2003 年
保健設施設計及規劃會議

Healthcare Facilities Planning and Design Conference

日　　期：*December 16～18, 2003*

參與人員：許世明執行長

胡茵茵小姐、潘欣小姐

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主辦機關:

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內容摘要: The Healthcare Facilities Planning and Design Conference, which took place in Singapore and held between December 16th through 18th, was organized by the Singapore Institute of Architects, and supported by institutions including IE Singapore, Singapore' s National Healthcare Group, Singhealth, National University of Singapore and the Singapore Exhibition and Convention Bureau. The main purpose of the conference was to bring together architects, planners, designers, institutions, academia and industry in the healthcare services sector in the region, and to provide an opportunity for stimulating discussions, sharing and exchanging information and networking among these professionals. The topics covered during the three-day event included discussions on the latest trends in healthcare designs and management in the region, challenges and constraints encountered in designing healthcare institutions, climate and environmental considerations in healthcare architecture, and opportunities in healthcare planning and development in Asia. The conference ended with a half-day tour of a choice of healthcare facilities in Singapore. Since the Hsinchu Biomedical Science Park will be established with a medical center at the core, we found the conference to be very relevant, informative, and inspiring. Of course, meeting with other conference delegates, many of whom are prominent leaders and business professionals in the healthcare field in Asia was also an invaluable experience for us as members of the HBSP preparatory team. It is important both for us to meet with others in the industry, as well as for these professionals to have the chance to get to know what the HBSP is all about. The conference in Singapore created the perfect situation to do so. There were four

major areas of discussion covered at the conference, namely: (1) Designing Facilities for SARS and Infectious Diseases; (2) Health Systems; (3) Total Building Performance; and (4) Hospitals of the Future. We focused on attending the lectures pertaining to the latter two topics, since the medical center will be a crucial, if not the major component within the Hsinchu Biomedical Science Park. In essence, planning and design are the imposing of presently held values on the future, with the hope of creating a future setting in which those values may be realized.

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Purpose of the Trip

The Healthcare Facilities Planning and Design Conference, which took place in Singapore and held between December 16th through 18th, was organized by the Singapore Institute of Architects, and supported by institutions including IE Singapore, Singapore's National Healthcare Group, Singhealth, National University of Singapore and the Singapore Exhibition and Convention Bureau. The main purpose of the conference was to bring together architects, planners, designers, institutions, academia and industry in the healthcare services sector in the region, and to provide an opportunity for stimulating discussions, sharing and exchanging information and networking among these professionals.

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The Conference

One of the main areas addressed at the conference was that of Total Building Performance (TBP). TBP is a new paradigm addressing coordinated strategies that will bring about performance and quality-driven buildings and facilities. It examines and develops processes contributing to the delivery of integrated and high performance buildings with respect to needs and resource availability. It is about the embedding of best practices and approaches from design and construction, and to the management stages of a building life cycle. The five broad categories of TBP are: building performance mandates; functional requirements; aesthetics; maintainability; and cost consideration. TBP is applicable to all building types. However, it is a new concept in the building of healthcare facilities.

Designing Healthy and Holistic Healthcare Facilities

The aim of applying the theory of Total Building Performance in the planning and design of hospitals is to create healthy and holistic healthcare facilities that not only cure, but heal its patients. Over 1500 years ago, Hippocrates said that "health depends on a state of equilibrium amongst the various factors that govern the operation of the body and the mind; this equilibrium in turn is reached only when man lives in harmony with his external environment." Today, we should always bear these words in mind when we create and rebuild healthcare facilities.

A lot can be learned by studying and examining ancient healthcare architectural complexes dating back to ancient Greece, the Renaissance and Neo-classical periods, where the buildings in themselves contained of an openness that spoke "health." The architectures during those periods already knew how to prevent the "sick building syndrome" when building those hospitals. Today when designing a healthcare facility, we should also base the design on building one that prevents illness, seeds healing and promotes

well-being.

All speakers addressing this topic stress that in order to create a truly modern health care facility, we need to go back and connect with the outdoor environment. In fact, there is scientific evidence suggesting that patients heal faster when they are in touch with nature. Hence, in planning healthcare facilities, Singapore tries as best to create hospitals within gardens. In so doing, it tries to engage and coordinate all our senses and feelings, when we are inside a hospital.

Hospitals of the Future

The greatest challenge facing hospital designers is to build something that does not need major changes in remodeling and renovation once in use. Since the process of planning, designing and constructing a hospital usually takes too long, almost every new hospital, when finally completed is already out of date the moment it opens for operation. In addition, the needs and requirements of the users of healthcare facilities are in constant flux, and in order to stay ahead in the game, one needs to be kept in the know regarding the latest developments and trends in healthcare facilities design. Today's healthcare facilities have complex functions and are master planned in terms of the staging of the functions according to need, and ability to size the stages according to the resources available.

The plenary sessions during the conference touched on the latest trends in healthcare facilities design, including paradigm shifts, emerging trends in specialist center and hospital design, and holistic healing design, all of which must be taken into serious consideration in the planning and design of hospitals in order to create the most functional facility, as well as give it as much flexibility as possible so that it will be easier to make minor changes and expansions in the future. The architect, therefore, must have a strategy for the hospital's growth and evolution and develop an open-ended, expandable plan for the facility's growth and rejuvenation.

An interesting concept in the designing of hospitals of the future is to involve the element of utopianism. Utopias are perfect environments of the future. They are imagined places with perfection defined variously in economic, physical, political and social terms. Therefore, it is wise to have ones own Utopia in mind when building a hospital complex.

Current Problems creating Paradigm Shifts

Most modern hospitals have the same problems in their design. They are mostly internally-focused, offer poor way-finding for patients, unfriendly, depressing, have ungainly add-ons and are obsolete before opening. Due to current trends, there is an imperative for change. The current global trends that have direct impact on hospitals include the easy access of information through the Internet, more discerning, demanding and educated patients who look for value, development in genomics and proteomics, a shift to ambulatory care, and an increase in acuity of care for patients. These in turn, have led to a number of changing healthcare needs. For instance, there is now an increase in outpatient and diagnostic services.

There is also a shift in paradigms in service, from service quality to service excellence. Hospitals now need to not only serve patients but to delight them as well. Hospitals, therefore, now need to create memorable experiences not unlike those offered by five-star hotels. Hospitals should treat patients as guests, anticipating their future and unspoken needs. This service or patient-oriented concept is now a driving force behind the building of a healthcare facility.

The Ideal Hospital

The ideal hospital for the future is one that is functional, cheap, easy to build, pleasing to the eye and healing. A hospital built for the future is one that possesses flexibility. It should be built according to a modular design and a master plan to allow for logical conversion. It must also have built-in reserved space for future expansion.

A quality medical center must be patient-centered. The ideal hospital is built according to what's needed and not what's wanted. This need caters to the patients' needs and not those of the physicians and administrators working within the hospitals.

In conclusion, the local climate, customs, culture, economy, and a balance of all these things must be taken into consideration when building a new hospital. In the end, it actually comes down to common sense when planning a hospital that is highly functional and one that has a human touch.

Cooperation between Healthcare Professionals and Architects

Many plenary speakers talked about the importance of cooperation between healthcare professionals, who in essence represent the users of the healthcare facility and the builders of the facility, namely the architects. Communication is essential between these two groups of professionals. During the planning phase of the healthcare facility, all participants need to attend regular, frequent work sessions, where views can be exchanged, conflicts can be brought out and resolved, and compromises can be made. There will then be a gestation period of two to four weeks when the hope and expectations of all parties can be truly reflected. All parties must then listen to each other, and observe and be aware of the problems to be solved. Speakers, healthcare professionals and architects alike, emphasize that communication prior to establishing the facility is crucial, as to avoid having to make changes after something has been built, which will cost more money and waste a lot more time.

To assist communication between healthcare professionals and the architects who build the hospitals, there needs to be master planning of the building complexes. This can come in the form of a doctrine, and can become a motivating force in the process of planning and design.

