

HOSPITAL

DESIGN + 医院设计 VOL.1



天津大学出版社

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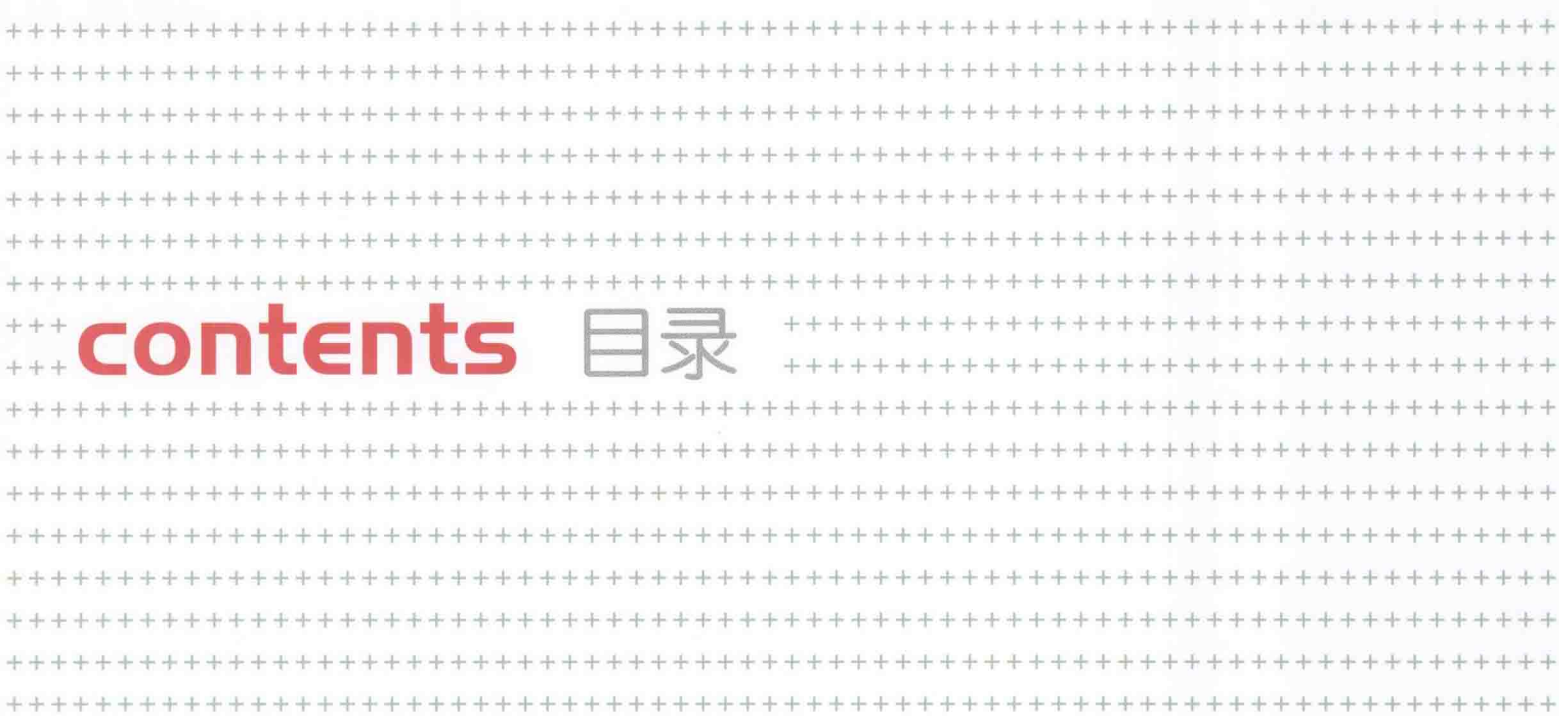
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PREFACE 序

Since C.F. Møller Architects first won the competition for Aarhus Municipal Hospital in Denmark in 1931, planning and building for the health sector have been a central activity for the architectural practice. C.F. Møller Architects is currently working on numerous large hospital projects in Sweden, Norway, Iceland and Denmark and has developed a particularly Nordic approach to hospital building in spite of the projects in question requiring very different structures and programmes.

We define ourselves as architects on an inter-Scandinavian platform, with a clear and recognisable profile — giving priority to daylight, choice of materials and spatial qualities in the design process on a par with more conventional and measurable specifications in the way of logistics, operations and hygiene.

