

两栖花园——Physalia让欧洲水路更清澈

Physalia, a Positive Energy Amphibious Garden to Clean European Waterways

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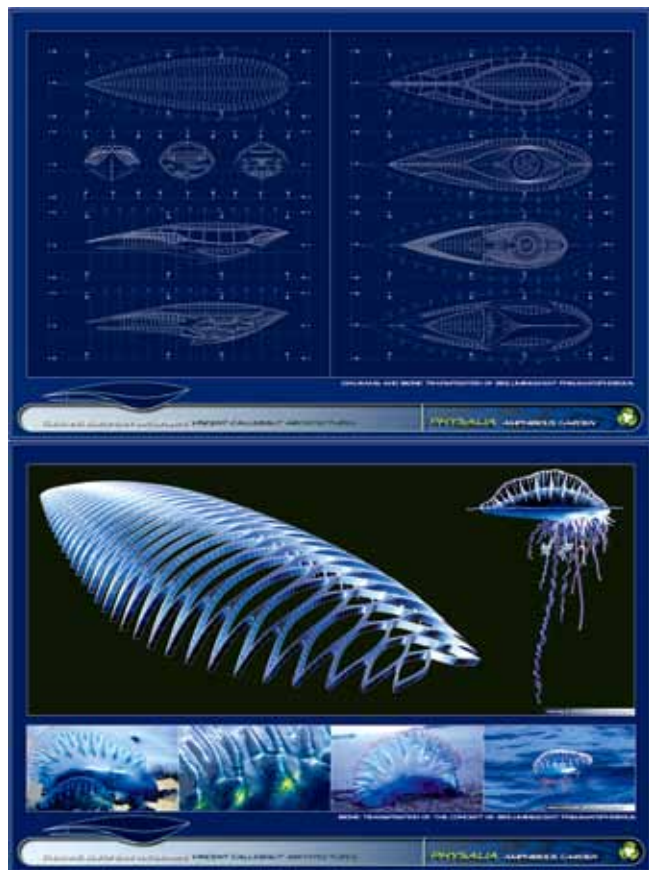
水是大自然给人类的恩赐，属于每一个人，而世界上每天却有3 000人死于饮用被污染的水，超过10亿的人处于缺水状态。

在欧洲人看来，适应气候变化、对水源质量与数量的恶化的评估、为每个人提供饮用水、发展水路交通等是新的生态挑战。2009年，来自120个国家的部长、科学家、生态人士参加了于伊斯坦布尔召开的世界水论坛，探讨如何避免水危机影响到2030年半数以上的世界人口。

在这样的背景下，Physalia作为一个建筑原型产生了，它旨在满足互相交流水源可持续管理知识的需求。这是一个半水体半陆地的两栖“船体”，一个漂浮的巨鲸状“露天广场”。它不仅从地区政治的尺度上处理生态污染和节水，而且从整个欧洲的角度详细阐述策略性解决方案，模拟河流网络的工作，以真正的移动的水动态实验室，致力于科学联盟网络的形成。Physalia也将发展出一种新的环境资源形式，为人们展现出最前沿的研究。

这是个100%自给自足的建筑，其仿生结构灵感来源于被称为“水泡”的僧帽水母。与这种水生生物一样，建筑具有完美的对称性、椭圆的外形和半透明的特质。它是自然与生物科技的集合体，为在欧洲各个河流的航海提供服务。其生态系统与环境互动，是地球的一个鲜活缩影，吸引生物与植物来此筑巢。

