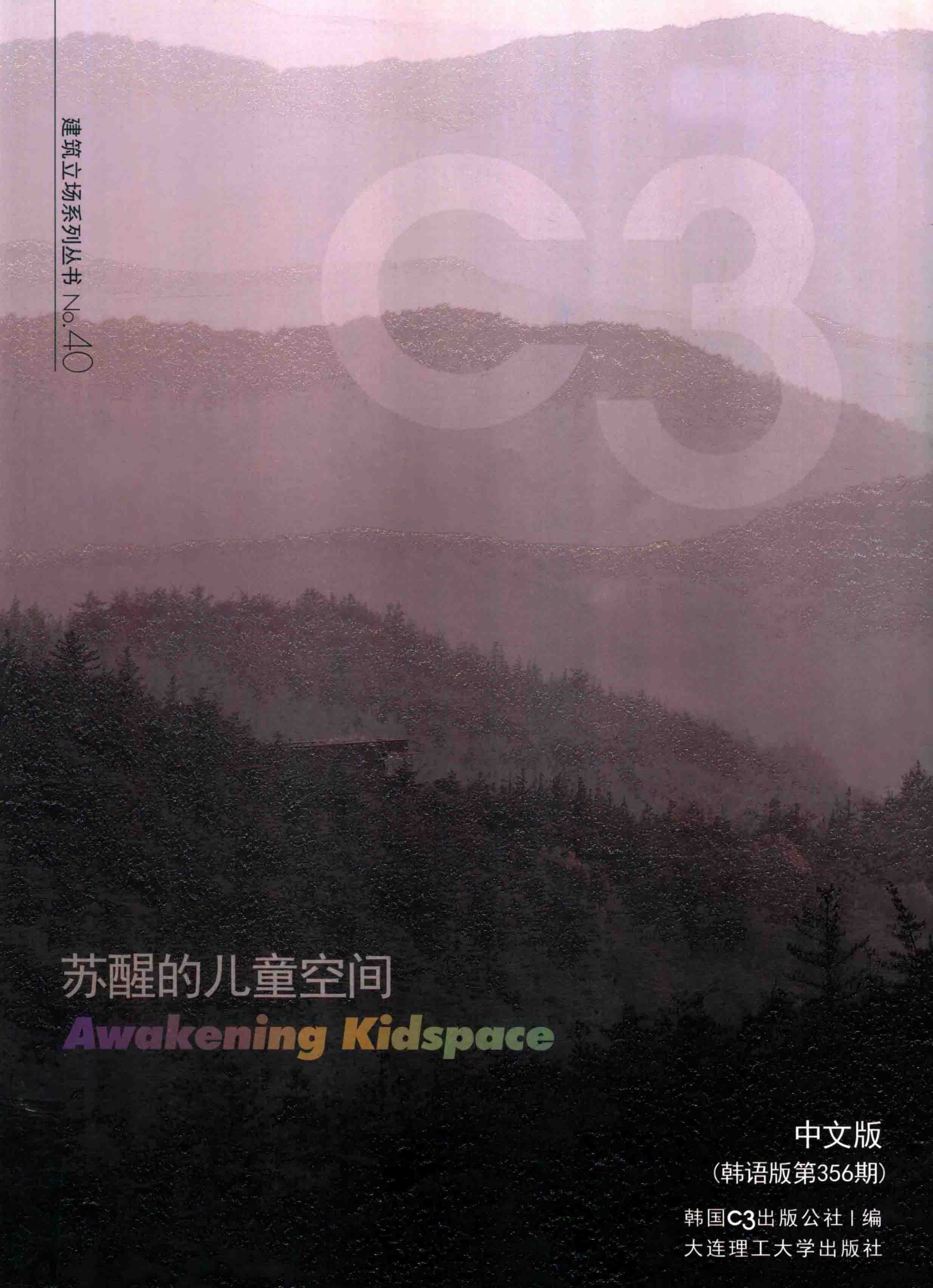

建筑立场系列丛书 No.40

苏醒的儿童空间

Awakening Kidspace

中文版

（韩语版第356期）

韩国C3出版公社 | 编

大连理工大学出版社

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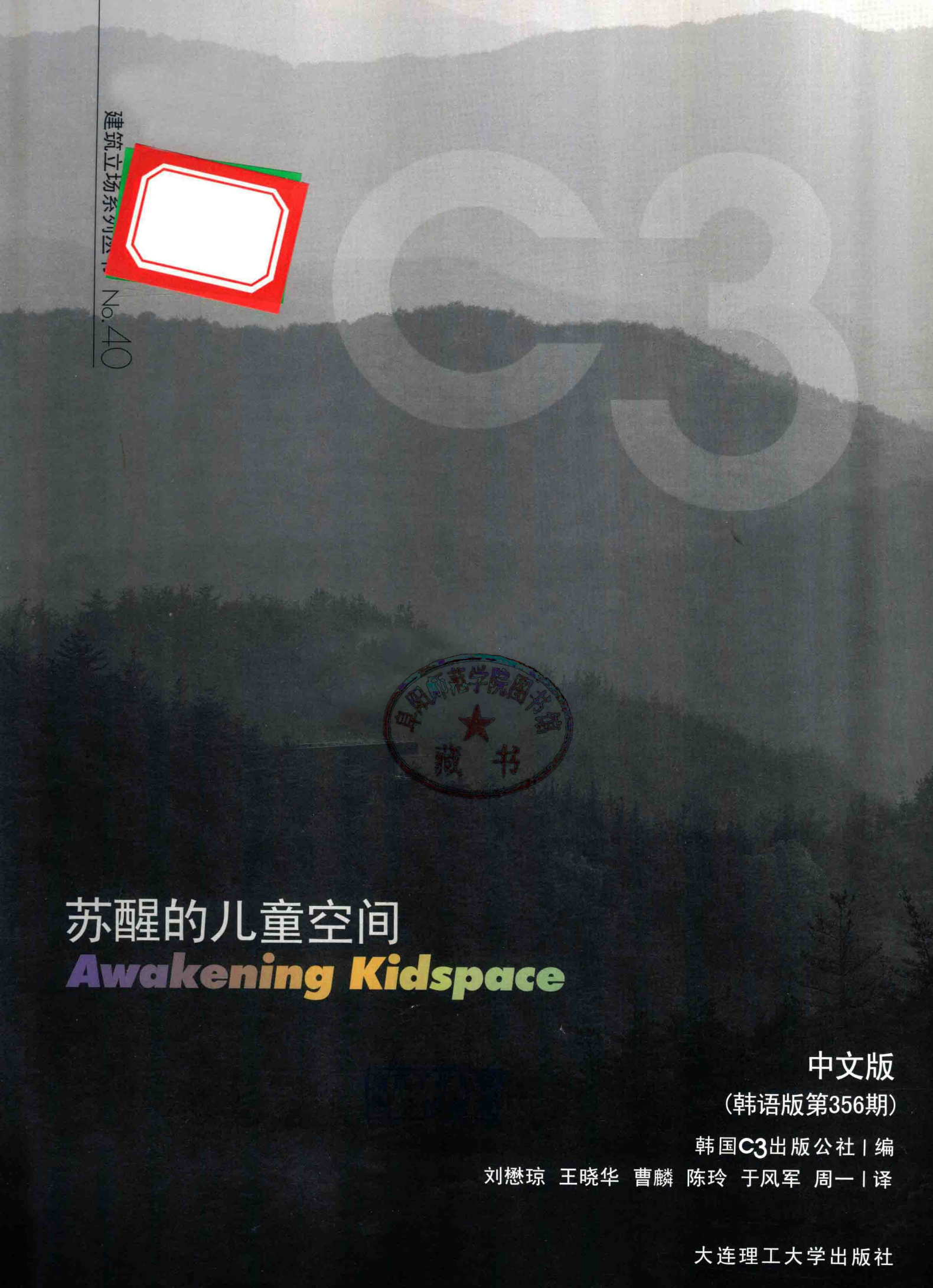

