LIVENARCH+ livable environments & architecture JOURNAL

KTU 1955
KARADENİZ TECHNICAL UNIVERSITY
FACULTY OF ARCHITECTURE
DEPARTMENT OF ARCHITECTURE
F.ARCH

Research Article

A Sustainable Building Model for Emergency Settlements

Müjde ALTIN

Department of Architecture, Dokuz Eylül University, İzmir, Türkiye, mujde.altin@deu.edu.tr

Received: 19.12.2023, Received in Revised Form: 10.01.2024, Accepted: 24.01.2024.

Keywords

Sustainability, Sustainable Architecture, Emergency Settlements, Emergency Shelter Model.

Abstract

There are many emergency situations on earth nowadays which are caused by various reasons like wars, floods, storms, and earthquakes as has been lived in the eastern part of Türkiye on the 6th of February 2023, in which many shelters become necessary to be built as quickly as possible. But in this kind of places, after the necessity disappears, what happens to those shelters is a big and important question of efficient use of resources, energy and money, besides getting many of these shelters ready to be used in a very short time. Therefore, the aim of this study is to examine the accommodation problem of emergency shelters from the viewpoint of sustainability, and to propose a method to solve this accommodation problem which comes from a vernacular model of building use in Türkiye, which will lead us to create sustainable architecture products of shelters that will not waste our resources, energy and money. In order to do this, sustainability and Village Room terms are described, six case studies are examined and from this examination “City Rooms Model” is proposed. This model would be used in anywhere in the world and after the residents move out, these buildings would still be being used efficiently. Therefore, the proposed model in this study would lead the world to a circular economy and a more sustainable future providing better accommodation possibility and opportunity. With the use of this model, sustainable architecture, sustainable world and sustainable future would be achieved.

*Corresponding author.
E-mail address: mujde.altin@deu.edu.tr (DEU).

Cite this article;
Altın M. (2024). A sustainable building model for emergency settlements. *LivenARCH+ Journal, 1*(2): 157-172. https://doi.org/xxxxx

1. Introduction

“Learn from yesterday, live for today, hope for tomorrow. The important thing is not to stop questioning” was said by Einstein (Brainy Quote, 2001). As Einstein stated, we should learn from our past, use it as modernized by adapting to our life today and hope that we will have a sustainable future. This study proposes a model for today by adapting an old model to have a more sustainable future.

Migration is an important fact of our daily life nowadays. Many people have migrated on our earth with different reasons until today and the number of people forced from their homes with different reasons is increasing day by day (Mercader-Moyano, Porras-Pereira & Levinton, 2021, pp. 1-35). According to UNHCR, “108.4 million people worldwide were forcibly displaced at the end of 2022 as a result of persecution, conflict, violence, human rights violations or events seriously disturbing public order” (UNHCR, 2024). This situation brings many problems to the whole world concerning social, cultural, legal situations, physical conditions and health issues. One of these problem areas is the accommodation problem. Since many people move from one place to another place in a very short time and mostly without taking not much property with them, accommodation becomes a very big problem. They need many shelters in a very short time.

Therefore, there is a huge requirement of shelters that should be constructed in a very short time lately all around the world because of wars, floods, storms, and earthquakes as recently (on the 6th of February 2023) happened in the eastern part of Türkiye. Many people lose their homes because of the reasons mentioned above; consequently, they have to migrate from where they live to a place safer than they live and they need shelters which should be constructed as quickly as possible (Crawford, Manfield & McRobie, 2005, pp. 471-483). This is a somehow temporary shelter, and when these people move to their permanent homes after a while, what happens to these temporary shelters is an important question which should be considered and handled with great importance and care since these shelters become a waste of resources, energy and money.

After a big disaster followed by a migration, many people leave their homes in a very short time and mostly without any property; therefore, the shelters they are in need should be constructed in a very short time. Generally, the first solution to this problem is using tents, but they are not very comfortable and most of them may not provide enough safety and necessary thermal comfort conditions in extreme weather conditions. After the tents, prefabricated units like containers or concrete homes are constructed and mounted in an area. But since people’s permanent homes are constructed in a very long time, these “temporary” structures are generally not that much “temporary” and they mostly stay empty in their place after the people finally move to their permanent homes. Such temporary structures for Syrians have been constructed in some countries including Türkiye and most of them are still being used today.

