

An Investigation of the Challenges of Applying the Concepts of Passive Defense in the Implementation of Buildings Projects by Emphasizing on Principles of Construction Management

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Abstract: Regardless of all obscenity which war has it was an undeniable part of human life that didn't dedicate to a specific time or place. The principle of affection of oppressed and injustice which derived from Justice-seeking teachings of Islam and the sacred system of the Islamic Republic next to geopolitical privileged position and having the divine wealth, always push Iran in exposing the threats of supranational powers. In this case, it is very important and vital for us that improve our defense potential in both two dimensions Military and civilian. Basically, contemporary wars are a combination of the warm and cold war so that attack to the urban and lodging places was in the enemy aims. Thus, it is necessary that such of these places be qualified the suitable quality of passive defense until the volume of their vulnerability reaches minimum as possible as. Despite the increasing growth of lodging demand in recent years and implementation of mass production politics, it seems for many different reasons, the considerations of passive defense wasn't considered in new residential complex designs. Although, passive defense has a lot of dimensions that each of them required to a separate discussion but in this study, one of the important aspect of it that unfortunately wasn't considered very much, going to examine and discussion about it which is applying the concepts of passive defense in the implementation of buildings projects by emphasizing on principles of construction management.

Key words: Passive defense, building projects, building national regulations, Islamic Republic, Iran

INTRODUCTION

At the beginning, defense and being ready against natural accidents and events were the necessary part of human life that has appeared according to the era of human civilization. After making the metropolises, the complicated methods need to manage them and caused the management of natural accidents and passive defense turn into an inter-principle scientific and being a combination of the management knowledge methods, engaging and a system with different branches.

In our country and next to building national regulations, some technical documents such as building regulations, standards and the rules of building works, the attached technical features of contracts and guidance issues and training by different reference edit and publish. Although in the aspect of the quality and content are important but are very distinct from building national regulation. What thing which makes different building national regulation from such documents is its requirement being brief and compatible with country's situation in view of experienced human resources, the quality and quantity of building concrete, the economic

capability and climate and environment so in this way the predicted aims become achievable and available.

As a matter of fact, building national regulations is a set of at least needed and must and must not of structure which due to implementing and technical conditions and country's engineering ability and with using of the last achievement national and international day for the people of the country were edited and designed.

Five thousand years of human history: Sociologists express war is a human historical stable factor and indicate it as a social event or reality. The humanity during 5 thousand years its historical civilization seems 14 thousand wars and in these wars over 4 billion humans have dead. Although, in several thousand years of historical civilization only 268 years was without war and conflicts, in during 45 years (from 1945-1990) in the earth just 3 weeks were without war and the majority of these wars in the developing countries took place. In the 20th century over 220 wars took place and over 200 million bodies were dead. Our Islamic country during the past years, we saw several wars (8 years imposed war, Persian

Gulf War, Afghanistan and US and British war and against Iraq) and happening others complicates and wars with the aim of Geopolitics, controlling and blockade and fighting against Islamic revolutions all of them is the strategic targets of global arrogance. The achieved experience of the past wars especially, 8 years of holy defense, a war about 43 days in 1991 Allies against Iraq, the war about 11 weeks in 1999 NATO against Yugoslavia, the US and British war against Iraq refer to this thoughts that the enemy country in order to collapse of country resolution and economic and military and political capabilities of the invasion country with selecting the destroyed the central point, pays attention to bombing and destruction the vital sensitive places. The achieved experience of the past wars especially, 8 years of holy defense, a war about 43 days in 1991 Allies against Iraq, the war about 11 weeks in 1999 NATO against Yugoslavia, the US and British war against Iraq refer to this thoughts that the enemy country in order to collapse of country resolution and economic and military and political capabilities of the Invasion country with selecting the destroyed the central point, pays attention to bombing and destruction the vital sensitive places hostile invasions and reduce damage to air, land and sea of the attacker countr is a basic topic which its width and extend include all sub-structures and vital and sensitive centers of military, political, communication, links such as ports, airports and bridges, the sub-structures of key products like refineries, power plants, large industrial complexes, command and control centers and the country people population.

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Alizadeh *et al.* in a study with title of using the strategies of passive defense in industrial and civil projects, in addition to introducing of passive defense and its different methods by examining all kind of military attacks, presented all processes and steps that is necessarily for passive defense for every pattern or project in the hand of designing or in productivity step. Now, in this study we are following for examination of the challenges of passive defense implementation in building projects.

The definition of passive defense: Passive defense in civil, architecture and urbanism area refers to a set of unarmed actions and safety considerations and thoughts, Invigoration, predict the alternative for facilitator crisis management in sub-structures and localizing in building area in order to reducing the vulnerability of human resources, buildings and installations, country's equipment and streams and also increasing mental and body security, increasing the national resistance point in crisis situations (ONBRI, 1971).