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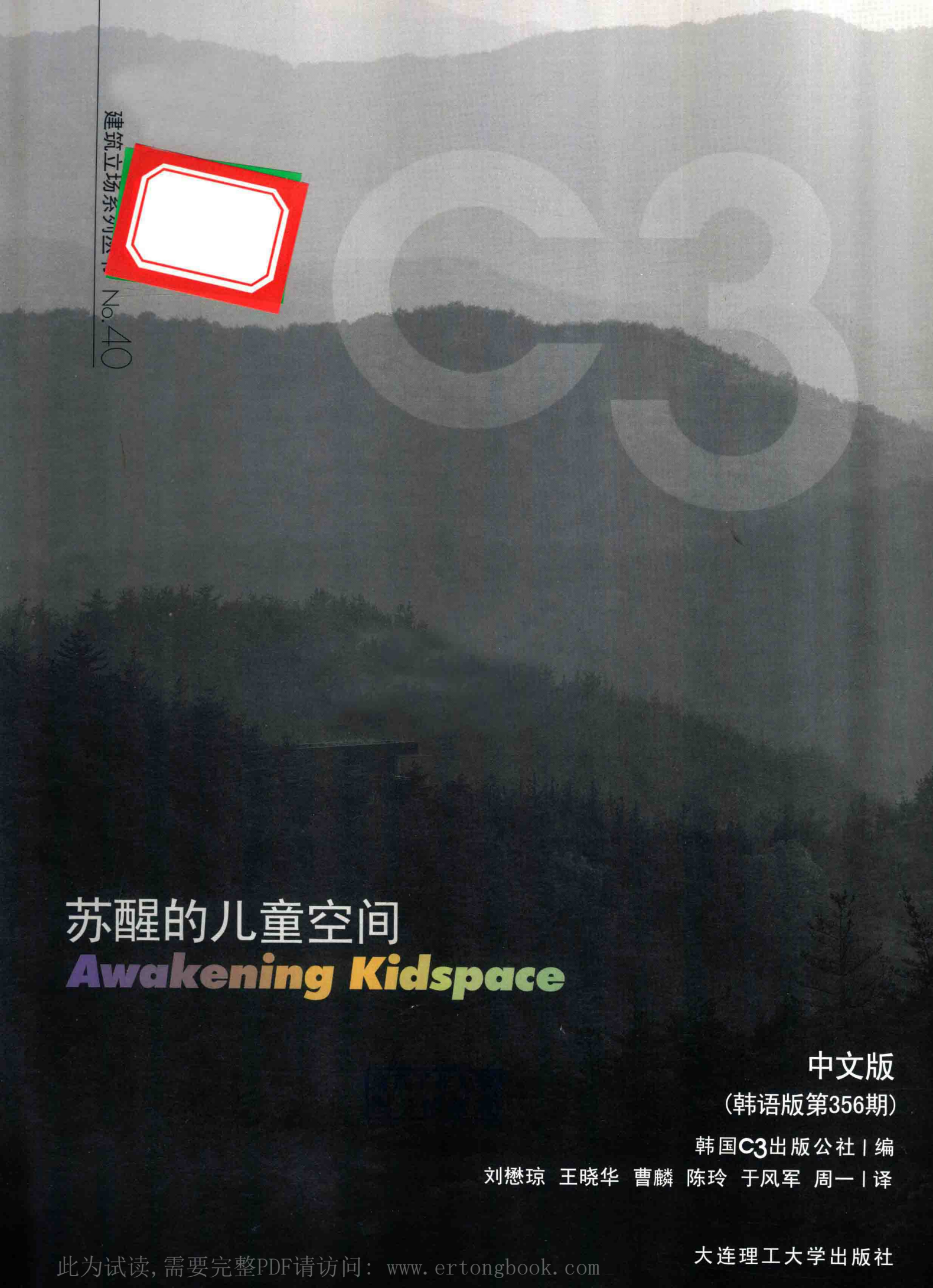

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Hy-Fi_The Living

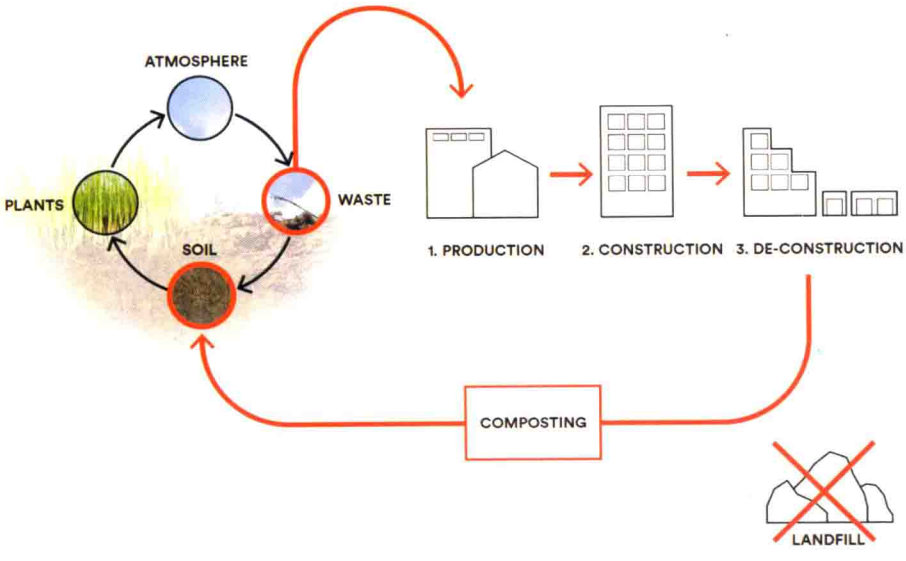
Hy-Fi为纽约现代艺术博物馆PS1（当代艺术中心夏季音乐会）的"热身"活动创造了一次有趣且迷人的体验，同时也为制造业和设计业的未来树立了新的典范。

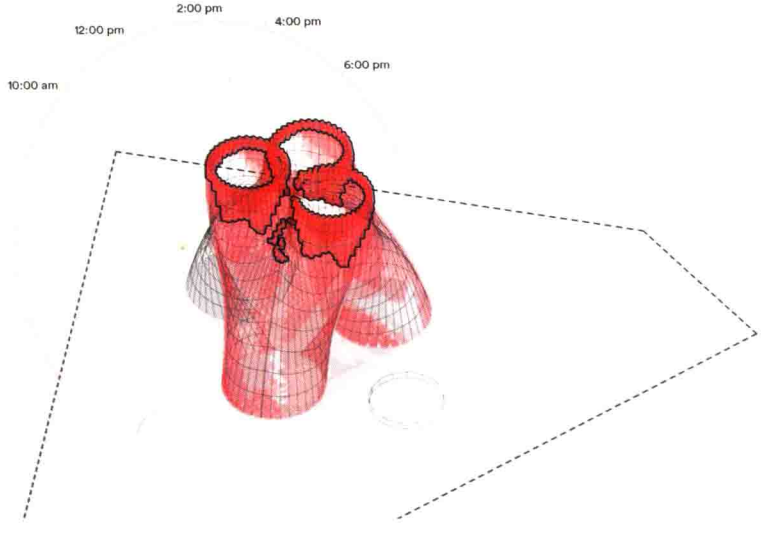
如果说20世纪是物理学的世纪，那么21世纪将是生物学的世纪。建筑师将生物技术与尖端的计算与工程原理相结合，创造出了新的建筑材料以及一种新的生物设计方法，为PS1（纽约当代艺术中心）设计了这座百分百可堆肥化处理的建筑。建筑师临时利用自然界的碳循环规律创造了一座来自尘土、最终会归于尘土的建筑，整个过程几乎完全无废物、无热量、无碳排放。这为我们的社会在处理建筑实体和所处环境的关系方面提供了一个崭新的视角。同时也为本土材料赋予了新的定义，并且在纽约州的农业和创新文化产业、纽约设计师和非营利性机构，以及皇后区的社区花园之间建立了直接联系。