At the simplest level, the master planning requires the positioning of each building as part of a plan on a site, showing where each building should be constructed. At a more profound level, it involves a theory of design position that includes a hierarchy of ideas and elements that can be used to create concepts representing development frameworks, which in turn illustrate a particular set of functions and attitudes of part of a society's habits and culture. Architects must remember that today's healthcare facilities have complex

functions and are master planned in terms of the staging of the functions according to need, and ability to size stages according to the resources available.

Visits/ Tours

An important and major activity of the Healthcare Facilities Planning and Design Conference is the arrangement of a number of tours to some of Singapore's most significant hospitals. In visiting the hospitals, we were able to see how the theories discussed during the first two days of the conference were applied, or in some cases not applied, to the physical buildings. We were arranged by the organizers to visit Alexandra Hospital, and Singapore General Hospital, which included the National Cancer Center and the Dental Center. We were able to learn a lot during the visits. The two hospitals differed in style. However, we can see the effort done by both hospitals to blend nature and the outside environment with the hospital facilities themselves. In this respect, Alexandra Hospital did a better job. Hence, we particularly liked the design of Alexandra Hospital, whose experience we will probably be able to use in building the future medical center within the Hsinchu Biomedical Science Park.

Alexandra Hospital

Alexandra Hospital was originally a British Hospital built over 70 years ago. It was viewed by the public as an old, cheap, one-star hospital prior to its major reconstruction in the year 2000. When reconstructing the old hospital, Alexandra Hospital based the construction on the concept of changing not only the facility's physical appearance, but the hospital's culture as well. With this concept as a basis, Alexandra Hospital was transformed into a healthcare facility that is highly functional and comfortable. It is a place not only for curing, but for healing as well. Alexandra focuses on three major changes; the physical environment, its service level, and an increase in community outreach programs. Therefore, the Hospital gave us the impression of cleanliness and tranquility. The staff was nicely groomed, and appeared friendly and helpful. All these qualities made a world of difference; it gave the place a human touch. There is a stark contrast between Alexandra Hospital and the average hospitals

we see in Taiwan today, mainly because at Alexandra Hospital, we really see what it means for a hospital to be "patient-centered."

In terms of the physical appearance of the hospital grounds, the hospital was reconstructed in the form of a large botanical garden. All the wards have at least a good view of one of the hospital's many gardens. Some wards even have direct access to the gardens, meaning that patients can walk right out into a garden full of flowers, trees and butterflies from their wards. Actually, to use the word *ward* would probably bring a frown on the faces of the Hospital's staff. At Alexandra Hospital, their goal is to create a hospital without wards. As mentioned above, design of the hospital was aimed at making the patients feel that they are in a botanical garden, and not a traditional healthcare facility, which generally gives people a sense of uneasiness and insecurity.

For the staff of Alexandra Hospital, their goal is to provide "a level of patient care and service good enough for our own mothers, without the need for special arrangements." Although their theory sounds familiar, they are one of the very few hospitals that can actually put this "patient-centered" theory into practice. For instance, they have reserved parking spaces right outside the hospital's main entrance for patients, not for the hospital's executives.

