

Off the Wall

Beijing equips itself with a brand new venue dedicated to digital media arts. Even better, it is a green one

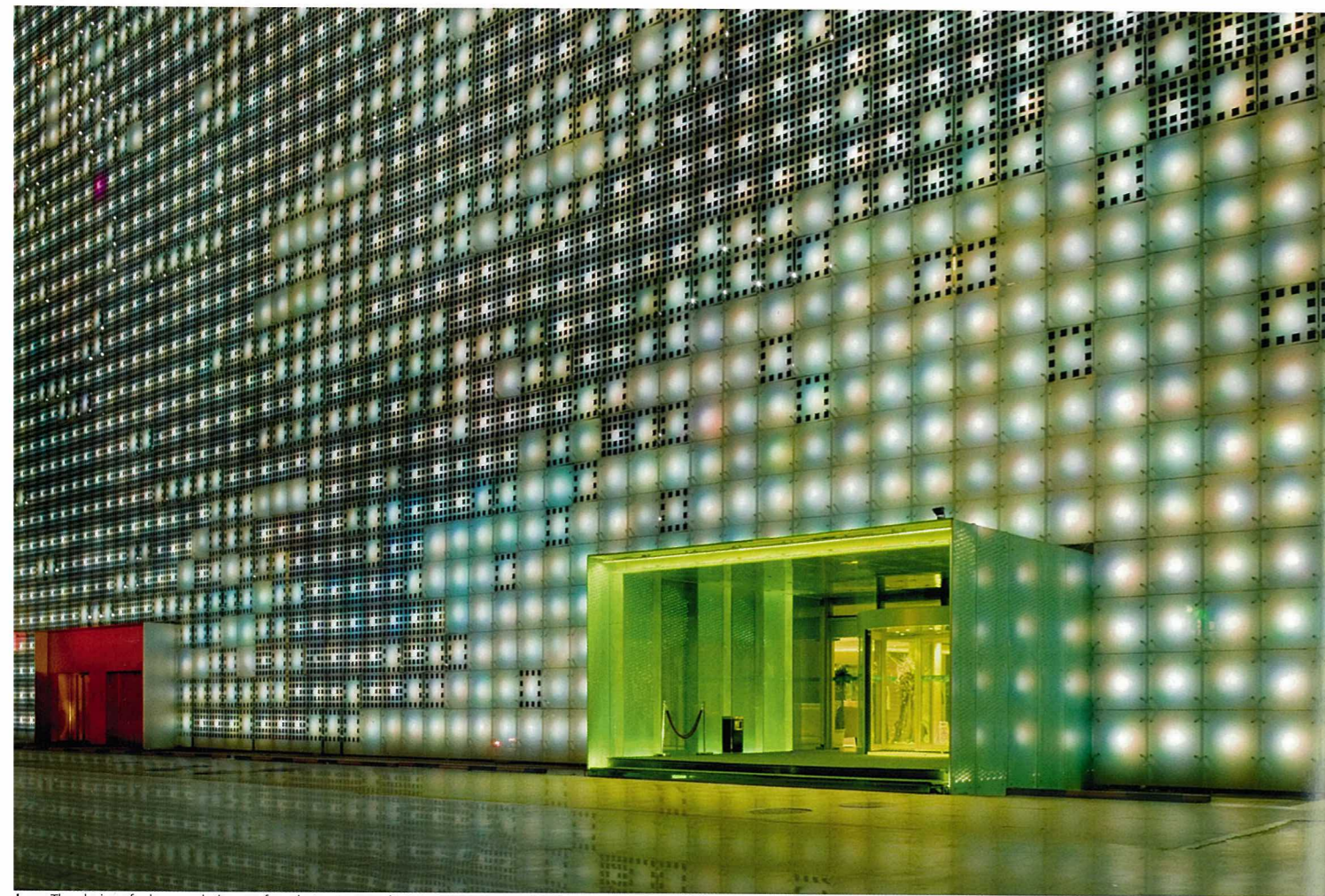
TEXT: CECILE MAURY PHOTOGRAPHY: COURTESY OF SIMONE GIOSTRA & PARTNERS/ARUP AND SIMONE GIOSTRA-ARUP-RUOGU

We are constantly spoilt with formal innovations, from sleek high-rises to the wildest shapes rising in the Emirates. Yet one cannot help but notice that once the excitement has faded, these new landmarks are desperately unchanging.

