

城市扩建的四种手法

Urban Addition: 4 Gestures

中文版

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声波海景台



建筑师将声波海景台与一个位于波罗的海的Curated Expeditions项目融合在一起。该项目被评选为2011图尔库欧洲文化资产，由Capsula公司建造。

2010年夏天，艺术家Marianne Decoster-Taivalkoski在图尔库海岸线周围的不同地点就水下音景方面进行了大量调查。两处听音地点是根据其发声材料的质量及其是否与海景相协调而选择出来的。汉纳·哈斯拉赫蒂对海岸线进行了研究，试图找到该亭台的最佳视点角度。

该项目对地点有着特殊的要求，它旨在探索海景与海平面下面所产生的声波之间的联系。建筑师在图尔库的沿岸建造了两座亭台和观景台，当中安装了一个实时音景装置，通过隐藏在附近水域中的水听器将水下的声音传导过来。流动的声音信号可以将人们肉眼看不到的过程展现出来，使人们可以对亭台面前的这片海景进行重新审视。

水下的音景与海平面上的海景之间有什么

联系呢？声音可以在水下传播数公里，所以即使在一个阳光明媚的天气里，海平面非常的平静，水下还是有噪音的。每当我们谈论到大海的时候，通常涉及的仅仅是海平面发生了什么，其实水下是一个神秘的世界，我们却对其所知甚少。该项目借助声波探索了海底世界，这也是水中沟通的最佳方式。

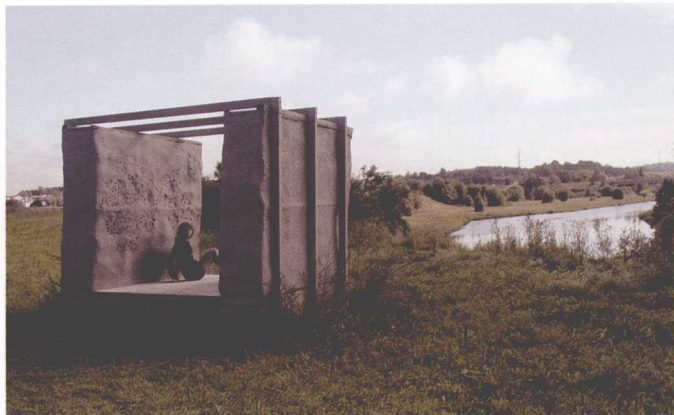
该项目想要在沿海城市中建造多座亭台、观景台。在每座亭台中，人们都可以听到从特定角度所看到的海域的实时水下声音。人们可以欣赏到介于亭台和安置水听器之间的海景，所以站在亭台中的观众或听众可以将海景和音景两者联系起来。这些亭台对海洋与陆地之间的联系进行了探索：海洋是如何反映人类活动的？城市声音是如何融入到水下音景中的？同时，这也提高了我们对周围环境的观察能力，不仅用我们的眼睛，也用我们的耳朵去感知。

这些亭台是利用回收材料和自然资源建成的。位于Koroinen的一号亭台几乎完全是由

在芬兰海岸边生长的湖芦苇建造而成的，这种芦苇通过吸收波罗的海中的营养成分而迅速生长，由于它是当地植物且具有良好的声学特性，因此它是建造声波亭台的理想建筑材料。

Sonic Seascape Terrace _ Hanna Haaslahti + Marianne Decoster-Taivalkoski

Sonic Seascape Terrace is integrated in the production of a larger project named Curated Expeditions on the Baltic Sea selected for the Turku European Cultural Capital 2011, produced by Capsula. During summer 2010 Marianne Decoster-Taivalkoski made an intensive underwater soundscape research in diverse locations around Turku coastlines. Two locations of hearing were selected based on the quality of the sound material and its contradiction with the seascape. Hanna Haaslahti made research from the coastline trying to find the best possible viewpoints for the terraces.