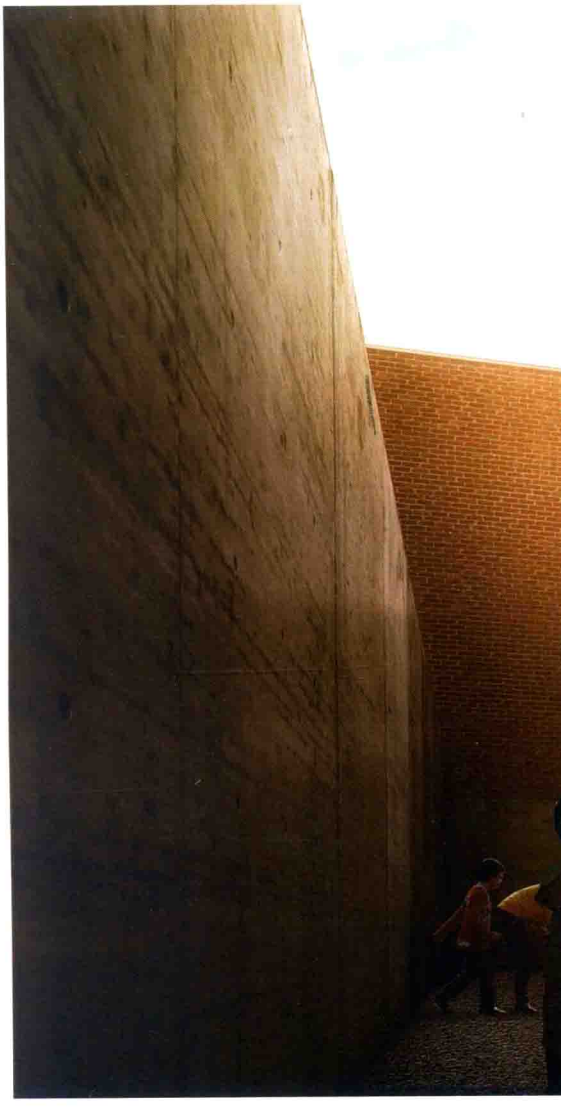
这座圆形塔建筑由有机砖和反光砖建成。建筑师为了结合利用两种新材料的独特属性而设计了这些砖。有机砖是通过将玉米茎（除此之外别无他用）和专门开发的活根结构创新地结合到一起制造出来的（这种工艺是由一个勇于革新的新公司Ecovative研发出来的，建筑师与该公司通力合作为这项工程开发量身定制的加工程序）。反射砖是通过3M公司研发的新型采光镜膜，经过定制成型工艺而制造出来的（建筑师与3M公司合作开发出了这种材料的新用途）。反射砖被用作有机砖的培育托盘，然后它们组合构成最终结构，随后装船运回3M公司用于进一步研究。有机砖排列在建筑的底部而反射砖排列在顶部，反射砖从上引入阳光并反射到圆塔内部及塔底。

这座建筑物颠覆了砌砖建筑的承重逻辑，从而创造了一种反重力效应（建筑底部并不是粗重密实的，而是纤细多孔的）。这座设施在塔底部引入冷空气的同时从塔顶排出热空气，为人们在炎热的夏天提供一个凉爽的微气候。阳光照射在建筑物内墙，光线反射发生焦散现象而形成迷人的光影效果（比如光线照在塔底的游泳池发生的折射或是穿过一只红酒杯而呈现的光的纹理）。在纽约天际线下的玻璃塔楼和PS1建筑的砌砖结构的背景衬托下，这种结构呈现给人们的是一座看似熟悉却又是全新的建筑物。总之，这座建筑给人们带来了阴影、色彩、光线及视觉上的冲击，以及耳目为之一新、精神为之一振、充满了奇幻想象和乐观精神的前卫体验。

为了完成这项工程，The Living工作室组成立了出色的合作团队，包括Ecovative公司（纽约新公司，是此项工程零废料处理方面的专家）、3M公司（发明了采光镜膜）、先进金属涂层有限公司（负责检验这座建筑所使用的天然材料在纽约的夏季条件下是否稳固耐用）、Shabd Simon-Alexander和Audrey Louise Reynolds（两位手染印花大师为建筑使用的有机砖研发定制了颜色和涂料）、Build It Green Compost机构（位于皇后区的非营利性机构，将负责处理这座建筑安装之后的建筑材料，并将它们提供给当地社区花园）、联合制造公司、Kate Orff、SCAPE景观建筑事务所、英国奥雅纳工程顾问公司、加十国际设计机构、欧特克公司、Bruce Mau品牌设计公司、布鲁克林数字铸造厂，以及来自哥伦比亚大学（建筑师的母校）的一个研究生团队将协助工作室建造和拆解这座建筑。







项目名称：Hy-Fi
地点：Long Island, New York, U.S
建筑师（合作团队）：
The Living/Collaborators: Ecovative, 3M,
Advanced Metal Coatings Incorporated,
Shabd Simon Alexander, Audrey Louise Reynolds,
Build It Green Compost, Associated Fabrication, Kate Orff,
SCAPE Landscape Architecture, Arup, Atelier Ten, Autodesk,
Bruce Mau Design, Brooklyn Digital Foundry,
Columbia University
竞赛时间：2014

Hy - Fi _The Living

Hy-Fi creates a fun and captivating experience for MoMA PS1 Warm Up, plus a new paradigm for the future of manufacturing and design.