Now, what if a building could be a dynamic construction and truly part of the ever-changing context of the city? That's what Simone Giostra & Partners have achieved with the GreenPix Zero Energy Media Wall in Beijing. After being commissioned to build the Jinbao Entertainment Centre in collaboration with the Austrian architect Raimund Abraham, Giostra & Partners were appointed by Jingya Corporation to design the envelope of the Chang'an Jingya Complex on Xicui Road, close to the Olympics site. They came up with a concept that immediately earned them the go-ahead — a dynamic and interactive façade that would break with usual standards, not only through visual engagement but also by creating a surface able to respond to its surroundings.

"We were charged with enlivening the opaque, box-like structure's presence and connecting it to its environs, and we responded by deploying cutting-edge technology to achieve a new kind of 'intelligent skin'. The scale, the visionary client, the urban settings and the historic moment in China were all extraordinary opportunities to develop a truly innovative concept," Giostra recalls.

Well ahead of typical street advertising, GreenPix successfully brings new media into architecture. But, perhaps more significantly, it also illustrates a very contemporary line of thought that intuitively integrates ecological aspects. Giostra adds, "The original idea of combining a sustainable aspect to the digital media performance was driven by an ethical obligation I felt while designing a proposal for the World Trade Center in New York with Steven Holl in 2002. A truly 'organic' system should depend on its own ability to gather resources and, at the same time, it should remain vulnerable to changing environmental conditions."



Above The choice of a low resolution confers abstract properties to the screen, distinguishing it from conventional commercial displays **Opposite page, from top** Solar energy is harvested by photovoltaic cells in the daytime and used to illuminate the screen at night • The photovoltaic cells are arranged so as to create a pattern optimising the building's performance

With that in mind, the team set out to create one of the largest light-emitting diode (LED) displays in the world — 2,200 sq-m — using a pioneering type of glass solar panel made by Jintech China which have polycrystalline photovoltaic cells laminated within the glass. During the day, solar energy is harvested by the photovoltaic cells and then used at night to generate light. "Its lighting performance is affected by the daily amount of solar exposure reaching the building," Giostra says. "This is just another way of defining a system as self-supporting, interactive and narrative, one that conveys an ongoing story about the surrounding light and weather conditions."

Endowed with this intelligent skin, the responsive, self-sufficient wall appears like an organic system produced by nature. According to Giostra, "Our initial reference is often a natural phenomenon and GreenPix takes inspiration from the ever-changing visual experience of seascapes. The particular design of the wall reflects the different light conditions of its environment,

reproducing the flickering light on an ocean's constantly undulating surface." Challenging the notion of organic architecture as a chiefly formal expression, GreenPix turns the building into an animated landmark. "We make a critical distinction between form and performance. The building is obviously not replicating a natural organism in formal terms, in the way so much contemporary architecture does. GreenPix 'performs' like an organic system, similar to a tree or a flower, first absorbing solar energy and then generating light from the same power that evening, without supplements," he says.

Beyond the photovoltaic technology, two other features merit attention. The first is the changing density of the cells on the skin. In keeping with the intelligent skin concept, the arrangement of the cells creates a pattern designed to increase performance by allowing natural light when necessary, as well as by controlling heat gain and transferring excessive solar energy to the media wall. Another interesting characteristic is the choice of a low-

resolution screen, which produces both energy savings and visual interest. "We are interested in the abstract visual quality of low-resolution screens in contemporary art and we talked to artists Gerhard Richter and Jim Campbell for inspiration," Giostra explains.

"The wall will showcase low-resolution imagery, both to conserve energy and to provide an art-specific communication form in contrast to commercial applications of high resolution screens in conventional media facades," he says. With good reason — the revolutionary wall, built in cooperation with Arup and German manufacturers Schüco and Sunways, is already poised to become a new-generation platform both for the emerging Chinese creative scene and for foreign artists. "The façade has the ability to show playback videos, live content, including live performances, and user-generated content," Giostra says. Inaugurated with videos by international artists, GreenPix promises to reveal many more talents, like a high-tech alchemist capturing the forces of nature and turning them into poetry.