Our objective is a light, open and friendly hospital in which functional and operational specifications and requirements are embraced in a natural and straightforward symbiosis with the overarching architectural concept's localised expression.

Large but patient-friendly hospital structures

Medico-technical developments and the need to concentrate highly specialised acute units in large hospitals — plus the desire for increased collaboration with international research centres and universities — mean that hospitals in general are undergoing a transformation: from being based on and serving one individual region to fast becoming part of an overall, national and international strategy. This leads to very large, complex hospital structures with administrative and operational rationales requiring a robust, overarching strategy to afford the structure evidence-based values — values reflecting how individual patients and members of staff perceive and are influenced by their physical surroundings.

In other words, our architectural process focuses on the implementation of aspects which influence the wellbeing of the user and which therefore accelerate the patients' healing process and ensure a working environment with reduced errors and stress.

We call this concept "healing architecture". It is part of a process symbiosis, on a par with the conventional requirements of functionality, logistics and optimisation of operations.

Focus on the patient means that the perception of large, rational structures is broken down into a number of

recognisable and familiar spatial flows.

And with this reference to the familiar framework of everyday life, the building complex becomes an allegory of the surrounding city's familiar framework.

Daylight

Arising from the Scandinavian tradition for a nuanced and respectful approach to natural light and the unequivocal evidence of the importance of daylight — for convalescence and in working environments — the architectural practice insists on daylight in all rooms occupied by patients and staff.

And thus the surroundings — and verdant views — become accentuating, phenomenological factors.

Our architectural expression is phenomenologically rooted in the acknowledgement of the fact that the multifaceted impressions of the senses go way beyond sight and include — on an equal footing — acoustic and olfactory impressions.

Automation

Nye Ahus outside Oslo, officially inaugurated in October 2008, continues to be the most outstanding Nordic example of high-technology solutions and automation in the hospital sector.

There is no doubt that fully automated handling of medication, a pneumatic air-tube transport system, pneumatic systems for waste collection and laundry, an AGV system, advanced laboratory analyses, etc., as implemented here will be natural choices in future hospitals.

Similarly, the integrated IKT system has already become an almost obligatory feature for patients and staff at today's hospitals.

In other words, there is a general expectation that new hospitals will take a step up in terms of the latest technology to improve the working environment and patients' safety and security.

Nye Ahus brands itself as the most modern, technologically advanced hospital in Northern Europe with innovative and organisational solutions that free up staff time and resources, resulting in operational savings.

And we should expect — and encourage — the tendency

for every new hospital to take the lead and become the latest state-of-the-art hospital building.

Flexibility

We speak confidently of new, coming hospitals as the hospitals of the future. But no one can claim to be able to predict the future needs and physical requirements for hospitals in 50 years in the future — not even in 25 years. Technological advances and improvements in treatments are much too dynamic for such a prognosis.

But it can reasonably be assumed that day surgery will escalate significantly, and it is no longer science-fictional to imagine that a number of functions and treatments will be moved out of the hospitals into the individual patient's home.

It takes at least 10 years from the preparation of the first programme to the finished building. And there is a risk that — even at its inauguration and in a number of basic regards — a new hospital will no longer comply with current requirements and expectations.

This is why flexibility and standardisation are key factors in terms of future-proofing a hospital. And a prerequisite for full flexibility is a flexible technical strategy, carefully balanced against a high degree of standardisation in individual rooms. This will require more space and greater costs in terms of technical installations than what have so far been possible.

But the resulting operational savings in the longer term are indisputable; this will be the most responsible solution from the point of view of social economics.

And do not forget plenty of daylight and general spatial qualities.

The day will no doubt come when our new super-hospitals will also change their function — in the same way, for example, as C.F. Møller Architects' first hospital project, Aarhus Kommunehospital in 1931, which is expected soon to be dedicated to university research and other functions.