零碳排放建筑设计是指成为积极能源利用的典型，也就是说自身制造出多于消耗的能量。屋顶双层充气膜安装太阳能光电



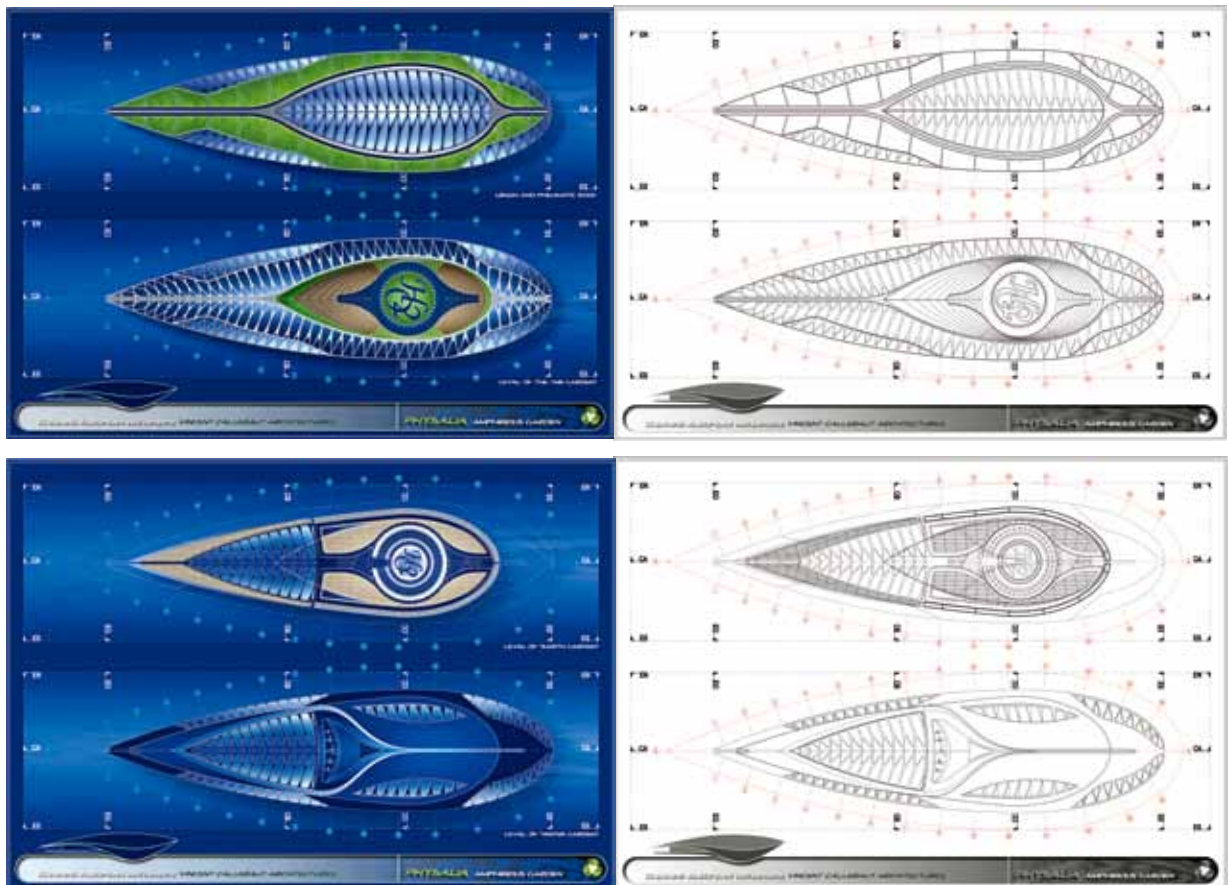


板，同时底部的水力涡轮发电机将水流动能转化成电能。多层钢结构外壳表面被铝材覆盖，通过上面的二氧化钛涂层与紫外线产生的化学反应，除了自清洁船体，通过光触媒作用，还将吸收并循环利用化学和碳废物，减少水污染。而且，项目的双船体互相交叉，通过水网过滤水流，利用种植屋顶进行生物净化。

当自动灌溉系统停止，Physalia就会消失在大气中。实际上，它变形成一团轮廓瞬间消失的烟雾，仿佛将游客暂时困在其中。这艘“未来之船”为我们找到悬臂结构之间的最佳平衡点，使之漂浮于水表面，举重若轻。表面曲线则体现出建筑完美、优雅、创意时尚的一面。

In the European thought about the adaptation to the climatic change and the establishment of the qualitative and quantitative degradation of the water resources, the supplying for everyone of drinking water and the boost of the transport by waterways (low CO₂ transmitter) are the two new ecological and worldwide challenges about the water. In 2009, the ministers of 120 countries, scientists and ecologist fighters participated in Istanbul to the World Forum of Water (as above mentioned) to study the means to avoid a water crisis which according to UN and the World Water Council, will affect about half of the worldwide population within 2030.

In this context, the “Physalia” project is an architectural prototype that aims at meeting the need of the mutualisation of the knowledge in terms of sustainable management of the water resource. It is a half aquatic and half earthly amphibious vessel, a floating agora which has not only the objective on a geopolitical scale to



建筑室内的透视效果模拟了人们对于水未来的讨论，将其分为四个主题花园。

“水”花园标志出建筑的主入口。水体表面上空悬吊着一块大的玻璃平台，室内空间反映出水的腐蚀性。这个接待空间用作当代展览，在无重环境下震动，在光影下舞蹈。这个水体阳台的立面能充分打开，使空间面向室外充分呼吸。