For example, temporary container shelters in Kilis Accommodation Facilities contain shelters in well-designed streets, and even small shopping units exist in these streets. But after Syrians leave this facility and move to their permanent homes, these shelters and all the facility remain empty, unemployed, inactive and un-used, but they shouldn’t be left un-used because this is a waste of resources, energy and money, thus leading to an unsustainable architecture and

an unsustainable world. In order to maintain a more sustainable architecture and a more sustainable future, these containers should be used in another area. But there are too many containers to be used somewhere else and this will be a real environment problem after the containers are abandoned.

There are many instances and disasters all over the world after which temporary shelters should be needed immediately; but these shelters should be designed so carefully that they will not be a waste after their use. There is a solution for that problem in a small scale in Turkish vernacular architecture which is called as “Village Rooms”. This is a very good solution which has been used very efficiently and it has to be adapted to our daily lives by updating. This study proposes a new model of temporary emergency shelter use which is similar to and a modernized model of the Turkish Village Room model. Therefore, the aim of this study is to examine the temporary emergency shelter problem from the viewpoint of sustainability and circular economy and to propose a model which is based on the “Village Room” use of traditional Turkish architecture. This proposed model can be used in any part of the world and lead the world to create a more sustainable architecture and a more sustainable future since they can be used for other purposes efficiently after they are abandoned while providing better comfort conditions and opportunities to the people who need them in an emergency situation.

2. Sustainability and Sustainable Architecture

Sustainability has many different descriptions worldwide. But there is just one description which is accepted anywhere in the world in general in which the word sustainability was first mentioned. It is the description of “Sustainable Development”. It was described by the World Commission on Environment and Development in 1987, which is known as the Brundlandt Report, as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). After this description, many terms have been developed like sustainable architecture, sustainable future, sustainable tourism, etc. Sustainable Architecture aims to create a healthy built environment depending on resource efficiency and ecological design principles keeping comfort conditions in mind (Altın, 2016). Sustainable designs and buildings are the ones that are responsible to their environment by using resources efficiently and that give the minimum harm possible to their environment while maintaining healthy and comfortable spaces for the people.

Sustainable architecture principles can be summarized as follows (Altın, 2016, pp.601-611):

- Efficient use of construction site,
- Energy efficiency and use of renewable energy resources,
- Water efficiency,
- Material efficiency and use of local material and local manpower,
- Indoor comfort and human health,
- Waste management,
- Recycling.

It can be said that sustainable architecture helps to minimize the amount of resources used and the harm caused to the environment so that future generations can also use the resources necessary for them to survive and have a better life. The proposed model here helps to

minimize the resources used and prevents the abandoned shelters from becoming waste. Therefore, it helps to have a sustainable architecture and a sustainable future.

The proposed model containing emergency shelters should have these properties in order to have a sustainable architecture and a sustainable future. They should use the construction site efficiently. The site itself should be chosen carefully considering the safety and comfort conditions of the future possible residents.

The emergency shelters should be energy efficient and if possible renewable energy resources and especially solar energy should be used in order to provide a safe and reliable energy source to the building.

The emergency shelters should be water efficient. They may have rainwater collecting system and use this water in the WC systems. Another way of water efficiency is using water efficient appliances in the construction of these units. R.B. Fuller has designed prefabricated WC + bath units for his Dymaxion House design which is water efficient (Altın, 2013).

The materials used to construct the emergency shelters should be used efficiently. They should preferably be local materials constructed with local manpower.

The emergency shelters should provide thermal, visual, acoustic comfort conditions for their future residents. They should be warm in winter and cool in summer. They should have enough window openings for the visual contact with the environment and for the natural ventilation. They should keep the noise where it is and not transmit it. They should be fire resistant, so they should be constructed with fire resistant construction materials.

The wastes of these shelters should be processed with care due to the fact that the wastes may be the source of infectious diseases. This waste also consists of the waste after these shelters are abandoned. The plan to use these shelters when they are abandoned is a way to achieve sustainability. This is also the subject of recycling which should be taken in consideration to achieve sustainability. In addition, the recycling of the materials should be taken into consideration as well as the use of recycled materials in the design of the units.

3. A Village Room/Chamber

A “Village Room” or a “Village Chamber” is a traditional Turkish building used in vernacular architecture in villages. It is a house for guests which is constructed in a village sometimes by all the village people and sometimes by wealthy families of the village. Sometimes there may be more than one village room in a village if there are many wealthy families, as seen in Erzincan Çayırlı Başköy. Only two of these village rooms in Başköy are chosen and examined in this study.

All of these village rooms are used by guests who come to the village for accommodation since there isn’t a hotel or a motel or a bed-and-breakfast accommodation in the village. Apart from this, these rooms are generally used to get together in the village on special occasions such as celebrating or mourning, and other times to discuss important issues about the village, like a social getting together place. If guests arrive in the village, they are welcomed in that room and they are provided to stay in that room as a sign of hospitality. These rooms actually belong

to the society. Therefore, it is used efficiently most of the year, either as a hotel for the guests or as a meeting hall for the villagers.