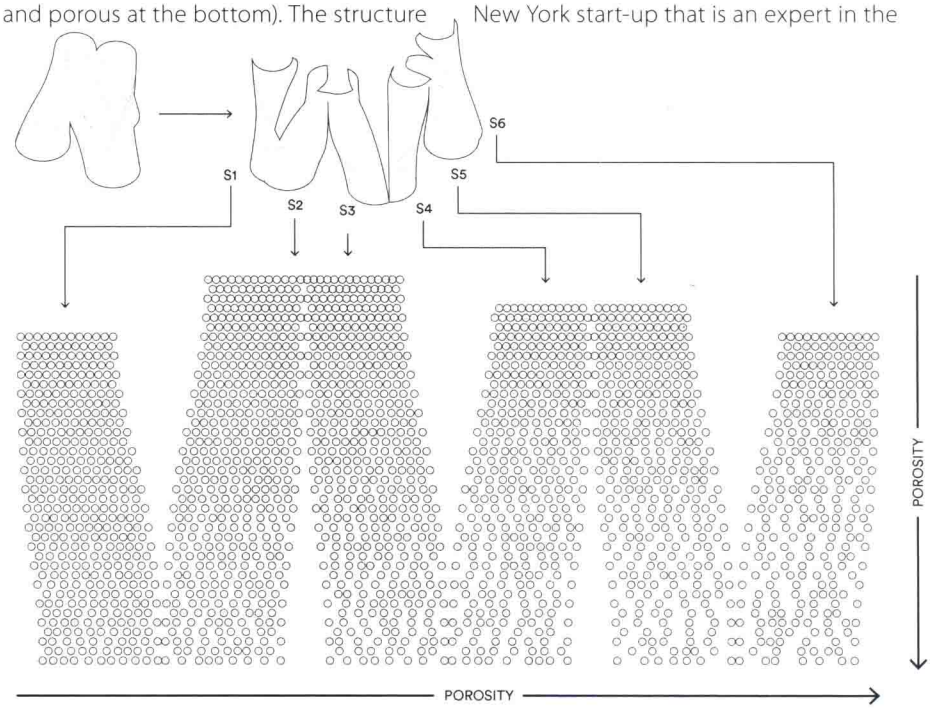
If the Twentieth Century was the Century of Physics, then the Twenty-First Century is the Century of Biology. This structure uses biological technologies combined with cutting-edge computation and engineering to create new building materials and a new method of bio-design, for MoMA PS1 that is 100% grown and 100% compostable. This structure temporarily diverts the natural Carbon Cycle to produce a building that grows out of nothing but earth and returns to nothing but earth with almost no waste, no energy, and no carbon emissions. This offers a new vision for our society's approach to physical objects and the built environment. It also offers a new definition of Local Materials, and a direct relationship to New York State agriculture and innovation culture, New York City artists and non-profits, and Queens community gardens.

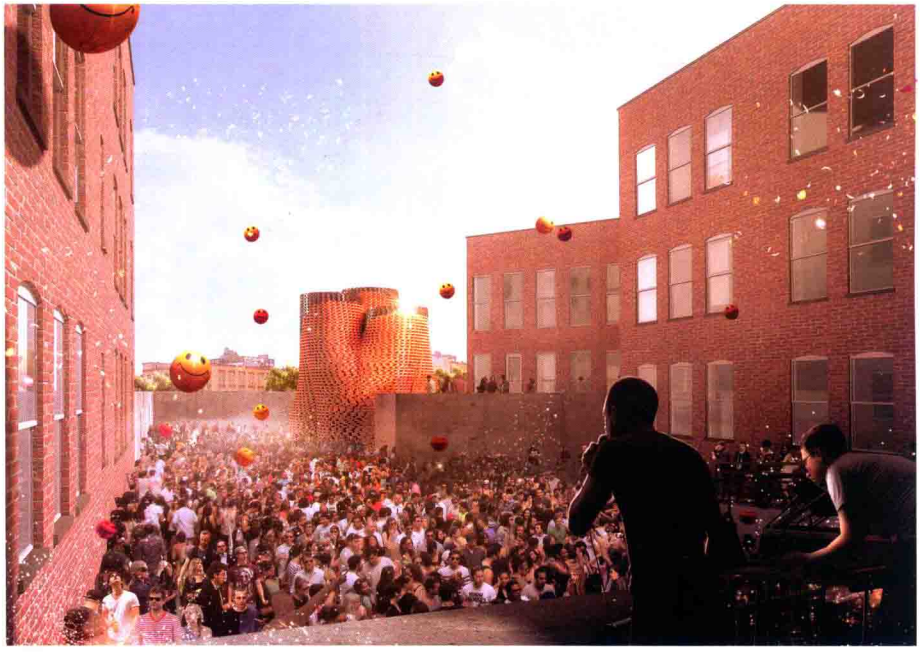
The structure is a circular tower of organic and reflective bricks. The architects designed these bricks to combine the unique properties of two new materials. The organic bricks are produced through a revolutionary combination of corn stalks (that otherwise have no value) and specially-developed living root structures (this process was invented by an innovative new company they are collaborating with called Ecovative, and together they

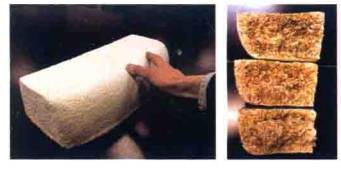
are developing a custom process for this application). The reflective bricks are produced through custom-forming of a new daylighting mirror film invented by 3M (the architects have collaborated with 3M to develop novel uses for this material). The reflective bricks are used as growing trays for the organic bricks, and then they are incorporated into the final construction before being shipped back to 3M for use in further research. The organic bricks are arranged at the bottom of the structure and the reflective bricks are arranged at the top to bounce light down on the towers and the ground.

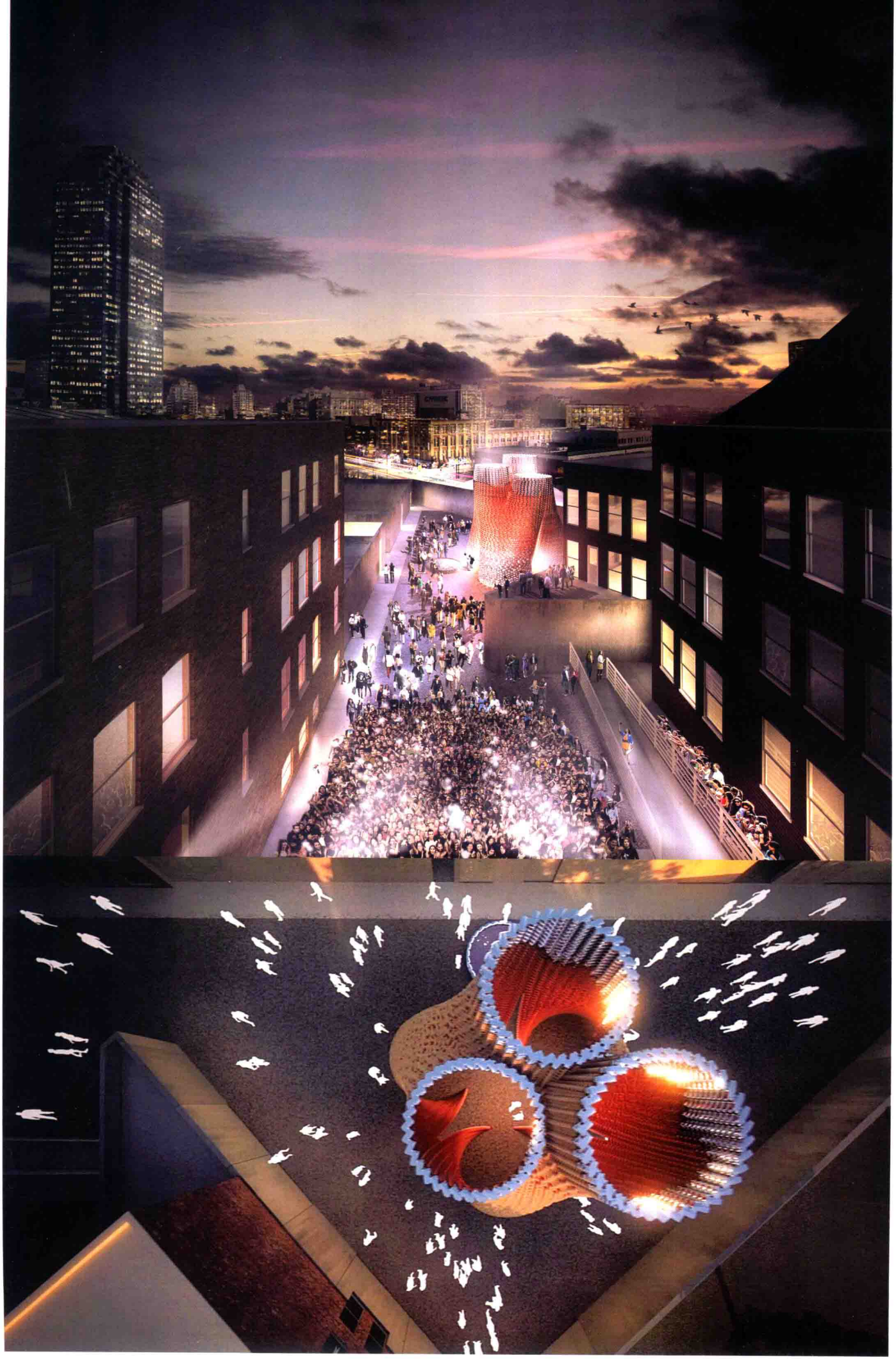
The structure inverts the logic of load-bearing brick construction and creates a gravity-defying effect (instead of being thick and dense at the bottom, it is thin and porous at the bottom). The structure is calibrated to create a cool micro-climate in the summer by drawing in cool air at the bottom and pushing out hot air at the top. The structure creates mesmerizing light effects on its interior walls through reflected caustic patterns (like the patterns of light on the bottom of a swimming pool or shining through a wine glass). The structure offers a familiar-yet-completely-new structure in the context of the glass towers of the New York City skyline and the brick construction of the PS1 Building. And overall, the structure offers shade, color, light, views, and a future-oriented experience that is refreshing, thought-provoking, and full of wonder and optimism.

