

DESIGN OF NURSING HOMES AND REHABILITATION FACILITIES

疗养院与康复中心设计

(美) 罗伯特·F·卡尔 / 编 常文心 张晨 / 译

Edited by Robert F. Carr Translated by Catherine Chang, Zhang Chen

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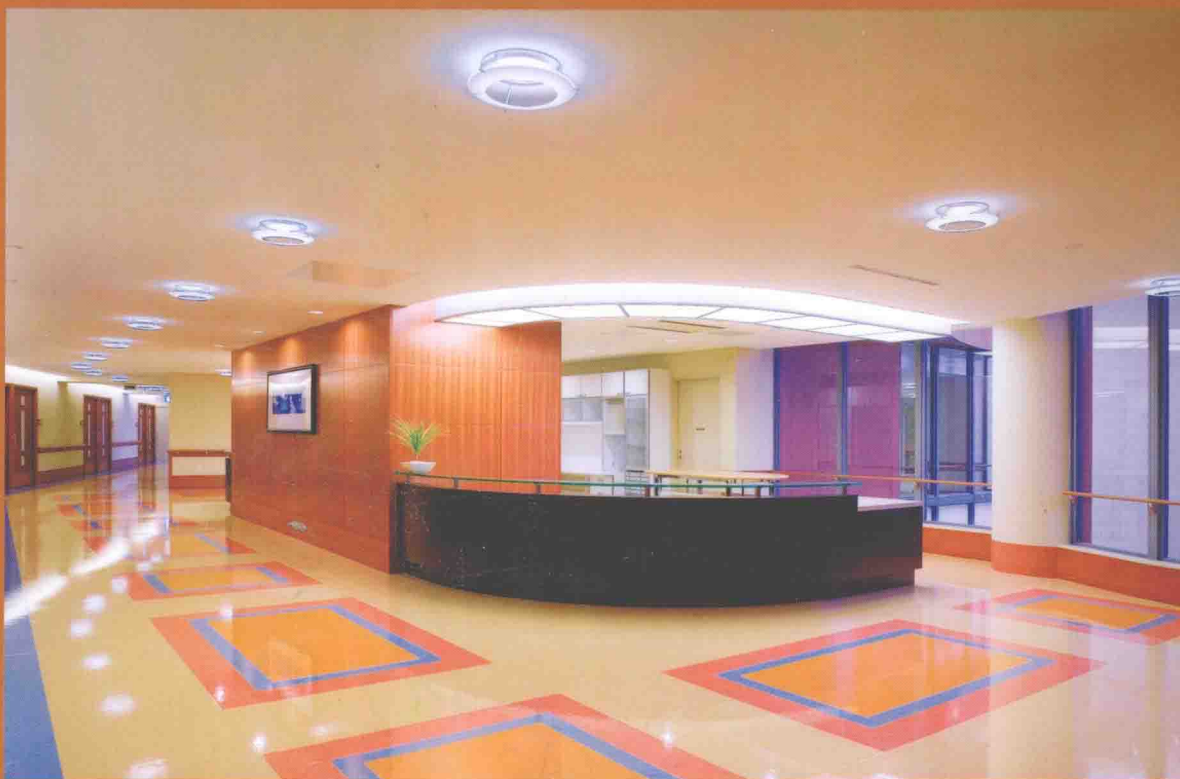
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Nursing homes and rehabilitation facilities serve patients requiring preventive, therapeutic, and rehabilitative nursing care services for non-acute, long-term conditions. The service provider will focus on the well-being of patient's motion and emotion. To provide a homelike therapeutic environment is the key challenge for the designers. How to integrate healing environment with healthy natural environment – green architecture is an unavoidable trend for the designers, also for health care facility – is also what we talk about in this book. The 18 projects included in this book will show how these architects and interior designers realise their unique concepts and create a homelike therapeutic environment.

疗养院和康复中心为那些需要接受慢性疾病预防、治疗和康复医护服务的病人而准备。此类医护服务的提供者关注的是患者行为和情感上的安宁与健康。为他们提供一个像家一样的治疗环境是设计者面临的主要挑战。如何将具有治愈作用的环境与健康自然环境相结合——绿色建筑对设计者和医疗保健设施来说是不可绕开的趋势——也是本书讨论的内容。本书收录的18个项目将向我们展示建筑师和室内设计师们是如何实现他们独特的设计理念，打造出像家一样的治疗环境。

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PREFACE Nursing Home

前言 疗养院

OVERVIEW

Nursing homes serve patients requiring preventive, therapeutic, and rehabilitative nursing care services for non-acute, long-term conditions. Specialised clinical and diagnostic services are obtained outside the nursing home. Most residents are frail and aged, but not bedridden, although often using canes, walkers or wheelchairs. Stays are relatively long, the majority for life. Nursing homes also care for a smaller percentage of convalescent patients of all ages. These patients are in long-term recovery from acute illnesses, but no longer require hospitalisation.