The concept of passive defense: The concept of passive defense, in this case, is to keeping human safety and human wealth against accidents, threats and continue basic and necessity of people activities, guarantee continuously providing vital needs (such as water, bread, meal, haven, energy, communication, hygiene and security) and facility in charge of country in situation of happening threats and crisis derived from foreign invasions against enemy's attacks and destroyed and hostile and destructive via planning and implementing of passive defense and reducing the vulnerability of human resources and vital and sensitive building, installations and equipment of country.

The ability of passive defense are as the following is: providing mental and body safety with predicting safety, security, contingency actions against threats and creating the suitable situation to combination of defense policies in stable progressive plan in line with development policies and upgrading all aspect of country with emphasizing on developing the national defense in crisis situation and power of country's strength, honor and sustainability and the most peaceful and natural method for human defense against all kind of accidents.

MATERIALS AND METHODS

The aims of passive defensive: Reducing the abilities and capabilities of recognition systems, targeting and reducing targeting accuracy in enemy's offensive weapons. Increasing the ability to survive, continue the vital actions and missions and giving service to vital and sensitive and important centers of military and civilian of the country in threats situations, crisis and war. Reducing vulnerability and damage and injuries installations, equipment and the human forces in vital, sensitive and important military centers and civilian of the country against enemy's threats and missions. Deprivation enemy's creativity and freedom. Saving in weapons and manpower costs. Cheating and suffering the more costs to the enemy and reinforcing deterrence. Reinforcing the people and own army resistance point against enemy attacks. Keeping the morale and cohesion of national

unity and maintaining country national capital. Protection territorial integrity, national security and independence.

The function of passive defense in building national regulations: in implementing of this clause must consider some public requirements of passive defense in designing, implementation and productivity place and in order to coordinate the Professional functional in designing of a set must use a coordinate engineer (architecture engineer). For designing and implementation of a pattern or project, the first step is evaluating the risk. The aim of risk evaluating is to determinate the opportunities and threats of a project implementation. Any event which has the potential for collapsing and destroying and any external factor which using it cause to increasing in abilities is called opportunities.

The steps of evaluating risk of a project are as follow (Bayat, 1390): recognition the threats of mentioned structure and grading based on possible damage power (10 refers to the ultimate destructive power). Due to the 21s of building national regulations the treats are in three kinds: military, natural and industry. Passive defense mostly focuses on the threat that derived from the damaging events such as explosions, leaks dangerous and explosives materials and military threats from the enemy. Identify the values of assets and capital in the studied project due to the 21 Section of building national regulations (ONBRI, 1971), the value of buildings will determine due to kind of practical(functional), the number of internal citizen buildings, the value of internal capital of building, size of building and the number of floors. Determination of the vulnerability of plan if the likely event happens (10 refers to the ultimate vulnerability of mentioned plan). Estimate the project risk with below Eq. 1:

$$\text{Risk} = \frac{\text{Vulnerability score} \times \text{Assets score}}{\text{Threats score}}$$

If the risk is between “1-60, the lower risk, 61-175 the middle risk, risk over 176 is the high risk”. If it is obvious in the study step which the considered plan had a high risk, it doesn’t suggest to implement it. so for reducing the implementable project and also the implemented projects using from passive defense’s requirement and its principle is unavoidable.

Buildings categories: In this topic, the buildings based on their functions, the number of citizens or employees inside buildings, the assets of their internal capital, the size of lodging and the number of floors divide into 5 important groups.

Group 1 (the buildings with special importance): This building are the places for the establishment of people and or doing the key activities related to national safety and organs of sovereignty such as the building related to supreme leader, the heads of the three powers, guardian Council, Expediency Council, Supreme National Security Council, led crisis management, command and general staff of the armed forces, command and general staff, military bases, law enforcement and national security, All the main buildings ministries of Interior, defense, Foreign affairs, central bank, buildings and shopping center recording and broadcasting of Islamic Republic of Iran broadcasting, telecommunications towers, residential towers, commercial, office for more than twenty floors and hospitals >500 beds.

Buildings with a high degree of importance: Residential buildings 9-13 floors, stadiums 15-50 thousand people, Sales centers with the urban and regional performance for public and official and privet buildings in the state, the central prison.

Construction of importance: These buildings are the establishment, visits and residential activity, commercial and production such as the residential buildings 4-8 floors, headquarters and citie’s crisis management, stadiums with capacity of 15 thousand persons, cinema, theater, the document maintaining center, statistic and information, the government offices, universities, schools, mosques with capacity of over one hundreds, hospitals and clinics with the capacity of 50 beds, sales centers and with the regional performance for official, government and privacy buildings in cities.

Now the most important aim of passive defense is safety and reducing the vulnerability of the needed sub-structure for people until gradually create the condition for safety. These kinds of important actions have done in many countries or are doing. These actions if institutionalize thus planning and with designing in country development (stable development), automatically many sub-structures that create, have safety themselves. For modifying current sub-structures can make strong them with presenting some solutions like re-engineering.

Projects location: The location is selecting the suitable situation for the establishment of one user so that the different parameters such natural resources, biological resources, biological and cyber security, nuclear and radiation security, the shape of the area, distance from main roads, distance from population centers, etc. with different weight that is effective in their finding. For location must identify the specific indexes each kind of activities that such of these can indicate to below items.

