

## SENIOR COMPLEX

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### Abstract

This project aims to build healthcare center with a senior club in safe living environment. The building has facilities that help individuals re-build their lives in a safe and caring environment. The facilities provide state-of-the-art such as a gym, sports area, library, multi-media room, arts studio, cafe and rooms for therapy sessions. This project emphasize on using a healing by design architecture and sustainable environments. The design must blend technical design innovations with thoughtful enhancements of the healing environment. This study covered three similar case studies that used as the fundamental of the project design. The space program was proposed based on the information from case studies and site evaluation was conducted on two primary criteria namely accessibility and environment. Through good planning and design, this project accommodates and focuses on the healing process and understands the needs of patients and families, physicians and staff.

**Keywords**--Healthcare Center, Senior Club, Caring Environment, Patients, Therapy Sessions

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### INTRODUCTION

The Elderly Housing project is a theoretical design project for the accommodation of elderly persons in the surrounding areas [1]. In order to gain a comprehensive understanding of an elderly facility and its development, an investigation was conducted on the needs of the older generation as well as how to provide for those needs. Important considerations were the growing population of people age fifty-five and over, usable building amenities, and practical layouts for living areas [2].

The overall population in the Saudi Arabia is growing alongside life expectancy [3]. Due to the number of people born during the Baby Boom generation a large contribution will be made to the elderly population of the near future [4]. As a result, the elderly community is much larger than in the past and requires more care from the younger generation. Like other age groups, they have specific needs to maintain a healthy lifestyle and minimize their limitations while getting older. The similarity between population and life expectancy relates to the fact that the needs of seniors will grow along with the needs of others and require the help of the working age population.

A major area for providing the necessary accommodations is elderly housing. The type and demand of housing for the elderly depends upon what they are able to afford and the amount of care that is needed. Much of the elderly population has low income and is limited in activity and also has a greater frequency of living alone when compared to households of younger people [5]. The adjustments to a housing facility should cater to these needs and provide the residents with a permanent location where they will live in a comfortable environment. Therefore, this study proposed the development of healthcare center with a senior club in safe living environment.

### CASE STUDIES

The study considered three similar healthcare centers and hospital for the case studies from USA, Spain and Netherlands. All selected healthcare center and hospital are sensitively designed to suit the local condition and requirement. The selected cases studies are:

- Sun city, East of Phoenix, Arizona, USA
- Hospital de Sant Joan de Déu de Manresa, Spain

- Dementia Village 'De Hogeweyk' in Weesp, Netherlands

### Sun City, East of Phoenix, Arizona, USA

There is a 3,100 acre active-retirement home called the Sun City Festival and is considered a great place for the twentieth century retiree. Sun City Festival was created for adults, ages 55 and older, which are still considered active and assistance independent [6]. This community invests a large amount into the social and physical aspects of living to maintain health. This means residents have the capability to leave the complex on their own or participate in numerous activities on-site that range from grocery shopping to 18 holes of golf. Fitness centers, such as the Sage Center that is located in the community. They also provide recreational use of pools and exercise rooms for clubs and classes with fitness instructors.

The team project considers this type of active lifestyle and incorporates it into the design of the facility. The physical health of a resident is extremely important and allowing the use of fitness amenities for everyday use is very beneficial. The residents are given a sense of community townhouses and apartments can be occupied by the active community, which allows residents to enter and exit the facilities as they wish. However, assisted living area housing is appropriate for occupants that have trouble in maintaining their health in everyday life [7].

### Hospital de Sant Joan de Déu de Manresa, Spain

The conceptual undertones for this project were based on "the rhythm of light." Design for this project was centred on the natural healing qualities that day lighting can bring into a hospital setting, better known as phototherapy. Several wings of the hospital have hierarchal meaning for the treatment spaces, while allowing light into a central core. Units surrounding this main core of the building gain the most optimum lighting conditions at all hours of the day. At night the core becomes a prime view as well, featuring a sort of hidden community where operations can be observed from the inside [8].

Hospital owner and designers felt that the existing hospital building looked like an isolated structure that was tossed into the middle of a field. To remedy this, the new addition will read "like

a comb” [8]. The “rhythm of light” can be noted in the above photo which is a 10 foot gap between units, allowing a shaft of light to infiltrate the hospital patient rooms at all times. Circulation corridors cut through the two wings and also take advantage of the natural lighting this break in facades brings [8].

**Dementia Village 'De Hogeweyk' in Weesp, Netherlands**

Dementia Village 'De Hogeweyk' in Weesp located close to Amsterdam, 'De Hogeweyk' is a village-style neighbourhood for elderly residents with dementia, offering maximum mobility and an opportunity to lead a normal and active daily life [9].