Nursing homes, or sections of them, are often classified into intermediate and skilled nursing units, definitions related to Medicare/Medicaid standards. Intermediate-care facilities have just enough nursing to qualify for Medicaid; skilled nursing facilities meet the more demanding medical standards to qualify for Medicare as well as Medicaid support. The cognitively impaired are frequently housed separately in Alzheimer Related Dementia (ASD) units. See Alzheimer's Foundation of America Excellence in Care Program¹.

Nursing homes present special design challenges in that for most residents the nursing home is not just a facility, but indeed their home. The reality is that in most cases the residents will live there for the rest of their lives and, moreover, rarely leave the premises at all. The nursing home becomes their entire world in a sense. The challenge is to design a nursing home that is sensitive and responsive to long-term human needs and well-being², both physical and emotional³.

BUILDING ATTRIBUTES

A nursing home operates primarily in a patient-care mode rather than

概述

疗养院为那些需要接受慢性疾病预防、治疗和康复医护服务的病人而准备。专业的临床治疗和诊断服务由疗养院以外的医疗机构提供。在疗养院中居住的绝大多数是体弱和年长的人，虽然常常使用拐杖、助步车或轮椅，但是他们并没有卧床不起。他们在疗养院居住的时间相对较长，几乎占据余生的主要部分。疗养院也为一小部分处在康复期的、各年龄段的病人提供照顾服务。这些病人处在急性疾病的漫长恢复期中，但是不再需要住院治疗。

根据相关的医疗保险/医疗补助标准，疗养院，或者部分疗养院通常被归类为中级或熟练护理单位。中级护理设施仅有足够的、满足医疗救助资质要求的护理人员；熟练的护理设施需要满足更多医疗保险制度的医疗标准要求，同时符合医疗救助支持的要求。更多信息可参考 阿兹黑梅尔基金美国优秀护理项目¹。

对绝大多数住在疗养院里的人来说，疗养院不只是一个服务设施，更是他们的家，因此，疗养院是设计师们面临的特殊挑战。事实上，绝大多数居住者将在疗养院度过余生，此外，极少有提前离开的。疗养院在某种意义上成为他们的全部世界。设计者面临的挑战是设计出一个能对人类生理和情绪³的长期需求与幸福安宁²做出敏锐回应的疗养院。

建筑属性

疗养院的运行主要是对病人的护理，而不是治疗。因



a medical mode. Consequently, its more important attributes are those focusing on the general well-being of its residents rather than high-tech considerations. The principal attributes of a well designed nursing home are:

Homelike and Therapeutic Environment

Inherent in any institutional stay is the impact of environment on recovery, and the long-term stays typical of nursing home residents greatly increase this impact. The architect and interior designer must have a thorough understanding of the nursing home's mission and its patient profile. It is especially important that the design address aging and its accompanying physical and mental disabilities⁴, including loss of visual acuity. To achieve the appropriate nursing home environment every effort should be made to:

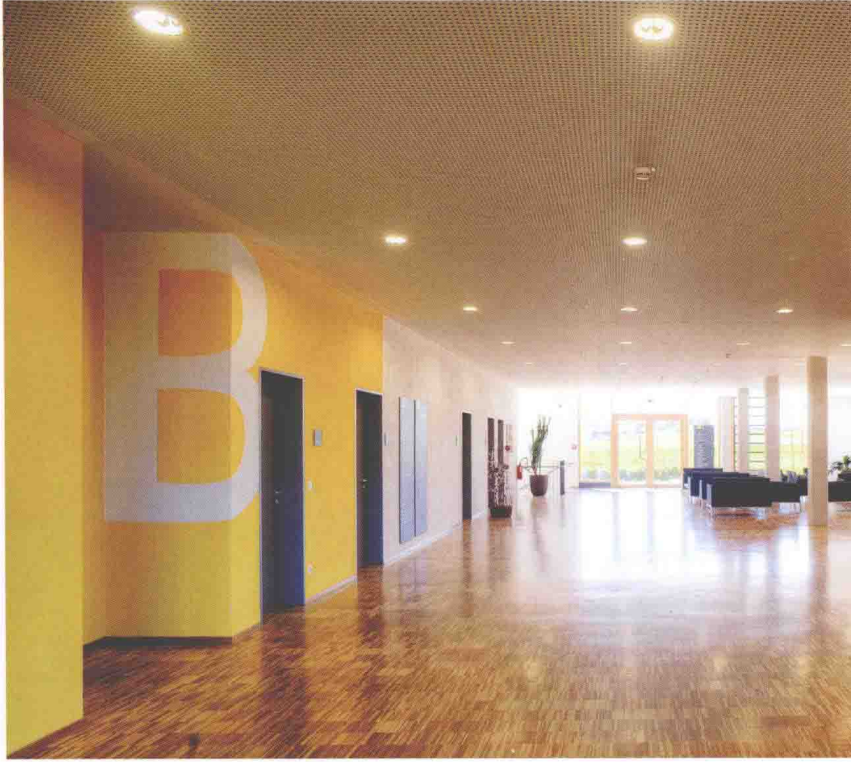
- Give spaces a homelike, rather than institutional, size and scale with natural light⁵ and views of the outdoors
- Create a warm reassuring environment by using a variety of familiar, non-reflective finishes and cheerful, varied colours and textures, keeping in mind that some colours are inappropriate and can disorient or agitate impaired residents
- Provide each resident a variety of spatial experiences, including access to a garden and the outdoors in general
- Promote traditional residential qualities of privacy, choice, control, and personalisation of one's immediate surroundings
- Alleviate possible disorientation of residents by providing differences between "residential neighbourhoods" of the nursing home, and by use of clocks, calendars, and other "reminders"
- Encourage resident autonomy by making their spaces easy to find, identify, and use
- Provide higher lighting⁶ levels than typical for residential occupancies

此，其更重要的属性是关注居住者的整体健康，而不是高科技事项。一个设计良好的疗养院的主要特性如下。

像家一样的治疗环境

任何医疗规定的停留必然产生环境对康复的影响，而长期停留，特别是居住在疗养院的病人大大增强了环境对康复的影响力。建筑师和室内设计师必须对疗养院的使命及其病人的情况有一个彻底的了解。设计解决衰老和伴随衰老而来的生理和心理残疾⁴，包括视力减退，尤为重要。要实现适当的疗养院环境，应竭尽全力：

- 让空间像家一样温暖亲切，而不是刻板的医疗环境，有自然光照明⁵，可以看到户外的景色
- 通过多种常见的、非反射性的装饰和活泼多样的色彩与纹理营造一个温暖、安心的环境。但应谨记有些色彩并不适合使用，可能使患病的人产生迷惑或受到刺激
- 为每一个居住在疗养院的人提供各种各样的空间体验，一般包括进入花园、走向户外
- 发扬传统住宅在隐私、选择、控制和个人周围环境个性化方面的品质，将其融入疗养院的设计
- 通过疗养院“居住者邻里关系”之间的差异性，使用时钟、日历和其他“提示”，尽可能减轻疗养院居住者对方向的迷惑感
- 通过使他们的空间易于发现、辨识和使用，鼓励疗养院的居住者们实现生活自治
- 提供高于一般住宅的照明⁶水平



Efficiency and Cost-Effectiveness⁷

The nursing home design should:

- Promote staff efficiency by minimising distance of necessary travel between frequently used spaces
- Allow easy visual supervision of patients by minimal staff
- Make efficient use of space⁸ by locating support spaces so they may be shared by adjacent functional areas, and by making prudent use of multi- purpose spaces

Cleanliness and Sanitation

An odour-free environment is a very high priority in nursing homes, since many residents are occasionally incontinent, and the pervasive odours can give an impression of uncleanness and poor operation to family and visitors. In addition to operational practices and careful choice of furniture, facility design can help odour control by:

- Adequate and highly visible toilet rooms in key locations near spaces where residents congregate
- The use of appropriate, durable finishes for each space used by residents
- Proper detailing of such features as doorframes, casework, and finish transitions to avoid dirt-catching and hard-to-clean crevices and joints
- Adequate and appropriately located housekeeping spaces
- Effective ventilation, which may need to exceed nominal design levels
- Incorporating O&M practices⁹ that stress indoor environmental quality (IEQ)¹⁰