圖 *1* *Alexandra Hospital* 的花園

圖 *2* *Alexandra Hospital* 的水景

圖 3　從花園往 *Alexandra Hospital*

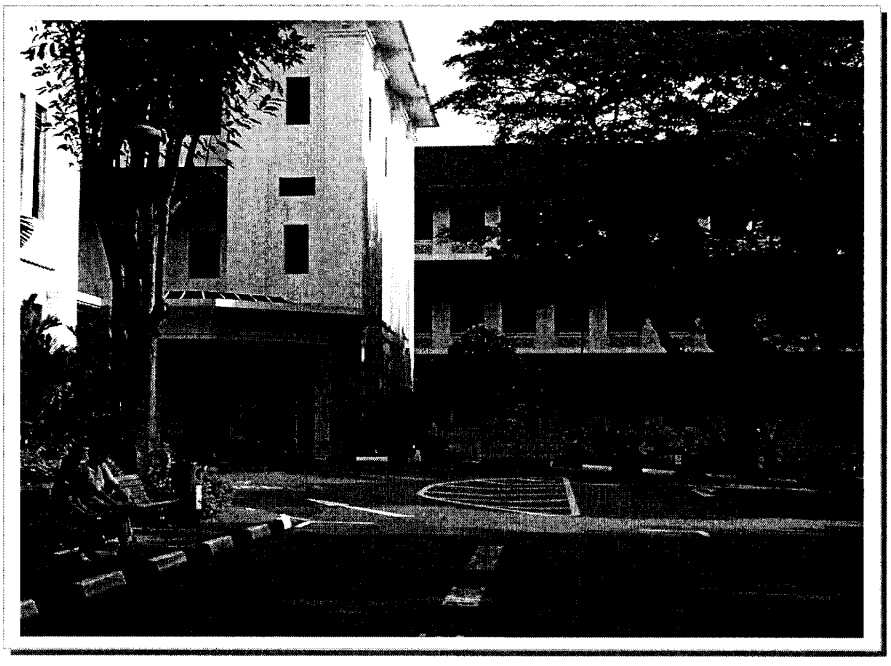


圖 4　*Alexandra Hospital* 急診室入口

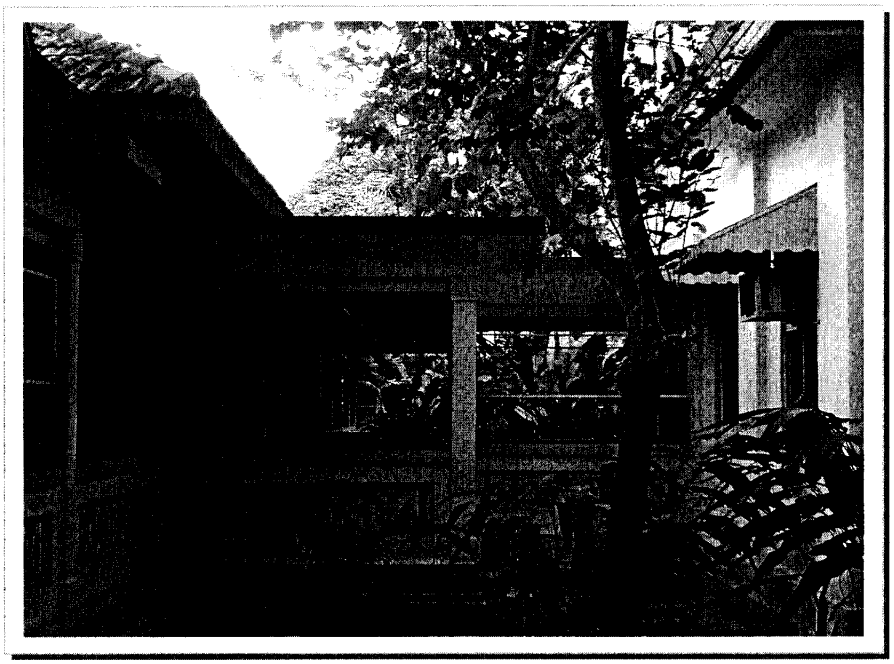


圖 5　*Alexandra Hospital* 迴廊的 *green view*

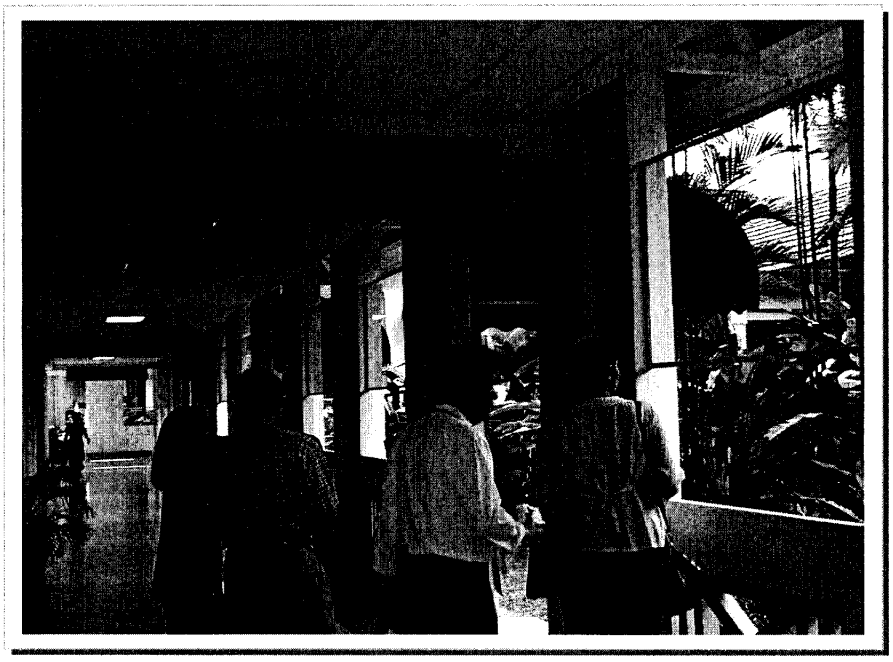


圖 6　*Alexandra Hospital* 的迴廊

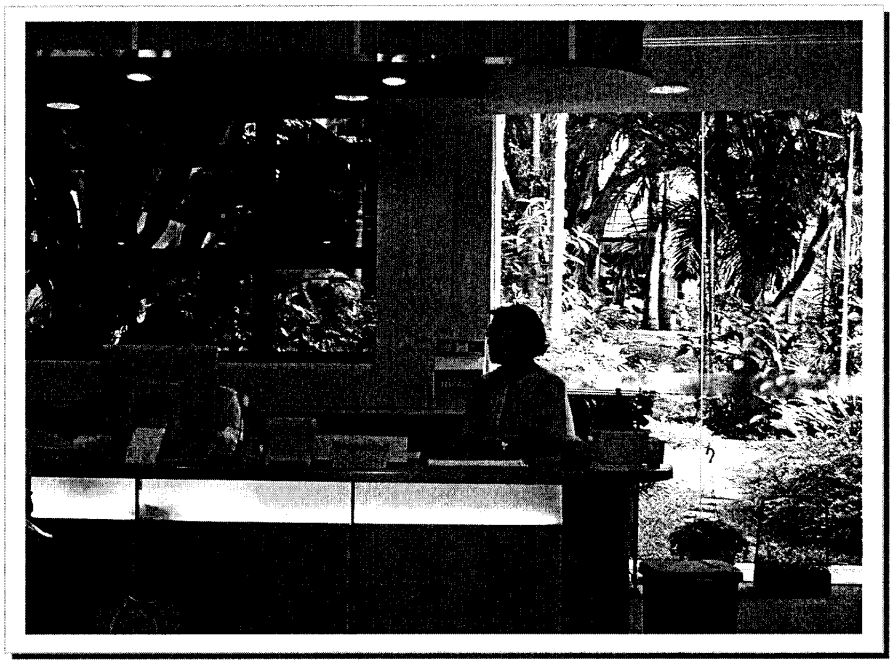


圖 7　*Alexandra Hospital* 的專科門診掛號櫃台

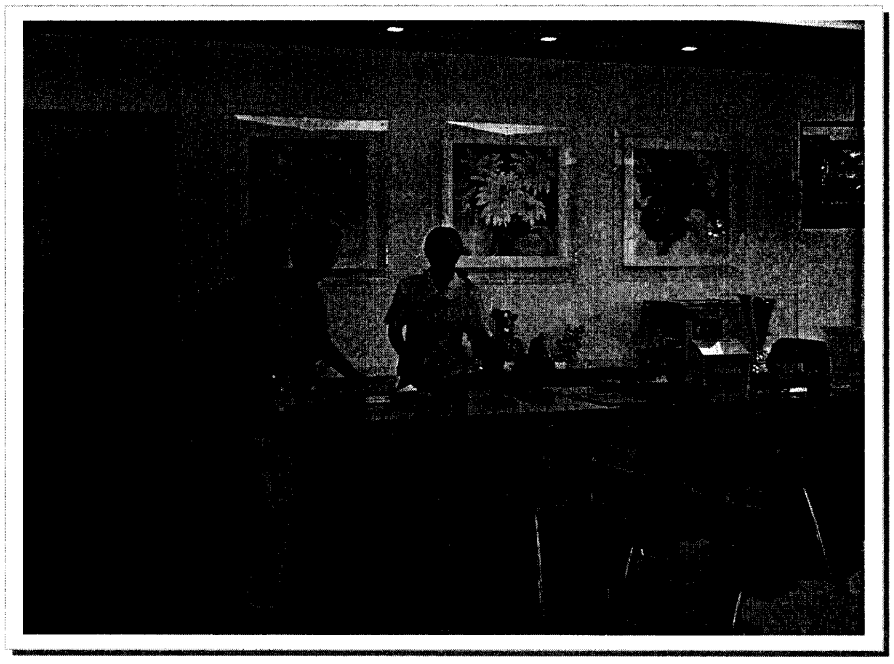


圖 8　*Alexandra Hospital* 檢查室外的櫃台

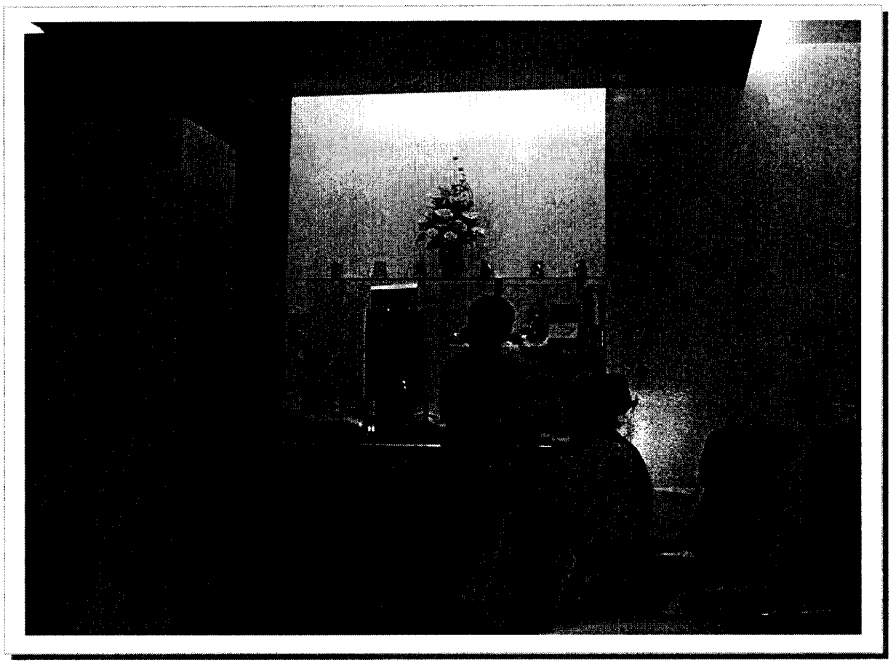
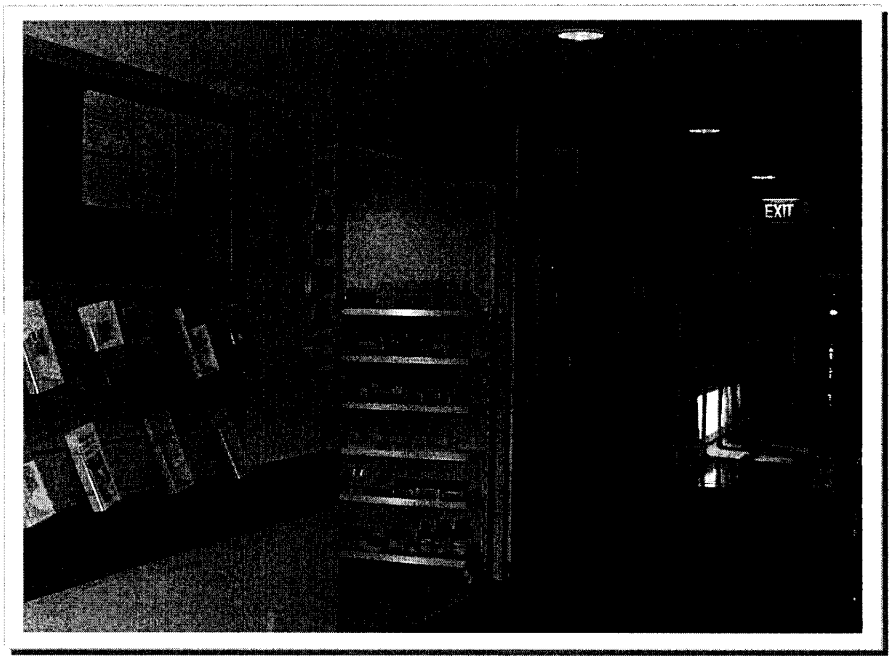