The indexes of passive defense: Indicators related to cyber defense and electromagnetic, biological, nuclear and radiation, development requirements and principles of passive defense.

The program indicators: Such as the position of in the privacy and range of urban based on the decisions of the master plan and detailed urban.

The development indicators: The existence of suitable conditions for developing the land dimensions, the optimal using of urban facilities being the neighborhood with compatible or incompatible activities, etc.

The index of privacy: The position of privacy cultural heritage, dams and airports, privacy electrical networks and gas pipes and oil and military bases.

The indicators of network communications and the roads

The indicators of existence sub-structures: Facility providing water with good and suitable quality, providing gas and fuel, the kind of soil for sewage disposal, the economic and technical index.

The environmental indicators: Having Terrain, the position of regional seismicity. Regarding the importance of location in reducing vulnerability and facilitating crisis management when threats and events are going to happen, some national projects in Iran are the lack of the consideration of passive defense. Tehran subway with the maximum depth of 33 m is the lack of safety and protection vital indexes for keeping urban population against the air and missile strikes.

RESULTS AND DISCUSSION

The practical solutions of passive defense for the existence challenges in buildings projects camouflage:

Camouflage refers to all actions that by using the artificial and natural means can reach the possibility of exploring and identifying for the enemy to at least. According to (Safavi, 1972) for camouflage the buildings can use from the alive perspective and Wall oxygenated and also the matching of the shape of architecture and the structures with environment shape. Can for camouflage of the important structure use from the centrist organization. In this pattern of structures sorting, the core (the important structure) is in the center and intensity of other parts around it. In this pattern by focusing on the centrist pattern, there is not the possibility of interfering the reflective wave with twisted waves. In addition to if the radiation blast waves can influence in the desired style, it

is not too likely that the effects of these waves can reach to the central core. So the central part of this organizing is very suitable for the establishment of the sensitive and vital performance (Bitarafan and Shad, 1972). The other factors that doesn't consider very much are the camouflage operation during the making, for this purpose, workshops and used equipment and the quality of excavation and projects implementation will be a way that won't consider by threats factors.

Secrecy: Secrecy refers to hide the structure from the enemy view. to hide the installation and equipment in the land depth or the heart of mountains, the productivity of underground tunnels, to hide the part of a structure that has the most and vital equipment inside of the total structure, using of terrains and building installation in the places far away from enemy, separate the industrial equipment logically, showing the structures with tabulation so that they aren't important, planting trees and extend the official and lodging buildings and the services centers against the education and therapy centers, etc. such as the actions which can do for secrecy.

Cover: The covering concept refers to creating a stable and rough shield for the most important structures and Installation. For example, Turtle has the covering shield for its safety and security. As well as can cover the most important structures with the rough structures like using the steel doors and also with reinforced concrete walls for building and installation.

Deception: Deception is all activities that cause the enemy neglecting and their confusion in reaching to them goals. For enemy deception in identifying the important industrial centers can use around them with smoke machines. One of other methods of deception in recognition time is using of the green space and creating repetitive spaces. For this aim can minimum the possibility of recognition the real space main performance from deceptive space by using the green and repetitive space. Some other actions for enemy deception can refer to the buildings engineering shape changes that is possible with some methods like plants covering or using the deceptive and fake buildings next to the main buildings.

Reinforcement: To build the rough structures against explosions and also creating the enough ramparts such as Shelters is the most important factor in reducing human fatality. About shelters according to the calculations which done by the civilian defense organization Swiss, during an unclear bomb gets fire about 20 KT in

downtown, if the capacity of shelters were full, the number of fatality would be about 2400 persons and 7000 injured persons. In case there weren't any shelters this explosion would have fatality about 70000 persons (Setareh and Hosseini, 1969).

Dispersion: Decentralized of the structures in a specific situation is dispersion. For this purpose can build the important buildings in the different point of the city. As well as, to design the building of one region so that attract the minimum waves of the explosion (ONBRI, 1971).

CONCLUSION

The supreme leader emphasized that the passive defense is the highest flame which refers to the necessity of widespread using of it and also using all facilities and talents the physical and spiritual capability of society in reinforcing the defense ability of country. The defense that its requirements indicated both of religious orders and the supreme leader's speech. Using the passive defense in order to fight with threats and reducing the damages derived from the attacks threats, the enemy (for example, air, missiles, land strikes, etc.) or attacker country is a basic title for each country and its extent and scope roughly include all vital and sensitive military and economic centers, etc. in the country and keeping the national safety, economic and politically independent and victory is the top of other issues of attacker country. In fact, the passive defense management is following that put the gene of defense inside the society structures that are likely attacking which one of the most important topics in this area is to prepare the lodging and building

structure that indicated in this study. So, it is vital that the principles of passive defense will consider in the buildings and another different center so despite reducing the fatality and damages, the vital and main activities will keep doing its working. The results of this study revealed that this principle neglected mostly, so re-improving the implemented projects in the passive defense view and observance the principles of passive defense in implementing projects is an undeniable and unavoidable case.

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