To execute this project, the architects have already built an incredible team of collaborators, including Ecovative (the New York start-up that is an expert in the no-waste material), 3M (the company that invented daylighting mirror film), Advanced Metal Coatings Incorporated (the company that is testing the natural materials for durability in New York summer conditions), Shabd Simon-Alexander and Audrey Louise Reynolds (the natural-dye artists who are developing custom colors and coatings for the organic bricks), Build It Green Compost (the Queens-based non-profit that will process the building materials after the installation and provide them to local community gardens), Associated Fabrication, Kate Orff and SCAPE Landscape Architecture, Arup, Atelier Ten, Autodesk, Bruce Mau Design, Brooklyn Digital Foundry, and a team of graduate research students at Columbia University (where the architects teach) who will help construct and deconstruct the structure.









蒙彼利埃人体博物馆_BIG

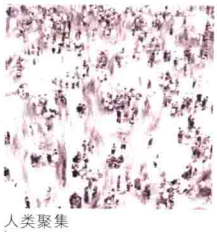
蒙彼利埃人体博物馆位于蒙彼利埃市政府一带，穿插覆盖在夏帕克公园中，它可以被设想为公园与城市的融合，即自然与建筑的融合。就像油和醋这两种不兼容物质的混合物一样，城市人行道和公园草坪在彼此的拥抱中一同流动，形成一个小型梯田，俯瞰公园并提升城市之上的大自然岛屿的高度。犹如地震断层线一样，地壳被抬高并混合成为一个如同洞穴、壁龛，瞭望台和屋檐这样的潜在连续的空间。一系列看似独立的展馆就像交叉抱合的双手那样编织在一起，形成一个统一的整体。博物馆的外立面仿佛是一个弯曲的薄膜蜿蜒穿过这个场地，而不单单是划定内部与外部的周界。它在一个毫无缝隙的统一体中描绘着室内空间与室外花园，于城市与公园之间振荡摆动。博物馆的屋顶可以被设想为一个符合人体工程学的花园，花园里呈现出各种植物与矿物表面同在的动态景观，从沉思到行动，从休闲到运动，从舒缓到挑战，在这个屋顶花园中游客们可以通过各种方式来探索和表达自己的身体。博物馆的立面是透明的，最大限度地在视觉和物理空间上连接周围的城市和公园。为了避免过多强光射入建筑，建筑师计划为博物馆量身定制一个适应当地气候条件的表皮，蒙彼利埃人体博物馆弯曲的立面在东南西北各个方向波动，而百叶窗的朝向也相应地不断变化。由此产生的条纹状立面，层次弯曲，完成从水平到垂直的无缝过渡。整座博物馆的立面恰似一个适合本土气候的功能性装饰，宛若人类的指纹，看似普遍，实则独一无二。

Montpellier Human Body Museum _ BIG

Montpellier Human Body Museum is conceived as a confluence of the park and the city – nature and architecture – book-ending the Charpak Park along with the Montpellier City Hall. Like the mixture of two incompatible substances – oil and vinegar – the urban pavement and the parks turf flow together in a mutual embrace forming pockets of terraces overlooking the park and elevating islands of nature above the city. Like a seismic fault line, the architectural crusts of planet earth are lifted and mingled to form an underlying continuous space of caves and niches, lookouts and overhangs. A series of seemingly singular pavilions weave together to form a unified institution – like individual fingers united together in a mutual grip. Rather than a single perimeter delineating an interior and an exterior, the facade is conceived as a sinuous membrane meandering across the site, delineating interior spaces and exterior gardens in a seamless continuum oscillating between the city and the park. The roofscape of the museum is conceived as an ergonomical garden – a dynamic landscape of vegetal and mineral surfaces that allow the park's visitors to explore and express their bodies in various ways – from contempla-

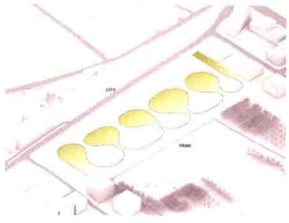
交织
interweaving

人体细胞的形成
human cell formation

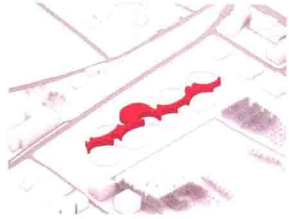


人类聚集
human swarm

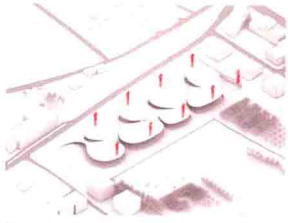
指纹
fingerprint



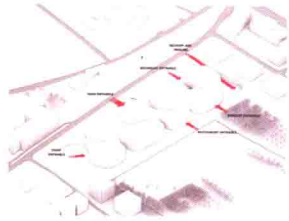
This incision interweaves the urban pavement and the parks turf, which flow together in a mutual embrace, forming terraced pockets which overlook the park and elevating islands of nature above the city.



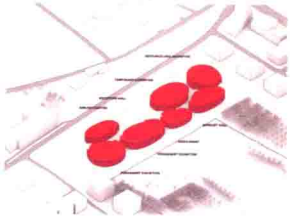
A fluid space, a unifying matrix creates links between all of the programs.



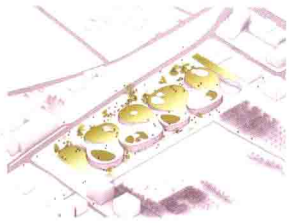
The architectural crusts of earth are lifted and mingled to form an underlying continuous space of caves and niches, lookouts and overhangs.



The multiple entrances to the building are clearly indicated on the facade of the building.



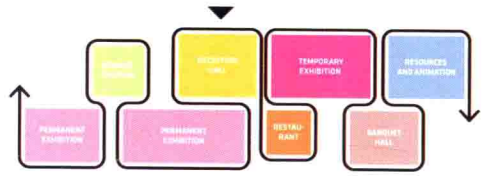
Underneath the roofscape, the program is distributed in a logical and rational manner, according to the desired views towards the park, the daylight requirements, the connections to the surroundings and the internal desired connections.