"VIVA" Decorative Cement Board

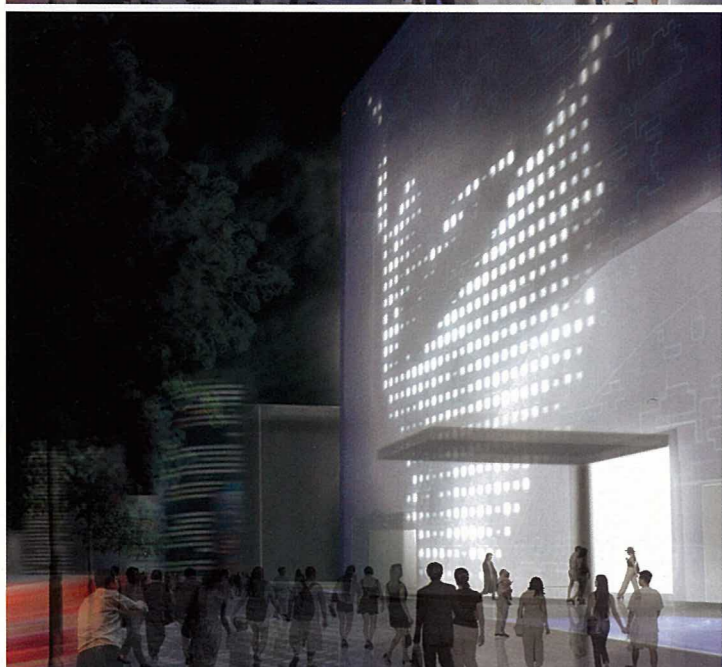
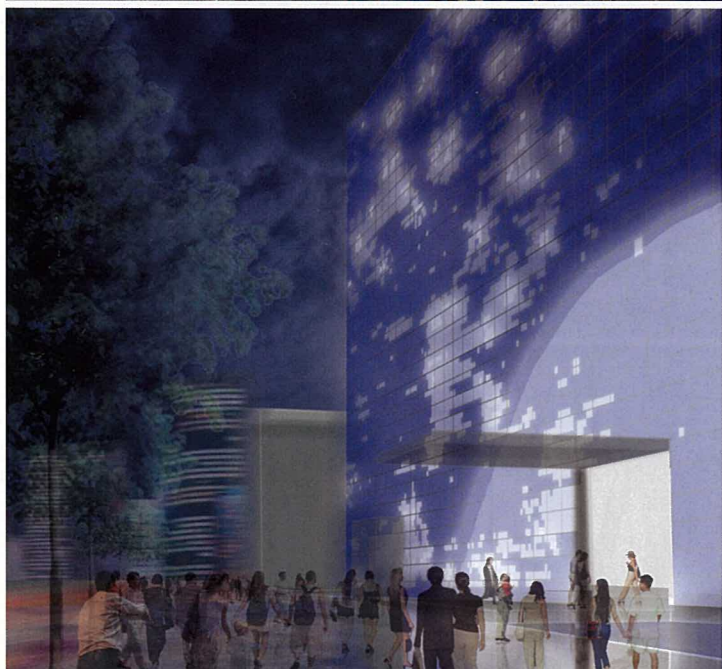
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this page Behaving like an organic system, GreenPix responds to its immediate context, reflecting the ever-changing light and weather conditions

北京映畫

北京最近興建了一個數碼媒體藝術表演平台，奉行綠色建築概念，絕對值得讚揚

撰文：CECILE MAURY
攝影：SIMONE GIOSTRA & PARTNERS/ARUP AND SIMONE GIOSTRA-ARUP-RUOGU

我們似乎太習慣「創新建築」的一般定義：就是線條宏偉的摩天大樓，又或是阿聯酋境內標奇立異的瘋狂建築物。這些新地標會帶來短暫的興奮，但設計上其實來去都只是一條方程式。

假設建築是動態的，懂得回應城市面貌的改變，情況又不同了。Simone Giostra & Partners設計的GreenPix零耗能LED媒體屏幕牆，真正實現了這些展望。Simone Giostra & Partners繼完成金寶娛樂中心之後，再度受淨雅集團的委託，跟澳洲建築師Rainund Abraham協力負責屏幕牆項目，為這個毗鄰2008奧運主辦場地、位於西翠路的北京西翠娛樂中心進行外部設計。他們的屏幕牆方案提出一個動態豐富、可以進行互動交流的屏幕，以突破傳統的形象出現，除了斬新多媒體視像技術之外，屏幕更可根據外在環境變化，透過影像作出相對的反應。充滿創意的構想，迅即獲得採納。