Because of the migration from villages to the cities in Türkiye, this tradition of Village Rooms has mostly disappeared nowadays. Most of them are not being used, thus having damages and not being maintained. But there are many good examples. In this study, six of these village rooms / chambers in different locations were examined to describe what a village room is, how it is constructed and used. It aims to show the hospitality culture of Turkish people and how the new model buildings can be designed. These village rooms which meet today's needs should be taken as a model and restructured in order to be able to use today. Therefore, they shouldn't be permanent structures as it is in the existing case studies so that they can be moved to wherever they are needed. As a result, they should also show the hospitality culture of Türkiye.

3.1. Yozgat Village Room/Chamber

The Yozgat Village Room as seen in Figure 1 and Figure 2 represents traditional Yozgat houses. It has one storey and is constructed with traditional local materials. It has a compact form. Especially timber elements take place in both the construction and the decoration of the room. It is heated with a stove which is placed in the middle of the house. It is designed and constructed to be used by many people to sit down together and have conversation as a group (Köktürk, 2019a), (Köktürk, 2021b).

Figure 1. Yozgat Village Room/Chamber, Left: Interior of the Room/Chamber, Right: Entrance of the Room/Chamber as Seen from Outside (Köktürk, 2019a), (Köktürk, 2021b).

Figure 2. Different Views from the Interior of the Room/Chamber (Köktürk, 2019a) (Köktürk, 2021b).

3.2. Sivas İlbeyli Çallı Village Ümmet Ağa's Room

Sivas İlbeyli Çallı Village Ümmet Ağa's village room as seen in Figure 3 and Figure 4 was constructed in around 1851-1852. It is constructed with traditional and local stone. The thickness of the walls of the room is 1 meter, which helps to provide thermal comfort conditions. Local timber elements are used in the construction of interior design elements. The roof of the village room is terrace earth roof. The building has a compact shape; it is rectangular. It has one storey. The building is still being used in some special occasions (Bulut, 2017).

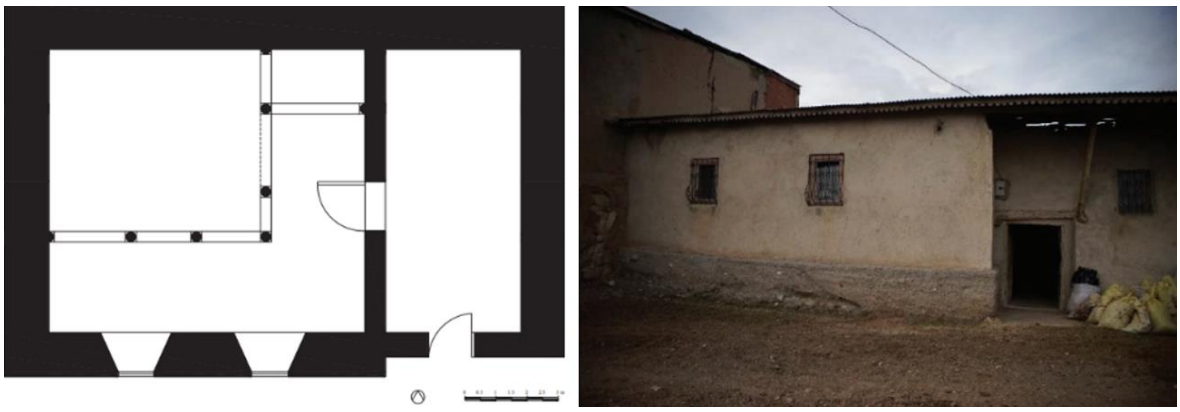

Figure 3. Sivas İlbeyli Çallı Village Ümmet Ağa's Room Left: Plan of the Room, Right: Entrance of the Room Seen from Outside (Bulut, 2017, pp. 13-31).

Figure 4. View of the Interior of the Room (Bulut, 2017, pp. 13-31).

3.3. Konya Göktürk (Kilistra) Village Room

Konya Göktürk Kilistra Village Room as seen in Figure 5 and Figure 6 is one of the oldest village rooms. Its construction goes back as far as 150 years. The building is constructed using local stone and timber. It is a two-storey building whose first floor is being used as the village room. Its plan is rectangular and it has a compact shape. It is constructed on an inclined area.

The roof is constructed as a terrace roof with earth filling. It is not being used nowadays since it has a serious damage (Bozkurt, 2016).