圖 9　*Alexandra Hospital* 的診間



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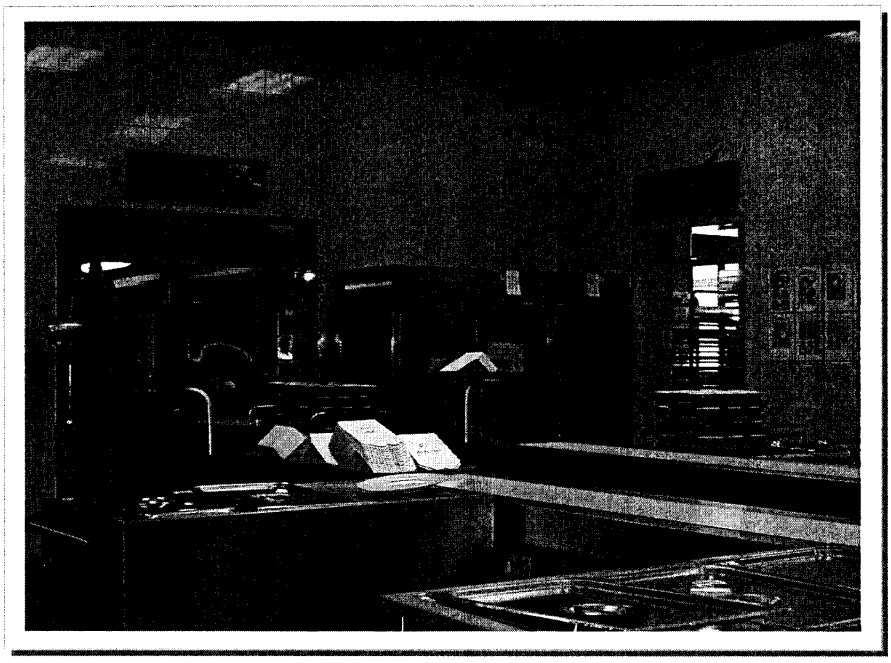
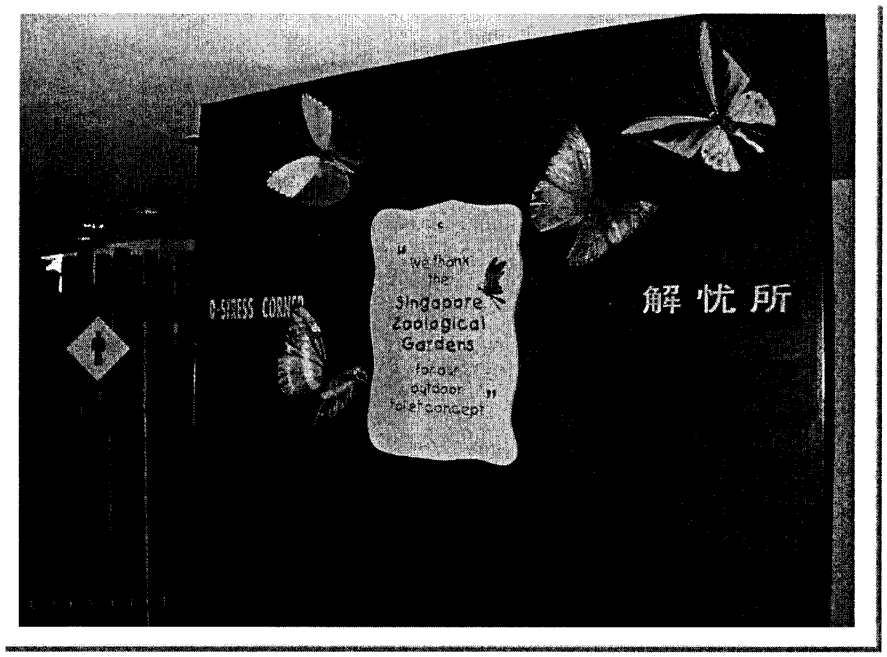


圖 *12* *Alexandra Hospital* 的廚房



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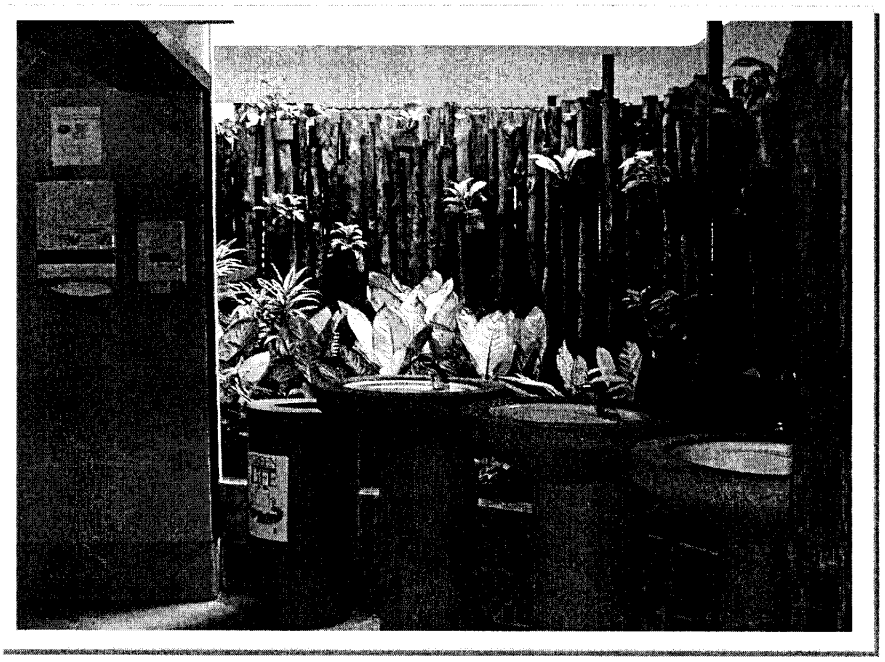


圖 *14*　*Alexandra Hospital* 的解憂所洗手台

Singapore General Hospital (SGH) and Outram Campus

Like Alexandra Hospital, SGH is also a hospital with a long history. It was established over 180 years ago in1821 for troops. It was rebuilt in 1981, and has a total of four National Centers on its Outram campus. The National Centers include the Cancer Center, the Dental Center, the Eye Center, and the Heart Center, the former two of which we visited as part of our tour.

SGH's functions are more like those of National Taiwan University Hospital. Its three missions include service, teaching and research. The medical services offered by SGH include 33 clinical specialties, allied health services and nursing. It is also the first teaching hospital in Malaya and Singapore. Over 200 of its staff are faculty members, whose responsibilities range from teaching undergraduates, graduates, and post-graduate training. Research is highly emphasized at SGH and involves doctors and nurses as well as allied healthcare professionals and engineers. Research projects performed at SGH include clinical trials, clinical research, and annual publications. SGH has plans to redevelop the Outram Campus, making it a medical hub with integrated patient care, research facilities and a graduate medical school with research institutes.

In addition to SGH's main medical building, we also toured the National Cancer Center and Eye Center. There are a couple of designs that have clearly taken the patients' interest into consideration, one of them being a doctors' meeting area behind the individual out-patient clinical offices. Each doctor's office has a back door that opens to a conference room. This makes it physically very easy and accessible for doctors to consult with one another on a patient's situation, and provides a space where the sharing of information and ideas is highly encouraged.

The radiation therapy area within the National Cancer Center has a human touch to it; the lighting on the ceiling glows through a piece of glass with the image of an oceanography on it. When the patients lie down to receive treatment, they will see the image of all kinds of fish swimming in the ocean, instead of the common florescent lighting. This releases a sense of warmth. At the same time, it has applied the theory of using nature to create a pleasant sensory stimulus.

