

REVOLUTIONARY SOLUTIONS FOR A LEADING EDGE FIRM



AWARDS

2013 CENTER FOR THE BUILT ENVIRONMENT (CBE) LIVABLE BUILDINGS:
Honorable Mention

MORPHOSIS STUDIO CULVER CITY, CA

Morphosis was looking to create a striking, sustainable new office space in the heart of Culver City. This architecture firm is well known for creating cutting-edge buildings to exacting standards, and BuroHappold Engineering was brought in to help them realize these credentials for their headquarters.

As net zero energy along with a high occupant satisfaction were top priorities for our client, our engineers worked closely with them to develop optimum solutions across a range of challenges. Initially, the sunny climate meant that solar heat gain was a concern, so we advised that the building have solid south and east facades to prevent heat gain beginning in the morning and over the course of the day. A series of cantilevered steel shades were also incorporated within the design to further reduce the impact of the sun. These add a dramatic architectural feature and provide staff with a pleasant, shaded outdoor area to enjoy. Having mitigated the negative impact

of the sun's rays, we then harnessed them as a source of renewable energy by mounting a 2,800ft² expandable photovoltaic system on the roof. This has the capability to fulfill most of the building's energy requirements.

Our ventilation strategy was revolutionary, incorporating Monodraught® Windcatchers - the first ever installed in the US - into the roof. Adapted from ventilation methods used in desert environments, these are louvered steel boxes containing interior cross blades that both draw cool air into the building and extract hot air out. A digital sensor controls the windcatchers during the day to maintain comfortable interior temperatures, and at night the louvers are fully opened so that cool air can flood in and provide fresh air for the next day. The ventilation strategy is complimented by an under floor air distribution system in the main open office for increased occupant control. This environmentally sound solution significantly reduces energy consumption compared to conventional cooling methods.

CLIENT
Morphosis Architects

ARCHITECT
Morphosis Architects

PROJECT VALUE
Confidential

DURATION
Completed in 2011

SERVICES PROVIDED BY BUROHAPPOLD
MEP engineering, CFD modeling, lighting design, post occupancy evaluation

The design methods implemented at the Morphosis Studio not only work to reduce electricity demands but also to create high quality spaces that aim to improve the working environment for the occupants. For example, an emphasis on daylighting through diffused skylights and daylight control sensors not only improves energy efficiency, but also connects workers to circadian rhythms, which impact the levels of wakefulness during the day. The use of natural light improves how alert occupants feel during daylight hours, which in turn improves productivity. The combination of environmental features has resulted in a reported 5% increase in productivity amongst employees.

The expertise of our team enabled us to identify and combine both simple and innovative engineering solutions to meet our client's aims. BuroHappold also performed Post Occupancy Evaluation (POE) studies to analyze performance and investigate and report opportunities to further optimize the building. Following the completion of the project, a survey of the occupants of the building found that 85% were very satisfied with the building's overall performance, while 80% felt that their productivity has improved. With BuroHappold's continued engagement during occupancy, we were able to identify and implement measures to further optimize performance, assess the design impact on staff satisfaction and productivity, and also engage the building occupants so they are actively involved in improving their health and happiness, along with the building performance.

