Wind Weave Tower

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Abstract

Unlike the typical method of creating architecture starting from site analysis, then the schematic design of program and circulation, in my fall studio 2009 I had the opportunity to study and develop structure then adapt it to the site of Al Ras across Dubai creek and a specific program. The outcome was the wind weave tower; a product of an intense structural investigation that got adapted to site and program resulting in a highly developed and complex structural systems that is dynamic in its appearance and nature.

The Tower is made up of two structures; one static holding the entire weight of the tower, and the other dynamic pulling the floor slabs in and out in response to heat, The movement of the second structural system is made possible through the use of shape memory alloys (a cable that remembers its original shape and deforms due to heat) the use of the memory cables at a large scale allows parts of the structure to move in response to heat which as a result permit and blocks circulation in different parts of the building in response to the temperature, at certain times of the day and year.

From the need to make Al Ras a more hygiene place, the tower acts as a huge air filtering device; instead of having typical walls covering the structure of the tower, the facades consists of huge sheets of the HEPA air filters stacked together. The filters allow the tower to be entirely open and depend heavily on wind movement for ventilation instead of the classic air conditioning.