Figure 5. Konya Göktürk (Kilistra) Village Room, Left: Plan of the Room, Right: General View of the Room (Bozkurt, 2016).

Figure 6. An Illustration on the Seating Organization of the Room (Bozkurt, 2016).

3.4. Erzincan-Çayırlı-Başköy Dursun Koçgil's Village Room

Erzincan Çayırlı Başköy Dursun Koçgil's Village Room as seen in Figure 7 is one of the oldest village rooms of the village. It is constructed on an inclined area. It has a compact form. Its plan is rectangle. It has one storey. It is constructed by using local stone and timber (Naldan, 2020).

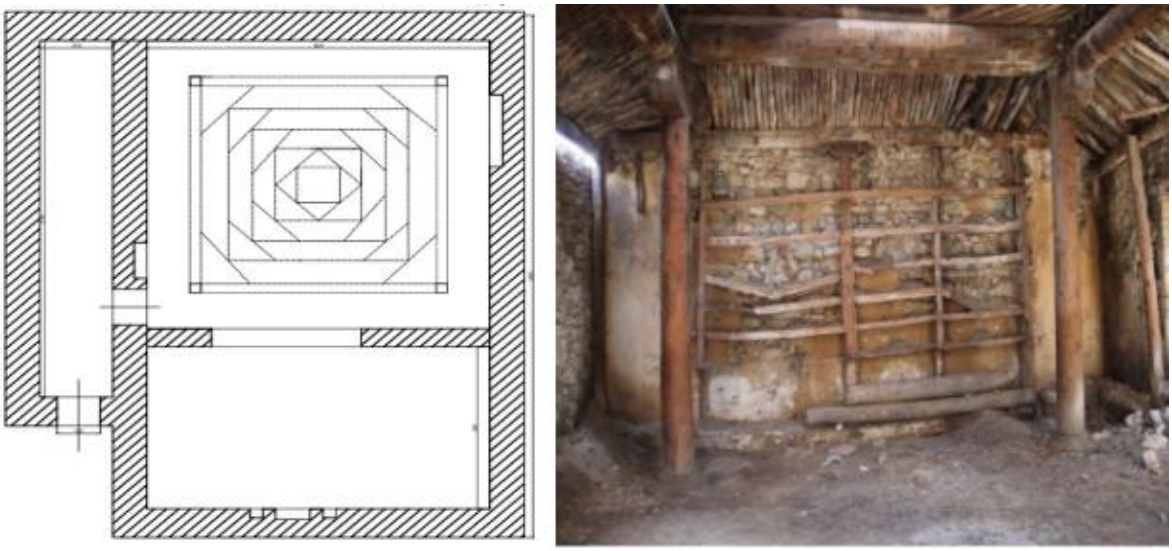

Figure 7. Erzincan-Çayırlı-Başköy Dursun Koçgil's Village Room, Left: Plan of the Room, Right: Interior of the Room (Naldan, 2020, pp. 249-263).

3.5. Erzincan-Çayırlı-Başköy Kaya Koçgil's Village Room

Erzincan Çayırlı Başköy Kaya Koçgil's Village Room as seen in Figure 8 is one of the oldest village rooms of the village. Its plan is rectangle. It has only one storey. It is constructed by using local stone and timber (Naldan, 2020).

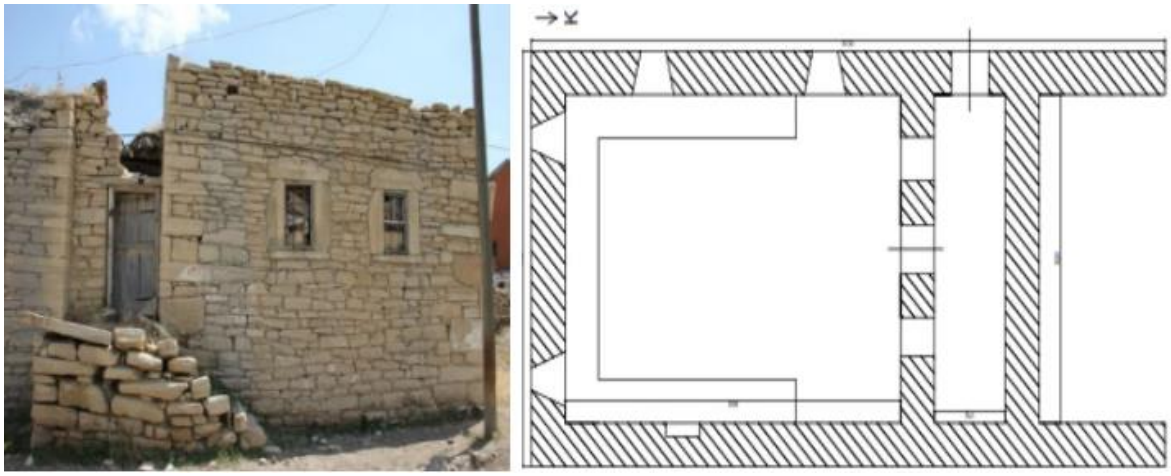

Figure 8. Erzincan-Çayırlı-Başköy Kaya Koçgil's Village Room, Left: General View of the Room, Right: Plan of the Room (Naldan, 2020).