It is a site-specific project, which explores connections between the seascape and sounds emanating beneath its surface. Two terraces, belvederes, constructed on the shorelines of Turku City are accompanied with a realtime soundscape composition, distributed on the terrace from the hydrophones hidden in the nearby body of water. The streaming sound signals question the beauty of "vista mare" opening from the terraces by revealing processes invisible for the eyes.

What is the correlation between underwater soundscape and the way the sea looks on the surface? Sound can travel many kilometers under water, so it's noisy down there though on a sunny day the surface of the sea appears as a calm and peaceful entity. When we talk about the sea, we tend to refer to only what's happening on the surface level. But underneath is a secret world which we know very little of. The project investigates that world with the aid of sound, which is the best communication method in water. The aim of the project is to build view-point terraces, belvederes, in a city with marine shorelines. From each terrace one can hear the real-time underwater soundscape of the seascape visible from that specific view-point. The view over the seascape is framed from the terrace to the place where a number of hydrophones are located, so that a viewer/listener standing at the terrace can link the seascape and the soundscape to each other. The terraces form an exploration into the interaction between the sea and the land, how the sea is reflecting human activities and how city sounds merge into the underwater soundscape. At the same time, it can sharpen our senses to make observations about our surrounding environment not only with our eyes, but also with our ears.

The terraces are built with recycled and natural materials. Terrace 1 at Koroinen is constructed almost completely from lake reed, which has spread along the coasts of Finland with the eutrophication of Baltic Sea. Its origin and excellent acoustic characteristics make it a perfect building material for the sonic terrace.

艺术家: Hanna Haaslahti (space), Marianne Decoster-Taivalkoski (sound)

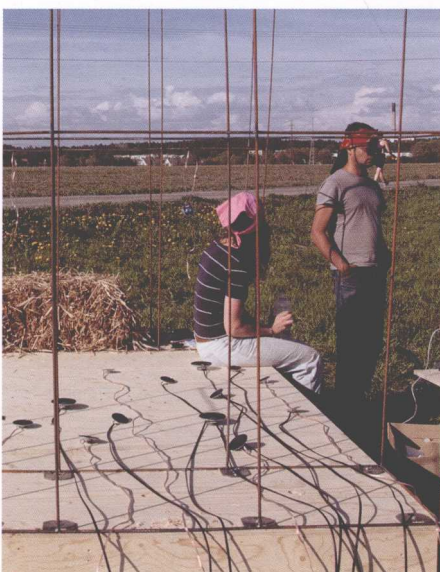
项目团队: Alejandro Montes de Oca

合作者: Capsula, Baltic Sea Now.info, Turku European Capital of Culture 2011, Sibelius Academy (Department of Music Technology), AVEK (Audiovisual promotion center of Finland, Hyrylinna, ProNatMat (Turku Polytechnic)

地点: Koroinen, Turku, Finland

建筑面积: 6m²

材料: Lake reed bale, clay, 42 mini speakers, plywood, iron bar
竣工时间: 2011



挪威野生驯鹿中心观察馆

挪威野生驯鹿中心观察馆位于多夫勒山国家公园外围的耶尔辛,可鸟瞰Snøhetta山。这座90m²的建筑面向公众开放,成为野生驯鹿基地教育规划的观察馆。参观者可以沿着一条1.5km的天然小路进入这个位于海拔1200m处的引人入胜之地。多夫勒山脉在挪威的北部和南部之间形成一道屏障。这里是欧洲仅存的野生驯鹿种群的家園,是众多稀有动植物的自然栖息地。

旅行、狩猎传统、采矿和军事活动的悠久历史在这片土地上留下了印记。除了自然和文化景观,多夫勒山脉在挪威人眼中还具有重要的意义。民族传说、神话、诗歌(易卜生)、音乐(葛利格)和朝圣等都称颂着这片神奇土地神秘和永恒的特点。其独特的自然、文化和神秘景观构成了建筑构想的基础。

这座建筑以一个坚固的外壳和一个有机的内核为基础设计完成。朝南的外墙和内部空间令人联想起被疾风和流水侵蚀的岩石或坚冰,创造出一个温暖的庇护场所,同时又能使参观者欣赏到这座建筑壮观的自然全景。

