirements from the airline with regards to operations, security and integration.

These high-end sustainability requirements included the 3-Pearl Estidama[2] and LEED Platinum[3] certifications for buildings. This means the design and construction had to comply with a range of MEP, architectural, and environmental international design guidelines and credit systems.

The project has received the Estidama 3-Pearl rating and LEED Platinum rating for residential buildings and offices for its high efficiency and sustainability.



"THE USE OF MODULAR CONSTRUCTION HELPED US OVERCOME THE VERY TIGHT DELIVERY CONSTRAINTS. MOST OF THE MAIN MEP INSTALLATIONS WERE DONE THROUGH PREFABRICATED MODULES. ABOUT 6,500 UNITS WERE PRODUCED, RANGING FROM ELECTRICAL AND MECHANICAL RISERS, CORRIDOR MODULES TO PRE-FITTED AC TERMINAL UNITS WITH CONTROL PANELS AND VALVE ASSEMBLIES. IN ADDITION, 1,400 TOILET PODS WERE PREFABRICATED OFF-SITE, COMPLETE WITH THEIR FINISHING AND ACCESSORIES."

AMIN NALOUTI, AREA MANAGER, SIX CONSTRUCT

MASDAR INSTITUTE NEIGHBOURHOOD HOUSING, MASDAR CITY, ABU DHABI



THE PROJECT ENCOMPASSES THE FOLLOWING COMPONENTS:

- Student Housing Buildings
- Masdar Office Building
- Corporate Housing Buildings
- Parking & Health Club
- Plaza & Retail Area

// Project details

MASDAR INSTITUTE NEIGHBOUR-HOOD

Location
Abu Dhabi, United Arab Emirates

Client
Abu Dhabi Future Energy Company PJSC – Masdar

Type of contract
Design and Build, Engineering, Procurement & Construction

Construction period
2016-2019

Contract value:
€246 million

In addition, the project exceeds the targeted energy savings of 40% minimum for each building, thanks to the integration of various design energy saving enhancements in the building envelope, HVAC systems, service water heating, power, lighting and other equipment. It is also worth mentioning that the overall recycling rate of the waste generated from the construction site surpassed 90%, which was above the set target.

SAFETY FIRST

On 4 November 2018, Six Construct proudly celebrated the achievement of 10 million man-hours without lost time incidents. This milestone could not have been reached without the continuous dedication of the team who worked tirelessly in order to maintain and further enhance progress in all disciplines.