3.6. Sivas-Söğütcük Village Room

Sivas Söğütcük Village Room was constructed in 1883. It is constructed on a slightly inclined area. Its plan is rectangle, which is very near to square as seen in Figure 9. It is constructed by using local stone and timber (Figure 10), (Yazar & Çelemoğlu, 2022, pp. 905-945).

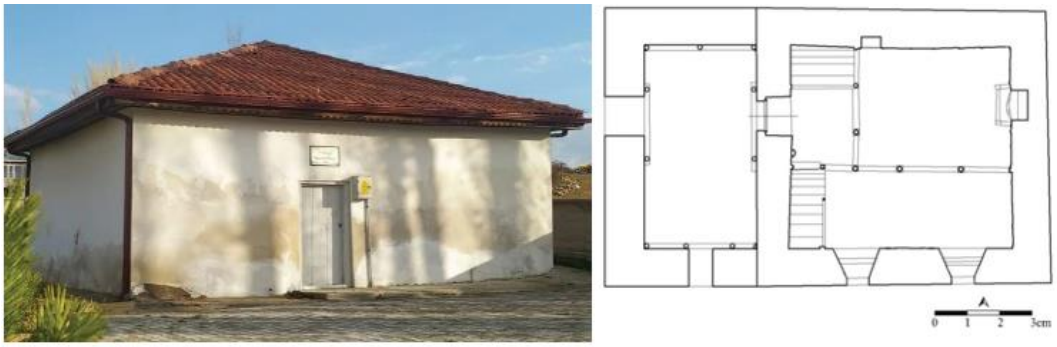

Figure 9. Sivas-Söğütcük Village Room, Left: General View of the Room, Right: Plan of the Room (Yazar & Çelemoğlu, 2022).

Figure 10. View of the Interior of the Room (Yazar & Çelemoğlu, 2022).

4. Evaluation of the Examined Village Rooms

As seen in case studies of Village Rooms, in the past, the room was a permanent building for the use of everyone in the village and every guest who came to the village. The rooms could accommodate people for different purposes for different occasions. Because of the change in requirements, most of them are not being used today but they are a good model for use today.

There are a number of properties of the Village Rooms which can be used in the design of the proposed method of “City Rooms Model” either in the same way or by adapting to our daily life-styles as seen in Table 1. They are discussed in this section.

The shelters in the proposed model should be mobile in order to use them wherever needed by carrying them instead of constructing units which will be unnecessary when abandoned. This is a more sustainable way of providing emergency shelters. Some of the Village Rooms are abandoned and not being used today and this is not what is desired in the proposed model.

All of the Village Rooms examined in this study have compact forms. This is very suitable for a prefabricated unit to be transported. And it also helps to provide stable comfort conditions inside of the building. Therefore, this property can be used when designing emergency shelter units. Although these rooms are constructed with heavy construction material of stone, in order

to design a mobile and a de-mounted – re-mounted emergency shelter, lighter construction materials should be chosen.

Table 1. Evaluation of Villages Rooms Examined.

Village Room Name	Location	Construction Material	Number of Storey	Plan Shape
Yozgat Village Room / Chamber	Yozgat	-	One	Compact form
Sivas Ilbeyli Callı Village Ummet Aga's Room	Sivas	Stone and Timber	One	Rectangle
Konya Göktürk (Kilistra) Village Room	Konya	Stone and Timber	One	Rectangle
Erzincan-Çayırlı-Başköy Dursun Koçgil's Village Room	Erzincan	Stone and Timber	One	Rectangle
Erzincan-Çayırlı-Başköy Kaya Koçgil's Village Room	Erzincan	Stone and Timber	One	Rectangle
Sivas-Söğütcük Village Room	Sivas	Stone and Timber	One	Rectangle

The Village Rooms except Konya Göktürk Kilistra Village Room have only one storey. But although it is a two-storey building, its only first floor is being used as the Village Room. Therefore, it can be accepted as a one-storey building. This is a suitable property for a prefabricated unit. Therefore, mobile units of emergency shelters would have one storey. This requires a big area to construct many emergency shelters, but it also overcomes some construction issues like staircase construction. The units should just be transported to the area and mounted on its place.