Attention to Way-finding

A consistent and well thought out system of way-finding helps to maintain the residents' dignity and avoid their disorientation. It should:

- Use multiple cues from building elements, colours, texture, patterns,



功效与成本效率⁷

疗养院的设计应:

- 通过尽量缩短常用空间之间的距离, 提升员工的工作效率
- 便于员工对病人进行监护
- 通过辅助型空间布局提升空间⁸的使用效率, 相邻的功能区可对其进行共享, 谨慎利用多功能空间

整洁与卫生

对疗养院来说, 无气味的环境是极其重要的, 因为许多居住者偶尔会失禁, 充斥在房间中的气味会给人不洁的印象, 来访者也会认为疗养院经营不善。除了运营实践, 谨慎选择家具外, 设施环境设计可以通过以下方式进行气味控制:

- 在居住者聚集的空间附近的关键位置设置足够的、易于找到的卫生间
- 居住者使用的每个空间都选用了合适的并且耐用的装饰材料
- 像门框、橱柜这类表层的细节设计应恰当, 避免容易沾染污垢、不易清洁的裂缝和接合处, 进行修饰过渡
- 清洁内务管理空间应足够, 并且位置设计恰当
- 有效的通风, 可以高于理论设计标准
- 结合操作与维护实践⁹, 增强室内环境质量¹⁰

关注环境导示

协调一致, 并经深思熟虑设计而成的环境导示系统有助于维护疗养院居住者的尊严, 避免他们迷失方向, 这一导示系统应:



and artworks, as well as signages, to help residents understand where they are, what their destination is, and how to get there and back.

- Identify frequently used destination spaces by architectural features and landmarks which can be seen from a distance, as well as symbols, signage, art, and elements such as fish tanks, birdcages, or greenery
- Avoid prominent locations and high visibility of doors to spaces which patients should not enter
- Use simple lettering and clear contrasts in signage (See [VA Signage Manual](#)¹¹)
- Clearly identify only those rooms that residents frequent

Accessibility

Many residents may be ambulatory to varying degrees, but will require the assistance of canes, crutches, walkers, or wheelchairs. To accommodate these residents, all spaces used by them, both inside and out, should:

- Comply with the requirements of the Americans with Disabilities (ADA)¹² and, if federally funded or owned, the [GSA's ABA Accessibility Standards](#)¹³
- Be designed so that all spaces, furnishings, and equipment, including storage units and operable windows, are easily usable by residents in wheelchairs
- Be equipped with grab bars in all appropriate locations
- Be free of tripping hazards
- Be located on one floor if feasible, preferably at grade. If residents' bedrooms must be located on more than one floor, then dining space must be apportioned among those floors, not centralised

Security and Safety

Design to address security and safety concerns of nursing homes includes:

- Use of non-reflective and non-slip floors to avoid falls

- 利用建筑元素、色彩、纹理、图案和艺术品以及符号等多种提示，帮助疗养院的居住者了解其所在地，知道自己要去什么地方，如何到达并且返回
- 通过可以远距离看到的建筑特征和地标物以及标识、符号、艺术品和诸如鱼缸、鸟笼或温室等元素对经常被使用的空间进行辨识、确认
- 那些病人不能进入的空间，设计者应避免突出其位置、设置明显的门和通道
- 标识采用简单的字体和鲜明的对比（见《[美国退伍老兵标识设计手册](#)》¹¹）
- 仅对疗养院居住者经常去的房间进行明显的标识

可抵达性

很多居住在疗养院里的人的行走能力不同，但是会需要使用手杖、拐杖、助步车或轮椅。这些人使用的所有空间，无论室内和室外都应：

- 符合《[美国残疾人法案](#)》（ADA）¹²，如果疗养院属联邦出资或所有，还应符合[美国一般服务管理建筑障碍法案对可及性的规定](#)¹³
- 经精心设计，这样所有的空间、陈设和设施，包括储藏间和可操作窗体均便于坐轮椅的人使用
- 在所有适当的位置加装扶手杆
- 处在同一楼层（如果可行的话），最好在同一水平面上。如果疗养院里的卧室布局超出一层楼，那么就餐空间必须分布在这些楼层中间，而不是集中在一处

安保与安全

设计疗养院时涉及的安保与安全问题包括：

- 使用非反射性的、防滑地板材料，防止滑倒



- Control of access to hazardous spaces
- Control of exits to avoid residents leaving and becoming lost or injured
- Provision of secure spaces to safeguard facility supplies and personal property of residents and staff