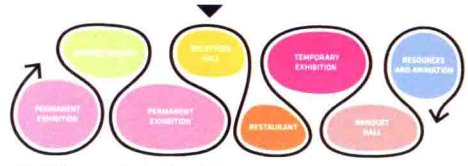
The roofscape is conceived as an ergonomical garden – a dynamic landscape of vegetal and mineral surfaces that allows the park's visitors to explore and express their bodies in various ways.

Program
The building's program is grouped into eight major functions with the reception hall in the center.

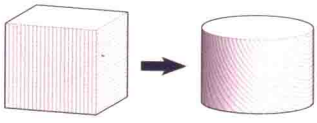
Linear Organization
The functions are organized along a main axis, allowing the building to merge with its surroundings – creating views to the park, access to daylight, and optimizing internal connections.



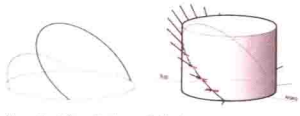
From Linear Organization to Compression
The organization of the functions are compressed in order to remain within the site boundaries. For practical, functional and flexible reasons, all functions are located on one level. This compression creates connections between the functions which, if organized linearly, would not be possible.



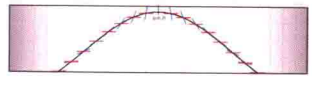
From Compression to Organic Shapes
By multiplying the interfaces between the spaces, the shape becomes more functional, catering to the needs of the building – an adaption that results in a more fluid and organic shape, in osmosis with its environment.



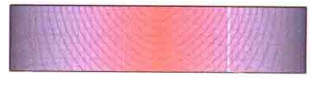
Traditional Louvers
On a cardinally oriented rectilinear building, the south facade is equipped with horizontal louvers to block the high altitude of the mid-day sun. Conversely, it is common to have vertical louvers to the east and west to block the low-incoming sunrays of morning or afternoon. If we apply this principle to a cylindrical building, we obtain a soft transition between vertical and horizontal.



Unrolled Sun Path on Cylinder
By projecting the yearly average sun angle of Montpellier on a cylinder, the direction of the louvers can be optimised. For each point on the surface of a cylinder, there is an optimal angle for the shadow dropped on the facade.

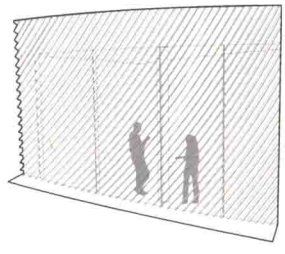


Altitude Vectors
If the sun path on a cylinder is unrolled, the red lines indicate vectors perpendicular to azimuth lines while the blue lines show the same vectors adjusted according to altitude.



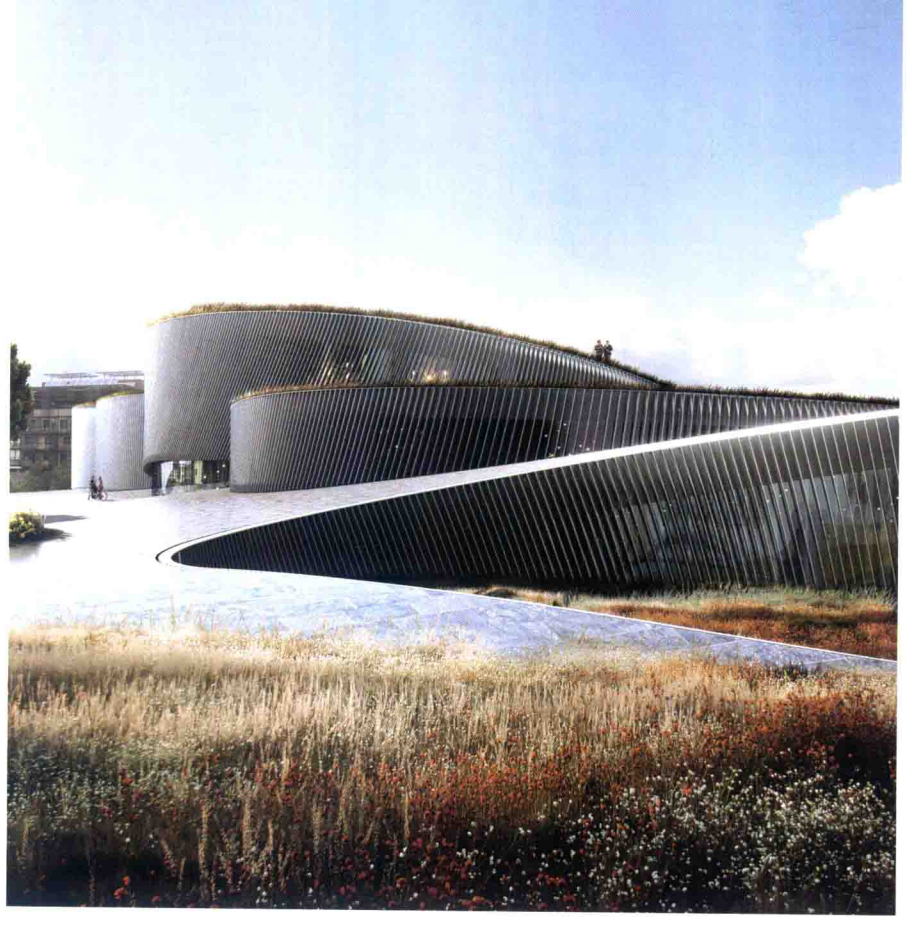
Louver System
The louvers are derived by taking the closest perpendicular path through the vector field. This creates a system that can minimize direct heat gain and still maximize view. On the unrolled facade, the sun path leaves an organic-like print.

