

NEURON BRAIN CENTER: THE BRIGHT VISION

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Abstract

Nowadays several neuron diseases have appeared and the number of ill patients is increasing. Whereas hospitals are occupied with patients who are not in need for cure, only in need for treatment and conditions management. Hospice and Care Center is becoming a global society need to fill some of the gaps that hospitals are no longer able to. This project introduce a new building type that serves the terminally nervous disease patients and their family members by creating a building that is designed with a frame shape and prepared to meet their required needs. This project aims to interpret Hospice and care Center and defines related terminologies in an attempt to examine this type of building in the Middle East particularly in Saudi Arabia. This project considered several case studies of hospice and palliative care centers on the world in order to gain a profound understanding of the project. This project also covered the space program, site analysis and site zoning. The selected site for this project is located in Obhour, Jeddah, which have a great view of the beach landscape.

Keywords -- Neuron Brain Center, Hospice, Care Center, Palliative Care Centers

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INTRODUCTION

At the core of the human nervous system, the body control system is the central nervous system (CNS), which consists of the brain and spinal cord physiological responses "requested" by the brain. The meaning of Neuron Healing is the process of the restoration of health to an unbalanced, diseased or damaged organism. With physical damage or disease suffered by an organism, healing involves the repair of living tissue, organs and the biological system as a whole and resumption of normal functioning. Middle Ages hospice quarters were available as a part religious or for monastic hospitals.

"Parkinson's disease (PD) is one of the most prevalent neurologic disorders, leading to progressive disability that can be slowed but not stopped by treatment. It is characterized by tremors, slow movements, stiffness in arms and legs, and balance impairment. Despite advancement in treatment, diagnosis, and care of PD patients, lack of adequate knowledge and associated beliefs among the community might have a key role in limiting access to proper treatment and care" [1].

The prevalence of multiple sclerosis is high in the Arabian Gulf region and Saudi Arabia [2]. In addition, the prevalence of Spinal muscular atrophy (SMA) cases in the Kingdom of Saudi Arabia (KSA) is much higher than the European and North American population [3].

The population of KSA is over 28million, and the prevalence of ASD is one per 167, suggesting that the total number of individuals with ASD is over 167,000 [4]. Therefore, this study proposes a project to create a medical care with energy form of generation to make it become comfort place and organic place for the patients.

CASE STUDIES

This study considered three case studies related to hospice and care centers from three countries namely Kuwait, United States and Australia. The chosen hospice and care centers are carefully designed and equipped with new trend facilities. The case studies can provide a deeper understanding of the project new trends and philosophy of design. The chosen case studies are:

- Kuwait Children's Hospital, Kuwait city, Kuwait
- Hospital and medical center and the Specialty paediatric center, Omaha, US
- Bear Cottage Children's Hospice, New South Wales Sydney, Australia

Kuwait Children's Hospital, Kuwait city, Kuwait

The aim of Kuwait Children's Hospital (KCH) is to provide patients and families throughout the region with easy access to specialty care and build programs that set national standards for quality (Figure 1). The project will develop the next generation of health-care leaders through its teaching programs, conduct research that contributes to the prevention, treatment and elimination of diseases that affect children. The goal is preserve the organization's financial health, while keeping the promise to provide care regardless of a family's ability to pay, while create sustainable urban, social and environmental development context [5].

"In the KCH, the retail podium fulfils these basic urban needs (Bank, Hotel, Restaurant, Shops...) and provides services not only to the hospital users but for the whole neighbourhood as well. This will help to easily integrate KCH in the existing urban fabric and become an urban anchor in the area. This way the KCH is also a first step towards restoring everyday life into the existing Hospital campus" [9]. The clinical facilities are located on top of the plaza. These include Intensive Care Units, Operation Theatres, Laboratories, Central Hospital Pharmacy, and all necessary clinical facilities common to the whole hospital (Figure 2).