Aesthetics

Aesthetics is closely related to creating a therapeutic homelike environment. It is also a major factor in a nursing home's public image and is thus an important marketing tool for both residents' families and staff. Aesthetic considerations include:

- Increased use of natural light¹⁴, natural materials, and textures
- Use of artwork
- Attention to proportions, colours, scales, and details
- Bright, open, generously scaled public and congregate spaces
- Homelike and intimate scale in resident rooms and offices
- Appropriate residential exterior appearance, not hospital-like
- Exterior compatibility with surroundings

Sustainability

Nursing Home facilities are public buildings that may have a significant impact on the environment and economy of the surrounding community. As facilities built for "caring", it is appropriate that this caring approach extend to the larger world as well, and that they be built and operated "sustainably".

Section 1.2 of VA's HVAC Design Manual is a good example of health care facility energy conservation standards that meet EPA Act 2005¹⁵ and Executive Order 13423¹⁶ requirements. The Energy Independence and Security Act of 2007 (EISA)¹⁷ provides additional requirements for energy

- 限制危险空间的可达性
- 管理出口，防止疗养院居民自行离开而失踪或受伤
- 为安保设施提供安全的空间，保护疗养院的居住者和工作人员私人财产安全

美学

美学与打造一个具有亲和力的治疗空间密切相关。美学也是疗养院公共形象的一个主要因素，因此对病人家属与员工来说还是一个重要的营销手段。疗养院的美学设计需要考虑的事项包括：

- 提升自然光¹⁴、天然材料和质地的利用率
- 使用艺术作品
- 注意分布、色彩、比例和细节
- 明亮、开阔、大开间的公用与聚集空间
- 病人房间和办公室空间比例的家居感和亲密感
- 适当的建筑外观，不要像医院一样
- 外观与周围环境的兼容性

可持续性

疗养院属于公共建筑，可能对环境 and 周围社区经济产生极大的影响。因为这类设施的建造是出于“人道”，所以最好还是将人文关怀的做法延伸到更大的世界，而且应当使它们的建造和运营具有可持续性。

《美国退役老兵事务管理机构关于采暖通风与空调设计手册》第2.1部分就是医疗保健设施能源保护标准的一个很好的范例，它符合2005能源法案¹⁵以及美国总统第13423号行政命令¹⁶的要求。《2007年能源独立与安全法案》¹⁷

Note (for more information please visit) (注: 更多信息请访问):

1. <http://www.excellenceincare.org/>
2. http://www.wbdg.org/design/promote_health.php
3. http://www.wbdg.org/resources/psychspace_value.php?r=nursing_home
4. <http://dsc.ucsf.edu/main.php>
5. http://www.wbdg.org/resources/daylighting.php?r=nursing_home
6. http://www.wbdg.org/resources/efficientlighting.php?r=nursing_home
7. http://www.wbdg.org/design/cost_effective.php
8. <http://www.wbdg.org/design/spacetypes.php>
9. http://www.wbdg.org/resources/sustainableom.php?r=nursing_home
10. <http://www.wbdg.org/design/ieq.php>
11. http://www.wbdg.org/ccb/browse_cat.php?o=34&c=22
12. <http://www.ada.gov/>
13. <http://www.access-board.gov/ada-aba/aba-standards-gsa.cfm>
14. http://www.wbdg.org/resources/daylighting.php?r=nursing_home
15. <http://www.gpo.gov/fdsys/pkg/BILLS-109hr6enr/pdf/BILLS-109hr6enr.pdf>
16. http://www.wbdg.org/ccb/browse_doc.php?d=7707
17. <http://www.gpo.gov/fdsys/pkg/BILLS-110hr6enr/pdf/BILLS-110hr6enr.pdf>
18. www.usgbc.org/DisplayPage.aspx?CMSPageID=1765
19. <http://www.hipaa.org/>

conservation. Also see LEED's (Leadership in Energy and Environmental Design) USGBC LEED for Healthcare¹⁸.

Related Issues

The HIPAA¹⁹ (Health Insurance Portability and Accessibility Act of 1996) regulations address security and privacy of "protected health information" (PHI). These regulations put emphasis on acoustic and visual privacy, and may affect location and layout of workstations that handle medical records and other patient information, paper and electronic, as well as patient accommodations."

Emerging Issues

There is a growing recognition of the need for dementia day care. This can often be effectively provided within or adjoining an inpatient nursing facility.

