



Masdar Headquarters

Masdar City, United Arab Emirates

ADRIAN SMITH + GORDON GILL
ARCHITECTURE

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Masdar Headquarters will be the world's first mixed-use, positive-energy building, using sustainable design strategies and systems to produce more energy than it consumes.

DESIGN ARCHITECT
Adrian Smith + Gordon Gill
Architecture LLP

The winner of an international design competition with 159 participants, the project is the centerpiece of Masdar City, a zero-waste, zero-carbon-emission development outside Abu Dhabi in the United Arab Emirates. The AS+GG design will also anchor the Masdar City master plan by Foster + Partners.

The Masdar Headquarters building will go beyond zero net energy; it will be the world's first mixed-use, large-scale positive-energy building. The building will utilize pioneering, never-before-seen technology in the creation of the aesthetically astounding, functionally proficient and experientially superior development that will represent the city.

The seven-story, 134,662-square-meter structure (which includes landscaped areas) will accommodate commercial, retail and cultural uses. The building's form, sculpted in response to extensive environmental analysis, adapts the ancient science and aesthetics of Arabic wind towers, screens and other vernacular architecture, which emphasize natural ventilation, sun shading, high thermal mass, courtyards and vegetation.

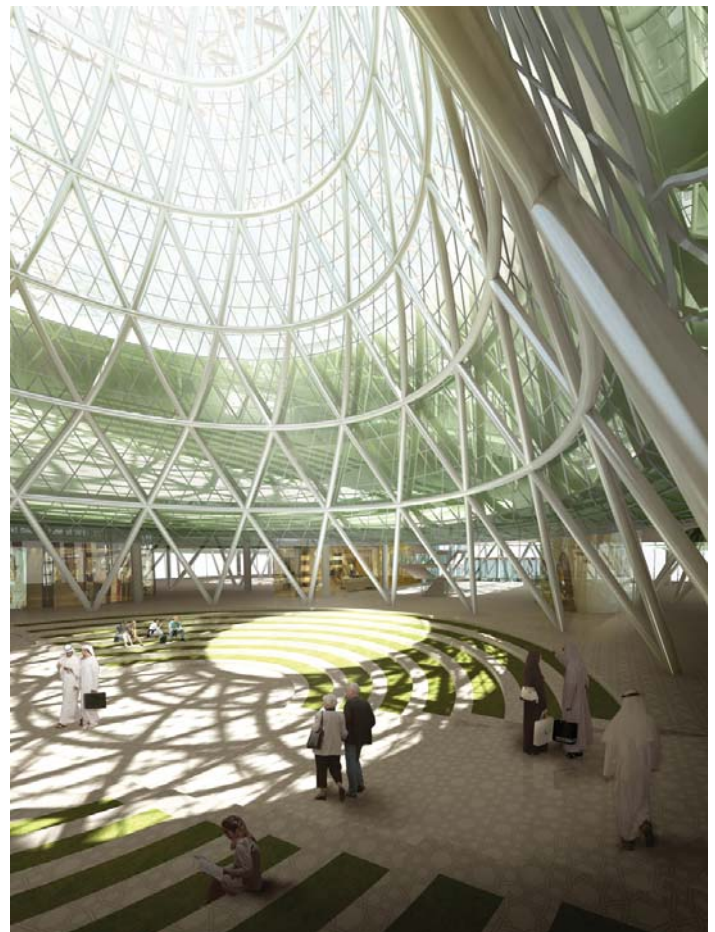
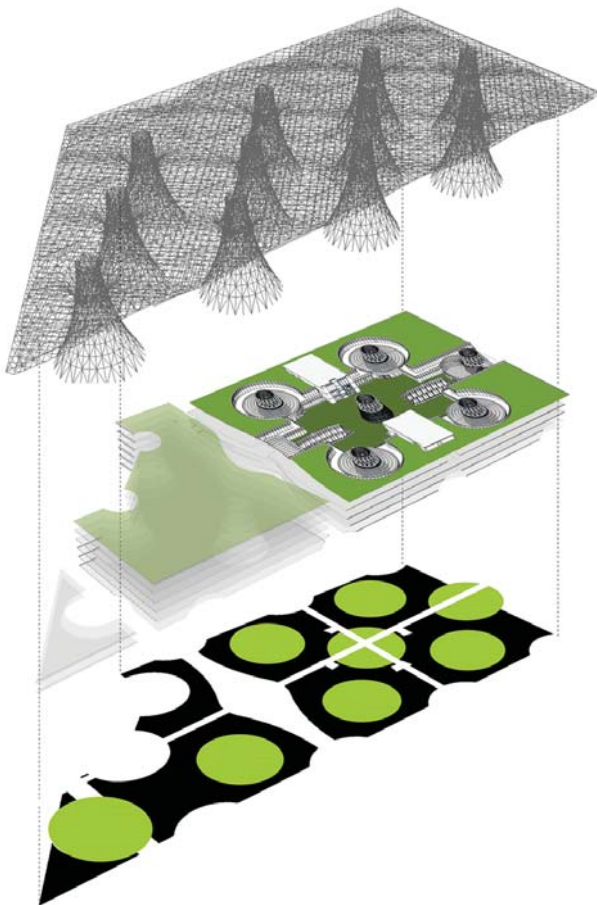
Masdar HQ's signature architectural feature is a collection of eleven wind cones which provide natural ventilation and cooling (drawing warm air up to roof level, where wind moves it away) and form oasis-like interior courtyards and/or flexible spaces, each with its own theme, at ground level. The cones also provide soft daylighting for the building's interiors.

Other key sustainability design features, systems and strategies include a vast roof canopy, which provides natural shading and incorporates one of the world's largest photovoltaic and solar-panel arrays. The roof's undulating understructure facilitates the roof pier's structural performance.

High-thermal-mass exterior glass cladding provides solar heat blocking while remaining transparent for views. Thermal technology in the project also includes earth ducts which reduce temperature of outside air and provide underground pedestrian passages that connect public garden space with the proposed mass transit system. And a lush sky garden on roof level creates a microclimate that includes water features and restful community spaces landscaped with indigenous vegetation.

Masdar HQ will be the world's greenest mixed-use building, yielding zero carbon emissions and zero waste (both liquid and solid) and a sustainable measure beyond LEED platinum. It will consume 70 percent less water than typical mixed-use buildings of the same size, and be the lowest energy consumer per square meter for a modern Class A office building in a hot/humid climate.

It will also be the first building in history to generate power for its own assembly via one of the world's largest arrays of photovoltaics on its roof canopy, which will also provide shade for workers during construction of the structure's lower levels.



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