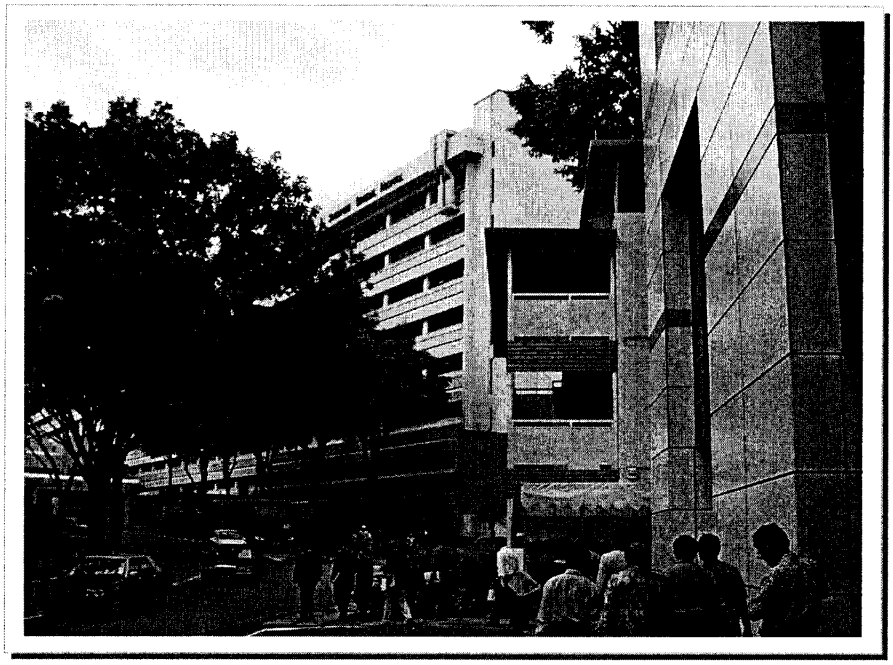


圖 *15* *Singapore General Hospital* 外觀

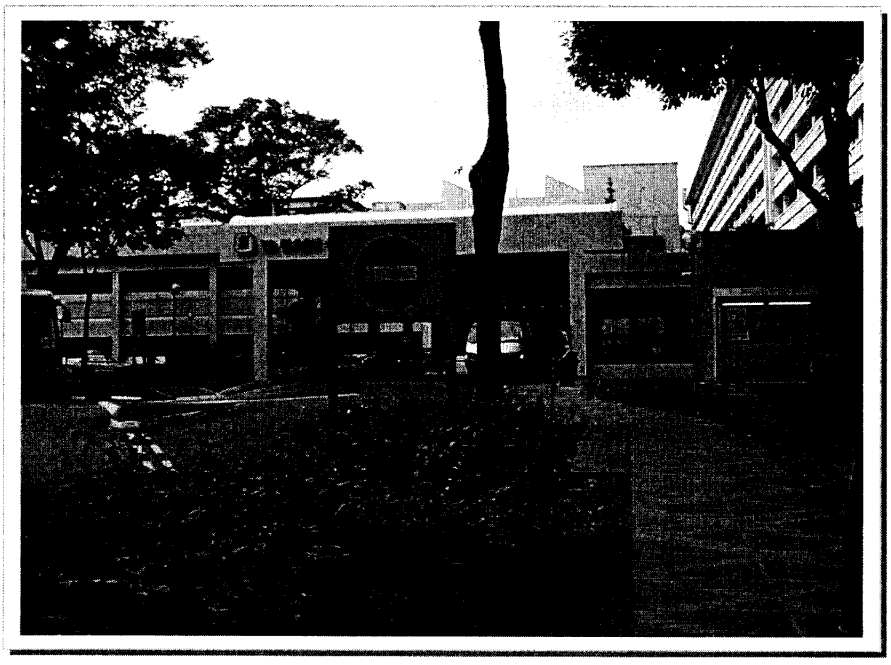


圖 *16* *Singapore General Hospital* 入口

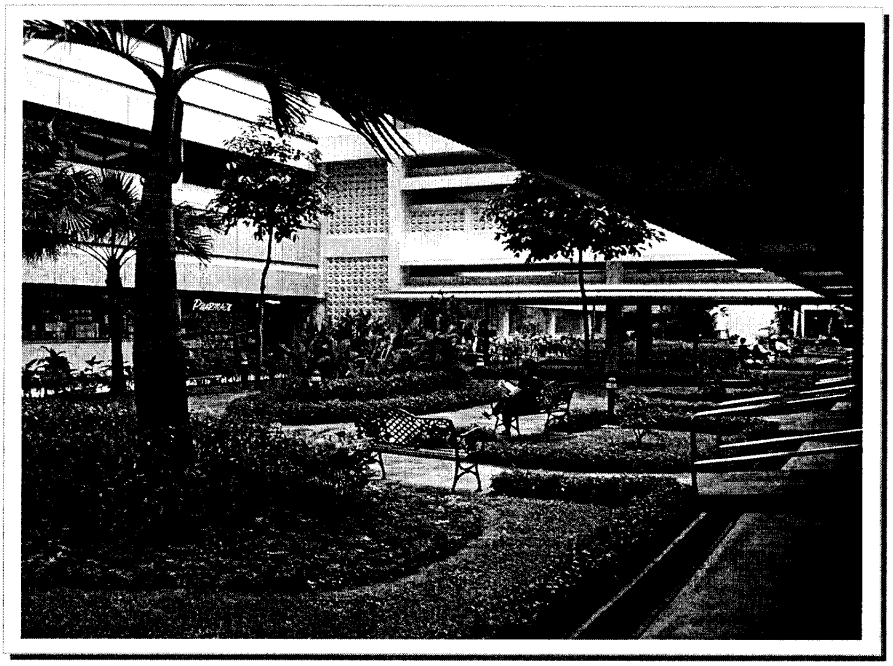
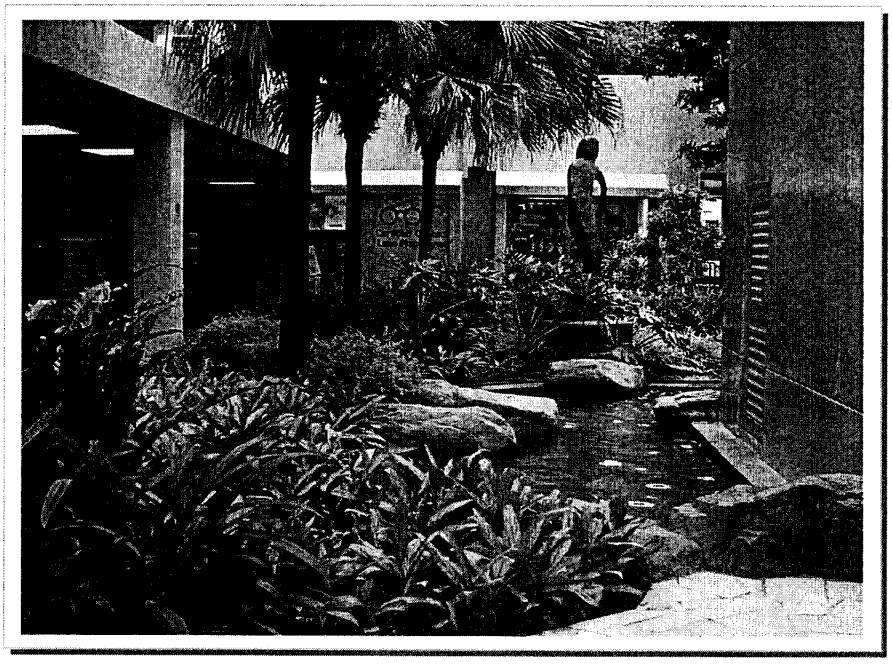