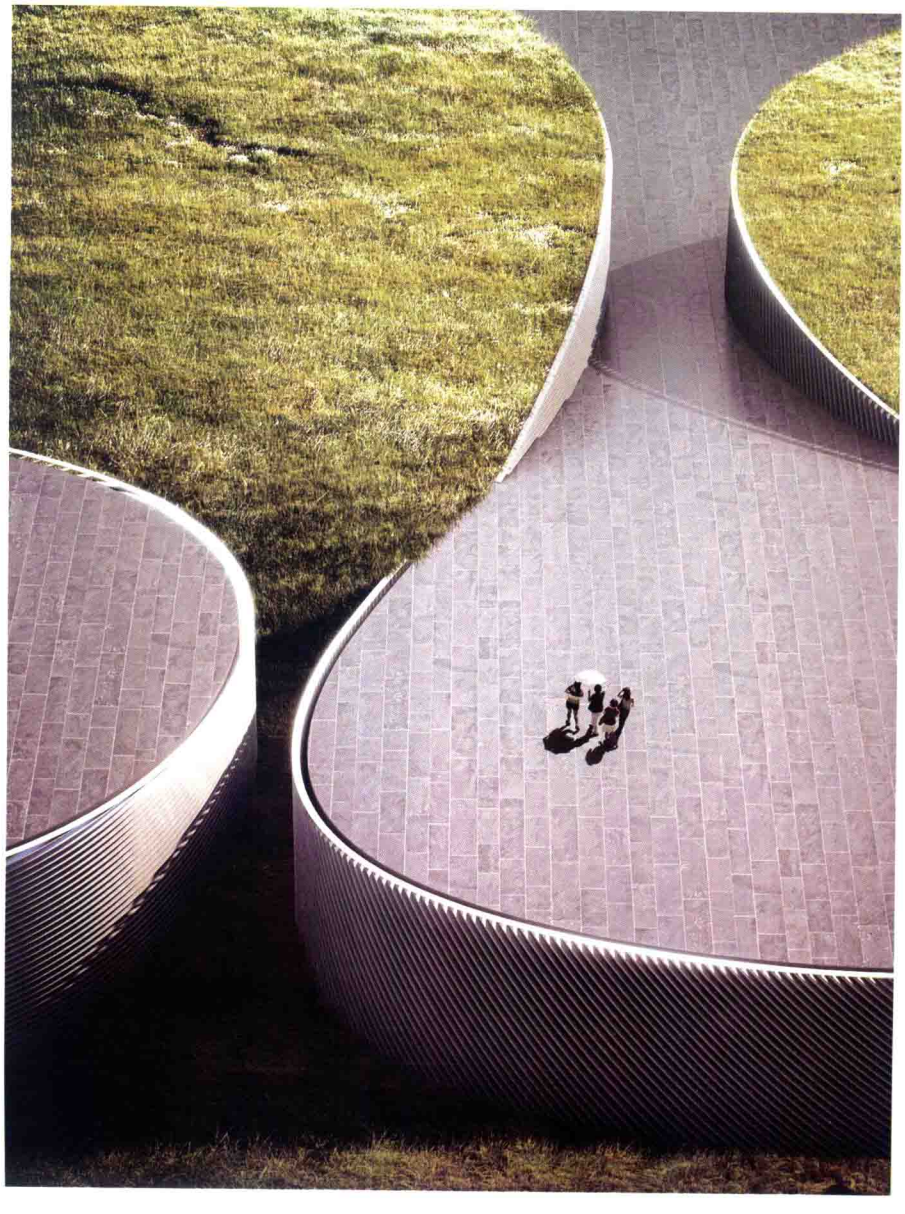
Method of Facade Generation



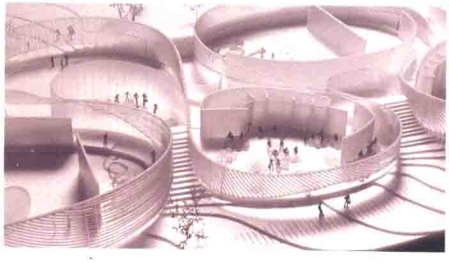
As the curvilinear geometry of the perimeter block continuously changes orientation the ideal orientation of the louvers changes along with it. Technically the louvers are cast in GFRC (glass fiber reinforced concrete). This allows them to be robust, create long spans and deal with double curvature in a simple process. The color and texture of the GFRC will be slight warm yellow because local sandstone will be added in the mixture. This underlines the local grounding of the project as well as a geological comment to the lifted landscape.

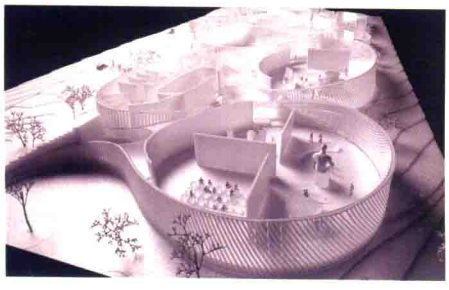
tion to the performance – from relaxing to exercising – from the soothing to the challenging. The facades of the Museum are as transparent as possible, maximizing the visual and physical interaction with the surrounding city and park. To protect from thermal exposure and glare from the abundant Montpellier sunlight, the architects propose to wrap the entire envelope in a skin tailored to the conditions of the local climate. On the sinuous facade of the Montpellier Human Body Museum that oscillates between facing North and South, East and West, the optimum louver orientation varies constantly. The resultant facade experience is a striated facade with layers that bend from horizontal to vertical in a seamless transition. Like a functional ornament adapted to its native climate the facades of Montpellier Human Body Museum resemble the patterns in a human fingerprint – both unique and universal in nature.





项目名称：Cité du Corps Humain
地点：Montpellier, France
建筑师：BIG
主要合伙人：Bjarke Ingels, Andreas Klok Pedersen
项目经理：Jakob Sand
项目团队：Birk Daugaard, Chris Falla, Alexandra Lukianova, Oscar Abrahamsson, Katerina Joannides, Aleksander Wadas, Marie Lançon, Danae Charatsi, Alexander Ejsing
合作建筑师：A+ Architecture, Egis Bâtiment Méditerranée, Base, L'Echo, Celsius Environnement, Cabinet Conseil Vincent Hedont
甲方：Ville de Montpellier
功能：culture 用地面积：7,800m²
竞赛时间：2013