There is a need for better non-medical residential facilities for the frail but independent elderly. Managed care programs for the aged are being developed to prevent, or at least postpone, institutionalisation.

提供了关于能源保护的其他要求。也可参考LEED卫生保健认证 (领先能源与环境设计建筑评级体系)¹⁸。

相关问题

《1996美国医治保险携带和责任法案》(HIPAA)¹⁹规定“保护健康信息安全”(PHI)。这些规定着重于声音和视觉隐私保护,因此可能影响那些处理病历和其他纸质和电子版病人信息、安排病人食宿的工作站的选址和布局。

暴露的问题

对痴呆病人日常护理的需求日益增长已有目共睹。这通常可在住院病人护理设施内或临近的设施中得到有效解决。

对身体虚弱需要照顾的老人来说,需要的是一个居住设施而非医疗设施。养老托护理项目正在制定,以期起到预防,至少是延迟的作用,使其制度化。

by Robert F. Carr
NIKA Technologies, Inc. for VA Office of
Construction & Facility Management (CFM)
Revised by the WBDG Health Care Subcommittee

罗伯特·F·卡尔
NIKA技术有限公司,为美国退伍老兵建筑与设施管理
办公室撰写,由卫生保健整体建筑设计指导委员会修订

To Build Up Energy Saving Health Care Facility

建造节能型医疗设施

I. WHY?

I.1 Enhanced Healing Environment

A healthcare facility that includes favourable light, sound, and temperature provides a better experience for patients and their families by enhancing comfort and control while reducing stress and anxiety.

Access to views and daylighting, which uses the sun to produce high-quality, glare-free light in a space, has been found to favorably affect both patient outcomes and staff productivity. In a recent report by R.S. Ulrich, "How Design Impacts Wellness,"¹ it was found that a patient room providing good outdoor views and daylighting can increase patient well-being and create a psychological state resulting in reduced stress and anxiety, lower blood pressure, improved post-operative recovery, reduced need for pain medication, and shorter hospital stays. Daylighting will also significantly reduce ambient electric light energy consumption; lighting power savings during daylight hours in controlled spaces can be as high as 87%.

Related research also shows that the ability to control their personal environment, including bedside control of lighting and window shades, can improve patients' psychological outlooks, rates of healing, and quality of stay.

According to the American Society of Healthcare Engineers (ASHE), the health of patients, staff, and visitors can be profoundly affected by the quality of the indoor air. A recent study completed by the Lawrence Berkeley National Laboratory (LBNL) reported that improvements to indoor environment could reduce healthcare costs and work losses from communicable respiratory disease by 9% to 20%. Advanced, energy-efficient heating and cooling systems can also create cleaner, healthier indoor environments that reduce the threat of infection for both patients and staff.

Advanced energy-efficient systems can also be much quieter than previous technology.

This produces quieter, more comfortable and more productive spaces. This all translates to better patient outcomes, shorter patient stays, reduced sick-days for healthcare staff, and lower overall costs.

1. 为什么

1.1 强化康复环境

在医疗设施里良好的光线、声音和温度能够增加舒适度、加强管理、减少压力和焦虑，从而为患者及其家属提供更好的体验。

研究表明，良好的视野和自然采光（利用太阳所营造的高质量、不刺眼的光线）对患者康复和医务人员的工作效率都有积极的作用。R·S·乌利奇最近的一份报告《设计如何影响健康》¹显示，拥有良好室外视野的自然采光的病房能够促进患者痊愈，其所营造的心理环境能够减少压力和焦虑、降低血压、促进术后康复、减少止痛药需求、缩短住院时间。自然采光还能大幅度减少电灯的能源消耗；白天的照明能源最多可节约87%。

相关研究还表明，对周边环境（如在床侧控制灯光和窗帘）的控制能够提升患者的心理感受、促进痊愈并且提高住院质量。

美国健康工程师协会称，室内空气质量能够显著地影响患者、医务人员以及访客的健康状况。劳伦斯·伯克利国家实验室最近有研究表明，室内环境质量的提升可以将呼吸道传染疾病的医疗成本和误工损失降低9%到20%。先进的高能效采暖和制冷系统同样也能营造出更清洁、更健康的室内环境，从而减低患者和医务人员的感染风险。

改进的节能系统比早期的技术更静音。

这些都能营造更安静、更舒适、更高效的空间，从而为患者提供更好的治疗效果、缩短其住院时间、减少医务人员的患病几率、减少整体成本。