

productive architecture

**Kiss +
Cathcart,
Architects**

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abu dhabi eco park

Abu Dhabi Eco Park (ADEP) is a mixed use community of residential, hotel, retail, recreational, and environmental uses, consisting of over 640,000 square meters of construction.

Although a financially-driven commercial development, Eco Park aimed at the highest possible standards of environmental performance. Within a viable budget, the project approaches net zero energy from a combination of passive design strategies, highly efficient building systems, solar energy generation, and organic and on-site hydroponic farming.

Kiss + Cathcart is primarily responsible for the planning and design of the Mangrove Area and Eco Agriculture

The Client:
Aldar

The Team:
Kiss + Cathcart, Architects
Kling Stubbins
Ardalan Associates
Andropogon Associates
Ove Arup + Partners

Project Details:
640,000m² total; 8,100m²
K + C primary design
Conceptual Design Completed
2008



Environmental Awareness Training Center and Marine and Mangrove Visitors Center from the west.



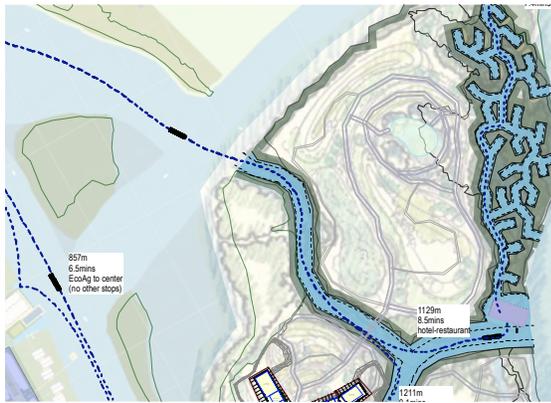
Environmental Awareness Training Center and Marine and Mangrove Visitors Center from the east.



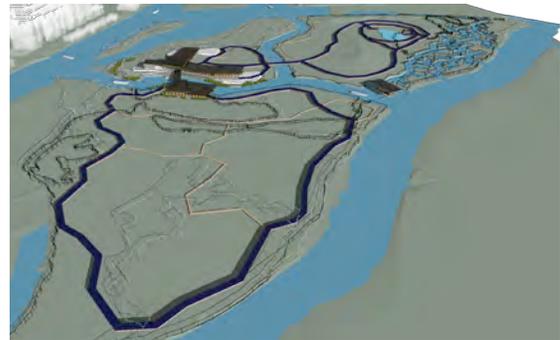
Abu Dhabi Eco Park from the south

areas, with Andropogon Associates - the most environmentally sensitive parts of the project site. Within the master planning of the balance of the site by Kling Stubbins and Ardalan Associates, Kiss + Cathcart has driven the high-level planning for renewable energy strategies and technologies.

The Mangrove Islands, containing the Hotel Eco Lodges, and Environmental Awareness Training Center, are completely off-grid and self-sustaining in terms of energy, water, and waste. The Eco Agriculture area produces enough fresh produce to feed 50% of the annual consumption of the total 7,500 residents of the project, in a first-of-its-kind building integrated agricultural Green Market.



The Mangrove Area is designed to be totally zero impact, including transportation via solar-electric boats.



Sustainable infrastructure by K+C includes PV-integrated shaded pathways, building integrated hydroponic food market, and floating zero-impact hotel cabanas.



The Mangrove Islands are almost the only naturally green areas in Abu Dhabi city, and an important refuge for marine and terrestrial wildlife.

greenmarket: building integrated agriculture for abu dhabi

GreenMarket is a food market hall that grows its own food. The concept of the structure is to utilize solar energy as efficiently and completely as possible to grow crops, while providing shade, shelter, lighting, ventilation, and cooling to an enclosed space that is dedicated to other uses. Hydroponic growing trays can be configured horizontally (as in traditional greenhouses), vertically, or at other orientations, and can be stacked in one or two layers. In our building-integrated approach, the growing assembly forms a double skin enclosure for a space.

Normally, a glass greenhouse is an inappropriate construction type for occupied space for hot climates. In this application, however, the combination of shading and evaporative cooling provided within the greenhouse layer will provide a reasonable thermal envelope for a conditioned space, and a enough daylight will penetrate through the plants to provide abundant natural light within.

This project synthesizes the potential of passive and active technologies - evaporative and absorption cooling, PV, daylighting with active control via moving growing trays, convective and stack ventilation, large openable areas for seasonal cooling - to create a dynamic, exciting, and comfortable environment.

The Team:
 Kiss + Cathcart, Architects
 BrightFarm Systems
 Ove Arup + Partners

Project Details:
 Ongoing research