Simone概述：「委託人要求這個模型不透明建築要流露活力動感，加強建築物跟附近環境的聯繫。因此，我們開發出尖端技術，研製

出這個具備「智能皮膚」的新式屏幕。無論在規模、客戶商業前瞻性及都市規劃，各方面都十分配合，加上中國奧運的歷史時刻，時機千載難逢，造就了這個真正創新的概念。」

GreenPix在建築上引入多媒體，手法新穎，比傳統街道廣告更超前。GreenPix的影響不止於此，設計上更自覺地考慮生態的層面，富有現代觸覺。Simone補充：「回想2002年時我跟Steven Holt合作紐約世貿中心紀念館的建築提案，腦內充滿了一份道德責任感，啟發並驅使我，將可持續能源概念運用在數碼屏幕，變成真正具備生物機能的系統，可以依靠本身獲取資源，相對地，系統亦會受制於環境變化。」

目標在望，號稱全球其中一個最大的LED液晶顯示屏幕，興建工程隨即展開。屏幕有兩千二百平方米大，屏幕組件太陽能玻璃電池板，是以新開發的技術將多晶光電單元層壓入玻璃製成，並由尚德太陽能電力公司負責電池板製作。光電單元將日間收集的太陽能，在夜間轉化成推動屏幕發光的能源。「幕牆的燈光效果，會根據日間建築接觸太陽的多寡程度而不同。」Simone說。「這些都印證了系統自給

自足的特性，能夠跟環境互動，即時反映陽光及天氣變化，作出最貼身的記錄。」

幕牆具備智能皮膚特性，反應敏感，可以自給自足產生能源，彷彿生物設計巧奪天工。Simone說：「GreenPix最初的靈感許多時來自天然現象，比如海洋的萬千視覺變化。屏幕設計獨特，產生的華麗映像流動，反映環境光線強度變化，影像效果其實是模仿波浪起伏的閃爍海洋。」GreenPix更證明，有機建築並不一定刻意刻劃設計，相反更有資格成為朝氣勃勃的地標。他道：「我們要清晰地界定形式與表現方法。我們的建築沒有片面地模仿生物，縱使現今不少建築只是片面地模仿生物，GreenPix卻與眾不同，它的運作全面仿效有機生物，生存機制跟一棵樹或一朵花的光合作用無異，首先吸收太陽光，晚間將收集的太陽能轉化成燈光的能源，全程不假外求。」

除高超的光電技術之外，屏幕另有兩個特點值得注意。其一是建築屏幕的光電單元密度轉換功能。為了配合智能皮膚的概念，光電單元密度設計允許內部程式在需要時收集自然光，在陽光過強時段調節熱量，並將額外的太

陽能轉化成屏幕所需的能源，有效地提升了屏幕性能。另一特徵是屏幕的影像顯示度並不高，據說是為了節能，其實也有視覺上的考量。Simone解釋：「低解像度的屏幕圖像，就像當代藝術的抽象視覺演繹，是我們跟藝術家Gerhard Richter及Jim Campbell討論後得出的構想。」

他續道：「屏幕作低解像度的影像投射，省電之外，視覺溝通上營造了一種藝術特色，跟傳統商戶慣用的超高分像度屏幕相比，效果完全不同。」他說。設計理據充實，這個革命性的屏幕，在Arup公司和德國製造商Suncoo及Sunavox的多方技術支援下大功告成，為中國藝壇當紅新晉及國內外藝術家創造了一個新式的表演平台。現時屏幕的功能包括播放錄像，作即時視頻發佈，例如現場節目直播及放映用戶提供的資訊內容。「屏幕牆對外發布當日，更播放了來自國際的藝術家共同協製的視頻節目，相信GreenPix將來必能造就更多創作天才的誕生。屏幕牆仿如掌握高科技的現代煉金術士，有能力捕捉自然力量，並將力量轉化成極富詩意的視覺畫面。」



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