建筑师非常重视建筑材料的品质和耐久性,以使其可以抵御恶劣的气候。建筑的长方形框架由类似于当地基岩层中铁矿石一样的原钢制成。随着时间的流逝,建筑体生锈的颜色与周围山脉的自然色彩融合在一起。

项目简单的外形和天然建筑材料的使用都与当地的建筑传统有关。然而,在设计和建造过程中也采用了先进的技术。通过利用三维计算机模型来驱动铣床,哈丹格尔峡湾的挪威造船专家在25.4cm²的松木梁中创造出了许多有机的形状。随后建筑师以传统的方式,用

木钉做紧固件将木质结构组合起来。外墙用松焦油进行处理,而室内的木质结构则采取涂油加以处理。

这座观察馆是一座粗糙而又精致的建筑,它使参观者能够有机会欣赏、凝视这处广阔而丰富多彩的景观。

Norwegian Wild Reindeer Center Pavilion _ Snøhetta

The Norwegian Wild Reindeer Center Pavilion is located at Hjerkin on the outskirts of Dovrefjell National Park, overlooking the Snøhetta mountain massif. The 90m² building is open to the public and serves as an observation pavilion for the Wild Reindeer Foundation educational programs. A 1.5km nature path brings visi-





tors to this spectacular site, 1,200m above sea level. Dovrefjell is a mountain range that forms a barrier between the northern and southern parts of Norway. It is home to Europe's last wild reindeer herds and is the natural habitat for many rare plants and animals.

A long history filled with traveling, hunting traditions, mining, and military activities has left its mark on this land. In addition to the natural and cultural landscape, the Dovre mountain range also holds significant im-

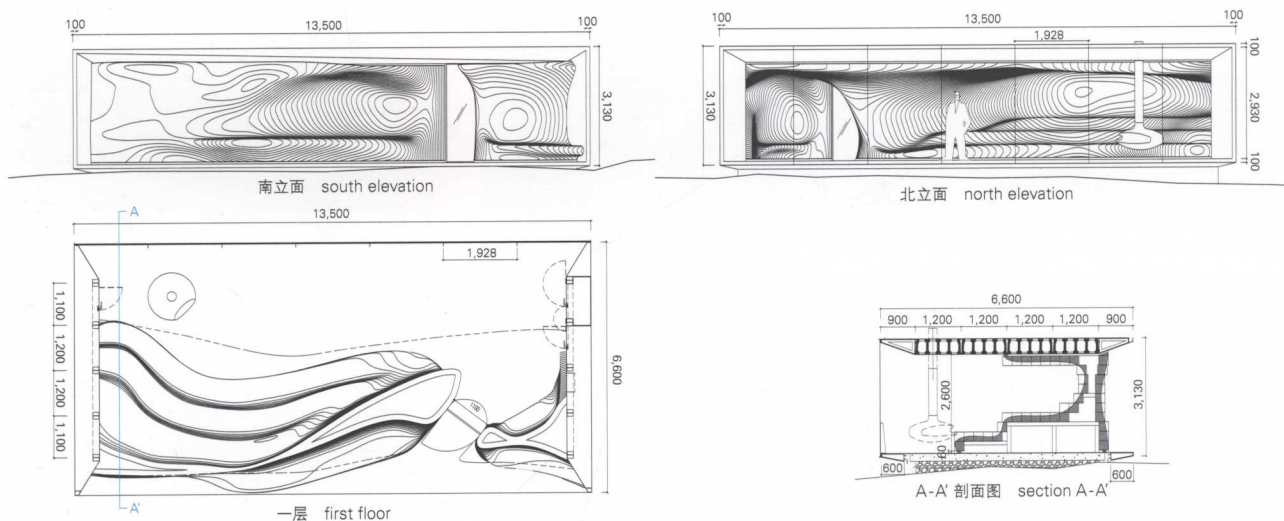
portance in the Norwegian consciousness. National legends, myths, poetry (Ibsen), music (Grieg), and pilgrimages celebrate the mystic and eternal qualities of this powerful place. This unique natural, cultural and mythical landscape has formed the basis of the architectural idea.