——C. F. Møller partner Klavs Hyttel, Architect MAA NAL

自从 1931 年 C.F. Møller Architects 第一次赢得丹麦奥胡斯市人民医院的设计竞赛后，规划和建设卫生事业项目便成了我们公司建筑领域的主要活动。目前 C.F. Møller Architects 正在进行瑞典、挪威、冰岛和丹麦的多个大型医院项目，并且已经开发出一套独特的北欧医院建设方法，尽管这些项目需要的结构和规划各不相同。

我们将自己定位为斯堪的纳维亚这一平台上的建筑师，并抱着在设计过程中，侧重自然光、材料以及空间质量这一清晰可认的理念，同样在后勤、操作以及卫生等方面坚持应用一些更传统和可衡量的标准。

我们的目标是建设明亮、开放和友好的医院。随着总体建筑理念本地化，功能性和操作性的标准及要求都应以一种简单自然的方式共生。

以民为本的大型医院结构

医学技术的发展、大型医院高度专业化装置的增加，以及与国际研究中心和大学合作愿望的加强，意味着医院总体上正在处于转型期：从基于并且服务于一个单独的地区，到很快地发展成为整体的、国家性的国际战略的一部分。这使得大型医院在综合建筑、行政和业务上需要一个强大的总体策略来承担以结构为基础的价值观，即反映个别病人及工作人员是如何感知及被他们周边物理环境所影响的。

换句话说，我们的建设过程侧重于落实解决影响患者安宁的因素，确保提供一个能减少错误和压力的工作环境，从而加速患者的痊愈过程。

我们称这种概念为“治疗型建筑”。这是共生进程的一

部分，也是功能性、后勤以及优化操作的常规要求。

重点放在病人身上意味着对大的合理性建筑的认知将被分解成若干个可认知的熟悉空间。

如果成为日常熟悉的建筑框架的参考，这个建筑综合体就会成为周边城市熟悉框架的一个象征。

日光

根据斯堪的纳维亚的传统，即细致地处理并尊重自然光，以及自然光本身的重要性，无论是对康复期的病人还是将医院作为工作环境的医护人员，我们坚持在建筑设计时保证日光能够照进每一个房间。

因此周边的环境，包括郁郁葱葱的景色，就成了需要强调的、现象学方面的因素。

我们的建筑诠释从现象上根植于对事实的认知，即多方面的感官印象，包括处于平等地位上的听觉和嗅觉印象，已经远远超出视觉感官。

自动化

奥斯陆城外的 Nye Ahus，正式成立于 2008 年 10 月，一直是北欧在高科技解决方案和医疗行业自动化方面最优秀的楷模。

毫无疑问，在这里实施的全自动药物治疗、气动管运输系统、废气收集和洗衣气动系统、AGV 系统、先进的实验室分析技术等都将会是未来医院的必然选择。

同样地，对现在医院里的患者和工作人员来说，完整的 IKT 系统已经成为一个几乎被强制应用的特征。

换句话说，人们普遍期望新医院采取最新技术，以改善工作环境以及加强患者的安全保障。

Nye Ahus 号称北欧最现代、技术最先进的医院，拥有创新和有组织的解决方案，从而优化了工作人员的时间和人力资源，节省了运营成本。

我们应该期望，甚至鼓励每一个新医院都起带头作用，引领成为最新、最先进医院的趋势。

灵活性

我们能够很有信心地说这家即将建成的新医院就是未来的医院。可是谁也不能声称自己可以预测未来 50 年或者哪怕只有 25 年对医院的需要以及物理需求。对于这样一个预测，先进的技术和治疗方法的改进是很大的推动力。