The access to this area is restricted to the staff and inpatients. This is the functional Alma matter of the hospital that connects the different wards and facilities and allows the staff to access all areas in a fast and efficient way. Compact planning contributes to the efficiency of the building in terms of circulation and energy management. Patient care rooms are designed with many unique features to promote family-centered care. Single inpatient rooms are "zoned" with distinct areas for clinical care; patient areas and a family area. They are furnished with a daybed, storage, comfortable seating and a desk with Internet access [5].



Figure 1. Kuwait Children's Hospital [5]



Figure 2. Plaza of KCH [5]

Hospital and medical center and the Specialty paediatric center, Omaha, US

The new Children's Specialty Paediatric Center in Omaha, Neb is an impressive example of a building inspired by the developmental stages of all children, from one to 18 years of age (Figure 3). The new eight-story center is attached to the HDR-designed Omaha Children's Hospital and Medical Center that was completed in 2000, and houses more than 30 outpatient clinics in 135,000 square feet of space[6].

The center includes many family-friendly features starting with a child safety seat fitting station in the multi-level parking garage which adds nearly 300 parking stalls to the Children's campus. Families can park beneath the center and take the elevator directly to their clinic floor. Electronic screens offer daily schedule updates and aid in navigation[6].

Also important in the design were family-friendly features like family restrooms, a staffed kid's camp area for siblings of patients, consult rooms for families, and exam rooms with adequate space for multiple family members. In the physical therapy or occupational exam rooms, parents can sit in a space attached to the room which is unseen to the child, where parents can watch interaction through one-sided glass while listening through headphones(Figure 4).

An electronic medical record is utilized by every clinic - giving real time, comprehensive access to important medical information. Additional workspace and conference rooms facilitate collaboration among multi-disciplinary teams."Kids' Camp" can be found on the main level, just off the elevators from the parking garage. The parents can focus on their time with the doctor by providing a supervised play area and activity space for siblings of patients.



Figure 3. Children's Specialty Paediatric Center in Omaha, Neb [6]



Figure 4. Appointment and examination room [6]

Bear Cottage Children's Hospice, New South Wales Sydney, Australia

The main concept of this project is to design and create an inpatient beach house located in a sloping site of a coastal resort area of Manly (Figure 5). The project contains ten used inpatient bedrooms in which each bedroom is named after a local beach. The space is designed using the idea of cluster. This project aims to provide a childhood experience that any child should have by creating innovative facilities such as a tree house and children's garden [7].

This project has presented several interesting new trends that played a prime role in providing suitable spaces for dying children to have the opportunity to experience as much as possible a normal childhood. These trends are tree house and children's scaled restorative garden. The tree house is accessible by patients and family through the outdoor bridge terrace from the second level. It is mainly used for meditation and counselling (Figure 6). The tree house gives the children a sense of playful sanctuary where they can feel free to open up through the process of counselling because the tree house is a fresh casual space where children can get over their fear of doctors. The children's scaled restorative garden is a fascinating new trend located in the back of the house as a backyard which includes multisensory equipment such as light, sound and smell-based therapy amenities. This trend allows the children to interact with nature and be part of it[7].



Figure 5. Entrance to Bear Cottage [7]



Figure 6. Tree house [7]

SPACE PROGRAM

In this project, the hospice and care center is a new building type, thus this project will be the combination of several building types and facilities. Therefore, the hospice and care center is a collection of buildings associated with external garden and grounds. Figure 7 and Table 1 demonstrate the major zones relationship diagram and space program respectively.

