

CIVIL DEFENCE AWARENESS EDUCATIONAL CENTER

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Abstract

The civil defence awareness education center is to spread the awareness to the people. The purpose of the project is to propose a center that is fully equipped with appropriate technology and facilities to prepare for disasters that may affect Jeddah and raise public awareness of disasters in general, and floods in particular. Numerous disaster prevention and education center were considered for the case studies based on their different design concepts. The project proposed the space program and the site location selection based on certain criteria. Related courses, venues and seminars will also be held at the center. The emergency training covers a wide range of maritime emergencies, and special courses will discuss in detail. The training content includes personal survival skills, first aid, fire prevention and fire fighting. This project is serving the community people and they will get the impression of felling defence through the design of the project and through the journey that they going to have when they enter the center.

Keywords--Civil Defence, Awareness, Educational Center, Emergency Response, Training

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INTRODUCTION

Saudi Arabia adopted new methods to fight (nuclear-biological-chemical) disasters and to protect life and property after the development of the mass destruction weapons [1, 2]. It established the General Directorate of Civil Protection (GDGP) as a civil defence department for this purpose.

The General Directorate of Civil Protection endeavours, under guidance and directives of Saudi Arabia's leadership, to curb potential disasters and minimize the effects in co-operation with other bodies through risk analysis, study and possibilities of occurrence [2, 3]. GDGP conducts preparation of plans to control disasters and readiness by making available all human and technical materials. The directorate performs evacuation and rehabilitation works as well.

The General Directorate of Civil Defence (DGCD) is a national agency in charge for leading Saudi Arabia in preparing, preventing and responding to disasters [4, 5]. The civil defence department has adopted a series of measures and initiatives to protect citizens, public and private property from various disasters such as fire and war [6].

It also ensures that the community is knowledgeable of the danger and provides assistance to disaster victims [2]. It also ensures the normal operation of government services and maintains national resources in peacetime, wartime and emergency situations.

The proposed project creates the civil defence awareness, which need cooperation from the government and the civil defence minister to hire a qualifying people to train the civil people the basic concept of safety and offering them good and complete information about civil defence.

CASE STUDIES

There are three proposed disaster prevention and education center located in Istanbul, Turkey were used as the case studies. All the chosen case studies are sensitively design to meet their project objectives. The architectures for the proposal of disaster prevention and education center in Istanbul, Turkey are DimchoNedev and BinyoYovchev, OODA, and 109 Architects.

Disaster Prevention and Education Center, Istanbul, Turkey by DimchoNedev, BinyoYovchev

The concept of the Istanbul Disaster Prevention and Education Center is to raise awareness of disaster prevention in the community and educate people on how to respond to disasters. This is a new type of building for the territory of Istanbul and it brings particular message to the society. The regular pentagon can be divided into sectors (golden triangles) from which two forms are derived: "Kite" and "Dart (Figure 1) [7].

The linear structure of the building is composed by triangular joint rods structure, spanning 20 and 33 m. Roofing is visible in the interior and perceived as a cover under which other functional volumes are placed as buildings within the building. It is a three-floor building, with no underground level. A large, their main entrances situated to the north. There are complementary entrances from the parking, leading directly in the entrance hall space. The Planetarium is articulated outside the volume of the two centers and is connected to the second level of Disaster Prevention Centre. Information Centre is situated on the lower ground floor level, as well as Children Centre, bookstore, souvenir shop and exhibition area [7].

Disaster Prevention and Education Center, Istanbul, Turkey by OODA

The Istanbul Disaster Prevention and Education Center is designed for local residents and tourists. The design plan proposed by OODA Architects is a new landmark in the city (Figure 2). The unique shape of the building makes it harmless when riding and vibration may cause the building to find new stability. Then, after the disaster, residents of the area can gather for help [8].

The purpose of the Istanbul Disaster Prevention and Education Center competition is to make recommendations for the establishment of a center fully equipped with appropriate technology and facilities in order to prepare for disasters that may affect Istanbul and to raise public awareness of disasters, especially in the area of earthquakes. For this unique device, the proposed method attempts to combine the most effective way of expressing the plan with a powerful concept to propose an overall theme related to Istanbul [8].

The design concept of the building is derived from Arabic styles. The facade is manipulated to filter the natural daylight incoming specific internal areas, which gradually become more gorgeous from north to south, and form a middle pattern between the east and west facades [8].