但是可以合理地假定日常手术将会明显升级，一些功能和治疗从医院进入到病人的家里将不再只是想象的科学虚构。

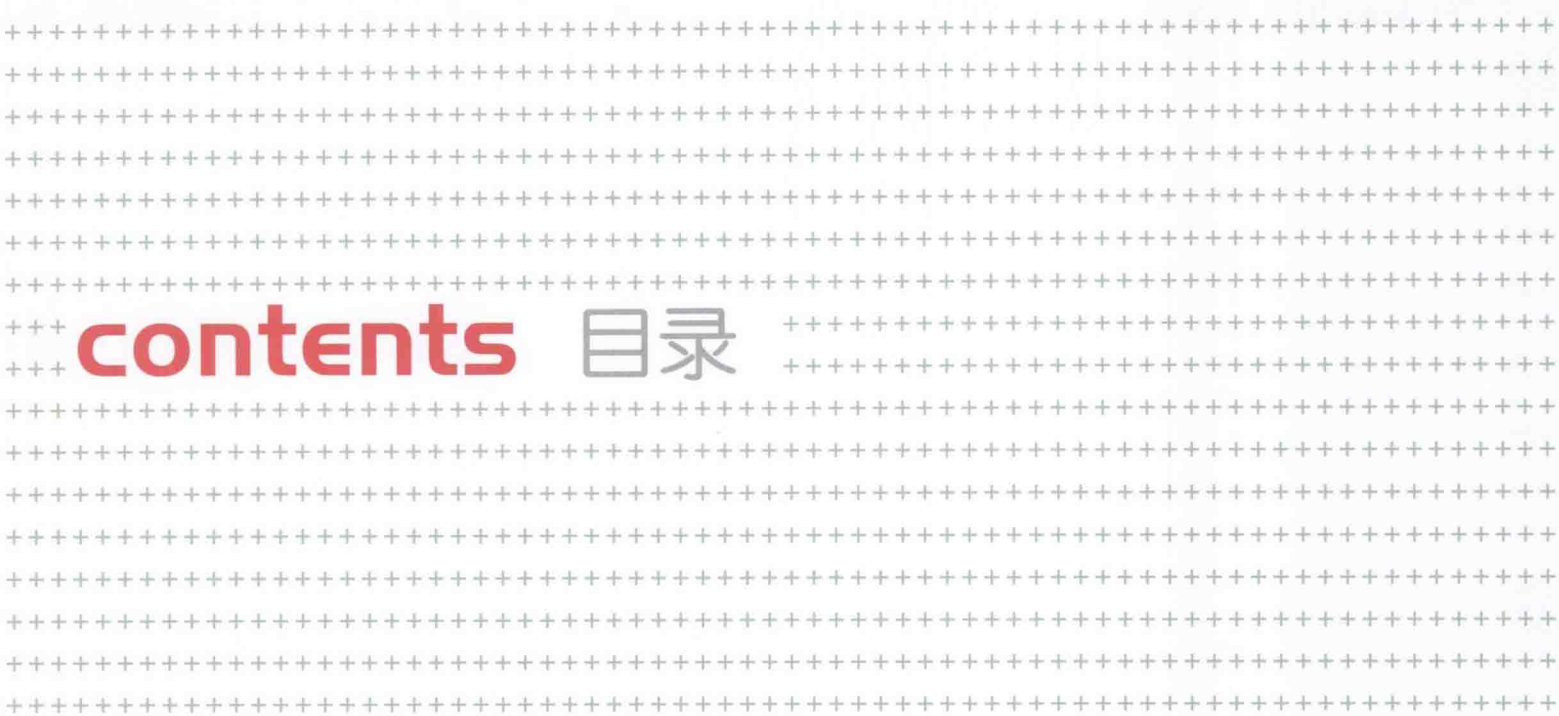
项目从第一期的准备阶段到完全竣工，将花费至少 10 年的时间。当然这也有风险的，因为新建成的医院也许已经不再符合建成时人们的需求和期望。

这就是为什么灵活性和规范化在适应未来发展的医院中是关键因素。充分灵活性的一个先决条件就是一个灵活的技术策略，以高度标准化来仔细权衡每一个独立房间。而在技术装置上将会比目前的预估需要更大的空间和更高的成本。

但是从长远来看，节省运营成本是无可置疑的；从经济学的角度，这将会是最负责任的解决方案。

同时，充足的采光及空间质量需要设计师时刻谨记。

毋庸置疑，有一天我们的超级医院也将以某种方式改变自身的功能，就像 1931 年 C.F. Møller Architects 的第一个医院项目 Aarhus Kommunehospital 一样，预计很快就会被应用于大学研究及其他项目功能中。



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New Mollet Hospital

新摩勒医院

Design Agency: Mario Corea Arquitectura
Location: Mollet del Valles, Barcelona, Spain
Area: 26,650 m²

设计单位: 马里奥·科里亚建筑事务所
地址: 西班牙巴塞罗那省牙摩勒市
面积: 26 650 m²

The project of the New Mollet Hospital is presented as a horizontal unit with light wells and it is adapted to the topography. Taking advantage of the slope of the site, the building unfolds in a staggered sequence as a way by which to reduce the visual impact of it upon its immediate surroundings. The building unfolds over the terrain and it adapts itself to the site determining factors such as its geometry, physical structure, communication areas, views and direction. An essential element of the project design is the oak tree, which is preserved and is part of the square. This square is linked to the mental health building.