The innovative care concept, which is based on the requirements of the residents, is attracting a lot of attention. Inside the complex, there is a park with a pond, a long boulevard, several squares with cafés and restaurants, as well as a theatre square. There is enough space to allow for the pronounced urge to move typical for the illness, and there are plenty of areas for communication and social exchange. Although people suffering from Alzheimer’s disease are often still very fit physically, they have problems with memory and mental capacity [9].

The care concept aims to permit the elderly to live an everyday life which is as normal as possible. They can do domestic chores together with the cares. Residents can even do their own shopping in the supermarket if they wish – just as normal, only that they don’t have to pay here and any non-sense purchases are returned by a carer later. Individual interior decoration is intended to make residents feel at home in familiar surroundings. The residential areas are divided into different lifestyles allocated to the elderly on the basis of their past preferences. An opinion research institute analysed the seven most common environments in the Netherlands for this purpose, resulting in the following categories: traditional, city, wealthy, cultural, Christian, Indian and homely [9].



Figure 3. Dementia Village 'De Hogeweyk' in Weesp [9]

**SPACE PROGRAM**

The program split into three sections, the first section for activities and day care which focuses on leisure, culture, entertainments, and extensive health and fitness facilities, including a swimming pool. The second section will be used as residential. This is divided into three major housing types include nursing homes, assisted living facilities, and active(independent) retirement homes. The third section is healing center.

Regarding the program assumption, the senior gathering center and facilities may vary in size and according to programs decided it can reach site area of 30,000 -50,000m<sup>2</sup>. Therefore the site is assumed to be 50,000m<sup>2</sup>, the building GFA assumed to be 25,000m<sup>2</sup>. The space program of the project is shown in Table 1.

Table 1. Space program

Zones	Use Percentage (%)	Built-up Area (m <sup>2</sup> )	Floors	Footprint (m <sup>2</sup> )
Common	15	3750	3	1250
Activity Area	40	10000	2	5000
Admin Area	10	2500	1	2500
Optional Area	15	3750	2	1875
Gymnasium	20	5000	3	1667
<b>Total</b>	<b>100</b>	<b>25000</b>		<b>12292</b>



Figure 1. Sun City [7]



Figure 2. Hospital de Sant Joan de Déu de Manresa [8]

There are some residential specifications were considered in this project such as intimacy, autonomy, warmth, green living and smart technology. Instead of a traditional nursing home, a Project community consists of clusters of smaller homes for senior residents plus nursing in suit rooms. Residents are free from scheduling and able to access social and shared areas of the house at any time, making it truly feel likehome. This is one of the core values of the Project. A warm living situation consists of a layout that encourages social activity. “Green” means living within the natural world, where the homes let in plenty of sunlight, and include plants, garden areas, and outdoor access. The residential specifications also utilise the advantage of smart technology such as adaptive devices, computers.

One open multi-purpose space is located near the main entrance designed to be inviting as it is open to the community at large. This space is offered as a gathering place for residents, community meetings, or seasonal events together with children from the day care center, seniors living in the community may drop in for social interaction every morning. This interpretation of design and architecture provides the residents with a full view of the setting contributing to sense of place in the community.

As people get older, they start partially losing their senses and get weaker by days. Therefore the mission of this project is to create a suitable environment where incorporate deferent colour and texture to assess their living and enhance their ability

**SITE SELECTION AND ANALYSIS**

There are three site were proposed for site evaluation and site selection. Figure 4, Figure 5 and Figure 6 demonstrate that Site 1, Site 2 and Site 3 are located in Thuwal, Northern Abhor and Al-Taif respectively. There are two main categories for site evaluation namely accessibility and environment. The evaluation of accessibility consists of access to community, traffic, noise, borders, site area/ zone, land marks, neighbourhood context and circulation. The evaluation of environment consists of climate (solar access, winds), healing plant, topography, historical resources, views (inside out, outside in), surround building's colour, building's height estimation and also the surrounded structural shading (sun shadow pattern). The site evaluation result is tabulated in Table 2.



Figure 4. Site 1 [10]



Figure 5. Site 2 [11]



Figure 6. Site 3 [12]

Table 2. Site evaluation

Criteria	Site 1. Thuwal		Site 2. Northern Abhor		Site 3. Al Taif	
	Description	Score	Description	Score	Description	Score
Access to community	Very Far	5	Good	10	Average	7
Traffic	No traffic highway	7	No traffic highway	7	No traffic highway	7
Noise	Quit empty land	9	Dense area	6	Quit empty land	7
Borders	Empty land	5	Resort	8	Empty land	5
Site area/ zone	Closed KAU	6	Closed north Jeddah	10	Closed Al Meqat	5
Land marks	KAU	5	King Tower	9	Sarawat Mountain	7
Neighbourhood context	Touristic	7	Residential, education	9	Residential, touristic	7
Circulation	Obhur road	5	Obhur road, serves road	8	Al sail al kabir road	6
Climate (Solar access, winds)	Humid	7	Humid but very windy	8	Cold and good	10
Healing plant	Poor	3	None	0	A lot	10
Topography	None	6	None	7	Good	10
Historical resources	Average	6	Poor	4	A lot	10
Views: inside out, outside in	Average	6	Excellent	10	Average	5
Surround building's colour	Some	7	Not much colour	9	Various	7
Building's height estimation	2-3 stories high	9	2-3 stories high	9	2-3 stories high	7
Surrounded structural shading/ Sun shadow pattern	Non	5	Non	5	Good	8
<b>Total Score</b>		<b>98</b>		<b>119</b>		<b>118</b>