Disaster Prevention and Education Center, Istanbul, Turkey by 109 Architects

Figure 3 demonstrates the disaster prevention and education center designed by 109 Architects. Disaster prevention is related to communications and information, and to reliable networks. The spread of information before a disaster is critical to preparing for an effective response during and after a catastrophic event [9]. In the event of a disaster, the same communication network is essential to assess the needs of victims in the disaster area and make recommendations for action. It can also provide spiritual support to emergency rescue personnel in an emergency. At a more practical level, the physical network of highways, railways, and airports enables materials and rescue personnel to move quickly between stations and safe areas. These notes have strong visual recognition capabilities and can be adapted to any location in the center of any town or village. After connecting to the site, they educated before the disaster, provided efficiency during the disaster, and provided support after the event. The created network can be extended to the entire site and cover Istanbul and other parts of the world [9].

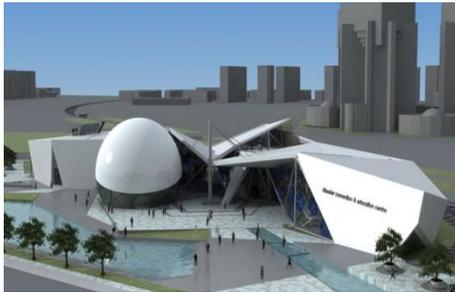


Figure 1. Disaster Prevention and Education Center, Istanbul, Turkey by DimchoNedev, BinyoYovchev [7]



Figure 2. Disaster Prevention and Education Center, Istanbul, Turkey by OODA [8]



Figure 3. Disaster Prevention and Education Center, Istanbul, Turkey by 109 Architects [9]

SPACE PROGRAM

The community service building is famous for its various facilities. All community service facilities have a common goal to meet public needs. Each facility is very professional and has very different functional requirements. Therefore, the design and functional layout of these facilities will vary greatly. If these building types have a unified theme, it is that the external building information should respect the cultural taste and history of the communities served. The project is defined for six main zones which shown in Figure 4 and the space program of the project is tabulated in Table 1.

There are several design considerations for the project. First, provide ample natural light and avoid institutional and unnatural finishes, textures, and colours. In order to maintain a safe and healthy environment and the presence of hazardous substances, special attention must be given to designing facilities to accommodate equipment and operating strategies to protect occupants and maintain a healthy environment. In addition, personnel and supplies should be provided with safe facilities, such as controlled medical supplies and dangerous fire extinguishing agents. In addition, ensure good indoor air quality and sufficient natural lighting in residential areas and administrative areas. In addition, please ensure that the equipment, furniture and finishes do not contain asbestos or lead.

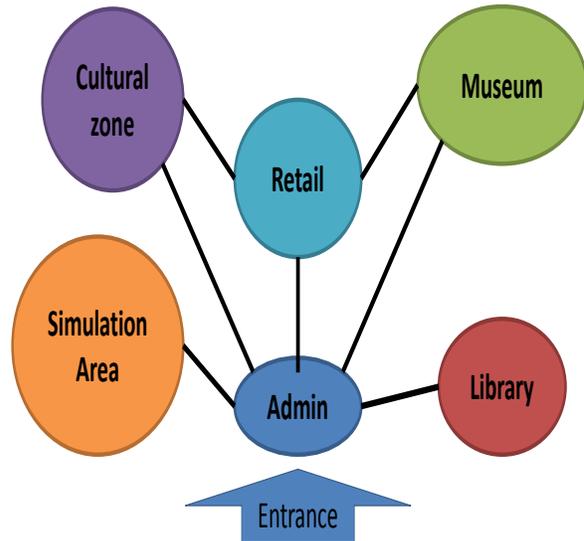


Figure 4. Bubble Diagram

Table 1. Space Program

Zones	Use Percentage (%)	Net Area (m ²)	Gross Floor Area (m ²)	Floors	Footprint (m ²)
Administration	12	1140	1609	2	805
Simulation	19	1708	2458	2	1229
Cultural	33	3020	3840	3	1280
Museum	12	1090	1654	1	1654
Library	8	730	1430	1	1430
Retail	16	1540	2114	2	1057
Total	100	9228	13105	11	7455

Regarding the parking assumption zone, the total parking area needed for the according to the Saudi building codes and regulations is 220 parking space, some will be places in an underground basement and on the ground level.

There are several simulation specifications. Flood training room is an artificial water room to show how to deal with the situation. Smoke simulates room is a place to learn how to survive in the smoke room. Fire aid training enables the users to learn how to properly use a fire extinguisher and an indoor fire hydrant. Home safety simulating room offer an opportunity to experience how an elderly person or pregnant woman would be endangered by some dangerous situations that could possibly occur in home. General training room is an open space which can be arranged to look like a department store, hotel, and apartment. Disaster activity room is specially designed for children to learn the risk of playing with fire, such as match and lighter. Evacuation plan is sued to lecture that people learn how to do evacuation in case of emergency. Panorama display room is designed for children to learn the risk of playing with fire, such as match and lighter. Virtual disaster prevention section is a digitized room for children that equipped with simulation machines using the latest in 3D effects and computer graphics.