The idea of this hospital design is to control its size and make it similar to the human dimension. A horizontal building is designed, where the oak tree square penetrates inside the hospital making up a large public circulation area (rambla).

The proposed hospital is a system that is capable of ordering the

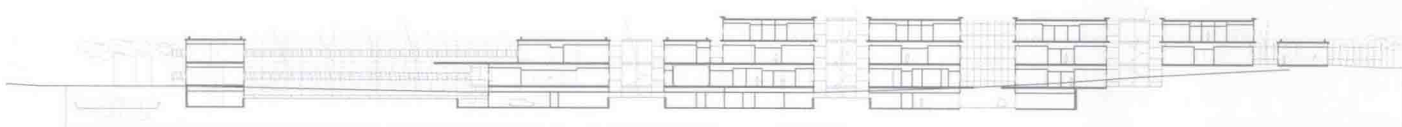
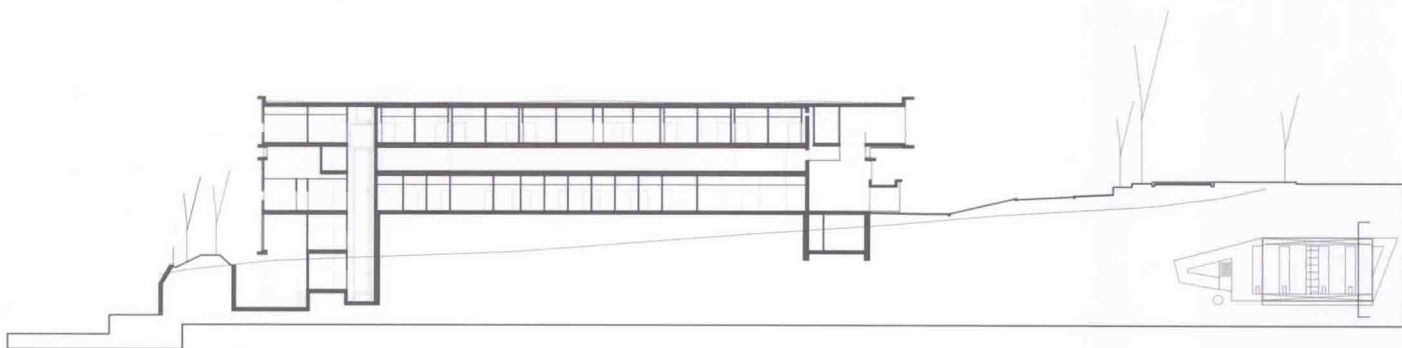
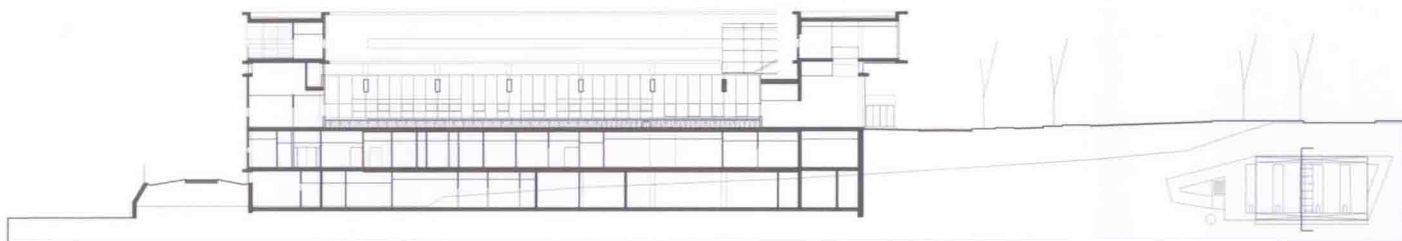
diverse services and subsystems that compose it. The general public, physicians and technicians are organized into a hierarchy and are communicated through circulation areas which form a sequence that establishes restrictions to the entrances. This criterion enhances clear courses of action, avoids interferences and facilitates hygienic control. The proposed system will be capable of adapting to the change of use, services, technologies and it can be expanded in a future enlargement of services. The site presents an 8.5% medium unevenness of approximately 11,000 meters (36,089 feet) in the northeast/southwest direction, making the southern side the highest sector and the northern side the lowest.

