



# DUBAI FESTIVAL CITY



## Concept & Location

Dubai Festival City is a large residential, business and entertainment development in the heart of the city. Touted as a “city-within-a-city”, Dubai Festival City is the Middle East’s largest mixed-use development: all elements for work, living, and leisure will be contained within the project. The Festival City comprises a series of residential communities, numerous hotels, malls, a golf course and other entertainment sites, and a full suite of public services, including schools.

The project spans 3.8 kilometres (2.4 mi) of water frontage on the eastern bank of Dubai Creek and is 2 kilometers (1.2 mi) from Dubai International Airport. The Festival Waterfront Centre, is a retail power centre which includes IKEA, HyperPanda supermarket (first hypermarket outside of Saudi Arabia), Plug-ins ElectroniX and Ace Hardware (the largest outside North America).

Dubai Festival City’s 2.1 million sq. ft. retail resort is designed to accommodate 550 shops, 20 flagship and anchor stores, 90 restaurants and cafés. Additionally, a Skywalk Entertainment level houses a 12-screen Grand Cinema Complex, Electronics Collection, Bowling City, a Skywalk food court, Fitness First among other notable shops.

Dubai Festival City is frequented by thousands of visitors each week and is a very popular destination for tourists and residents alike. The volume of visitors generates a strong demand for efficient cooling solutions. The District Cooling Plant had to be designed to be flexible and top notch at the same time.

## Scope of Work & Innovation

Drake & Scull’s scope of work included the following aspects:

- Design and construct an 80,000TR District Cooling System for the entire DFC premise
- Supply and Installation of 10 Chiller packaged modules of 5,000TR each
- Installation of 10 Cooling Towers of 5,000 TR capacity each
- Build and Installation of a 6000 cubic meter water storage tank
- Laying a 28 km of 28” to 60” diameter preinsulated GRP reticulation pipework
- Construction and Installation of 74 Energy Transfer Stations and individual metering and billing system to approximately 1.6 million square meters mixed used development.
- Operation and Maintenance for eight years.

The 80,000 tonnes District Cooling Plant at the Dubai Festival City included a chilled water generation plant, nearly 20 kms of network piping, multiple energy transfer stations, plus metering and monitoring systems.

The design encompassed acoustics, thermal degradation, stress analysis, hydraulics and structural and architectural analysis. Designed, built and commissioned in a modular fashion, the innovative cooling plant’s capacity matched the load demand created by new buildings when commissioned within the Festival City.



The first phase of the work involved the installation of 50,000TR of cooling capacity, and Drake & Scull were invited by the clients to undertake the expansion of cooling capacity by another 30,000T to meet the requirements of the growing tourist and resident population.

Drake & Scull Water and Power were responsible for the design and development of engineering drawings, plant & material selections, procurement, installation, commissioning and performance validation of mechanical & electrical chilled water process plant for the District Cooling System.

Drake & Scull Water and Power were also responsible to provide the supply of the distribution Energy Transfer Stations (ETS) for the connection of the system into numerous buildings utilizing the District Cooling System.

Drake & Scull's professional work ethics and strong performance resulted in high level of client satisfaction, who subsequently awarded the company with an 8 year operation & maintenance contract for the system which has performed outstandingly since, with very little downtime.

The project required a high level of technical and logistical management from the project team and central office Procurement & Engineering Departments from DSWP, who were able to meet the

client's expectations and deliver strong District Cooling performance befitting the DFC.

The District Cooling Plant achieved its goals of energy efficient cooling that was able to cope with the increase in demand following the massive success of the Festival City as a prime tourist destination in Dubai. The plant was modern in its design, radical in its construction and became a leading benchmark that helped to spearhead the adoption of District Cooling systems in large scale projects.