The building design is based on a rigid outer shell and an organic inner core. Reminiscent of rock or ice eroded by wind and running water, the south facing the exterior wall and the interior create a protected and

warm gathering place, while still preserving the visitors' view of the spectacular natural panorama.

Considerable emphasis is put on the quality and durability of the materials to withstand the harsh climate. The rectangular frame is made in raw steel resembling the iron ore found in the local bedrock. Over time the rusted color blends with the natural colors in the surrounding mountains.

The simple form and use of natural materials reference local building traditions. However,



advanced technologies have been utilized both in the design and the fabrication process. Using 3D computer models to drive the milling machines, Norwegian shipbuilders in Hardangerfjord have created the organic forms from 10 inch square pine beams. The wood was then assembled in a traditional way using only wood pegs as fasteners. The exterior wall was then treated with pine tar while the interior wood has been oiled. The pavilion is a robust yet nuanced building that gives visitors an opportunity to reflect and contemplate this vast and rich landscape.

项目名称: Norwegian Wild Reindeer Center Pavilion

主建筑师: Kjetil T. Thorsen

项目团队: Erik Brett Jacobsen, Margit Tidemand Ruud, Rune Grasdøl, Martin Brunner, Heidi Pettersvold.

项目管理: Knut Bjørgum

结构工程师: Dr. Techn. Kristoffer Apeland AS, Trond Gundersen

景观建筑师: Snøhetta Oslo AS

总承包商: Prebygg AS

甲方: Norwegian Wild Reindeer Center

地点: Hjerkin, Dovre Municipality, Norway

建筑面积: 90m²

竣工时间: 2011.6

造价: NOK 4 million

摄影师: Courtesy of the architect (@Ketil Jacobsen)-p.6~7

Courtesy of the architect (@Jan Olav Storli)-p.8

Courtesy of the architect (@diephotodesigner.de)-p.9^{top, bottom}

Courtesy of the architect-p.9^{middle}



变化的场所

Collectif Etc公司在赢得了法国圣埃蒂安公共城市规划部委托举办的比赛后，设计了一个670m²的公共广场，并在2011年7月由居民一起参与建造。

场地位于两条街道的交叉路口，原来是一片荒地，为响应邻近地区城市的持续变化，该项目也设想规划的第一步，即对建筑进行设计与建造。这一设想将在地面上体现出虚拟房屋的平面，在墙体上显示出它们的剖面。这样一来，人们就可以想象生活在未来住宅里是什么样子，并对几年后要建成的真正的住宅有一个了解。

经过一整月的工作，现已建成三种类型的工作坊，每天从上午9点至晚上8点可以向所有人开放：

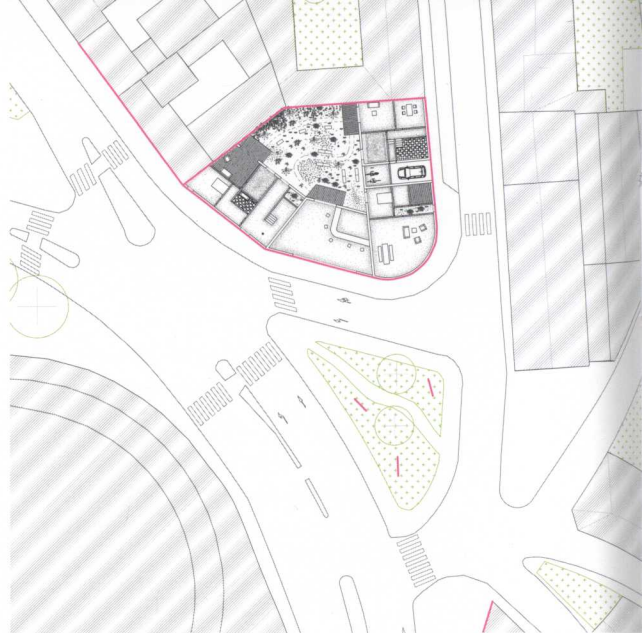
- 一个制造各种城市家具的木工工作坊；
- 一个图形设计工作坊，可以给虚拟的房屋和周围环境提供活力；
- 一个景观和园艺工作坊，可以建造一块绿化空间，并在场地中间建成一座共享花园。