圖 *17*　*Singapore General Hospital* 的中庭



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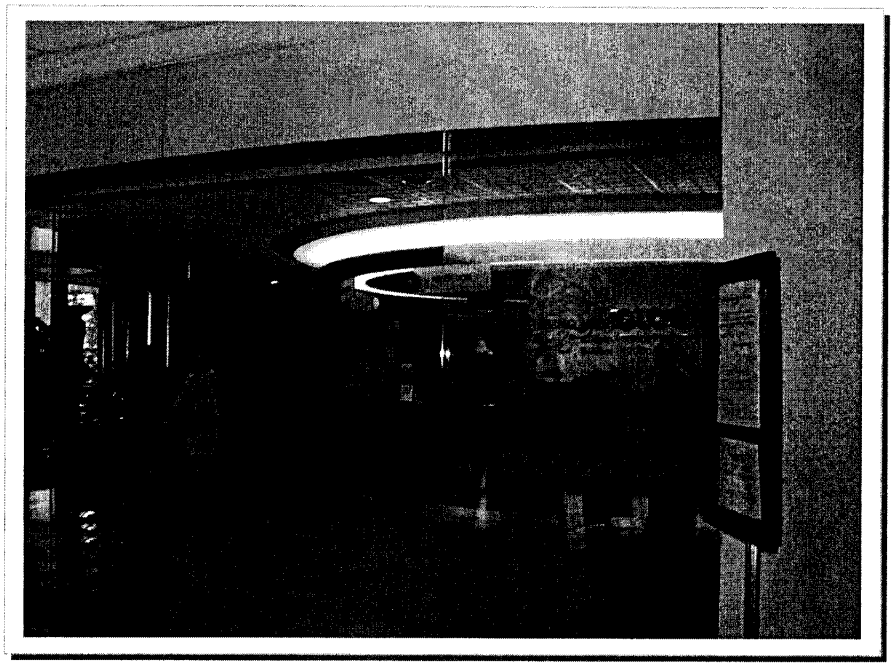

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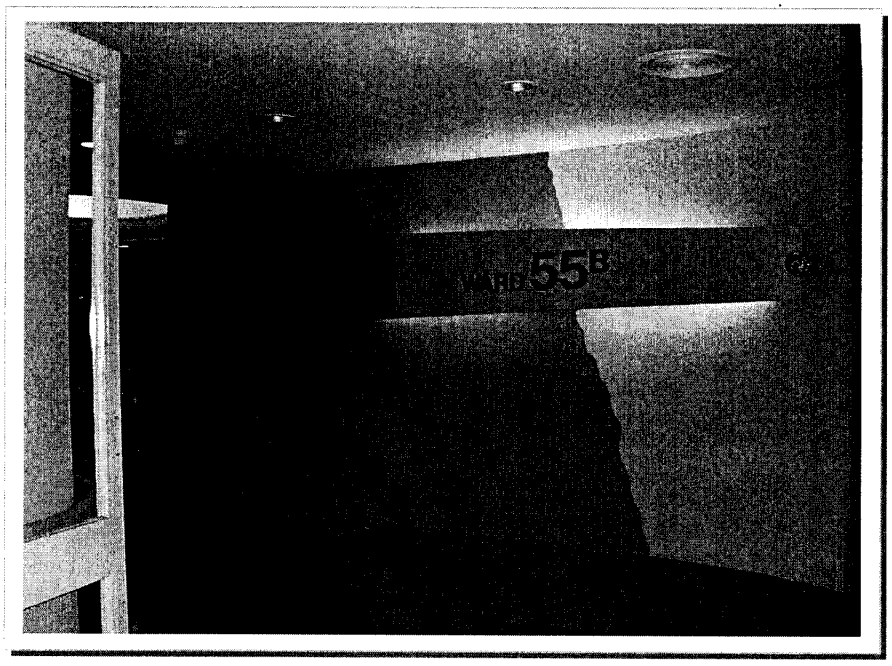