The Village Rooms examined in this study are constructed with local materials. Therefore, the units of the proposed model can be constructed with local materials which are suitable for prefabrication. By this way, the construction of the units occurs in a more sustainable, faster and economical manner.

The comfort conditions of people are taken into consideration while constructing these Village Rooms. Making people feel comfortable is an important design criterion. For example, a heating stove is used in the middle of Sivas İlbeyli Çallı Village Ümmet Ağa's Village Room and Yozgat Village Room. Therefore, comfort conditions of the future residents should be taken into consideration while designing the emergency units. But of course, this should be updated; maybe air conditioners can be used instead of stoves.

The village rooms are generally constructed with stone. Since the main structural element is stone, they are resistant to fire. Stone cannot be used in the design and construction of the emergency shelter units, but the materials that are to be used should be resistant to fire, and they should be fire proof materials. By this way, the units will be safer.

5. A Sustainable Building Model for Emergency Settlements: A City Room

The proposed model consists of units which can be used in the smaller areas, neighbourhoods of the city. When there is a necessity, they should either be demounted and moved to the place of the necessity or be moved to the place of the necessity by trucks or helicopters without demounting.

The proposed units are a little bit different than the village rooms, but they have similar functions. The difference is that the proposed units should be temporary and/or demountable. They should be composed of small, but comfortable and mobile units. These units should provide thermal comfort conditions; they should be warm in winter and cool in summer. These units should provide acoustic comfort conditions, and they should keep the sound where it is and not transfer. They should be resistant to weather conditions like wind, rain, snow, heat, cold, etc. In short, they must be strong and safe, and must provide comfort conditions inside them. They should be fire proof since electricity can be a big problem in this type of constructions. They should be constructed by fire-resisting materials.

There should be more than one unit. Maybe there should also be some social facility rooms to meet the needs like cooking, cleaning, washing, etc. so that they can meet the needs of the people when necessary.

The proposed units may be used as a quarantine unit in a pandemic situation as we just lived. They may be used as an extension to a health facility to be used as small healthcare units for emergency situations in a pandemic.

They might be used as shelters and for other functions necessary (like kitchen, toilet, bath, washing units, childcare centre, school, library, etc.) because of the collapse of thousands of buildings after a big earthquake as in the case we just lived after the big earthquakes in the eastern part of Türkiye on the 6th of February, 2023. Therefore, they need to be flexible to be changed into another function.

They should be mobile and moveable to neighbour towns or cities in an emergency when necessary. For this reason, there may not be necessarily a lot of units in a city, and there may be some smaller number of units in the smaller areas like neighbourhoods. Maybe, there might be smaller number of units in each “district” or “smaller towns” of a city. Then, in an emergency situation they might be transported to the place where they are needed and be used immediately. This makes the model easier to adapt to our everyday lives.

They shouldn’t be private or belong to anybody; they should belong to the municipality or the city, the local government. They should be the property of the society; everyone should be able to use them. For example, there are Public Education Centres in nearly each of the municipalities which give courses to the public in Türkiye. Also, some green building rating tools require education of the users of the building. They all need a space to receive these trainings. These units maybe used for these purposes, and in emergency situations they may be turned into necessary units in a very short time.

They should be prefabricated modular construction units since they have to be de-mounted and re-constructed. They can have a design like Buckminster Fuller’s Dymaxion House. He has designed these houses to be sold from the catalogue and to be constructed modular and be transported when necessary.