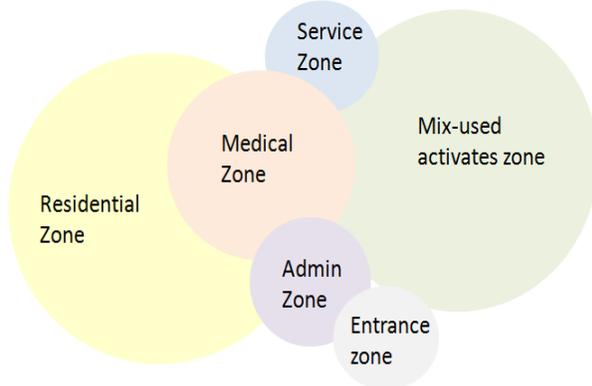


Figure 7. Major zones relationship diagram

Table 1. Space Program

| Zone | Percentage (%) | GFA (Per zone) (m ²) | Net Area (Pure) (m ²) | No. Floors | Foot print (m ²) |
|----------------------------------|----------------|----------------------------------|-----------------------------------|------------|------------------------------|
| Entrance zone | 3 | 1010 | 707 | 1 | 1010 |
| Admin | 6 | 1920 | 1344 | 2 | 960 |
| Medical zone | 5 | 1650 | 1155 | 2 | 825 |
| Mix-used/ activates zone | 39 | 13530 | 9417 | 2 | 6765 |
| Residential zone | 37 | 10590 | 7413 | 1 | 10590 |
| Service/ security/ logistic zone | 10 | 3300 | 2310 | 1 | 3300 |
| Total | 100 | 32000 | 22346 | | 23450 |

There are some guidelines are recommended to be implemented in the project. The project requires back entrance for services. Each unit shall have a private exit for deceased. The project site should allow a decent space to the private exit of each unit to move the deceased patients. Each unit must have grieving room

for family members in order to have their own privacy in emotional times. The common space should be away from each unit at near distant. Each chalet, suite and room must have its private exit to outdoor spaces. The project should have two types of room arrangement, one overlooking the sea view and the other overlooks the garden, and this will provide different types of room prices to make the project accusable to the whole society. The separation between the two genders and children should be in form of landscape barriers to emphasize on the greenery and to prevent patients to trap in the building. Single rooms should be isolated from the chalets and suites for privacy. The transitional spaces should allow natural light inside and movements of the patients.

The first noticeable thing in the ground floor plan is the separation between patient’s facilities, the entrance and administration facilities into two zones. The patient’s zone contains private zones which are the patient zones that host the common facilities of the patients. The entrance and administration zone is combined of public zones such as the entry area and reception area, lobby and administration offices. It also consists of private spaces which are used for overnight staying staff and family member.

The spaces of this project are related to each other in to complement each other serve the users of the building. The entrance area is located near to the administration offices in order for the staff to have a direct relation to the reception desk. The overnight accommodations for staff and family members are located next to it, so staying staff can be close to their work area. Also the administration has two parts and each part located in an area near the patient room for easy supervision. In patient area the common are scattered around the patient’s rooms. Different types of facilities between the rooms to allow easy access such as game room are located in for all the to use all the rooms and to give them the sense of home unlike the hospital where all the patients are located in one space without any facilities which they can access to it easily.

SITE SELECTION AND ANALYSIS

Site A is located at the north side of Jeddah city in Obhour, with the site area of 750m X 200m. This site can be accessed from Obhour and King Saud Roads. This site has two direct accesses to the sea with two private beaches, one access to the open sea (Figure 8). Site B is located in resort area in Obhour, with site are of 800m X 150m. This site can be accessed from corniche and King Roads. The site has an organic shape which can play a unique role in the design on the project (Figure 9). Site C is in a resort area in north of Obhour, with site area of 257m X 170m. It has a direct front view to the sea with a beach overlooking the surrounded resorts and residential areas. It is surrounded by Al-Sa’ada resort from the left side and Makarim Annakhell village from the right. This site has a nearby medical facility named Puskesmas hospital (Figure 10). Site C is adjacent to the Mile tower site which will be a very active area to come in the future. The site has a curvy beach completed with straight angles from the other side’s shaping a unique triangular land.

There are eleven site evaluation criteria are considered based on the case studies analysis. The considered criteria that used for selecting a proper site to locate the hospice and care center are accessibility for patients and family members, accessibility for staff and volunteers, security, views, existing natural elements (Greenery-Water features), interaction with community, opportunities for good landscape design, near to medical facilities, close to amenities, environmental quality and adaptability with the surroundings as well as privacy. Table 2 tabulated the site evaluation result, whereas the weight factor of 3 represents important, 2 represents somewhat important and 1 represents not very important.