“土”花园组成了实验室的核心部分，供国际研究人员分析水生态系统服务。在这个全景房之上是一个种满植物的房间，实际上，它相当于土壤过滤站和分子分析室。

“火”花园是一个水下长廊。柔软的躺椅围绕着燃烧的木材，将我们仿佛置身水下泛着金色光芒的驾驶舱。我们通过一个旋转扶手接近公园。这里可以用于展示水生态的永久展览。

“气”公园是镜头下一个传播氧气和光线的空间。其实，这个生态露天剧场与外部景观相通，与位于一个气动和光伏“垫子”之下的城市相通。中心是一个由圆形旋转水吧挤出的“水”字的缩写，就像一个舞台。它是一个真正的公民论坛，人们在这里可以一起商讨如何改造世界，决定未来生态战略！

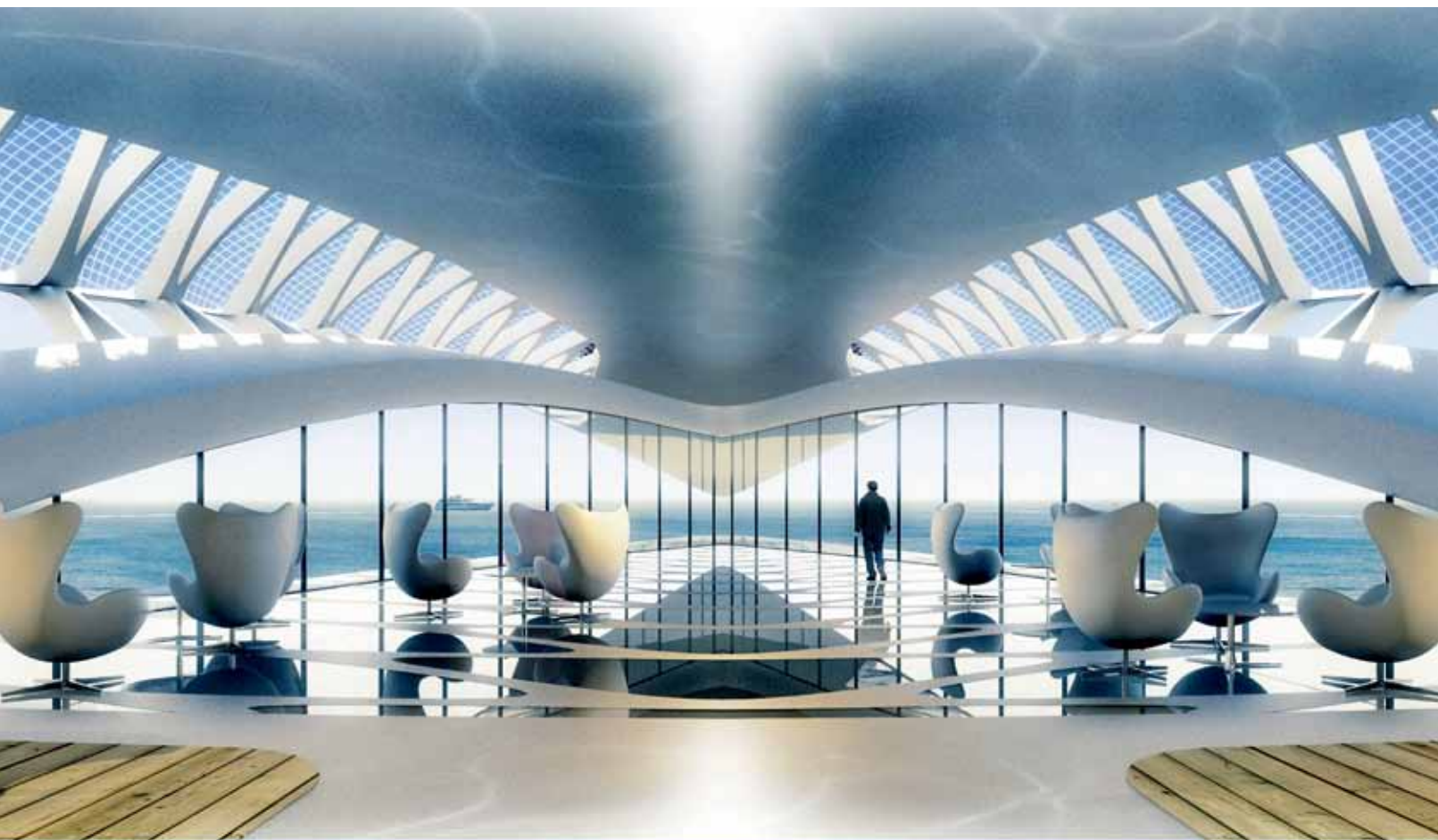
仿生建筑建议寻找人的行动和对环境的尊重之间的平衡，而人是核心。处在漂浮不定的位置，对自然、生物科技信息、交流科技有着极大的关注，使得建筑成为当代公民诉求的一种表达，他们希望在环境保护上采取行动。这是一个大胆前卫的项目，召集尊重水资源的人们，共享这种动态的平衡。哥本哈根会议之后，这是一个欧洲范围内的积极的生态创新项目。（译/李昭君）

deal with ecology and water saving, but also on a European scale, to elaborate strategic solutions to animate the fluvial network. True nomadic hydrodynamic laboratory dedicated to implement an international network of scientific partnerships, “Physalia” will also develop new prototypes of environmental resources and will show its most advanced studies on this matter:

Physalia is a vessel, 100% self sufficient in energy, whose bionic structure is inspired from the pneumatophorous called also “Physalia physalis”, from Greek physalis (...) that means “water bubble” ! As this aquatic pneumatophorous, the project is relevant by its perfect symmetry, its oblong shape and its translucent aspect. It is a sum-up of the nature and the biotechnologies dedicated to navigate on the main extra-European rivers between Danube and Volga, between Rhine and Guadalquivir, or also between Euphrate and Tiger. It is a ecosystem reacting to its environment, a fragment of living earth, inviting the fauna and the flora of the fluvial biodiversity to come and make its nest in the city!

Its architecture with carbon zero emission is eco-designed from renewable energies to make it as a prototype with positive energy, that means producing more energy than it consumes! Thus, its roof contains a double pneumatic membrane chiselled with smooth photovoltaic solar cells whereas under its hull the hydro-turbines transform the energy of the fluvial stream in hydro-electricity and enable to adjust the soft navigation. Its surface is made of aluminium covering the multi-hull steel structure. This silver-plated dress is covered by a TiO_2 layer of anatase shape that by reacting to the ultraviolet rays enables to reduce the water pollution. Actually, in addition to being a self cleaning vessel, it enables to absorb and recycle by photo-catalytic effect, the chemical and carbonated waste from the fluvial water rejected by the traditional boats and by industrialists. Moreover, the project is crossed in its double hull by a hydraulic network that enables to filter the fluvial water and to purify it biologically thanks to its planted roof.

When the system of automatic irrigation works in “blue hours”, the architecture disappears in favour of an atmosphere. Actually, the project metamorphoses into a fog cloud with evanescent contour. The Physalia becomes therefore a perfumed evaporation space that seems to coil up the visitors in suspension inside. The





architecture of the futurist ship reveals a perfect balance between the cantilever masses, placing it in light levitation on the water surface. The curved lines are refined and nerve. They show with elegance the innovative and stylish side of this place.

The interior scenography of Physalia animates the debate on the water future into four thematic gardens dedicated respectively to every four elements bringing by symbiosis their typical aspect and complementarily to the final assembling of an amphibious global landscape.

The “Water” garden: marks the main entrance of Physalia between the berthing gates and the square. A great glass platform is in suspension on top of the water surface reflecting thus on the interior vault the causticity of the floods. This reception space dedicated to the temporary exhibitions vibrates under the weightlessness and dances under the reflections of light. The façades of this true aquatic balcony can also open themselves totally on the fluvial landscape and let the space breathe towards the exterior caressed by the fluvial breeze.

The “Earth” garden: constitutes the heart of the laboratory dedicated to international researchers who analyse the aquatic ecosystem crossed by the ship. On top of this panoramic room, a planted vault stands up. This vault is a fertile metaphor of earth filtering the stations of work and molecular analysis.

The “Fire” garden: is a confined and protecting underwater lounge, truly out of time. The soft relaxation armchairs surround a huge fire timbale burning in the fireproofed hull of the vessel. We feel like in a subaquatic cockpit with delicate

golden reflections. We access naturally to this garden from a soft and circular banister that spreads under the planted vault around flames. We can admire the floating line dancing under its sinusoidal volutes as well as the fauna and the flora of the middle through the two panoramic glass portholes. It is a space dedicated to the permanent exhibitions on the aquatic ecosystems.

The “Air” garden: is a space of oxygen and light that spreads under a pneumatophores lens. Actually, this ecologic amphitheatre opened towards the exterior landscape, towards the cities organised with chisels under an oblong ear of pneumatic and photovoltaic cushions. In the centre, we find “H₂O” acronym extruded under the shape of a circular and rotating water bar such as a theatre stage. It is the meeting and debate point by excellence, a true citizen forum where we meet to reinvent the world and decide of the eco-political strategies of tomorrow!

Man is in the centre of this bionic project that recommends the balance between the human actions and the respect of environment. The architecture of this nomadic place, powerful concentrate of nature, of biotechnologies and information and communication technologies is thus the simple reflect of the contemporary citizen who wonders about the actions to conduct on its environment. It is an audacious avant-garde project that aims at mixing people around the notion of water respect, sharing in movement and dynamic balance. After the Copenhagen conference, it is a project of transeuropean leadership and a positive innovation of ecologic resilience. **AT**