



# AL MUNEERA AL RAHA BEACH DEVELOPMENT



## Concept & Location

The Al Muneera project, located in the heart of the Al Raha Beach Development is a massive project in Abu Dhabi, with a total area of over 6 million m<sup>2</sup> and 11 km of coastline, offering residents and visitors 43 km of dynamic waterfront living that includes hotels, marinas, parks, restaurants as well as leisure facilities. It consists of 11 precincts, each with their own distinct personalities and appeal.

The spectacular Al Raha Beach Development provides a unique unparalleled lifestyle through its world class residential, commercial, cultural, entertainment and public facilities, which houses up to 120,000 residents in this multi-billion dirham development. Located on the beach side of the main highway leading into Abu Dhabi from Dubai, the Al Raha Beach is one of the most integrated developments of its kind world-wide, with master-planned communities featuring unique residential, business, educational and entertainment facilities supported by modern infrastructure.

Conceived by the finest international specialist architects, the development will be home to individual residential communities complemented by world-class amenities, a host of hotels, beaches, marinas, retailing and commercial accommodation.

Al Raha Beach will also benefit from world-class education and healthcare services. At the heart of this development,

the Al Dana will be home to the Aldar's new corporate headquarters within the HQ building.

Al Raha Beach enjoys an exceptional location, being only 20 minutes drive from Abu Dhabi city centre and 10 minutes from the airport and the Abu Dhabi – Dubai highway. The comprehensive network of marine, rail and land transportation will provide residents and visitors with hassle-free movement throughout the development as well as neighboring areas such as Abu Dhabi city centre, the airport, Yas Island & Saadiyat Island, and on to Dubai.

The Al Muneera project is made up of two distinct areas, island and mainland, divided by a canal. The two sections have an approximate 50/50 split with respect to built area/ cost, though the island is marginally larger in size. The site area is 146,000 m<sup>2</sup>, with a total built-up area of 594,000 m<sup>2</sup>. This is divided into 254,500 m<sup>2</sup> of residential space, plus a 106,000 m<sup>2</sup> of basement car parking and the island's podium level will be entirely free for pedestrian usage.

The bulk of the residential space is comprised of 1286 apartments spread over 16 residential towers. Right down on the beach are 11 sea-facing villas, each with five bedrooms.

The development also includes 148 canal-facing, four-bedroom townhouses, and an office tower besides six tall "Island Towers".



## Scope of Work

The scope of works included the installation, testing and commissioning of the following:

- Electrical distribution system including LV Switchgears, capacitor banks and distributions panel boards.
- Structured cabling and fire alarm system.
- Lighting control, Central battery and low current systems including CCTV, Digital Intercom, and Access control etc.
- Complete HVAC system including chilled water pumps, pipes, air handling units, fan coil units, ducting, fans etc.
- Building management systems, water supply systems including transfer and booster pumps, and above ground drainage system.
- Fire fighting systems including pumps and accessories, clean agent fire extinguishing system and gas distribution system.

DSE were selected to execute the MEP requirements of this massive project, due to their strong historic experience and performance in similar landmarks around the world. The DSE team were able to demonstrate their capabilities in serving the complex requirements of this project, which posed several unique challenges to the DSE team.

The Six island towers in particular, posed a specific challenge as their design was in a circular shape, which is highly unusual for projects of this nature. The MEP design and installation had to take this into account and make

adjustments accordingly.

The grand scale of the project also required a major influx of labor and equipment to carry out the MEP works. Co-ordination between the various teams required a lot of careful planning and constant monitoring. At peak activity levels, the manpower on site reached 3850 labor personnel and 219 office staff.

A large quantity of equipment was imported from abroad, for instance, the AHUs were sourced from Italy, so the varying lead times also had to be factored in.

On a somewhat ironical note, given the massive size of the project, the large number of manpower and equipment on site meant limited storage space on-site. This was a massive challenge from the logistics point of view and meant that material-supply scheduling mechanisms had to be monitored closely and tweaked to adhere to the extremely tight schedule.



## DSI Innovation

DSE were primarily involved in the basic MEP installation, but the company's involvement soon extended to interfacing the MEP systems with the modern Home Automation system.

A decision was also undertaken by the client to opt for wooden flooring which proved challenging during the testing and commissioning of wet systems. However, the DSE teams were able to complete the testing of the water systems without any damage to the fragile wood paneling and flooring.

In another unusual development, the townhouses were fitted with heat recovery units which is not a feature normally associated with such projects. However, the DSE teams were able to install heat recovery units, which provide fresh air and improved climate control, while also saving energy by reducing heating (and cooling) requirements, without a hitch.

To speed up the work schedule, as well as improving the overall build quality, DSE's team fine-tuned a single residential tower to use as a working template for the large number of buildings required. This proved to be a masterstroke, as it helped improve the build quality and also saved many man hours.

DSE also installed a world class firefighting system on site. The modern fire fighting system included ten firefighting pump sets, each comprising electric, diesel and jockey pumps, and 256 CCTV monitoring cameras together with a fire security control room. The fire-alarm system also comprised 20 MFAPs (Main Fire Alarm Panels), with two fire command centers.

From an electrical viewpoint, the Al Muneera project was a massive undertaking due to the sheer size of the load demand.

The complex electrical system installed by DSE has a total electrical load of 36,414 kW for the mainland and 30,814 kW for the island. DSI also set-up four substations with 24 nos. of LV switchgear, over 9000 m of busbar ducts in different runs and ratings, more than 2105 km of LV cables of different sizes, and 5722 sub main distribution boards, motor control centers and final distribution boards. In addition, there are also four generators of 1500 kVA each, and a total of 425,000 m of cable trays, trunking and ladders, as part of the emergency backup systems.

In terms of the cooling component of the project, the total cooling load on site was a significant 3650 TR and 3350 TR for the island and mainland respectively. DSE laid more than 120 km of chilled water piping all over the Al Muneera development.

The chilling system comprises 12 chilled water pumps, 76 air-handling units (AHUs) and 5547 fan-coil units of varying sizes. DSE also installed more than 1700 fans for various daily applications ranging from stair and lift pressurization, car-park ventilation to smoke extraction. The project also required 352 sets of hydraulic pumps for domestic water transfer.

DSE's careful planning and scheduling in close co-operation with the main contractor, Al Futtaim Carillion, along with stringent Safety and security management, a critical factor with such a large workforce, allowed it to be flexible enough to be able to cater to the specific needs of the entire scope of works.

The Al Muneera project is a major feather in DSE's cap and a proud example of its outstanding planning, technical knowhow and the capabilities of the region's most skilled workforce.