施工现场向公众开放，人们可以相互交流，取长补短。Collectif Etc公司为每个人提供工具、安全装备，并提出咨询建议。地方协会、艺术家和音乐家们受邀举办各种活动，如壁画展、音乐会、马戏团表演工作坊、露天电影、体育联赛、探戈舞课程、特色餐、辩论会等等。此外，在线博客已经建立，可以向人们展示施工现场的日常生活情况。

工程现在已经竣工。场地上设有一个水箱，当地群众很主动地去照顾花园并定期举办活动。设备没有受到损坏，场地也保持得很好，而且因为艺术家Ella & Pitr在现场进行了大规模绘画，居民们决定将这里命名为“巨人的居所”。现在这里已成为邻近地区一个很重要的元素，附近居民可与其密切往来。

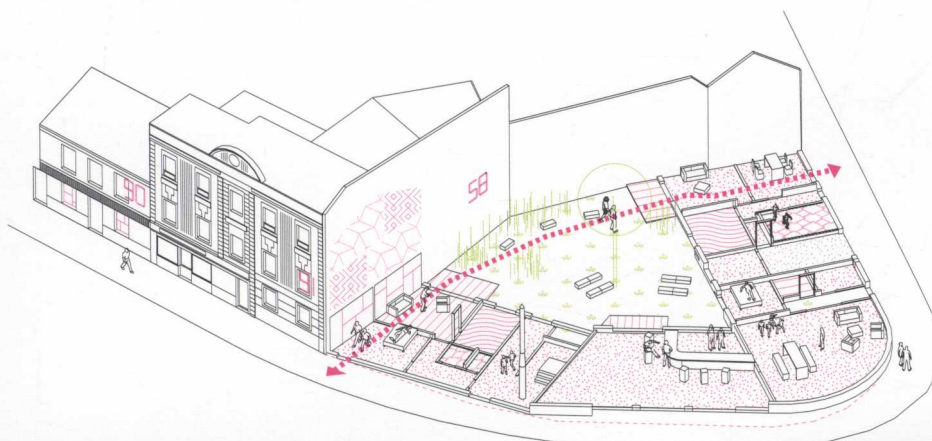
Place of Change _ Collectif Etc

After winning a competition commissioned by the Public Urban Planning Agency of Saint-Étienne (France), the Collectif Etc designed a public square of 670m² and built it with the inhabitants



in a participative process in July 2011. At the intersection of two streets, the site was formerly a wasteland. Answering the on-going urban changes in the neighborhood, the project simulates the first step of the process in which a building is designed and built. The idea is to represent the plan of imaginary housings on the ground and their section on the wall. In that way, people can





imagine living in the future buildings and get an idea of the impact of the real one that should be built in a couple of years.

For a whole month, three types of workshops have been set up and were fully open to everyone, every day from 9 am to 8 pm:

- A carpentry workshop to build all the urban furniture;
- A graphic design workshop to give life to the imaginary housings and to the surroundings;

- A landscape and gardening workshop to establish the green space and shared garden in the middle of the site.

The construction site was open to the public and people could exchange and learn from each other. The Collectif Etc provided everyone with tools, safety gears and advice. Local associations, artists and musicians were invited to organize various activities such as wall paintings, concerts, circus workshops, open air movies, sports tournaments, tango lessons, special meals, debates... An online blog got set up and showcased the everyday life of the construction site.

The works are now over. A water tank is available and local people had the initiative to keep taking care of the garden themselves and organize regular events.

The furniture is not damaged, the place well maintained and the inhabitants decide to name it "Place of the Giant" after the large painting made by artists Ella&Pitr. It is now an important element in the neighborhood, a place that neighbors identify to.