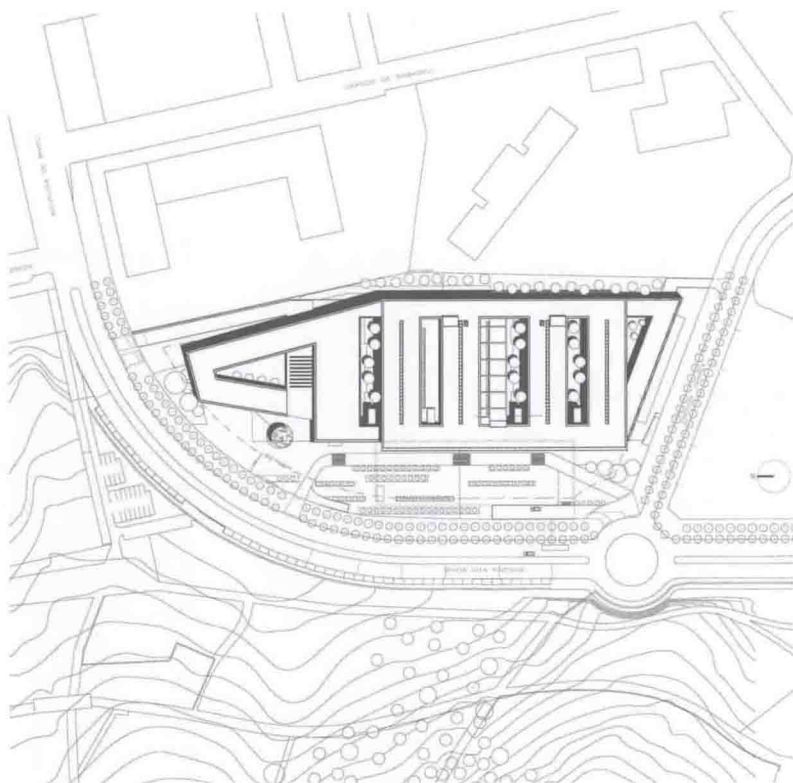
The project unfolds over the terrain in a staggered sequence in two directions, following the natural land. In the transversal section, the building has a two-story height on the western side and a three-story height on the eastern side.

The hospital incorporates the criteria of sustainability, energy saving and exploitation of natural resources; for example, the use of geothermy, radiant ceiling heating and solar thermal plates, the decrease in water and electricity consumption and facilities control and management. It also incorporates inertia increase and thermal insulation of facades, roofs and patios providing ventilation and natural light.

The project with an investment of five million euros due to its sustainability criteria will be a benchmark and model for Catalonia and Europe.







新摩勒医院项目根据场地的地貌，呈现为带采光井的横向单元形式。建筑利用场地中的斜坡，以一种交错的方式展开以减少其对周围环境的视觉冲击。该建筑雄踞在这片山地上，并根据场地的决定性因素来进行调整，如它的几何形状、物理结构、交流区、视觉和朝向。该项目设计的关键因素是一棵保存下来的橡树，它是广场的一部分，该广场连接健康科所在的建筑。

这家医院的设计理念是控制它的大小，使它更加人性化。因而在水平向的建筑中，橡树广场贯穿医院内部，构成了一个大型的公共流通区域（兰布拉）。

拟建医院的系统可以组织各种服务及构成整体的子系统。公众、医生和技术人员形成层级结构，并通过流通区域进行交流，这些区域形成一个序列以限制人流的进出。该标准增强了行动步骤的清晰性，避免了干扰，有利于卫生控制。拟建的系统将能够满足使用要求，顺应服务和技术的变化，随着未来服务对象的扩大，它也能得到相应的扩展。该场地在东北/西南向11 000米（36 089英尺）距离内的中等不均匀性为8.5%，形成南面最高和北面最低的地势。

该项目向两个方向交错展开，与自然地形相融合。横向上，建筑西侧为二层楼高，东侧为三层楼高。

这家医院结合了可持续发展、能源节约和自然资源



开发这三项标准。例如，利用地热、辐射顶棚采暖、太阳能光热板，减少水电消耗以及对设施进行控制和管理。同时，它也提高了立面、屋顶和天井的惰性以及隔热性，提供自然通风和照明。

为了达到可持续发展的标准，该项目投资了 500 万欧元，这将成为加泰罗尼亚和欧洲医院设计的基准和典范。