Figure 8. Site A [8]



Figure 9. Site B [9]



Figure 10. Site C [10]

According to the results of sites evaluation shown in Table 2, site A is considered to be the preferable site to locate the hospice and care center. It is located in Obhour in Jeddah, has unique shape and the total gross area of the site is 750 X 200 meter. This site can be accessed from Obhour Road as well as from King Saud road. This has a resort area adjacent to it from the south east

side. On the west and east side's it has two direct accesses to the sea with two private beaches, one access to the open sea and another overlooking surrounding resorts. This site can be easily adapted to accommodate private and public zones for activates. The site is surrounded by a residential area, resorts area and amenities area. The site has excellent views to the sea and good views to the resort areas surrounding the site. The noise levels in the site vary according to the surroundings of the site.

Table 2. Site Evaluations

| No. | Criteria (Weight factor) | Site A | Site B | Site C |
|--------------------|--|-----------|-----------|-----------|
| 1 | Accessibility for patients and family members (2) | 4 | 6 | 6 |
| 2 | Accessibility for staff and volunteers (1) | 3 | 3 | 3 |
| 3 | Security (2) | 8 | 6 | 6 |
| 4 | Views (3) | 15 | 12 | 15 |
| 5 | Existing natural elements (Greenery-Water features) (3) | 9 | 9 | 9 |
| 6 | Interaction with community (2) | 6 | 4 | 4 |
| 7 | Opportunities for good landscape design (3) | 9 | 9 | 9 |
| 8 | Near to medical facilities (3) | 6 | 6 | 6 |
| 9 | Close to amenities (1) | 3 | 3 | 3 |
| 10 | Environmental quality and adaptability with the surroundings (3) | 12 | 15 | 12 |
| 11 | Privacy (3) | 12 | 9 | 9 |
| Total Score | | 87 | 82 | 82 |

SITE ZONING AND PROJECT DESIGN

The zone of this project is allocated carefully according to the topography of the site location. Figure 11 shows the main entrance of the project is on east side. The admin zone is located close to the entrance in order to provide fast and continent support for the visitors. The neuron frame is the main zone of this project, thus located at the center of the site location. The residential zone and spiritual zone would have a great landscape view as it located beside the beach. Figure 12 shows the site plan of the project. Figure 13, 14, 15 and 16 demonstrate the exterior view, marina view, main entrance and interior view of the project respectively.



Figure 11. Final site zoning

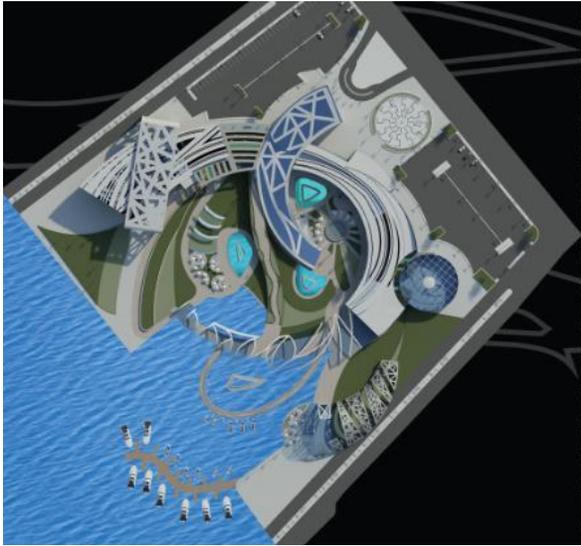


Figure 12. Site plan



Figure 13. Exterior view



Figure 14. Marina view



Figure 15. Main entrance



Figure 16. Interior view

CONCLUSION

The complete form of neuron healing frame consists of medical zone to accommodate both patients and staff members with Residential very high standard of space quality. Second is major clinic and health care facilities zone which facilitates the urgent need such as emergency. Next is entertainment and amenities zone which provide a variety and different kind of activities and facilities. Lastly are parks and green spaces zones, which are highly in demand for Fung Shui energy form generation.

Based on the site evaluation criteria, Site A is selected to become the site location for the project which is in Obhour, Jeddah with an excellent beach view. The site zoning and complex are designed carefully based on the site analysis and site topography.

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