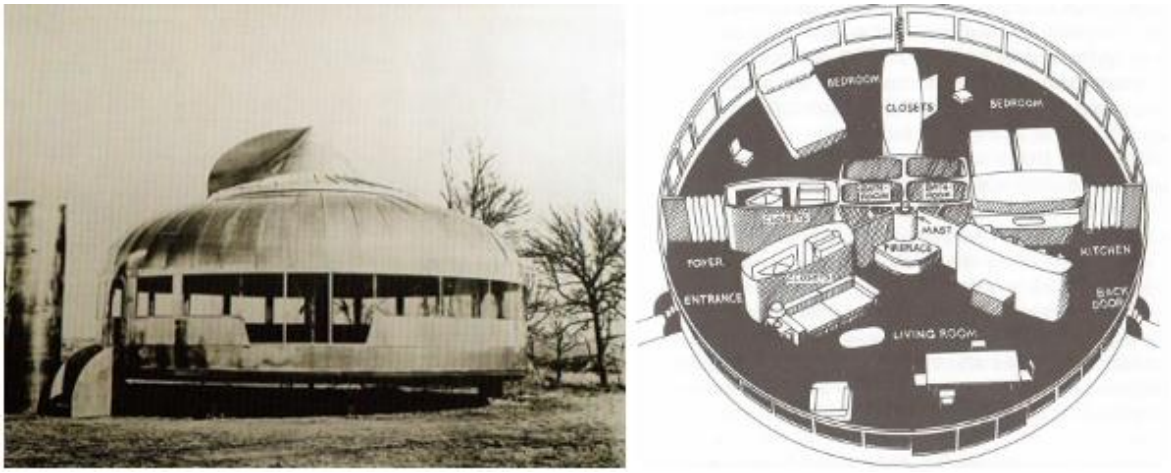

Figure 11. Left: The View of the Constructed Dymaxion House, Right: The Plan of Dymaxion House (Altın, 2013).

All the materials needed to construct the house fits in only one metal barrel which is seen near the house on the left side of the photograph in Figure 11 (Left). After the purchase, the barrel is opened, then the materials are taken out and the house is constructed as seen in Figure 12. The house can be constructed easily (Altın, 2013).

Figure 12. Construction Steps of the Dymaxion House (Altın, 2013).

Another advantage of the design is that once you complete the construction of the house, you can move the house with you anywhere like a caravan (or a trailer) or you can move it with the help of a helicopter and mount it to its new foundation in its new location.

The plan is flexible. You can move the walls in the circular plan and change the area of the spaces in the house as seen in Figure 11 (Right). This helps to make the house more sustainable. In addition, the dome shape helps to decrease the heat lost or gained because it provides the maximum space with the minimum surface area. This lowers the loads of the building and leads to less energy resource use as in sustainable architecture.

The WC part of the house which is in the middle of the plan as seen in Figure 11 (Right) is also prefabricated and helps to lower the use of water by using special design techniques.

Dymaxion House is not mass produced (because of Fuller's perfectionism, the design was not finished and therefore not mass produced) and it has only one prototype today in Ford Museum. But the design principles may be used for the design of the units of the proposed model.

There may be other design ideas which we can inspire from like the “Sugar/Candy Domes” as the writer calls them because they look like sugar/candy for real. They are composed of heat-resistant materials like polystyrene foam. They can be constructed in a very short time; therefore, they are suitable to be constructed after an emergency situation. They are weatherproof. The structural material of polystyrene foam is used as an insulation material, so it is suitable for nearly every environment as providing thermal comfort or can be made suitable by increasing or decreasing the thickness of the walls. In addition, here again the dome shape is used generally, and it helps to decrease the heat lost or gained because it provides the maximum space with the minimum surface area. They can also be constructed in a vault shape making the interior space larger if it is necessary.

Inside of the domes can be designed and decorated as necessary or desired. They can be used as service units as restaurants, kitchens, marketplaces, laundry, classrooms of a school, library, etc. One example to this kind of shelter domes is the Prefab Styrofoam Dome House which is a Futuristic Japanese design as seen in Figure 13 (Trendir, 2016).

The only disadvantage of these domes may be fire proofing. Therefore, they should be constructed with special fire-proofing detail solutions. Another disadvantage of this type of construction is be their weight. Since they are very light, the wind can be an important problem. Therefore, the building should be mounted to the ground very carefully if this material is used in the design of the emergency shelters.

These two examples are examined here just to give an idea of what could be done. More than one unit of these may be used in each district and the units in a district can provide support to the other districts. Creativity of the architects may design better units to be used in the model proposed in the study which can be called as “City Room Model” as inspired from the “Village Room Model”.

Figure 13. View of a Prefab Styrofoam Dome House; There are More Units Behind the Dome House (Trendir, 2016).

6. Conclusion

There have been many immigrants in the world lately. People have to migrate because of many different reasons like wars, floods, storms, earthquakes, etc. When they migrate, they need shelters immediately, so the shelters should be constructed in a very short time. Especially when many people have to move, a huge amount of emergency shelters have to be constructed immediately. Moreover, after the residents move to their permanent homes and abandon these shelters, they become an environmental problem. They become a waste in the nature and turn into dangerous places. Therefore, a model should be proposed to solve this problem. Therefore, the aim of this study is to propose a model for emergency shelters both to have necessary emergency shelters in a very short time when they are needed and to solve the problem of their use after they are abandoned. They should still be used in various ways and areas in other way, yet still efficiently.