圖 20　Singapore General Hospital 的病房入口

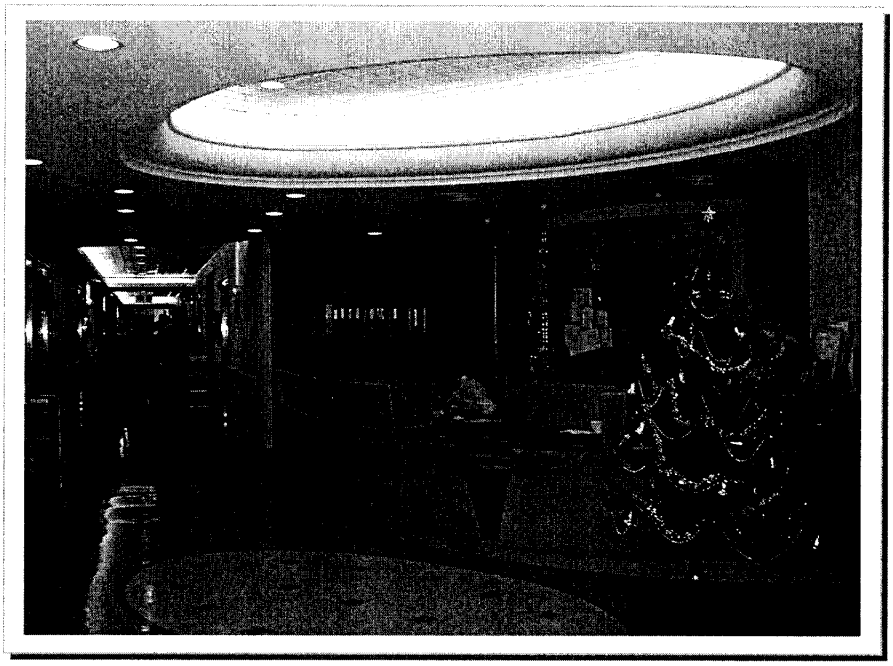

圖 *21* *Singapore General Hospital* 病房內的護理站

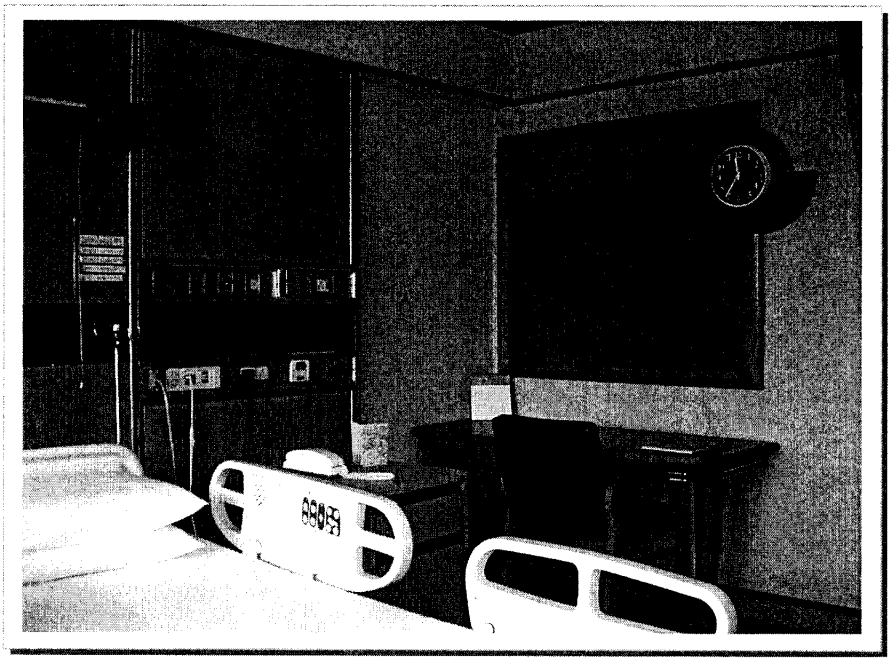

圖 *22* *Singapore General Hospital* 的自費病房

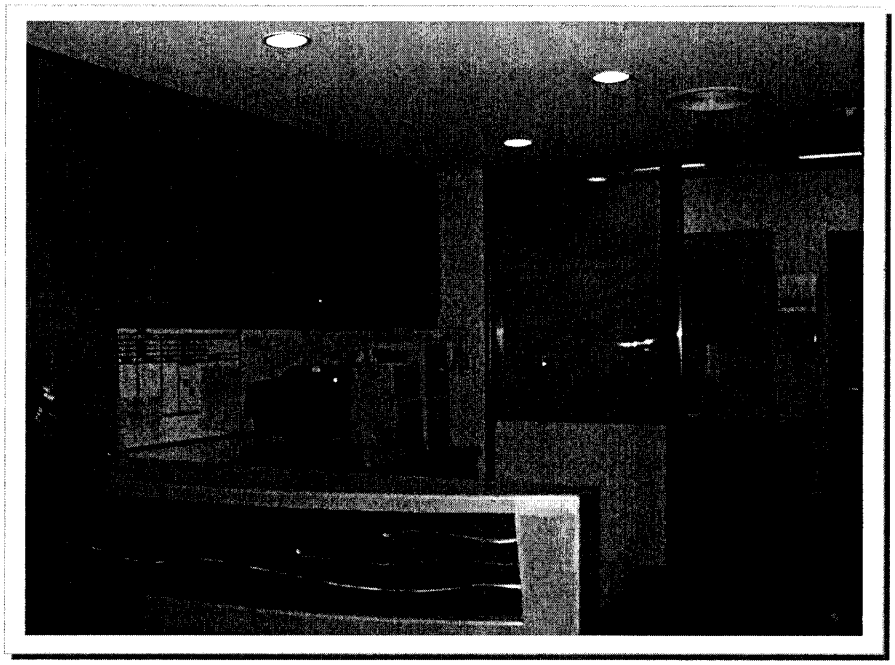

圖 23　Singapore General Hospital 病房內的公共茶水間

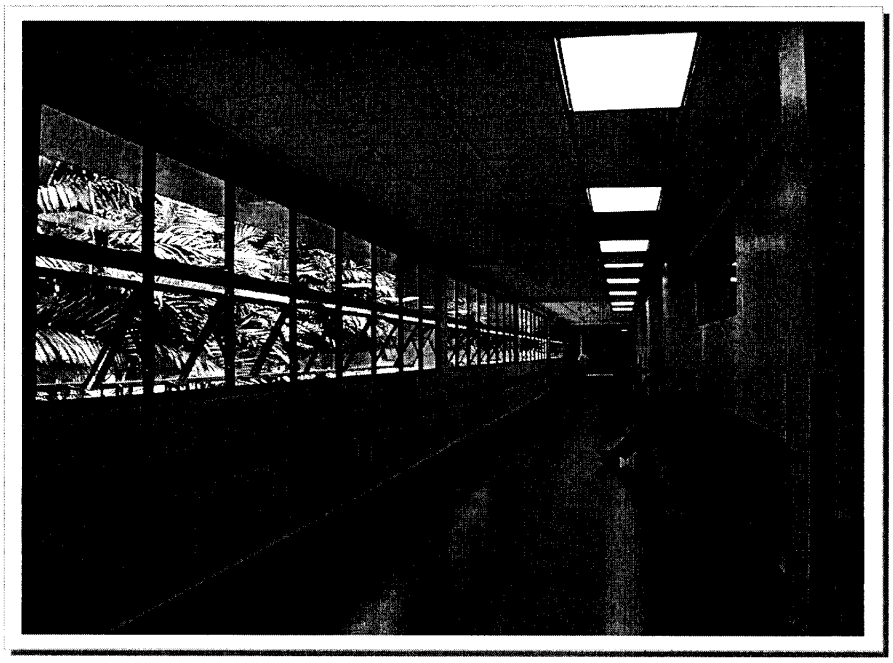

圖 24　Singapore General Hospital 病房外走廊

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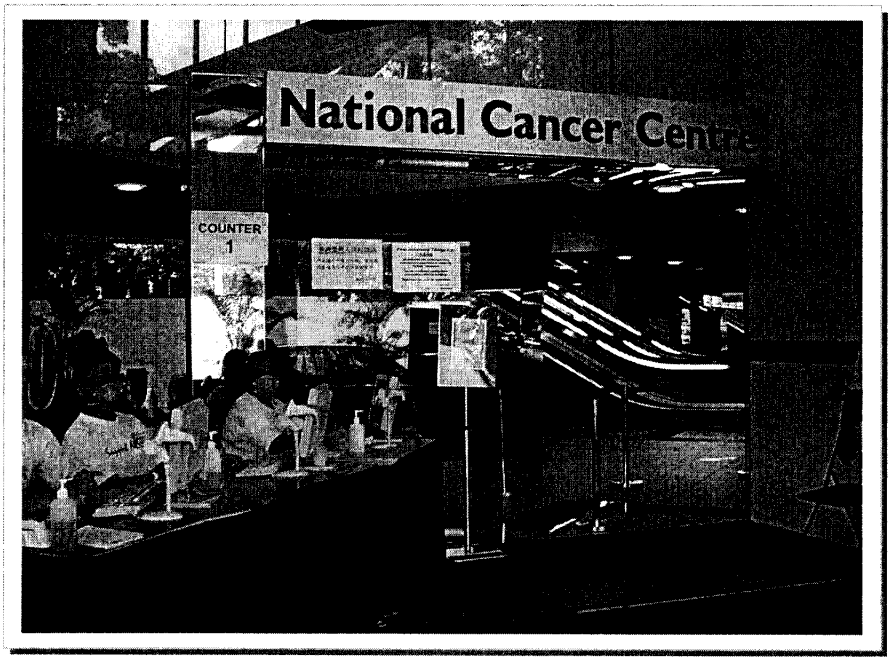