项目名称: Place au Changement
 建筑师: Collectif Etc
 甲方: Établissement Public d'Aménagement de Saint-Étienne
 地点: Saint-Étienne, France
 用地面积: 670m²
 竣工时间: 2011.7



过程 PROCESS

2011 ICD/ITKE研究亭

ICD+ITKE, University of Stuttgart, Faculty of Architecture and Urban Planning





2011年夏天,计算设计协会(ICD)和建筑结构与结构设计协会(ITKE)与斯图加特大学的学生们一起设计了一座临时的仿生研究亭,这座亭子属于木质结构,用于教学和研究。该项目通过利用新型计算机设计和模拟方式,以及在施工过程中使用的机控制造法,对海胆骨架的生物原理进行了探究,从而转变了建筑的风格。

该项目独特的创新性就在于,建筑师通过计算机程序将可辨识的仿生原理及其相关性能有效地扩展成为一系列不同的几何形状,例如,亭子的复杂形态只需使用超薄的胶合板(6.5mm厚)就可以建成。

该项目旨在将仿生结构的表力与建筑设计融合在一起,以及对所产生的空间和结构的材料系统全面的测试。建筑师将重点放在了模块化系统的开发上,由于该系统的板式组件具有不同的几何形状且可以自动进行指形结合,因此这个系统具备高度的适应性和表现力。

在分析不同生物结构的过程中,沙钱(海胆的一个种类)的骨架形态激起了建筑师的兴趣,它为人们展示了仿生结构的基本原理。

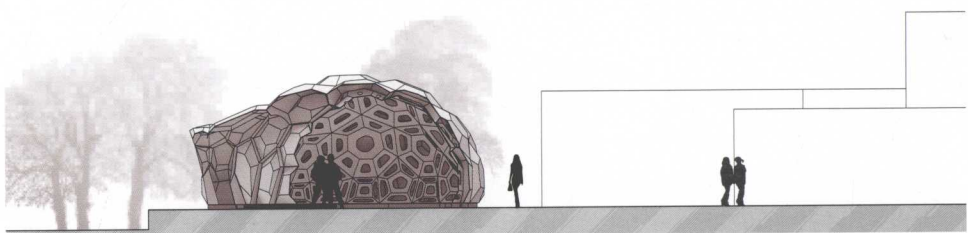
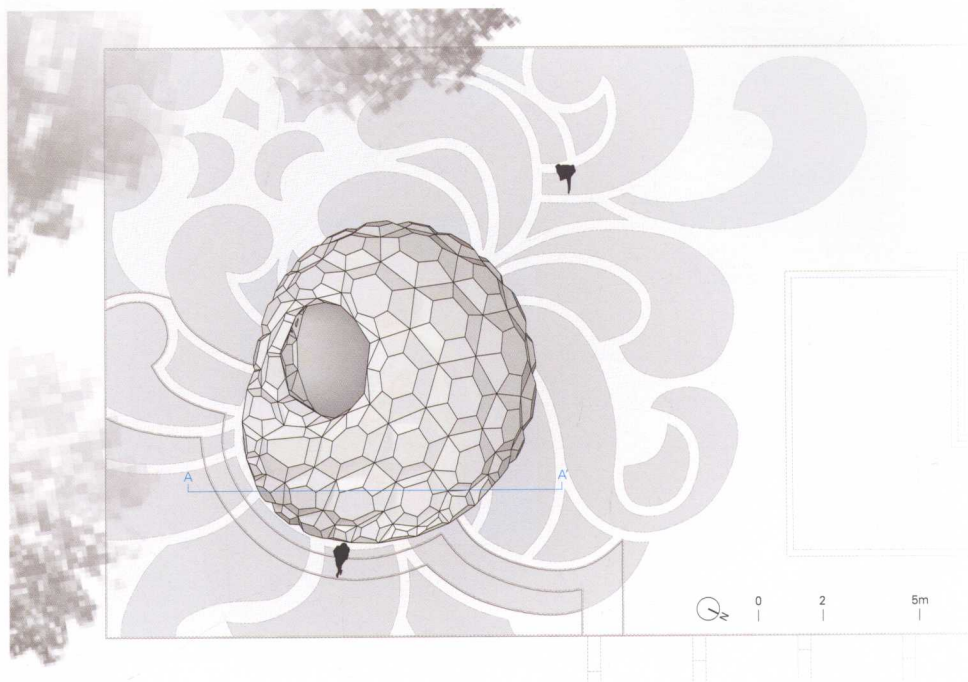
随着对沙钱的研究,建筑师将其板式结构的形态融入到了对亭子的设计中。三块平板边缘总是聚集在一个点上,这样的原则可以使正常的剪力得到传递,而且在结合处不产生弯矩,从而形成一个可承受弯曲却不会变形的结构。