The proposed model in this study is to have many small units in every or most of the neighbourhoods who have their own usage area as a common usage (for public use); transport them to the place where they are needed in an emergency; then after the necessity ends, to transport them back to their first place and usage area. These units should belong to the community; they should not be private or they should not belong to the individuals. By this way, they can be used efficiently by anyone who needs them, which means that there are no unused shelters at any time and as a result sustainability is achieved easily.

As Einstein stated (Brainy Quote, 2001), we should learn from our past, use it as modernized by adapting to our life today and hope that we will have a sustainable future. The proposed model in this study was being used in a little different way in our villages in the past as “Village Rooms”. This model is taken in consideration, modernized, and adapted to our daily lives as having these rooms as “prefabricated and mobile units which have an anonymous usage area.” This model requires to have many of these units to use them all together in an emergency by moving them, and taking back these units when the necessity ends. Thus, the proposed model of “City Room Model” as inspired from the “Village Room Model” enables us to use resources efficiently, and consequently to achieve sustainable architecture and sustainable future.

A model like the one proposed and described in this study can be useful, sustainable, and also work for circular development and circular economy. It can help us be ready when the emergency arises while providing space for our everyday life experiences. We should always be helpful to the people who are in need of help. This model is a good way of sustainable construction in this respect. We should also use our creativity to produce this model. This model might be a chance to have sustainable architecture, sustainable cities and a sustainable future.

Declaration of Ethical Standards

The article complies with national and international research and publication ethics.

Ethics Committee Approval was not required for the study.

Conflict of Interest

There was no conflict of interest during the research process.

Author's Contribution

The author contributed alone to the article and takes full responsibility for the content and any modifications made during this process.

Declarations

This study was conducted for the "International Conference on Migration: Projecting the next Twenty Years", which was held in February 22-24, 2021 in İzmir. It is an improved version of the paper presented orally only.

Originality Report

According to the originality report obtained from the iThenticate software, this article's similarity rate is 2%.

References

Altın, M. (2013). A sustainable architecture example: Autonomous houses – Dymaxion House (Bir sürdürülebilir mimarlik örneği: Otonom binalar - Dymaxion Evi). *Ege Mimarlık, 83,* 24-29.

Altın, M. (2016). Green building rating systems in sustainable architecture. In Efe, R., Matchavariani, L., Yaldır, A., Levai, L. (Eds.). *Developments in science and engineering* (pp.601-611). Sofia, Bulgaria: St Kliment Ohridski University Press.

Bozkurt, T. (2016). Konya-Gökyurt (Kilistra) Köy Odaları, The Village Rooms of Konya-Gökyurt (Kilistra), *Millî Folklor, 14*(109), 201-216.

Brainy Quote. (2001). Albert Einstein's quotes. Retrieved March 23, 2019, from https://www.brainyquote.com/quotes/albert_einstein_125.

Bulut, M. (2017). Sivas İlbeyli Köy Odaları. *Marmara Türkiyat Araştırmaları Dergisi, 4*(1): 13-31.

Crawford, C., Manfield, P., & McRobie, A. (2005). Assessing the thermal performance of an emergency shelter system. *Energy and Buildings*, *37*(5), 471-483.

Köktürk, M. (2019). Village room culture (Köy odası kültürü). Retrieved from http://www.muhsinkokturk.com/gelenek-ve-gorenekler/koy-odasi-kulturu-2

Köktürk, M. (2021). Retrieved from http://www.muhsinkokturk.com/wp-content/uploads/2014/01/kc3b6y-odasc4b1-5.jpg

Mercader-Moyano, P., Porras-Pereira, P. & Levinton, C. (2021). Circular economy and regenerative sustainability in emergency housing: Eco-Efficient prototype design for Subasi Refugee Camp in Turkey. *Sustainability 13*(8100), 1-35. Retrieved from https://doi.org/10.3390/su13148100

Naldan, F. (2020). Erzincan-Çayırlı Ilçesi Başköy Köy Odaları. *Millî Folklor*, *16*(126), 249-263.

Trendir Editorial. (2016). Retrieved December 18, 2023, from https://www.trendir.com/futuristic-prefab-styrofoam-do/

UNHCR (2024). Figures at a Glance. Retrieved January 9, 2024, from https://www.unhcr.org/uk/about-unhcr/who-we-are/figures-glance

Yazar, T. & Çelemoğlu, Ş. (2022). Sivas-Söğütcük Köy Odası ve duvar resimleri. *Sanat Tarihi Dergisi, 31*(2), 905 - 945. Retrieved from https://doi.org/10.29135/std.1049690