圖 *26* *National Cancer Center* 大門

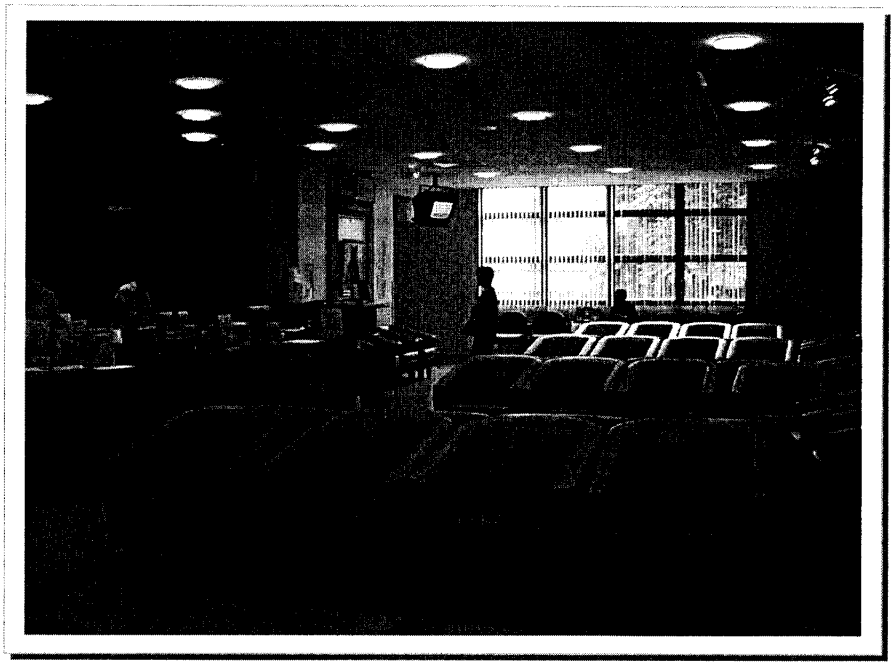

圖 *27* *National Cancer Center* 二樓待診區

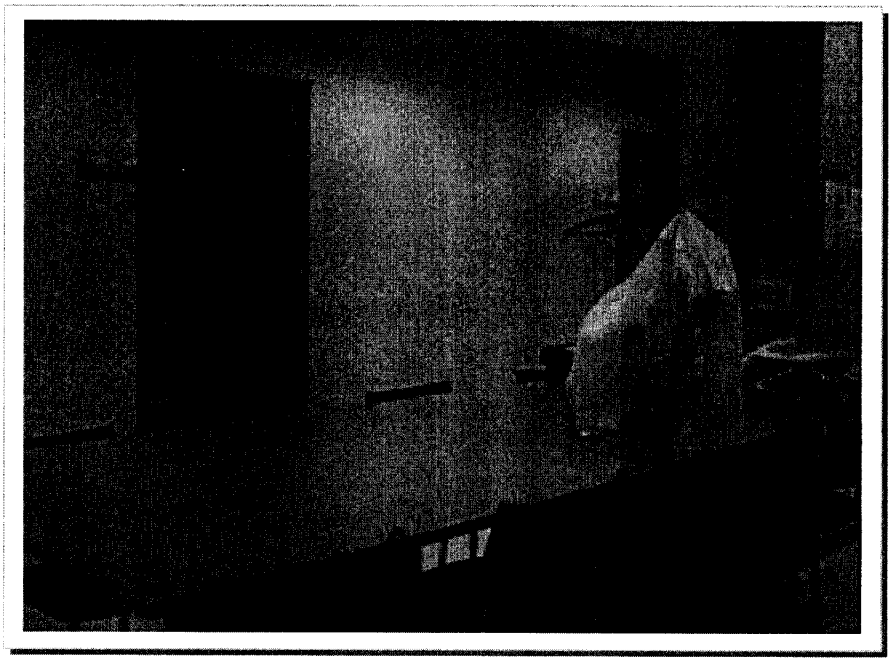

圖 *28* *National Cancer Center* 診間醫師討論室

圖 29　National Cancer Center 的斷層掃描室

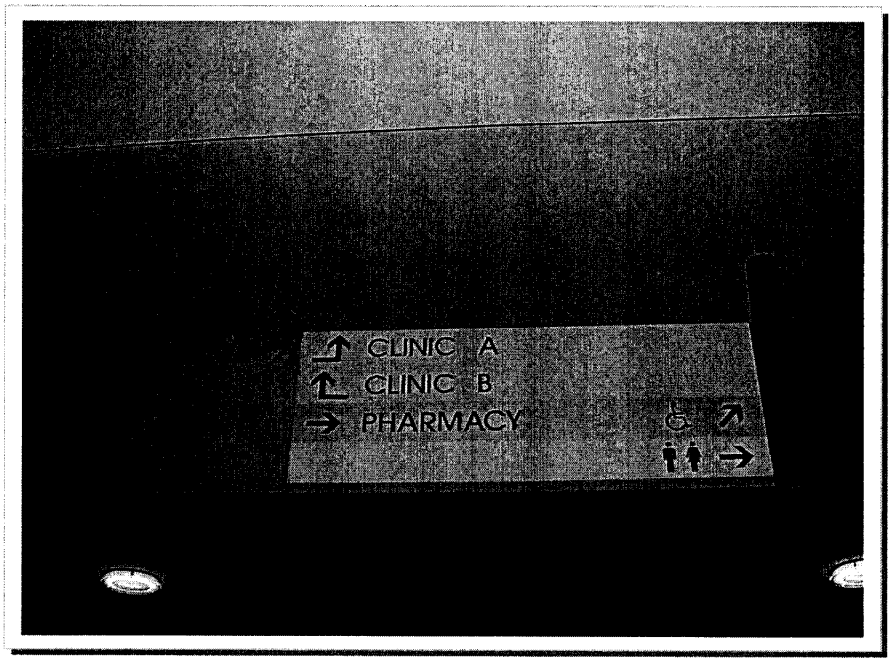

圖 30　National Cancer Center 的標識系統

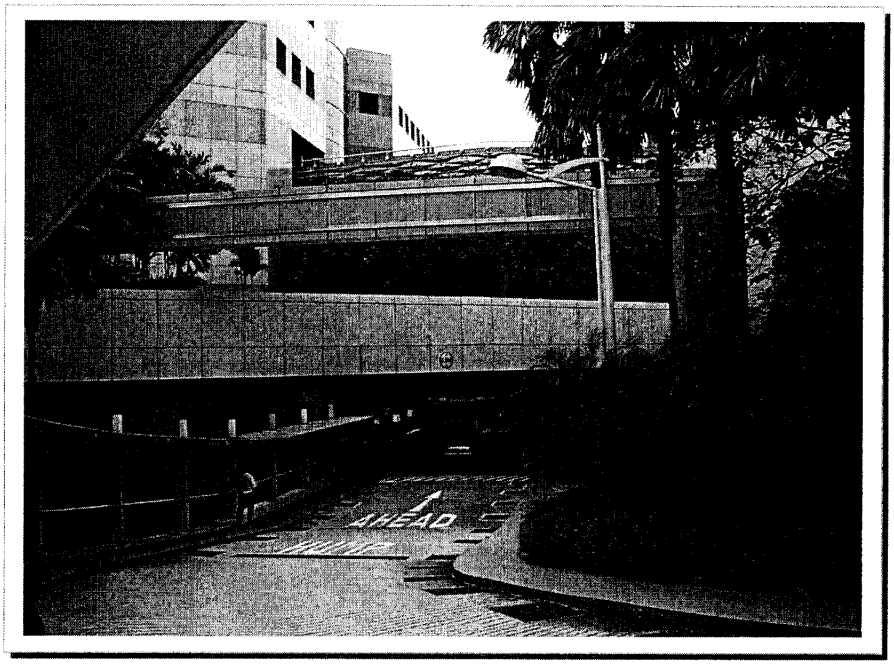

圖 31　National Dental Center 入口車道

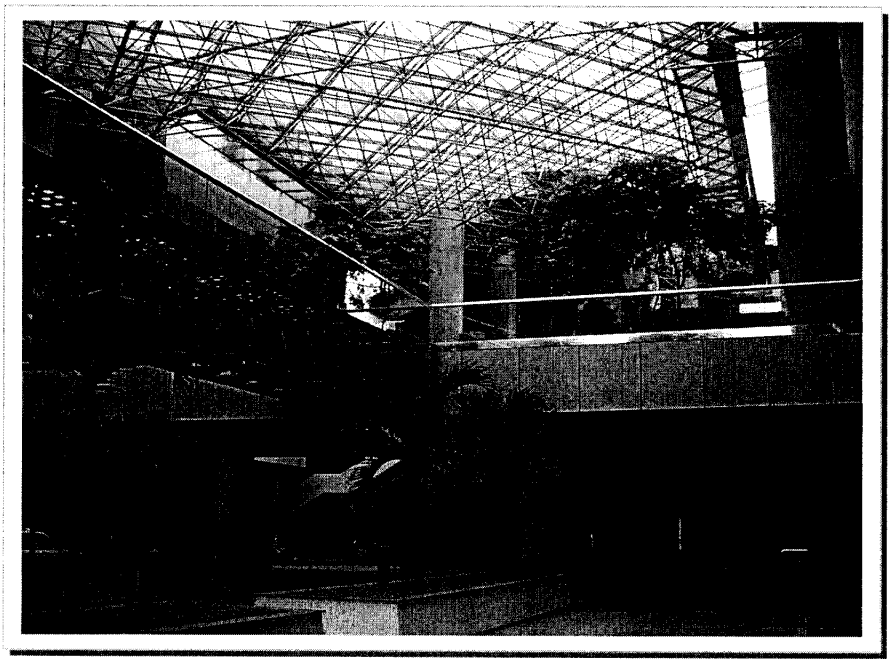

圖 32　National Dental Center

Conclusion and Suggestions

We can use many of the theories discussed during this conference when planning and designing the medical center within the Hsinchu Biomedical Science Park. We understand the importance of communication between architects and healthcare professionals both before and during the building of the complex. It is also essential to have a master plan before anything physical is put up. These are all strategies to ensure as little modifications as possible once the complexes are built. Ultimately, this reduces unnecessary labor and costs.

We also realize the importance of the physical appearance of a hospital. A hospital needs to appeal to the eye of the patient. It helps to have the facility built in a setting surrounded by a natural environment, thus giving it an ambiance that not only cures, but heals the patients. Of course, to be realistic, the complex must also be built with containing, or even reducing cost in mind.

The World Health Organization states that "health is defined as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." This concept should be the driving force when designing and planning a healthcare facility. From this conference, the message most pronounced is that design of the physical environment could definitely affect health and well-being.

Finally, everyone's life generally begins and ends in a hospital. Therefore, the design of hospitals concerns everyone, making it such an important and necessary issue for discussion. With these thoughts in mind, they should make the planning and design of a healthcare facility much simpler, rather than harder.