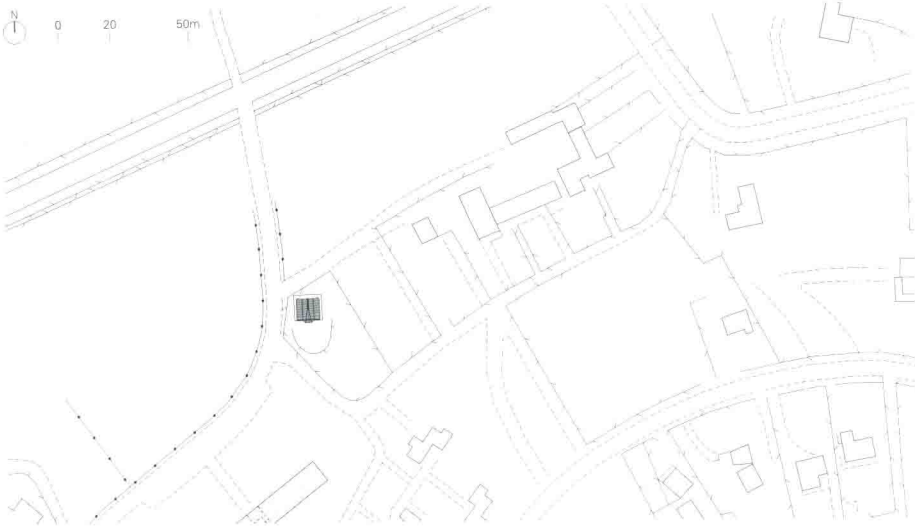


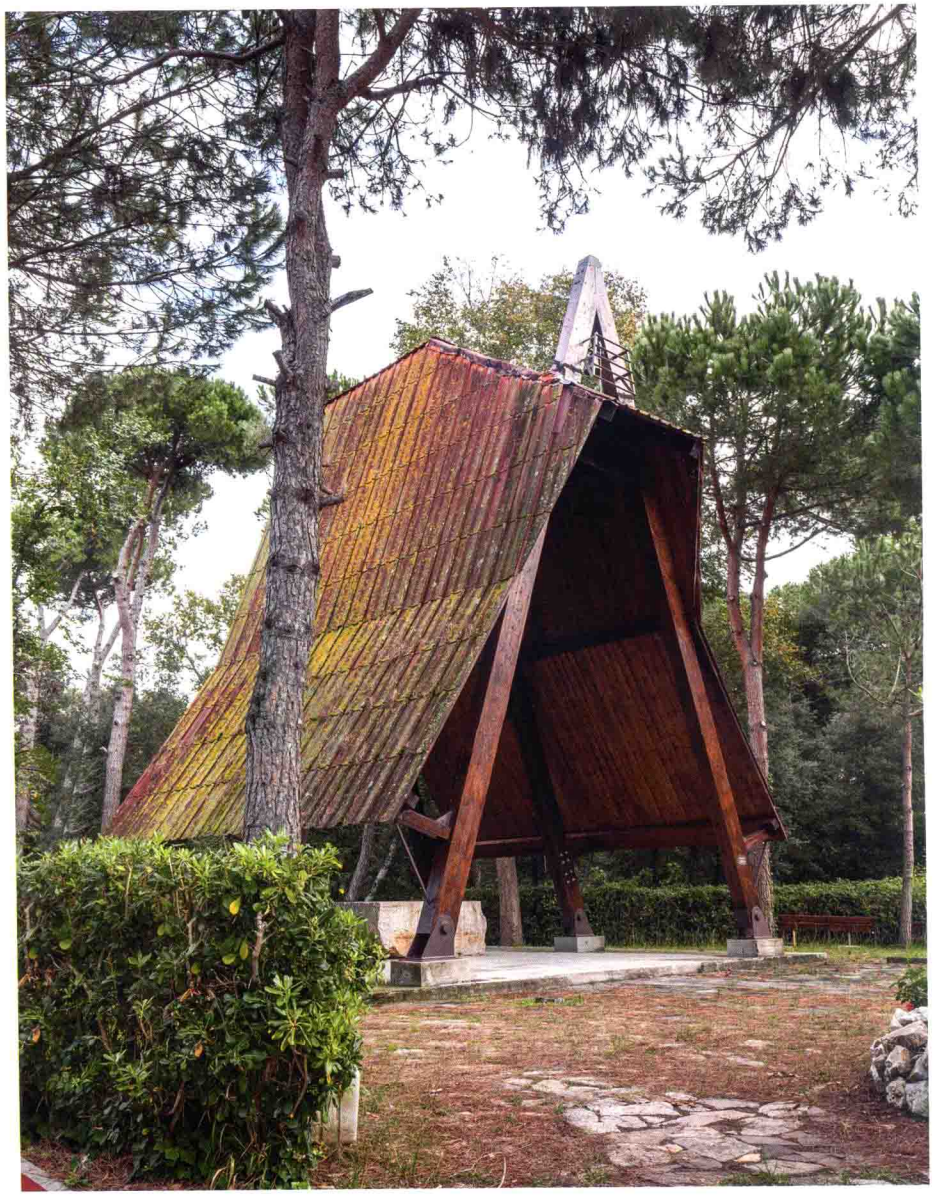


圣安娜教堂的修复_Studio Galantini

Galantini公司位于意大利的比萨城，在结构工程师Renato Terziani的支持下，参与了圣安娜教堂的修建项目。该建筑围绕着文献学和创作之中的正确性和敏感性来建造，特别注重技术和细致的干预技术的使用。

该教堂在一个叫Lagomare的住宅小区里崛起，这个小区位于维亚雷焦镇的一个小村庄——托雷拉戈。它位于“米利亚里诺·圣罗索雷·马撒秀可里湖的自然公园”一带，临近大海。





教堂以神圣的圣安娜命名，是1973年由工程师Vardemaro Barbetta完成的项目，此命名遵循了工程师的母亲Anna的意愿。这次维修的显著特点体现在结构上：三个吊架由两个梁木加固，梁木形成带有三个铰链的门户。铰链由钢制成，放置在该结构的底部和顶部。

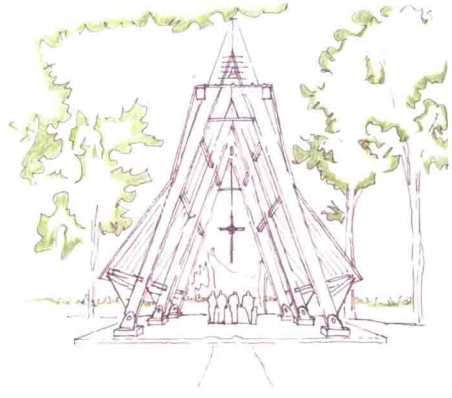
2010年人们发现教堂的木材结构已老化，极不安全，因此宣布禁止入内，尽管有人宣称该教堂已采取过修建行动。支撑梁木的部分由钢和焊接的缀板组成，建立起一个混合型承重结构。

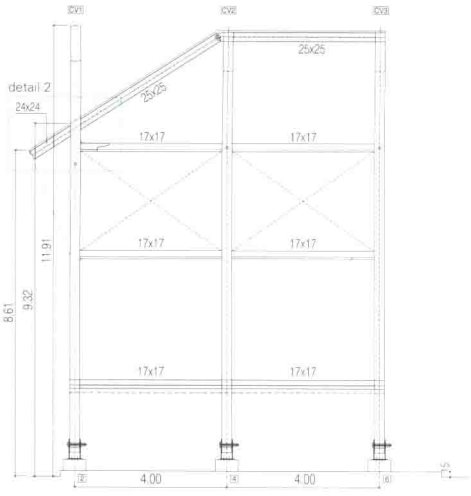
修建工作于2013年四月展开，八月八日结束。教堂的修复设计没有做出任何让步，建筑技术颇为复杂，却又保留原有结构和物理材料的完整性。具有美化作用的覆盖物也被保留下来，因为它与周围的松木混为一体。完成的修建工作再现了其木质部分，并且恢复了钢铰链的机械本质。为了完成这一项目，建筑工作实现了利用特别设计的脚手架构成的悬浮结构；此外，在更换基础和退化的木质零件的过程中，脚手架还承担了负载的任务。

Saint Anna Chapel Recovery _ Studio Galantini

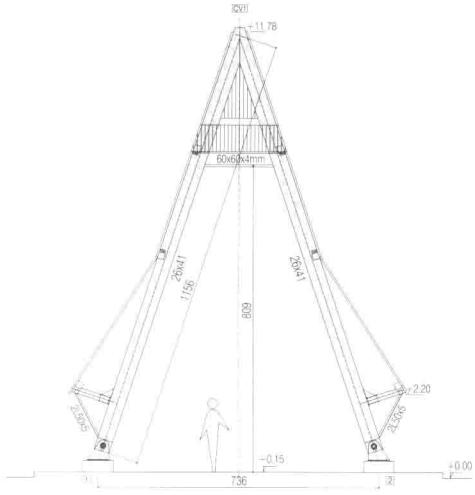
Galantini's Firm in Pisa, with the support of Renato Terziani as structural engineer, was involved in the recovery project of the Saint Anna Chapel. The work was shaped around the full philological and compositional rightness and sensitivity, paying particular attention to the usage of technology and careful intervention techniques.

The chapel arises in the Lagomare's residential complex that is located at Torre del Lago, Viareggio's hamlet. It stands inside the "Parco Naturale di Migliarino San Rossore Massaciuccoli" area, very close to the sea. The church, consecrated to Saint Anna, was built on the engineer Vardemaro Barbetta's project in 1973, following the engineer's mother's will whose name was Anna. The architectural work is highly

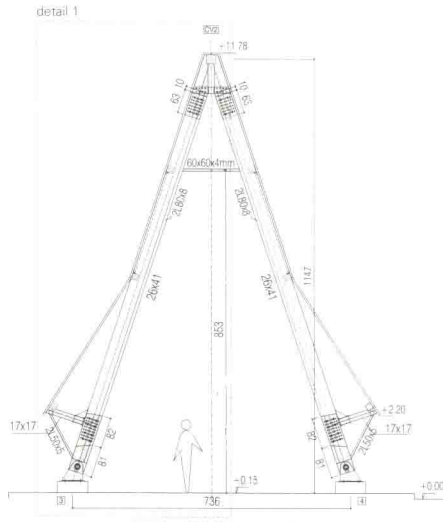




A–A' 剖面图 section A-A'



南立面 south elevation



B–B' 剖面图 section B-B'