According to the site evaluation, the final score indicates that Site 2 is the most appropriate location for the project. Obhur and Ubbor (Ob7or), is a sea bay located about 30kilometres north of Jeddah City on the east coast of the RedSea, west of Saudi Arabia. Obhur is the main sea tourism area in the Jeddah area and is

considered to be the number one destination for national tourism. Obhur is located south of King Abdullah Economic City and also south of Durrat Al-Arus Resort, Al-Bohirat resort and Salman Bay. In addition, the Prince Waleed Bin Talal has decided

and announced the launch of construction of the world's tallest building at Obhor.

Obhor is becoming a new destination and choice as a living area in Jeddah, for both; local generation and businesses. Obhor area is also becoming a destination for education with several colleges and universities recently developed. The area of the site is large but is not accessible from all the directions.

Regarding the climate analysis of the site, the humidity reaches its highest degree at the end of the summer season August. The lowest temperature of selected site is during December and January. The highest temperature of selected site is during June and July. Rain is very scarce, mostly light showers type accompanied by thunderstorms, usually fall during winter and spring.

**ZONING AND PROJECT DESIGN**

Figure 7 and Figure 8 demonstrate the final zoning of the site and the site layout respectively. The clinical and administrative area is located in the middle of the building, where there are two areas reserve for living area. Besides that, the service and support area is located next to the clinical and administrative zone. Figure 9 and Figure 10 show the back elevation and healing garden of the project respectively. in addition, the night view and main view of the project is display in Figure 11 and Figure 12 respectively.

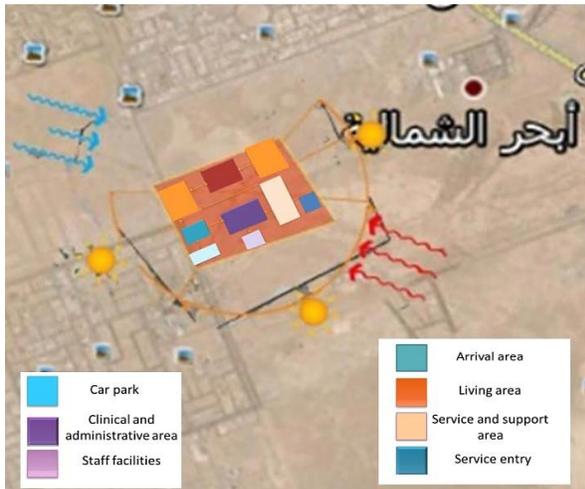


Figure 7. Final zoning of site

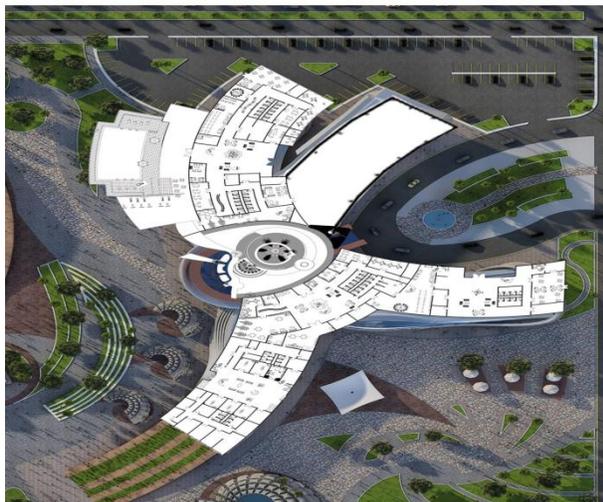


Figure 8. Site layout



Figure 9. Back elevation



Figure 10. Healing garden



Figure 11. Night view



Figure 12. Main view

**CONCLUSION**

The Healthcare complex design blends technical design innovations with thoughtful enhancements of the healing environment. The healthcare center creates a healing and sustainable environment that accommodate and focus on the healing process understand the needs of patients and families, physicians and staff. The selected site for the project is location in Northern Abhor, based on the evaluation criteria from the aspect of accessibility and environment. The proposed complex covered several zones such as common area, activity area, admin area, optional area and gymnasium. The residential area is designed to meet the needs of older people and improve their quality of life, thus the homes will be built around plans that help residents make the most of how they live and socialize.

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782!4d40.4248192

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