SITE SELECTION AND ANALYSIS

The location of the project is in Jeddah Saudi Arabia. Figure 5 shows site 1 is located in the Cornish road, beside the Nawras Roundabout; also site 2 is located in the intersection Alkurnidh Road and Abdulrahiman bin Zubair Road. Figure 6 shows site 3 is located in between the King Farad Road and Prince Mohamed bnAbdul Aziz Road. There are several aspects needed to consider when selecting the site, namely location, views, surroundings, attraction people, utilities and accessibility. The site evaluation result is shown in Table 2.

The site should be at the middle of the city to get everybody the chance to access the site. Also most of the projects are using outdoor and indoor spaces and providing the flexibilities of the site. Most attraction points in the city and near land mark to get everybody attention to the site. The location of this project is very important in a way that everybody can go and benefit from it. This project is dedicated for all social community. Most attraction point that people are going is considered to attract the people. It is not that important to have a sea view. The view can be manipulated the outdoor spaces and integrated with the indoor. The project just needs normal surrounding facilities mixture of retail and residential and educational types. It is important to choose an easy-to-access site, either considering the main street leading to the site, or from a broader perspective, or from the perspective of the smaller scale of the visitor's access to the site.



Figure 5. Site 1 and Site 2 [10, 11]



Figure 6. Site 3 [12]

Table 2. Site Evaluation

Criteria	Site 1	Site 2	Site 3
Location	20	10	17
Views	3	2	4
Surroundings	4	3	4
Attraction People	15	10	10
Utilities	3	3	3
Accessibility	20	10	15
Total	65	38	53

Based on the site evaluation result shown in Table 2, site 1 marks the highest score and becomes the site location for the project. This site is located in the Center of Jeddah, in front of Al-Nawras Roundabout, Al-Nawras Resort and it has a waterfront. Figure 7 demonstrates this site is accessible from three main roads, Al-Malik Road, Al-Cornish Road, and Prince Naief Street. The land size is approximately 28,544 m² and whole land area can used to develop. The site is located in an area that people often visit but is not very crowded. In addition, the government plans to restore this area to encourage public access. Figure 9 shows the site climate analysis, where this site may experience northwest prevailing wind. The challenge of this site is the area can be crowded in weekends and holidays which will affect the accessibility in the site.



Figure 7. Site Accessibility Analysis



Figure 8. Site Climate Analysis



Figure 11. Main perspective view of the project

ZONING AND PROJECT DESIGN

Figure 9 and Figure 10 demonstrate the site zoning and the master plan of the project. The administration zone and retail zone serve as the interconnection zone for others zone. The main and side perspective view of the project is shown in Figure 11 and Figure 12 respectively. The civil defence awareness educational center is designed to add a value for serving the community and spread the awareness to the civil people to avoid the maximum damages, and know how to responding and dealing with crisis. This center introducing a new language and concept for safety, also people will learn how to protect them self and children also can learn through educate them in a certain why that suits their age.



Figure 9. Site Zoning

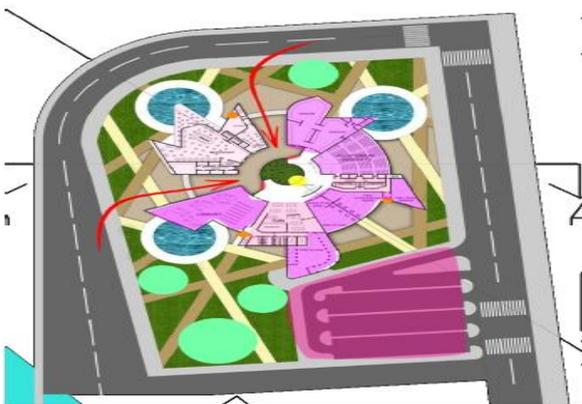


Figure 10. Site master plan



Figure 12. Side view of the project

CONCLUSION

The idea of The Civil Defence Awareness Educational Center (Prevention Disaster) will be a place that people get the awareness and the proper training protection and education. This project promotes a safety life though combining physical training activity and awareness on how to maintain a safety life, and how to react through any common kind of disaster s such as flood, fires. The proposed space program consists of administration, simulation, cultural, museum, library, and retail. The selected site location is based on the site evaluation criteria of location, views, surroundings, attraction people, utilities and accessibility. The civil defence awareness education center purpose is to spread the awareness to the people. All in all, the purpose of the project is to propose a center with sufficient technology and facilities to prepare for a disaster that may affect Jeddah and to raise public awareness of the entire disaster, especially the flood.

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