建筑师若想要成功地设计、开发、完成这样一座具有复杂形态的亭子,就要求在项目的模型、限定成分的模拟以及计算机数字机器控制三者之间具有一种封闭的、数字信息的循环模式。

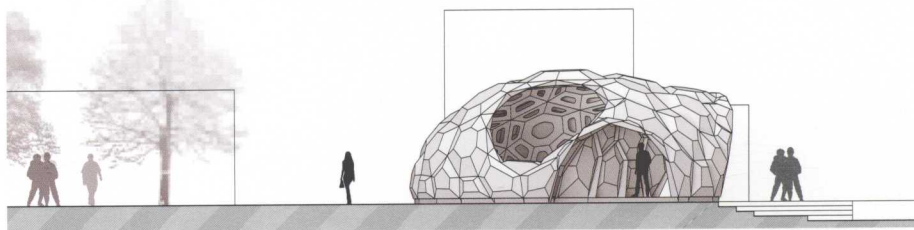
这座研究亭的表面是由多个多边形组成的,它们代表着不同的几何特征,置身其中的人们可以对模拟仿生结构进行探究。同时,建筑师们还开发了两种截然不同的实体空间:一个位于大学建筑楼之间,面向公共广场,它具有一个宽敞的内部空间以及一个巨大的开口,其内部还设有带有孔状的表层;另外一个空间是一个由两层表皮包围着的较小的间隙空间,它向人们展示了双层外壳的构造逻辑。

ICD/ITKE Research Pavilion 2011

In summer 2011 the Institute for Computational Design (ICD) and the Institute of Building Structures and Structural Design (ITKE), together with students at the University of Stuttgart have realized a temporary, bionic research pavilion made of wood at the intersection of teaching and research. The project explores the architectural transfer of biological principles of the sea urchin's plate skeleton morphology by means of novel computer-based



A-A' 剖面图 section A-A'



东南立面 south-east elevation



design and simulation methods, along with computer-controlled manufacturing methods for its building implementation. A particular innovation consists in the possibility of effectively extending the recognized bionic principles and related performance to a range of different geometries through computational processes, which is demonstrated by the fact that the complex morphology of the pavilion could be built exclusively with extremely thin sheets of plywood (6.5 mm).

项目名称: ICD/ITKE Research Pavilion 2011
项目团队: Prof. Achim Menges - Institute for Computational Design (ICD), Prof. Jan Knippers - Institute of Building Structures and Structural Design (ITKE), University of Stuttgart, Faculty of Architecture and Urban Planning, Competence Network Biomimetics Baden-Württemberg

概念与项目开发: Oliver David Krieg, Boyan Mihaylov

规划与实施: Peter Brachat, Benjamin Busch, Solmaz Fahimian, Christin Gegenheimer,

Nicola Haberbosch, Elias Kästle, Oliver David Krieg, Yong Sung Kwon, Boyan Mihaylov, Hongmei Zhai

项目管理: Markus Gabler, Tobias Schwinn

结构设计: Riccardo La Magna, Frédéric Waimer

细节处理: Steffen Reichert

地点: Keplerstr. 11-17, 70174 Stuttgart, Germany

建筑面积: 72m²

建筑体积: 200m³

材料: Birch plywood 6.5mm Sheet thickness

竣工时间: 2011.8

